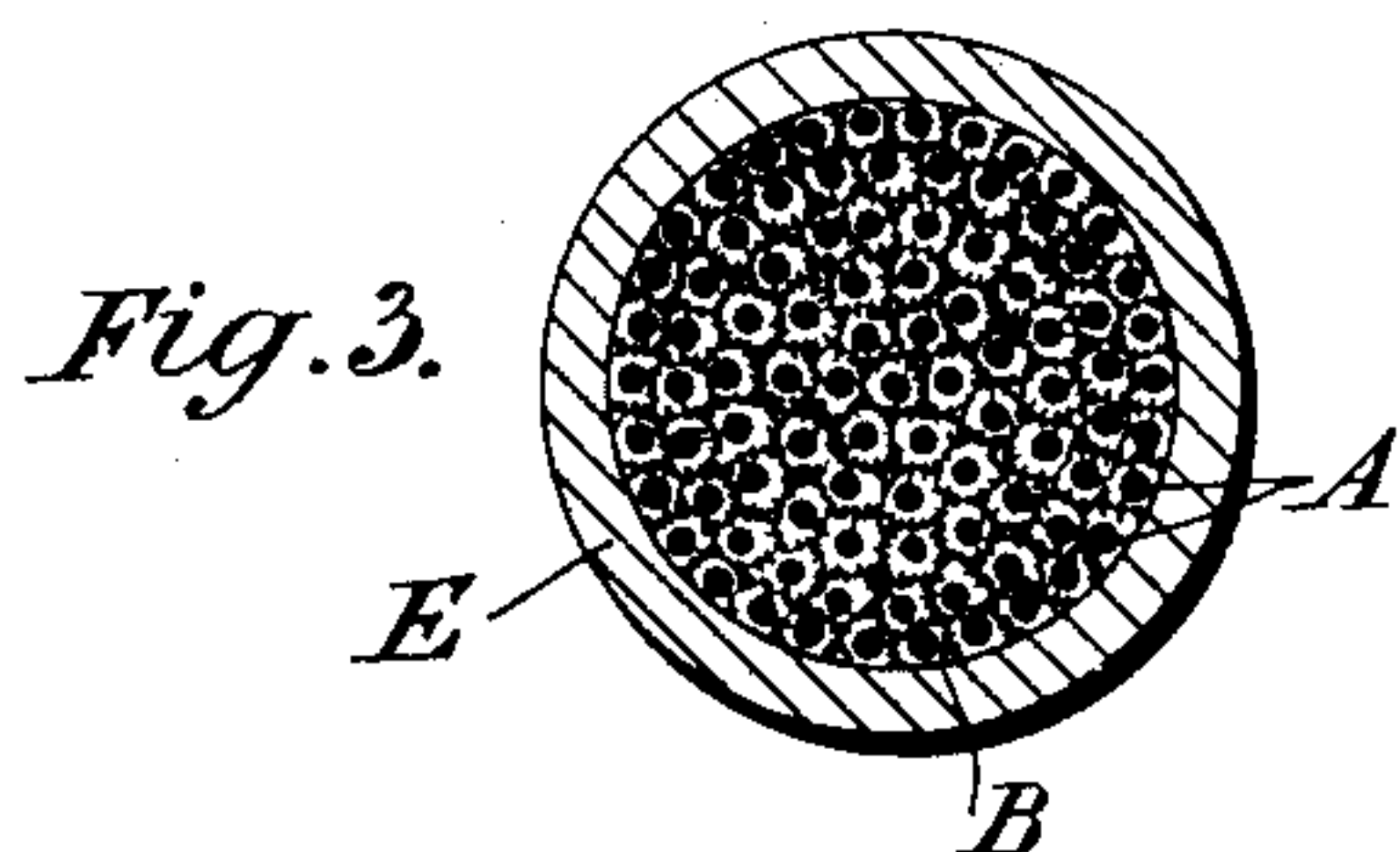
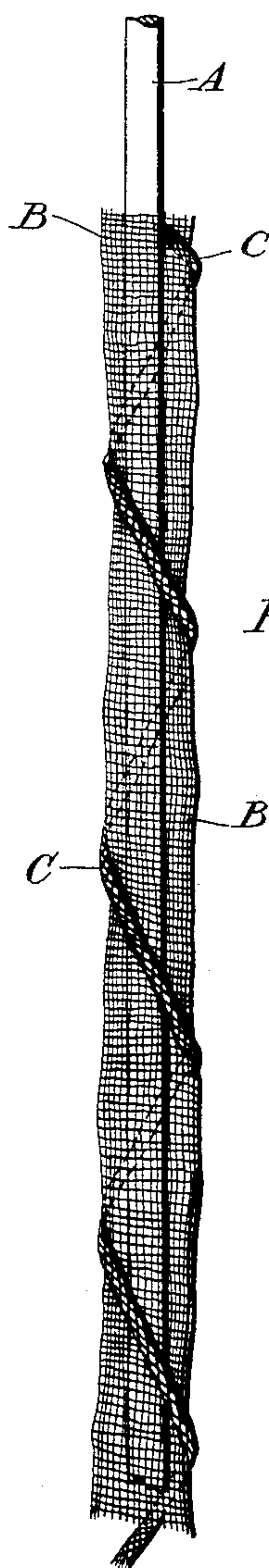
