

E. MORSS.
ELECTRIC CONDUCTOR.
APPLICATION FILED JAN. 17, 1910.

983,161.

Patented Jan. 31, 1911.

Fig. 1.

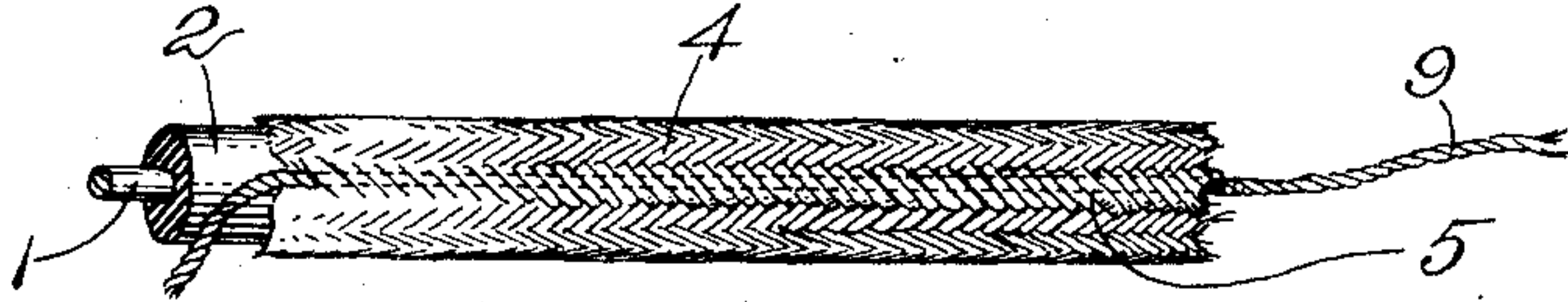


Fig. 3.

