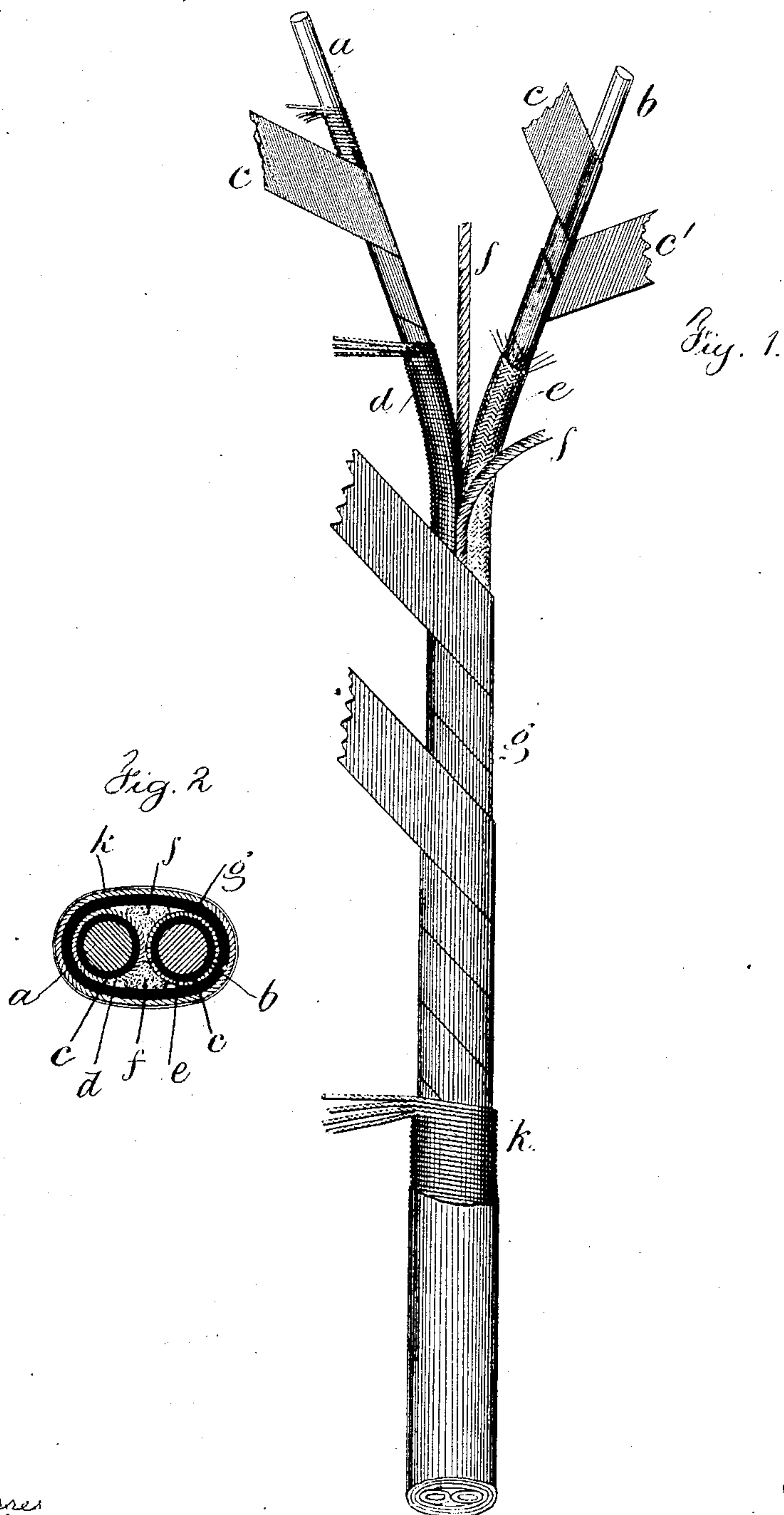


(No Model.)

A. A. COWLES.
ELECTRIC CONDUCTOR.

No. 292,539.

Patented Jan. 29, 1884.



Witnesses

Chas H. Smith
J. Staub

Inventor

Alfred A. Cowles
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UNITED STATES PATENT OFFICE.

ALFRED A. COWLES, OF NEW YORK, N. Y., ASSIGNOR TO THE ANSONIA
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ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 292,529, dated January 29, 1884.

Application filed October 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALFRED A. COWLES, of the city and State of New York, have invented an Improvement in Electric Conductors, of which the following is a specification.

In connection with incandescent electric lights it is usual to employ a positive and a negative wire leading to each lamp. These wires are often passed through the tubes of chandeliers, and are sometimes exposed to the action of coal-gas in such pipes.

The object of my invention is to combine the two wires into one envelope in such a manner that there will not be any risk of injury from sparks passing from one conductor to the other, and so that the conductor will be fire and water proof, and can be easily connected up in chandeliers or run along walls or ceilings.