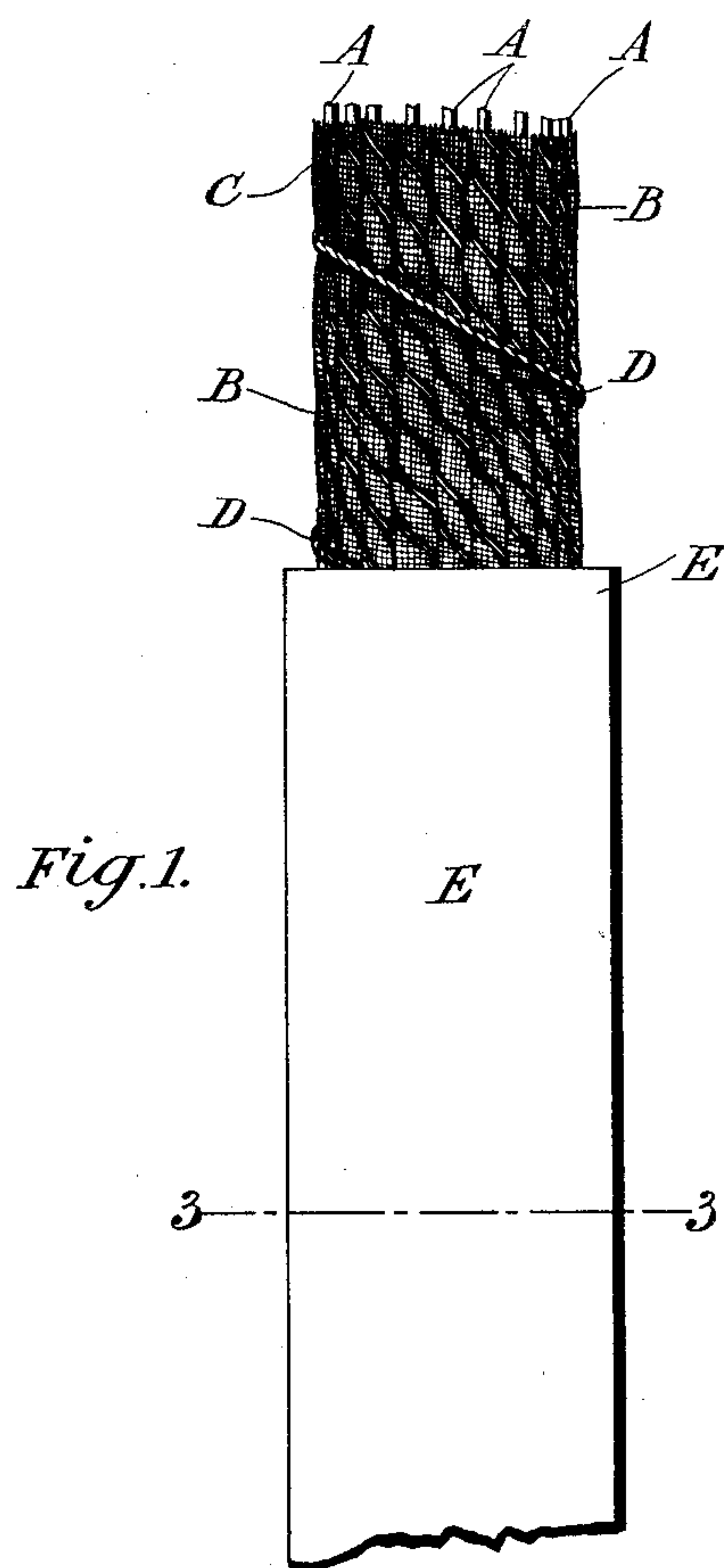