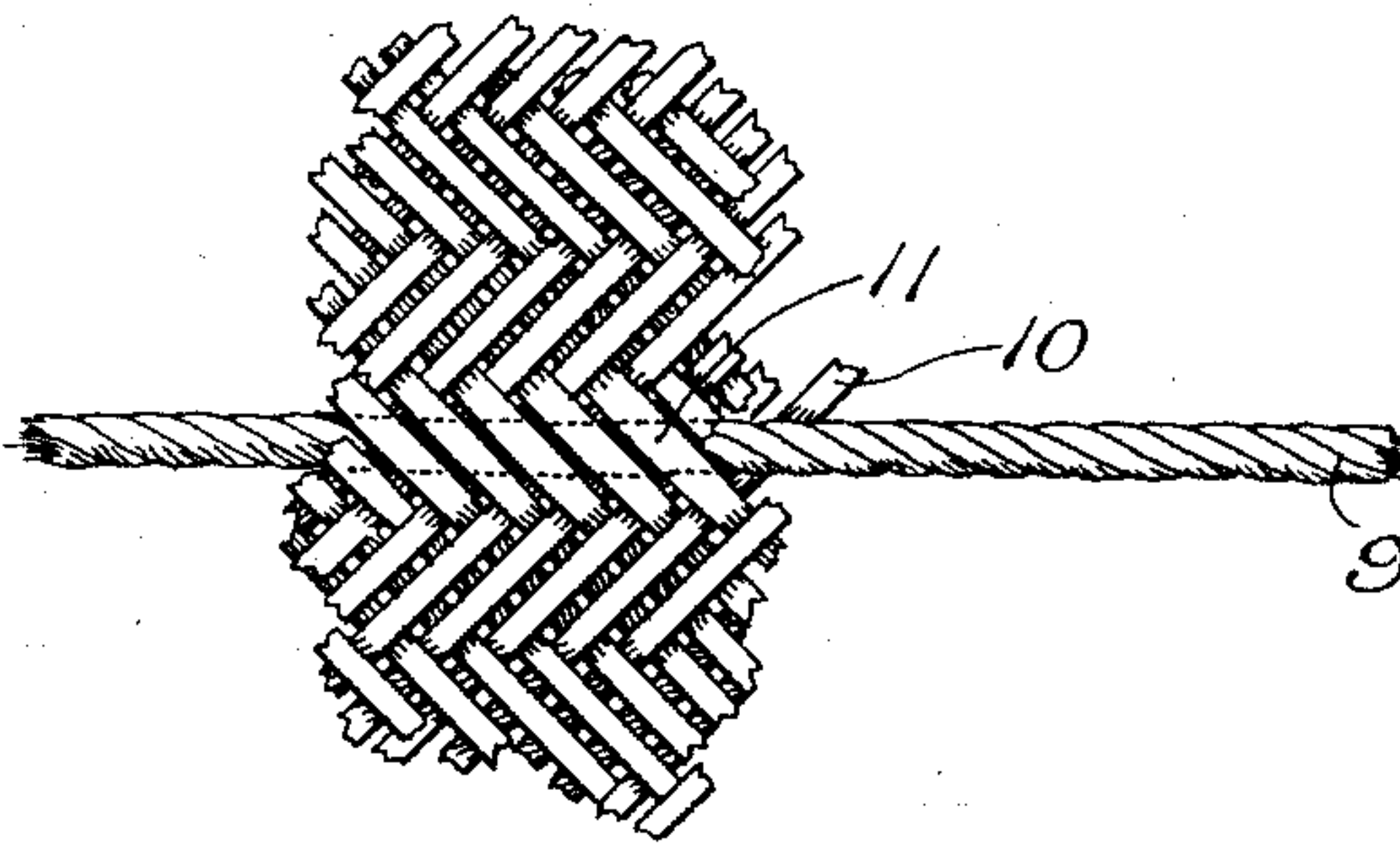


Fig. 2.

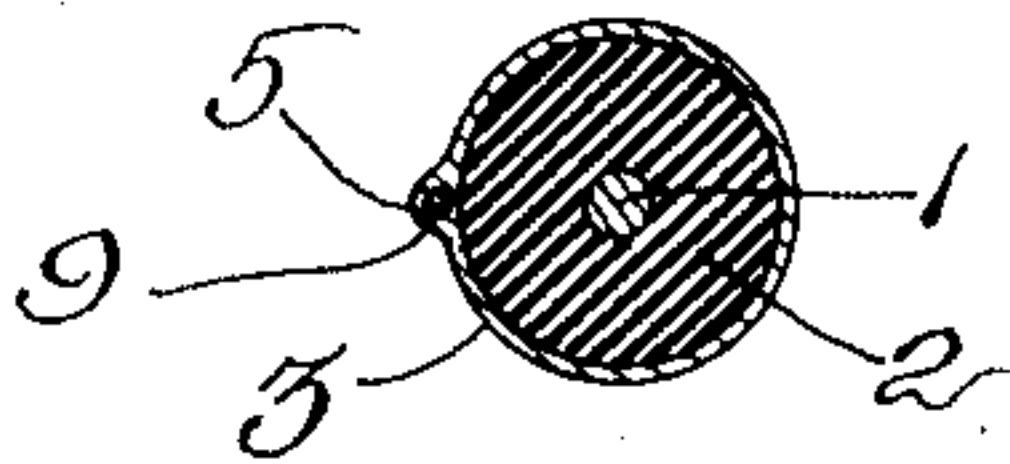


Fig. 4.

