

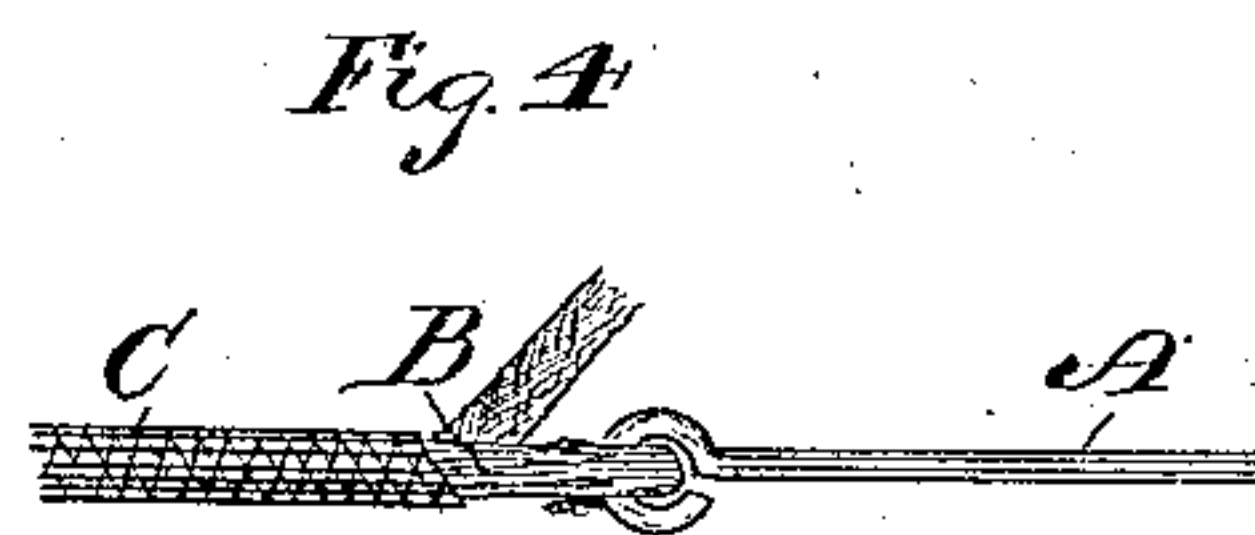
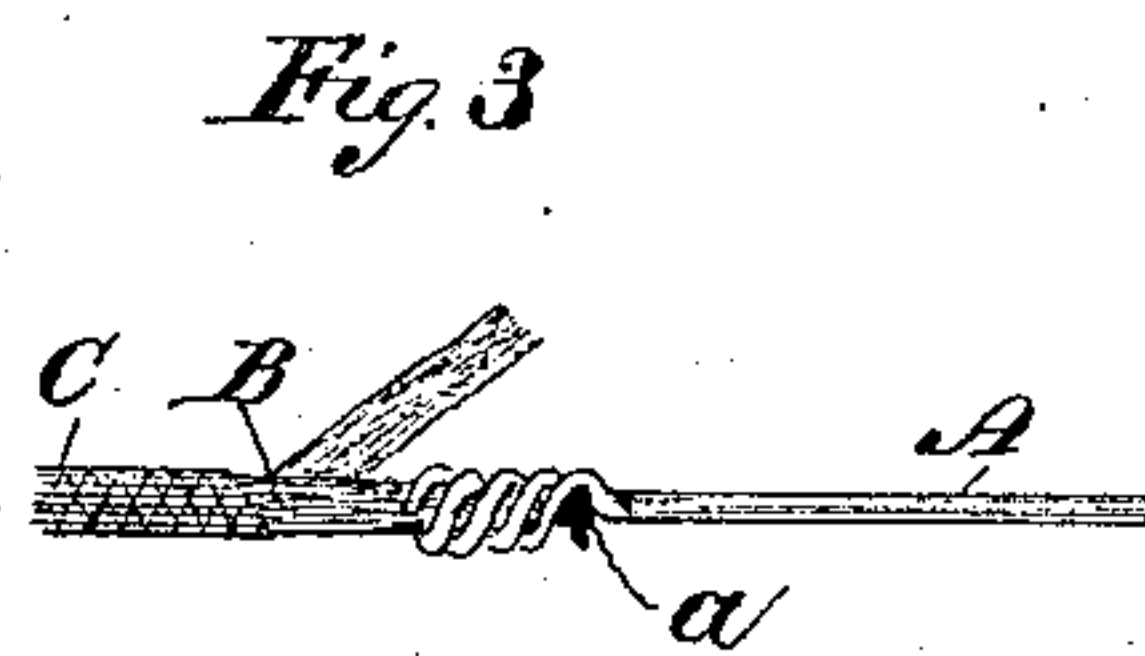
