No. 749,867. PATENTED JAN. 19, 1904.

A. KLINE.

METHOD OF SECURING ELECTRIC WIRES.

APPLICATION FILED MAR. 31, 1902.

NO MODEL.

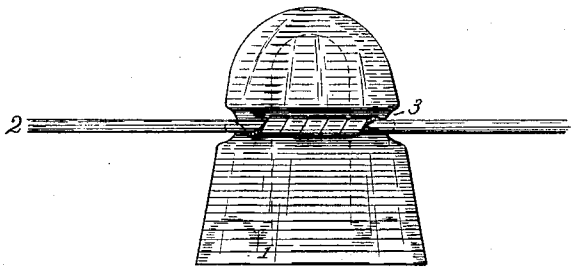


Fig. 1

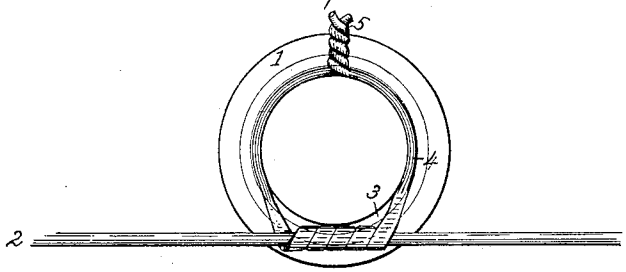


Fig. 2

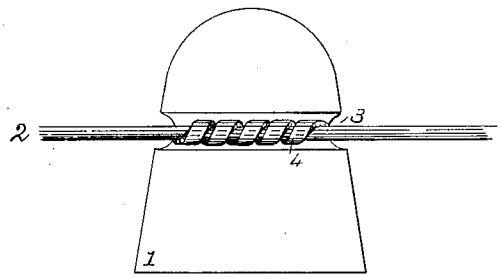


Fig. 3

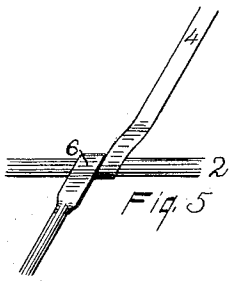


Fig. 5

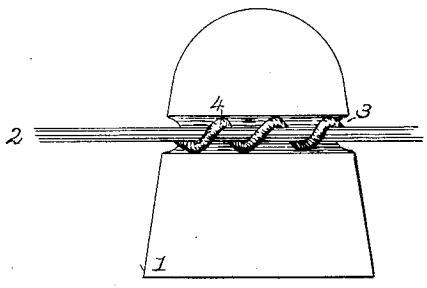


Fig. 4



Fig. 6

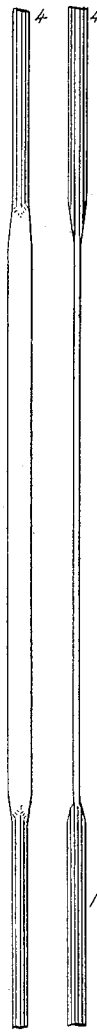


Fig. 7

Fig. 8

Witnesses
Charles Wm. Centschied
D. De F. Anderson.

Inventor
Alexander Kline
By Attorney H. Anderson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,867. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

ALEXANDER KLINE, OF JERSEY CITY, NEW JERSEY.

METHOD OF SECURING ELECTRIC WIRES.

SPECIFICATION forming part of Letters Patent No. 749,867, dated January 19, 1904.

Application filed March 31, 1902. Serial No. 100,866. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER KLINE, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Methods of Securing Electric Wires, of which the following is a specification.

My invention relates to means for securing electric wires to insulators, and has for its object a method of applying "tie-wires" that will save time in their application and reduce very materially the breaking of line-wires. The common method of twisting the ends of the tie-wire around a line-wire by means of pliers is objectionable for one reason in particular—*i. e.*, in swinging the pliers around the wire for making the coil of the tie either a sharp corner of the plier-jaws or the cutting edge of the pliers is liable to have contact with the line and will produce an abrasion or a deep scratch or a partial cut around the wire that in the course of time causes the wire to give way at the point of damage. A long experience in the construction and repair of telegraph-lines reveals to me the fact that about ninety-five per cent. of the breaks in telegraph-lines is due to this cause.

One object of this invention is to avoid the necessity for placing any kind of tool in contact with a line-wire while it is being "tied" to an insulator or other support.

I attain the objects by the means set forth in this specification and the accompanying drawings.

Figure 1 of the drawings represents a line-wire tied to an insulator by my method of tying wires. Fig. 2 is a top view of the parts shown in Fig. 1. Fig. 3 represents a careless form of tie by my method. Fig. 4 represents a line tied by my method with an ordinary round tie-wire. Fig. 5 represents the manner of beginning the tie by my method. Fig. 6 represents a flat or ribbon-like tie-wire. Fig. 7 is a view of the flattened part of a specially-prepared tie-wire. Fig. 8 is an edge view of the wire shown in Fig. 7.

A flat wire like that shown in Fig. 6, having a breadth and thickness something like the flattened part of the tie shown in Figs. 7 and 8, may be used; but I prefer a specially-prepared tie-wire like that shown in the latter two figures—that is, a round wire with its middle portion flattened for a length proportioned to the number of turns to be made around a line-wire. In preparing these tie-wires the temper of the flat part would be given a pliability adapted to its being easily coiled, just as the ends of any tire-wire must be adapted for coiling or twisting, without breaking.

As will be seen by reference to Figs. 1 and 2, the flat part of the tie-wire 4 is wound spirally around the line-wire 2. The line with the coiled tie is placed within the groove 3 of the insulator 1, and the ends of the tie-wire are twisted together, as at 5. The twisting together of the ends of the tie-wire draws the spiral tightly around the line-wire and binds the coil and line securely and rigidly against the insulator, holding it firmly without so much as kinking the line-wire.

In winding the tie-wire on the line-wire it is started as shown in Fig. 5. The line-wire is held in one hand, with the thumb upon the part 6 of the tie-wire 4. The winding is readily done, and a lineman will make a close neat wind, as in Fig. 1, after two or three trials. The entire tie can be made in the time usually required to coil the first end of the tie-wire commonly employed. The tie-wire should be closely wound upon the line-wire, as in Figs. 1 and 2, rather than with an open spiral, as in Fig. 3, although either will make a firm tie.

Fig. 4 represents a common round tie-wire used in accordance with my method. It shows an open winding; but it may be wound in a close coil the same as the flat wire.

It will be seen that no pliers or other tool is required in putting on this tie-wire, except to twist the ends together and cut them off if too long; but no tool would be used near the line-wire.

For tying insulated wires the flat spiral would serve as a metallic armor for the insulation it covers. The tie-wire would not need to be an insulated wire, since the flat close spiral could not possibly cut through the insulation of the line-wire as a bare wire tie will do when applied over insulation in the usual way.

The point at which the ends of the tie-wire are joined and twisted together need not necessarily be opposite to its winding around the line-wire, as shown, but may be at right angles to it or at any convenient part of the groove in the insulator.

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

1. The combination substantially as shown of the electric line, the insulator, and the tie-wire, the tie-wire having a flattened middle portion wound spirally around the line, the ends of the tie-wire twisted together, and the several parts lying within the groove of the insulator.

2. A tie-wire, substantially as described, having a flattened middle part for winding around the line in the manner herein shown.

Signed at New York city, in the county of New York and State of New York, this 22d day of March, A. D. 1902.

ALEXANDER KLINE.

Witnesses:

WM. EDW. ATHEARN,

CHAS. R. TOHLO.