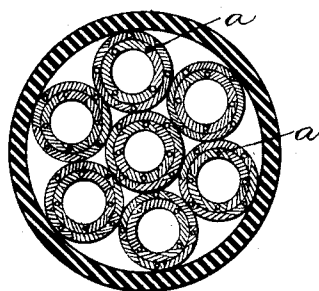
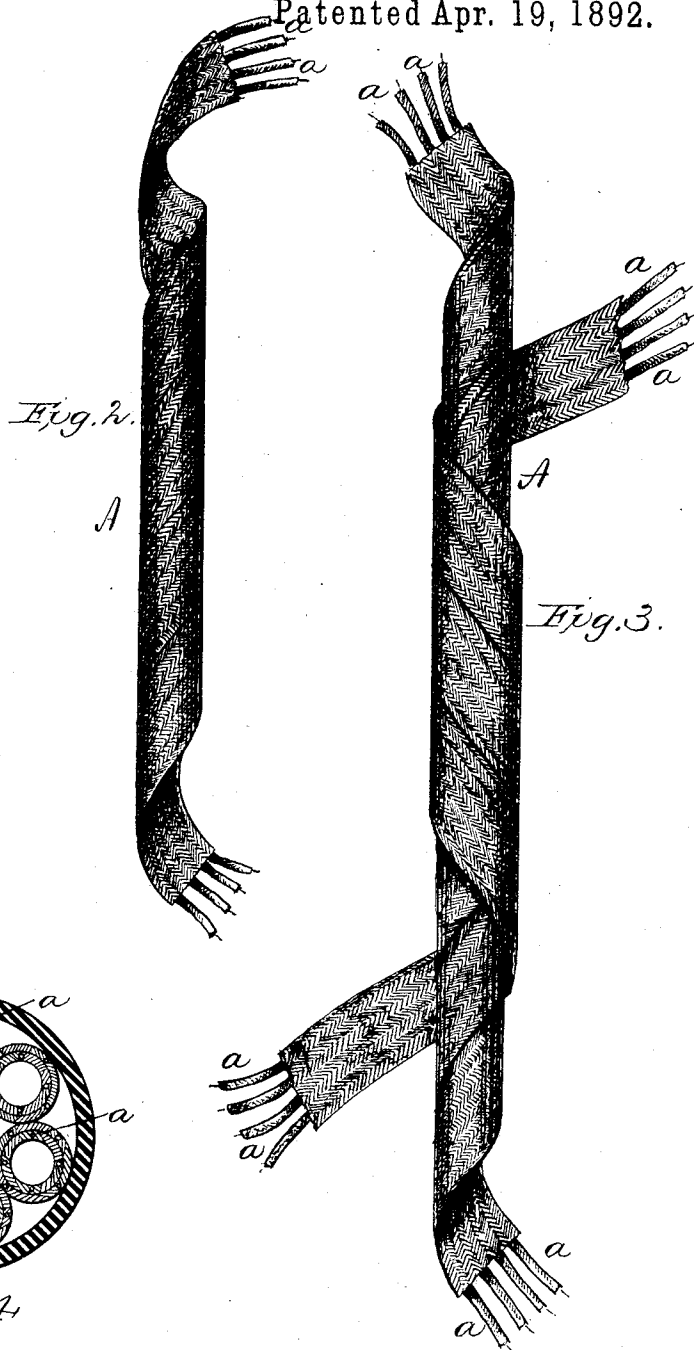
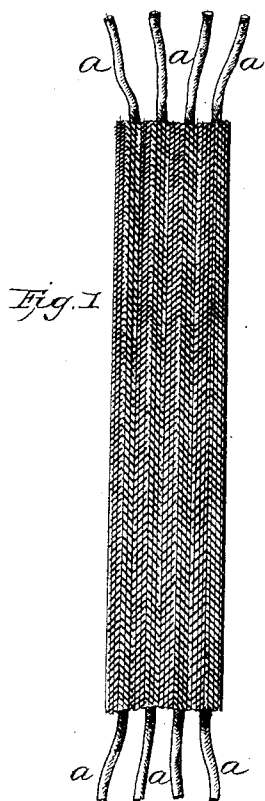


(No Model.)