(No Model.)

J. J. HALL.  
TELEGRAPH CABLE.

No. 600,073.

Patented Mar. 1, 1898.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN JAMES HALL, OF SLOUGH, ENGLAND, ASSIGNOR TO GEORGE WILSON DAWES, OF LONDON, ENGLAND.

## TELEGRAPH-CABLE.

SPECIFICATION forming part of Letters Patent No. 600,073, dated March 1, 1898.

Application filed October 4, 1897. Serial No. 654,077. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN JAMES HALL, engineer, a subject of the Queen of Great Britain, residing at Observatory Cottage, Datchet Road, Slough, Bucks, England, have invented certain new and useful Improvements in Telegraph-Cables or the Like, of which the following is a specification.

This invention relates to telegraph-cables or the like, (other than deep-sea cables)—such, for instance, as are known as “lead-covered air-space” cables for telephones and telegraphs for land-lines. For long-distance working it is desirable to have cables with as low induction as possible; and the primary object of the present invention is to increase the air-space in such lead-covered cables, and this is effected as follows:

The wires or conductors in the cable are, according to the present invention, each specially and separately inclosed or covered in any suitable manner by an envelop or covering of open-work or very porous or perforated material, advantageously a woven or netted fabric—such, for instance, as a textile of the character known as “leno” or “muslin.” This material (netted fabric) is mounted on or around each wire or conductor in any suitable manner—for instance, rolled around each said wire, respectively, and each such wrapper secured to its wire in any suitable manner—for instance, by a fibrous thread or yarn wound spirally around the outside of same, or said material may be wound or twisted spirally on each said wire. A large number of these separate wires or conductors, each thus independently covered or protected with its individual covering of leno or the like—for instance, one hundred, more or less, of these covered wires—are then (in a bundle) placed in a pipe or tube of lead or the like conduit, and although thus all laid together the wires or conductors are perfectly insulated by the aforesaid separate coverings of leno or the like fabric, and no amount of compression to which they would be put or be liable either in building up the cable or in use will place the wires in metallic contact.

By this invention considerable air-space is secured and induction will be greatly reduced. Furthermore, by this invention freedom of

circulation of air is obtained, and, if desired, dry air may be driven through the cable in order to remove any moisture which may obtain access to the conductors.

Referring to the accompanying drawings, Figure 1 is a side elevation of a short length of lead-covered air-space cable according to the present invention. Fig. 2 is a view, on a greatly-enlarged scale, of one of the conductors or wires (with its covering of leno or netted fabric) removed from the cable. Fig. 3 is a cross-section on line 3 3, Fig. 1.

A A are the copper wires or conductors.

B is the leno or netted fabric by which each wire A is individually covered, as aforesaid.

C is a yarn or textile thread by which the covering B is secured on its wire A. (See Fig. 2.)

D is a stouter textile thread or string by which the whole bundle of such covered wires are tied together.

E is the conduit, consisting in the case illustrated of a round lead pipe.

Having thus described the nature of my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An electric-telegraph cable composed of a plurality of conductors each provided with a wrapping of a netted textile fabric secured thereon by a spirally-wound textile thread or yarn, the said conductors being laid in a bunch in the form of a cable, and a textile cord wound spirally around the whole, substantially as described.

2. An electric-telegraph cable composed of a plurality of conductors each provided with a loose wrapping of a netted textile fabric; a thread or yarn of textile material wound spirally upon said wrapping; the said conductors being laid together in the form of a cable, and a textile cord wound spirally around the whole; and a soft metallic casing separately inclosing the said bunch of conductors, substantially as described.

JOHN JAMES HALL.

Witnesses:

ALFRED NUTTING,  
H. ADAMS.