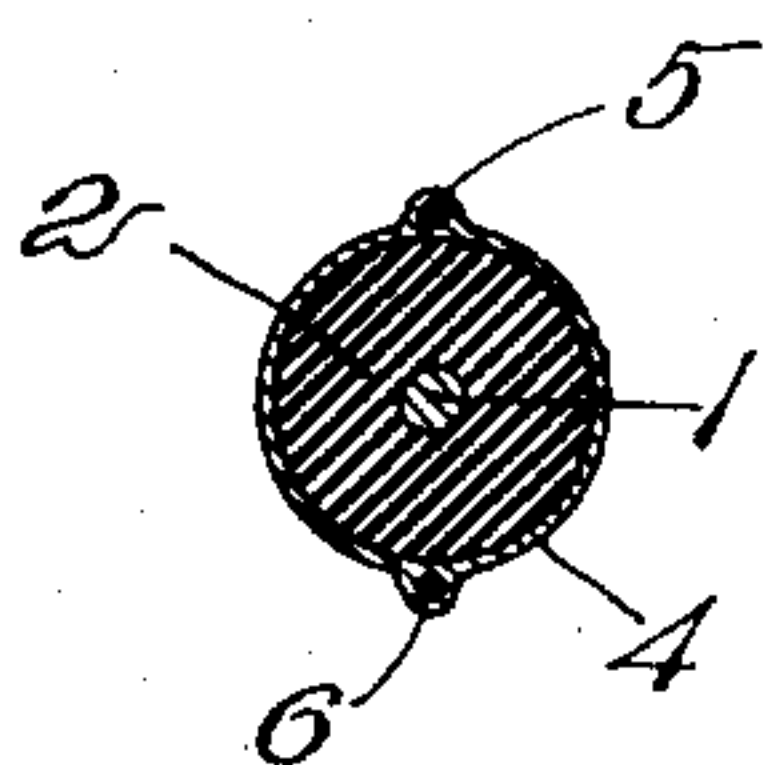
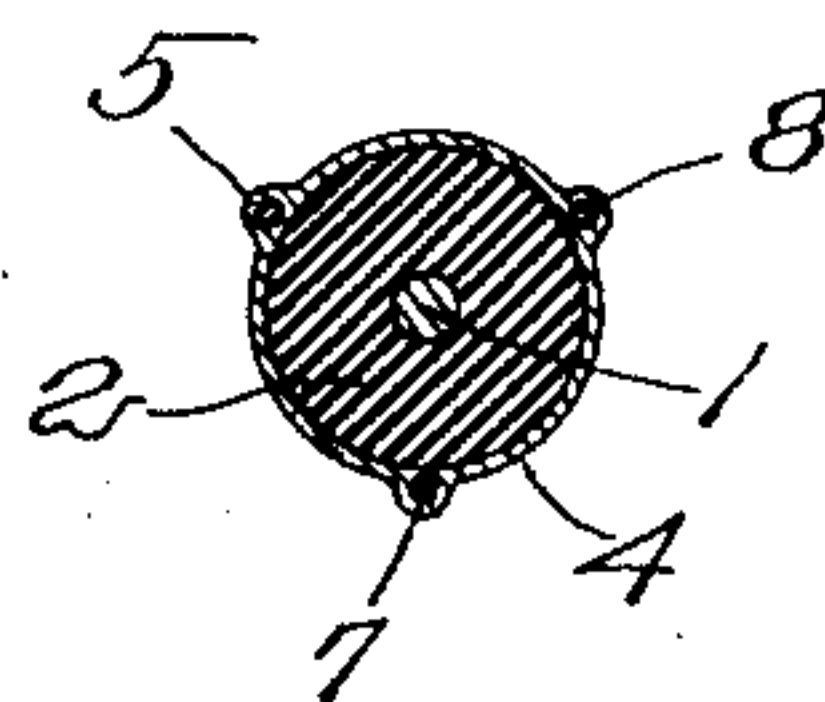


Fig. 5.



Witnesses:
H. C. Brown.
Edward Maxwell

Inventor:
Everett Morss,
by Geo. H. Maxwell
Attorney.

UNITED STATES PATENT OFFICE.

EVERETT MORSS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE SIMPLEX ELECTRICAL COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

ELECTRIC CONDUCTOR.

983,161.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed January 17, 1910. Serial No. 538,418.

To all whom it may concern:

Be it known that I, EVERETT MORSS, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Electric Conductors, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In electrical wiring, when two or more conductors are used together and especially when twisted together, it is a common practice to have one or more of the wires so marked as to distinguish it from the other wire or wires, and accordingly my invention aims to provide a superior conductor having distinguishing marks or means, and which is especially adapted to outside use.

My invention is applicable to all braided conductors, although not limited thereto, and provides a means by which they may be distinguished by touch as well as by sight, my invention also resulting in a superior hard-finish or smooth exterior and facilitating the manufacture and the economy and the reliability of production. In some cases marking textile covered conductors has hitherto been accomplished by varying the color scheme of the braid, or its finish, and it has also been accomplished by incorporating one or more particularly large threads into the braid in a spiral form. My means of marking is primarily intended for, and is particularly valuable in, the manufacture of conductors with the so-called weatherproof braid, and has for its object the provision of a conductor, textile covered, and preferably braided, having a surface externally smooth in the direction of its length, and to this last mentioned end the distinguishing or identifying element or marker consists of one or more straight longitudinal ridges, *i. e.*, extending straight or lineally of the wire as distinguished from spiral.

My preferred method of manufacture is to introduce during the braiding operation one or more longitudinal threads of sufficient size so that one or more ridges parallel to the wire will thereby be produced in the braid. Great practical advantage results from this construction, in the manufacture of the conductor, inasmuch as the ridge or ridges parallel with the direction of the conductor offer a much less obstruction

to producing a smooth outside finished surface than when the ridges run spirally around the wire. This is particularly the case in connection with the so-called weatherproof braid, where a projecting marker is much used, particularly for telephone purposes, and where the color scheme is not satisfactory because the braid is saturated with a black bituminous compound which renders the entire conductor black or uni-colored. After the braid has been saturated with this bituminous compound, it is finished by being run through a wax compound and then drawn through flexible wipers. By having the ridge or ridges parallel to the wire, the flexible wipers are able to conform to the surface and to rub the wax down to a smooth, hard surface practically as well as can be accomplished where no marker exists, whereas the spiral marker produces a spiral ridge around the conductor, thereby practically adding to its diameter so that the wipers are unable to conform to the surface, with the result that most of the pressure of the wipers is on the spiral ridge, which is wiped harder than it should be, while the spaces between are not wiped sufficiently to produce a smooth surface.

