

(No Model.)

G. K. THOMPSON.

FLEXIBLE TIP FOR CONDUCTING CORDS.

No. 317,887.

Patented May 12, 1885.



*Witnesses.*

*Geo. Willis Pierce -*  
*Wm B. Vansiger*

*Inventor*

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# UNITED STATES PATENT OFFICE.

GEORGE K. THOMPSON, OF MALDEN, ASSIGNOR TO THE AMERICAN BELL  
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## FLEXIBLE TIP FOR CONDUCTING-CORDS.

SPECIFICATION forming part of Letters Patent No. 317,887, dated May 12, 1885.

Application filed January 29, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE K. THOMPSON, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Flexible Tips for Conducting-Cords, of which the following is a specification.

My invention is an improvement in the flexible conducting-cord used on switch-boards, telephonic, medical, and other similar electrical apparatus.

The object of the invention is to provide for the construction of a conducting-cord which shall be flexible from one terminal connection to the other, and thus avoid the liability to breakage at the point where the tip and conductor proper are joined, as is the case with cords now in use.

As at present constructed, flexible conducting-cords are formed of several strips of tinsel combined to form a single conductor of great flexibility. This is covered with a jacket of insulating material. A wire of considerable resilience, helically disposed upon a cord or string to give additional strength, is sometimes used as a substitute for the tinsel. The end of the conductor must be strengthened and protected by a tip, usually consisting of a cup or short tube of small diameter, into which the end of the flexible cord is secured, as by soldering. Upon the free end of this tubular section is a pin or needle of greater strength and cross-section than the strand of conductor forming the cord. This needle is for insertion into the screw-cup provided for the purpose, fixed upon the switch or instrument, as is well understood. The difficulty with these cords arises from the liability of the conductor to break off short at the point of junction between the cord and tubular section forming the tip, and is due, as I have found by practical use of such cords, to the inflexibility of the tip or terminal. When an instrument to which one of these cords is attached is subjected to frequent movement, the bend comes most frequently at the junction between cord and tip. This soon makes the junction the weakest point in the cord, and if the portable instrument, as a telephone, be dropped, bring-

ing up suddenly at the end of the cord, a break is almost inevitable. The same trouble occurs when the gravity take-up is applied to flexible cords, as is customary on switch-boards.

To remedy these defects my invention consists in a tip or terminal having flexibility and resiliency in all directions. I prefer to construct it of wire formed into a tube by a series of helical convolutions, sufficient in number to give the desired length of tube, one end being cut off short at the end of a convolution and the opposite end extended in a line with the axis of the tube, to form the needle or tip for insertion into the screw-cup.

The accompanying drawing illustrates my invention applied to a double conducting-cord used in connection with the telephone. One branch of the cord is shown bearing the flexible tip complete. The tip of the second branch is shown in longitudinal cross-section, and slightly removed from the end of the flexible conductor.

It is the tip, preferably formed from spring brass wire, with a series of helically-disposed convolutions, the successive turns forming a tube of sufficient length and interior diameter to receive the terminal of the conductor *t*, which is soldered into position or otherwise firmly fixed. One end of this wire is cut off close up to the end of a convolution. The opposite end is extended in a line with the axis of the tube, forming a needle, *n*, to be placed in a perforated screw-cup provided for the purpose.

A tip thus formed will be flexible and resilient, yielding both to transverse and longitudinal strains. By the use of such a tip the difficulties above referred to will be obviated.

What I claim, and desire to secure by Letters Patent, is—

1. A conducting-cord having a flexible, yielding, and resilient tip constructed of wire formed into a tube or cylinder by successive helically-disposed convolutions.

2. A conducting-cord having a flexible, yielding, and resilient tip constructed of wire formed into a tube or cylinder by successive helically-disposed convolutions of substan-

tially uniform diameter, terminating in a needle or point.

3. A flexible conducting-cord having a tip constructed of spring brass wire formed for  
5 a portion of its length into a spiral.

In testimony whereof I have signed my name to this specification, in the presence of two sub-

scribing witnesses, this 26th day of January, 1885.

GEORGE K. THOMPSON.

Witnesses:

WM. B. VANSIZE,

GEO. WILLIS PIERCE.