W. H. SAWYER.  
ELECTRIC CABLE.

No. 473,352.

Patented Apr. 19, 1892.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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

## ELECTRIC CABLE.

SPECIFICATION forming part of Letters Patent No. 473,352, dated April 19, 1892.

Application filed October 27, 1891. Serial No. 410,010. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. 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 certain improvements in electric cables, which is designed particularly for telephone and telegraph service, the object of my invention being the production of a cable of low-inductive capacity and high insulating properties, combined with cheapness of construction and increased lightness and flexibility.

I attain the above object by means of the construction hereinafter described, and which consists, essentially, in interbraiding or weaving a series of insulated wires or conductors with a sufficient quantity of suitable fibrous material into a flat continuous strip or ribbon and then twisting or winding said strip or ribbon into a spirally-tubular form, leaving a central air-space, the interbraiding of said wires or conductors with the fibrous material being such as to provide an open mesh between the wires, the wires in such strip being arranged equidistant to each other to secure the greatest separation of conductors in the smallest space, and upon such spiral tube is adapted to be wound a series of successive strips or ribbons similarly constructed, each successive strip or ribbon being wound in a reverse direction to that of each underlying section, and the cable thus constructed adapted to be inclosed in a lead sheath or other suitable covering, all as will hereinafter be more fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan view of a section of wires interbraided with fibrous material into a continuous flat strip or ribbon; Fig. 2, a front elevation of a spiral tube formed from said strip or ribbon; Fig. 3, a similar view showing a similarly-constructed strip superimposed spi-

rally upon the first spiral tube, only in a reverse direction; and Fig. 4, a transverse sectional view of the complete cable.

Similar letters of reference indicate like parts in the several figures of the drawings.

In the practice of my invention a suitable number of insulated wires or conductors *a*, preferably four in number, are interbraided or woven at suitable distances apart with fibrous material into a continuous flat strip or ribbon, which is then twisted or wound into a spiral tube A, leaving a central air-space through the same. The insulated wires or conductors are so interbraided or woven with the fibrous material as to form an open-mesh work between the wires, and when the said strip or ribbon is twisted into a spiral form the wires are all approximately equidistant, thereby securing the lowest inductive capacity between the same. Upon the spiral tube A thus formed is adapted to be wound a strip or ribbon similarly constructed as that of the first section; but the same is wound on in a reverse direction to that of the first, thus securing the greatest separation of conductors within the least possible space.

In forming the complete cable a number of sections constructed as above described are grouped together and inclosed within a lead sheath or other suitable covering, or a series of successive flat strips or ribbons carrying the interbraided wires or conductors may be wound upon the spiral tube A until the cable is built up to the desired diameter and then inclosed within a lead sheath or other suitable covering, each strip or ribbon being wound on in a reverse direction to that of each underlying section and the spirals or convolutions of the wires or conductors of each successive layer running in reverse directions to those of the adjacent layer.

Having thus described my invention, what I claim as new and useful is—

1. An electric cable formed of a number of sections grouped together, each section being composed of a series of insulated wires or conductors interbraided with fibrous material into a continuous flat strip or ribbon, which is wound or twisted into a spiral tube having a central air-space, and one or more strips or ribbons similarly constructed being wound

upon said spiral tube in reverse directions and the whole inclosed within a lead sheath or other suitable covering, substantially as specified.

- 5 2. An electric cable formed of a series of insulated wires interbraided with fibrous material into a continuous flat strip or ribbon, which is wound or twisted into a spiral tube having a central air-space, and a series of successive strips or ribbons similarly constructed  
10 wound upon said spiral tube in reverse direc-

tions to each other to build up the desired diameter of cable and the whole inclosed within a lead sheath or other suitable covering, substantially as specified.

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

WILLIAM H. SAWYER. [L. s.]

Witnesses:

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