In the drawings, Figure 1 is an elevation of the conductor, representing the successive coverings; and Fig. 2 is a cross-section in larger size.

My compound electric conductor is composed of two metallic wires, *a* and *b*. These are to be of any desired size. The covering of these wires is a water-proof insulation, *c*, which is preferably a tape of woven material, saturated with bituminous material, and which remains in an adhesive condition, so as to adhere to the wire and adhere at the lapping edges. Sometimes I place upon this covering *c* a second tape, *c'*, laid so as to break joints and cover the joint between the edges of the lower layer. This wrapping may be directly upon the metallic wire, as at the wire *b*, or there may be a preliminary winding or braiding upon the wire, as shown at the wire *a*. A braiding or winding of threads, *d*, is applied to the covering *c* upon the conductor *a*, and a similar braiding, *e*, upon the covering of the conductor *b*. These braided or wound threads are diverse in color, so that one conductor will be distinguished from the other, and these braidings or windings will usually be rendered fire and water proof by paint or fire-proof material applied to the covering *c*, and upon which the braiding takes place while the paint is in a wet condition, so as to penetrate the threads.

It is to be understood that the conductors *a*

and *b* are to be made separately, and that the paint employed on one is usually different in color from the other. The two conductors, prepared as aforesaid, are now laid side by side, and the strings or cords *f* introduced, so as to occupy the spaces at the opposite sides of the line of contact of the two covered conductors. A wrapping of adhesive tape, *g*, is now applied to bind the covered conductor and strings together. This adhesive tape may be a single layer with the edges lapped, or a double layer with the edges of the outer tape central over the inner tape.

The object of the strings or cords *f* is to round up the cable sufficiently to prevent the existence of air-spaces inside the wrapping *g*. The cords *f* are preferably of a comparatively loose material, so as to be compressed into the segmental spaces by the winding or wrapping *g*, and these cords are sometimes rendered fire-proof by being soaked in paint or fire-proof material before being used.

Around the outside of the wrapping *g*, I apply a winding, *k*, preferably of strong threads, so as to compress the parts of the cable and hold them all firmly together, and I prefer and use an adhesive material—such as paraffine—to saturate the threads and render them water-proof and adhesive to the wrapping *g*. By passing the cable through hot paraffine the adhesive tape is warmed and caused to adhere firmly at all places where the same laps or comes into contact with the covered conductors or cords.

I prefer to use the wrapping of bituminous water-proof material in the form of a woven tape saturated and wound while it is still adhesive; but the same thing may be accomplished by braiding or winding, and then saturating the same with hot bituminous material to fill the pores, and form an adhesive surface for the external braiding or winding, and this may be done upon the single wires or in connecting the two wires into one cable.

It will be apparent that more than two covered conductors, made as aforesaid, may be included in one wrapping.

I claim as my invention—

1. The combination, in a cable, of two or more electric conductors, each having a wrapping

of adhesive water-proof tape, and a braiding or winding outside the same, and a wrapping of adhesive water-proof tape around the covered conductors to bind them together, substantially as set forth.

2. The combination, with two or more electric conductors, each having a wrapping of adhesive water-proof tapes, of cords or strings laid at each side of the line of contact between the coverings of the conductors, and a wrapping or winding outside of and around the covered conductors and strings, substantially as set forth.

3. The combination, with two metallic wires, each having a fire and water proof insulating covering, of a wrapping of water-proof insulating material to bind the two conductors together, as set forth.

4. The combination, in a cable, of two conductors, insulating fire and water proof material for the same, an external covering of adhesive tape, a winding of threads around the same, and adhesive material to unite the parts, substantially as set forth.

5. The combination, in a cable, of two conductors, insulating material for the same, filling-cords, a covering of adhesive tape around the same, an exterior covering of thread and adhesive water-proof material applied to the covering, as set forth.

6. The combination of a conducting-wire, a wrapping of adhesive water-proof tape upon the same, and a winding or braiding upon such wrapping, whereby the wrapping is pressed into intimate contact with the wire, and the winding or braiding adheres to the adhesive wrapping, substantially as set forth.

7. The combination, in an electric conductor, of a winding or braiding of threads, a wrapping upon the same of adhesive water-proof tape, and a winding or braiding of threads outside the tape, substantially as set forth.

8. The combination, in an electric conductor, of a winding or wrapping of adhesive water-proof material, a winding or braiding of threads upon the same, and a second wrapping of adhesive water-proof strips or tapes, substantially as set forth.

9. The combination, in an electric conductor, of a winding or wrapping of adhesive water-proof material, a winding or braiding of threads upon the same, a wrapping of adhesive water-proof tape, and an exterior braiding or winding of threads, substantially as set forth.

Signed by me this 19th day of October, A. D. 1883.

ALFRED A. COWLES.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.