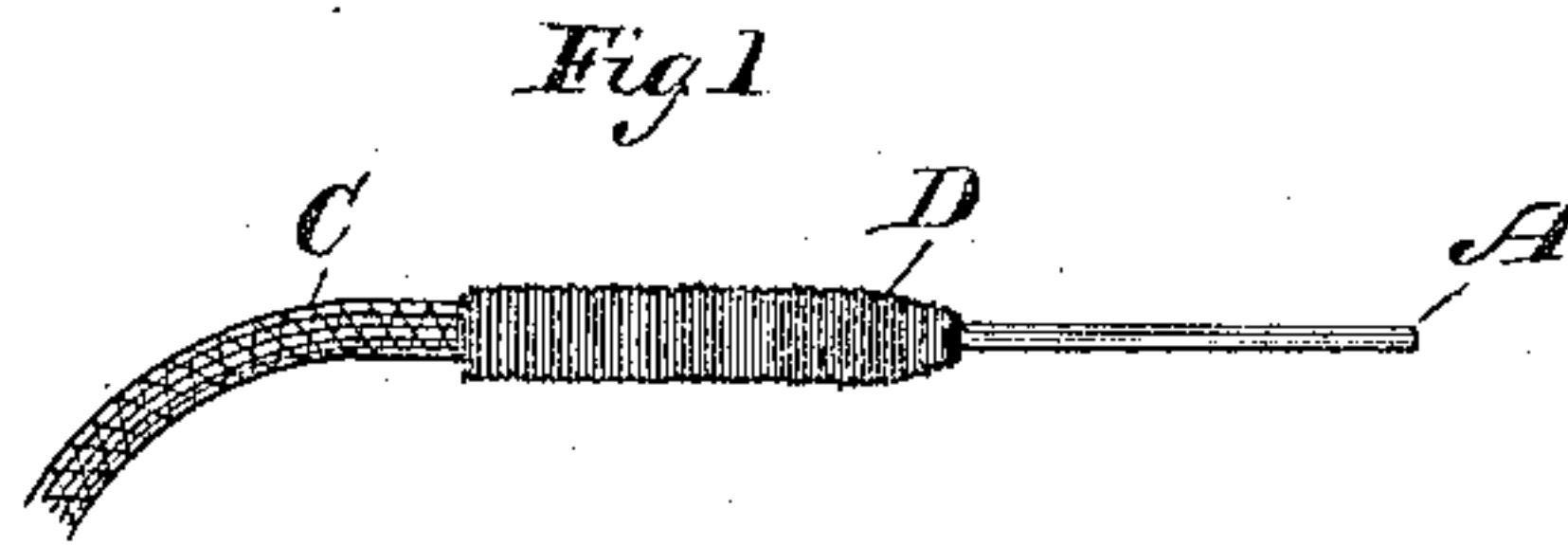
(No Model.)

