

(No Model.)

W. H. SAWYER.
ELECTRIC CABLE.

No. 473,267.

Patented Apr. 19, 1892.

Fig. 1.

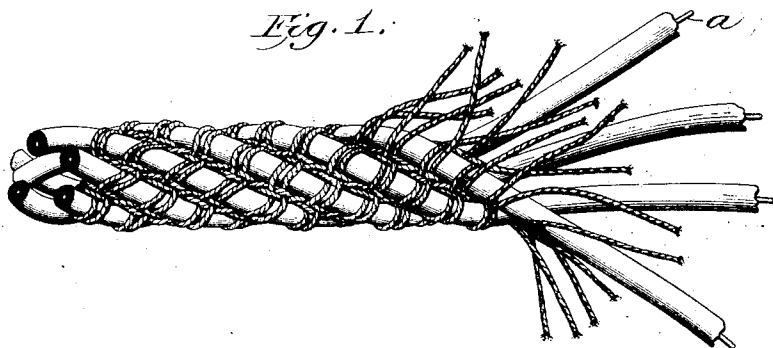


Fig. 2.

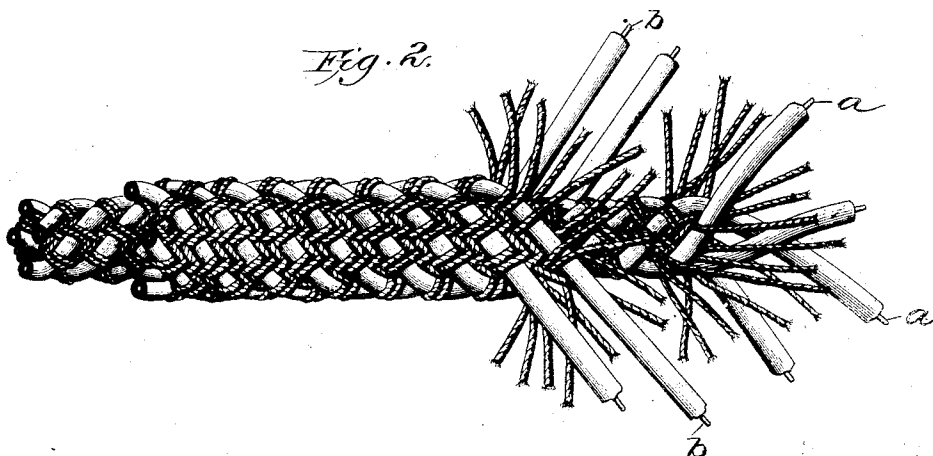
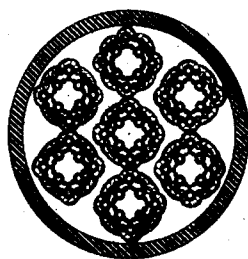


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM HENRY SAWYER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO
THE AMERICAN ELECTRICAL WORKS, OF SAME PLACE.

ELECTRIC CABLE.

SPECIFICATION forming part of Letters Patent No. 473,267, dated April 10, 1893.

Application filed October 27, 1891. Serial No. 410,009. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY SAWYER, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Electric Cables; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in the manufacture of that class of electric cables which are especially adapted for telephone service, the object of the invention being to provide a cable of low static capacity, one in which the wires of each metallic circuit are kept equidistant from disturbing influences and wherein all parallelism of the wires is obviated, perfect insulation secured, and the best possible results attained.

To the above ends my invention consists, essentially, of a cable wherein a series of insulated wires or conductors are interbraided with suitable fibrous material into a tubular fabric, the wires being kept equidistant from each other and the quantity of fibrous material being sufficient to preserve the construction in a tubular form, thereby forming a base or core for the reception thereon of another series of wires similarly interbraided with a sufficient quantity of fibrous material to provide an open-meshed fibrous covering around each wire or conductor, thus forming air-spaces, the wires of one series being interbraided in an opposite direction to those of the other series and all the wires being approximately equidistant, and then in grouping a number of sections so formed into a cable and inclosing the same in a lead sheath or other suitable covering, all as will be hereinafter fully described, and specifically designated in the claims.

In the accompanying drawings, Figure 1 represents a front elevation of a single section of interbraided wires, showing the wires or conductors of one series interbraided with fibrous material into a tubular fabric; Fig. 2, a similar view showing the wires or conductors of the second series interbraided with

fibrous material upon the core or tubular fabric of the first series, and Fig. 3 a transverse sectional view of the complete cable.

Similar letters of reference occurring on the several figures of the drawings indicate corresponding parts.

In carrying out my invention a suitable number of insulated wires or conductors *a*, preferably four in number, are interbraided with suitable fibrous material into tubular form, thereby providing a central air-space, as well as air-spaces in the interstices or open-mesh work of the tubular fabric, the said wires being braided or wound spirally, and upon the base or core so formed another series of wires *b* of the same character and number is placed; but the second series of wires is braided spirally in the opposite direction to that of the first series. By means of this arrangement of the two series of wires or conductors all parallelism is destroyed and the wires are all approximately equidistant. The two sets or series of wires are so arranged that the inside set or series run in a direction opposite to that of the second or outside set, which is accomplished by braiding the wires of one series right-handed and the wires of the other series left-handed. A suitable number of sections of wire thus formed is grouped or cabled together and covered with lead pipe, either drawn in or continuously covered by a lead-press, or other suitable covering may be employed. Some of the single sections of four wires can be used with the double sections of eight wires to assist in laying up the cable in round form; but the use of the double sections alone is deemed preferable. In place, however, of grouping a number of sections together to form the cable one series of interbraided wires after another may be superimposed upon the first central tubular core to build up the cable to the desired diameter; but each series of successive layers should have the area of the spirals or convolutions of the wires increased, so as to keep all the wires in an approximate equidistant position. The central air-space, as well as the air-spaces between each series and the air spaces or interstices in the fibrous material, are a great desideratum in providing a perfect and simplified insulation.

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

1. An electric cable formed of a number of
5 sections, each composed of a series of wires
interbraided with fibrous material into tubular
form to provide a base or core for the recep-
tion of a successive series of wires similar-
ly braided thereon, the wires of the first
10 series being braided on in the opposite direc-
tion to that of the successive series and all
the wires being approximately equidistant,
substantially as specified.
2. In an electric cable, a series of wires in-
15 terbraided with fibrous material into tubular
form to provide a base or core for the recep-
tion of successive series of similarly-braided
wires thereon, substantially as and for the
purpose specified.
- 20 3. In an electric cable, the combination of a
number of sections, each composed of a

series of insulated wires interbraided with
fibrous material into tubular form, a success-
ive series of wires being similarly inter-
braided with fibrous material upon the first 25
series, with a lead sheath or other suitable
covering, substantially as specified.

4. In an electric cable, the series of wires
interbraided with fibrous material into tubu-
lar form to provide a base or core for the re- 30
ception of a successive series of wires similar-
ly braided thereon, the spirals or convolu-
tions of the wires of one series running in a
reverse direction to that of the other series,
substantially as specified.

In testimony whereof I affix my signature in 35
presence of two subscribing witnesses.

WILLIAM HENRY SAWYER. [L. S.]

Witnesses:

GILMAN E. JOPP,
CHARLES H. WAGENSEIL.