A further principal advantage of my invention is found in the use of the conductor, which, owing to the smoother finish which I am able to obtain, and the absence of the spiral projections, offers a less opportunity for the lodgment of moisture, dirt and other destructive material, all of which are detrimental to the life of the conductor. The conductor refuses to retain rain, snow, sleet, etc., permitting them to slip off at once because of the smooth surface.

In the drawings, I have shown preferred embodiments of my invention, in which—

Figure 1 is a view in side elevation of a piece of conductor containing my invention; Fig. 2 is an enlarged view thereof in end elevation; Fig. 3 is a fragmentary plan view greatly enlarged to show the preferred way of introducing the longitudinal marker; Figs. 4 and 5 are end views of conductors containing a plurality of longitudinal markers in accordance with my invention.

It will be understood that my invention is applicable to practically all kinds of electrical conductors and hence it will be unnecessary for me to explain the internal construction of the conductor, the same being

herein shown, for the purposes of illustration, as comprising a central copper wire 1 surrounded by insulation 2 enveloped in and retained by a braided sheath or external covering 3. The latter covering is braided onto the conductor and its insulation by any suitable means as by a usual wire braiding machine, in manner well known to those skilled in the art. The braided conductor is impregnated in usual manner with weatherproofing materials and finally passed through a wax bath which is wiped in and rubbed down to a smooth finished surface, thereby producing a finished conductor 4.

My invention resides in providing in or on the surface of the conductor a longitudinal raised marker 5 (or markers 5, 6, 7, 8, for instance) constituting a portion or portions of the textile covering and extending in a straight line throughout the length of the conductor as distinguished from spiral, whereby the advantages of manufacture and product result which have already been explained. While this longitudinal raised marker may be provided in various ways and by various means, I prefer to provide it during the process of braiding the covering 3 on the conductor, at which time I lay a relatively large thick or coarse warp thread 9 between braiding threads 10, 11, as nearly in a straight line as possible, with the result that in the finished product a ridge results, which is permanent in character and shape, so that the conductor may be identified by the same, irrespective of the length of time it is exposed to the weather and the conditions of its use or the manner of the waterproofing of its textile covering. One conductor may be provided with a single lengthwise marker 5, and another with two such markers, as shown in Fig. 4, while a third may be provided with three such markers, so that in use when a plurality of wires are bunched together they may readily be distinguished from each other, merely by using the wires which are provided with the different markers. By providing this marker in the form of a warp thread, three principal advantages result. First, the raised marker or longitudinal ridge 5 is caused to extend in a straight line, to all intents and purposes, (and this feature of straightness lengthwise of the conductor along one side only, is what is meant by the word "lineal" in the claims) so that when the wax wipers press hard upon the braided covering of the conductor as the latter is pulled rapidly through the weather-

proofing apparatus, said wipers are not interfered with in the slightest by the ridge 5 but are permitted to rub the wax into the braided covering so as to fill in uniformly and thoroughly all the meshes or interstices and give the required smooth, relatively hard, weatherproof surface. In the next place, the presence of the distinguishing longitudinal line or projecting lineal marker 5 still leaves the conductor perfectly smooth so that rain, snow, etc., slip off readily therefrom, and said marker does not tend in the slightest to retain or hold rain, snow, dust or other foreign matter. Finally, the warp arrangement affords strength to aid the suspended conductor in withstanding longitudinal strains to which such conductors are subjected in their out-door use.

I prefer that the marker shall be continuous but believe it is new in a conductor of the kind described to have a marker portion of the textile covering confined to one and the same side of the conductor throughout the length of the latter, irrespective of whether the marker is continuous or not.

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

1. An insulated conductor, having a braided covering provided with a warp thread of such thickness as to form a raised line of the braided covering along one side of the conductor, whereby to identify the conductor.

2. An insulated conductor, having a textile covering provided with a lineal raised marker portion, and having its said textile surface smooth finished.

3. An insulated conductor, having a textile covering provided with a strength-giving lineal raised marker as a portion of said textile covering, and having its said textile covering smooth finished.

4. An insulated conductor, having a textile covering provided with a plurality of strength-giving lineal raised marker portions separated from each other at equal intervals circumferentially of said conductor and constituting portions of the said textile covering.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

EVERETT MORSS.

Witnesses:

ROSELLA M. McLAUGHLIN,
C. R. BOGGS.