G. DOOLITTLE.

TIP FOR ELECTRICAL CONDUCTORS.

No. 295,371.

Patented Mar. 18, 1884.



Witnesses  
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*W. J. Navland*

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By  
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Attys.

# UNITED STATES PATENT OFFICE.

GEORGE DOOLITTLE, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR OF ONE-HALF TO HENRY D. STANLEY, OF SAME PLACE.

## TIP FOR ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 295,371, dated March 18, 1884.

Application filed December 10, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE DOOLITTLE, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Tips for Electrical Conductors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain novel and useful improvements in tips for electrical conductors, and has for its object to provide a tip which shall be a perfect conductor, while at the same time the strand of tinsel or other conducting material cannot become worn or broken by the constant twisting and bending of the tip; and with these ends in view my invention consists in the details of construction and combination of elements hereinafter fully and in detail explained, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may more fully understand the same, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of my improved tip; Fig. 2, a vertical longitudinal section of the same; Fig. 3, a detail view with the sheath or jacket removed, and showing the manner of attaching the tip to the conducting material; and Fig. 4, a modification showing a different way of connecting the tip to the conducting-strands.

Similar letters denote like parts in the several figures of the drawings.

A is the tip proper, the rear portion of which is coiled around the conducting-strands B. Where a core is used in the conductor, it is knotted just beyond the last coil of the tip, as shown at *a*, Fig. 3, thereby not only securing the tip against pulling off, but also materially assisting in establishing perfect conductivity between said tip and conductor. The insulating material C is arranged around the conductor thus formed.

D is a jacket, which I preferably construct

of coil-spring wire, and which I place over and around the end of the conductor in such manner that the tip projects, as shown, and the rear end of said jacket extends back beyond the rear extremity of the tip. By depressing the end of the coil-spring into the insulating material the jacket is securely fastened in place.

In devices of this description great annoyance and expense have been experienced owing to the breaking of the strands of conducting material at the point immediately back of the jacket or sheath. This is occasioned by the frequent bending and twisting in all directions of the tip and jacket, and is directly due to the sharp or abrupt bend of the conducting-strands against the stiff unyielding jacket. By the use of my improvement the bend is distributed by the flexible sheath throughout its length, and the strands of conducting material are not subjected to any strain.

Instead of coiling the tip around the conductor, the latter may be simply passed through an eye in the rear end of the tip and returned upon itself, and secured in any desirable manner, as shown at Fig. 4.

I do not wish to be confined to a jacket or sheath constructed from a coil-spring, as any suitable material may be used with equal facility, the gist of my invention in this respect resting in the broad idea of a flexible sheath.

I am aware that a detachable coil-spring-wire jacket has been used in connection with tips for electrical conductors, for the purpose of enabling any person to readily remove the tip and substitute a new one therefor, thus avoiding the necessity of sending the conducting cords or coils to the manufacturer for repairs; but the construction and application of my improvement are very dissimilar from this, and I do not wish to be understood as laying claim to any such construction; also, tips have been secured to electrical conductors by cord or thread wound around so as to hold said tips and conductors firmly together and insure conductivity; but I do not wish to claim any construction similar to this.

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

1. In a tip for electrical conductors, a flexi-



ble metal or wire jacket arranged around the conductor and extended back beyond the rear end of the tip, substantially as set forth.

2. In an electrical conductor composed of a series of conducting-strands, a tip having its rear portion coiled around the conductor, and secured thereto by a knot at the outer extremity of the strands or core, substantially as described.

3. In an electrical conductor composed of a series of conducting-strands, a tip having its rear portion coiled around the conductor, and secured thereto by means of a knot at the outer extremity of the strands or core, in combination with a flexible sheath or jacket, substantially as and for the purpose set forth.

4. In an electrical conductor, the combination, with a tip secured to said conductor, of an independent detachable flexible jacket arranged around the outside of the conductor, and extended backward beyond the rear extremity of the tip, substantially as and for the purpose set forth.

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

GEORGE DOOLITTLE.

Witnesses:

CHAS. E. SMITH,  
S. S. WILLIAMSON.