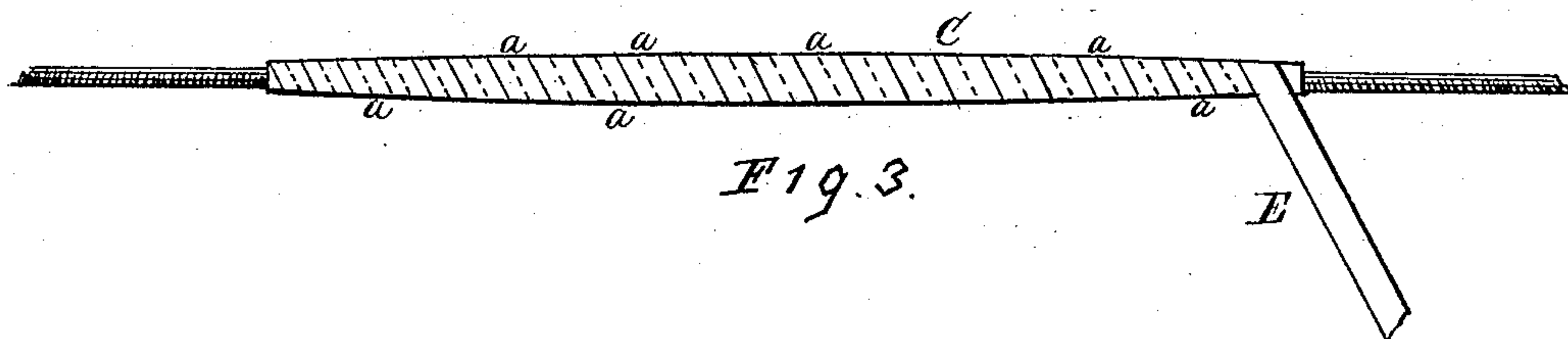
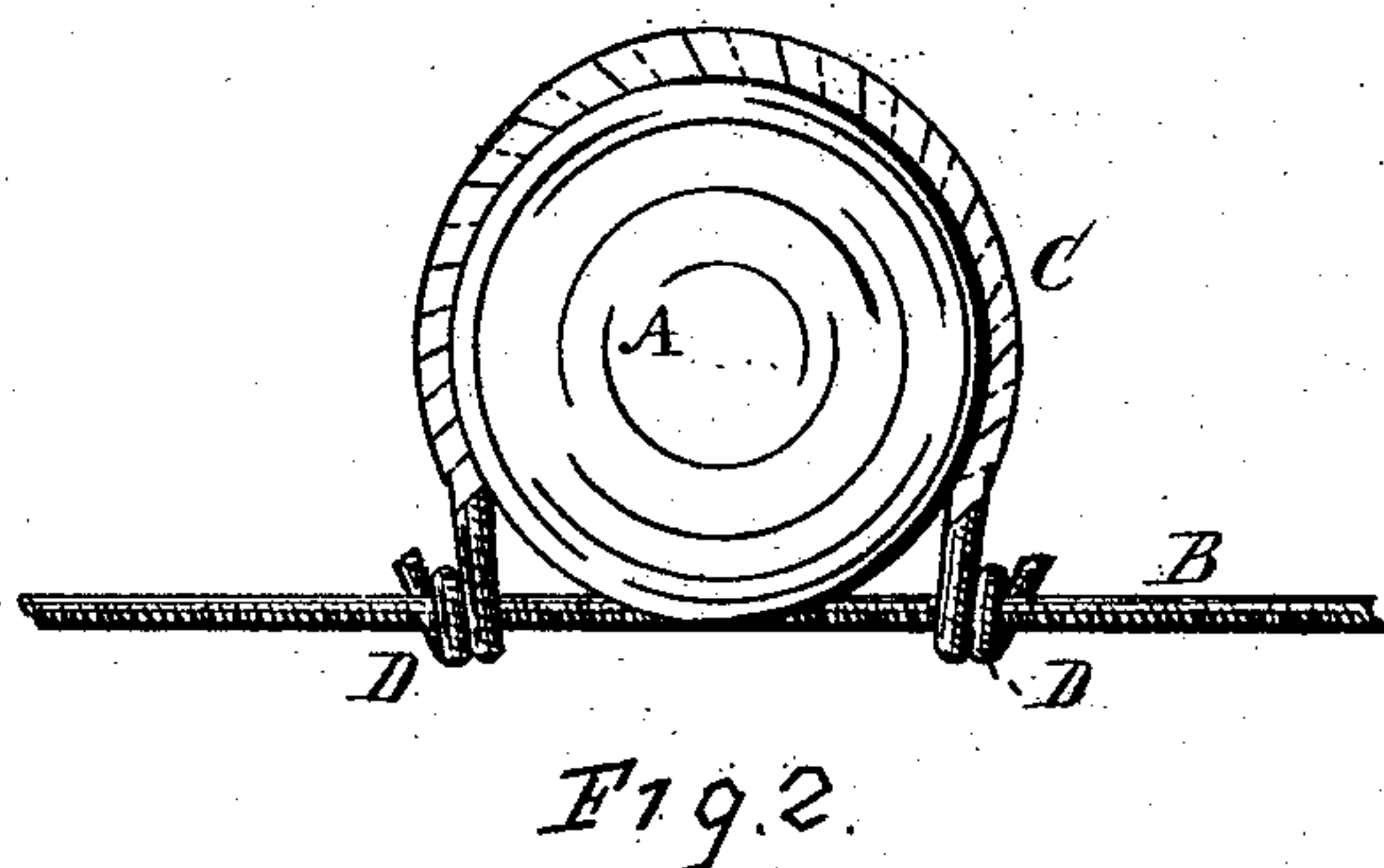
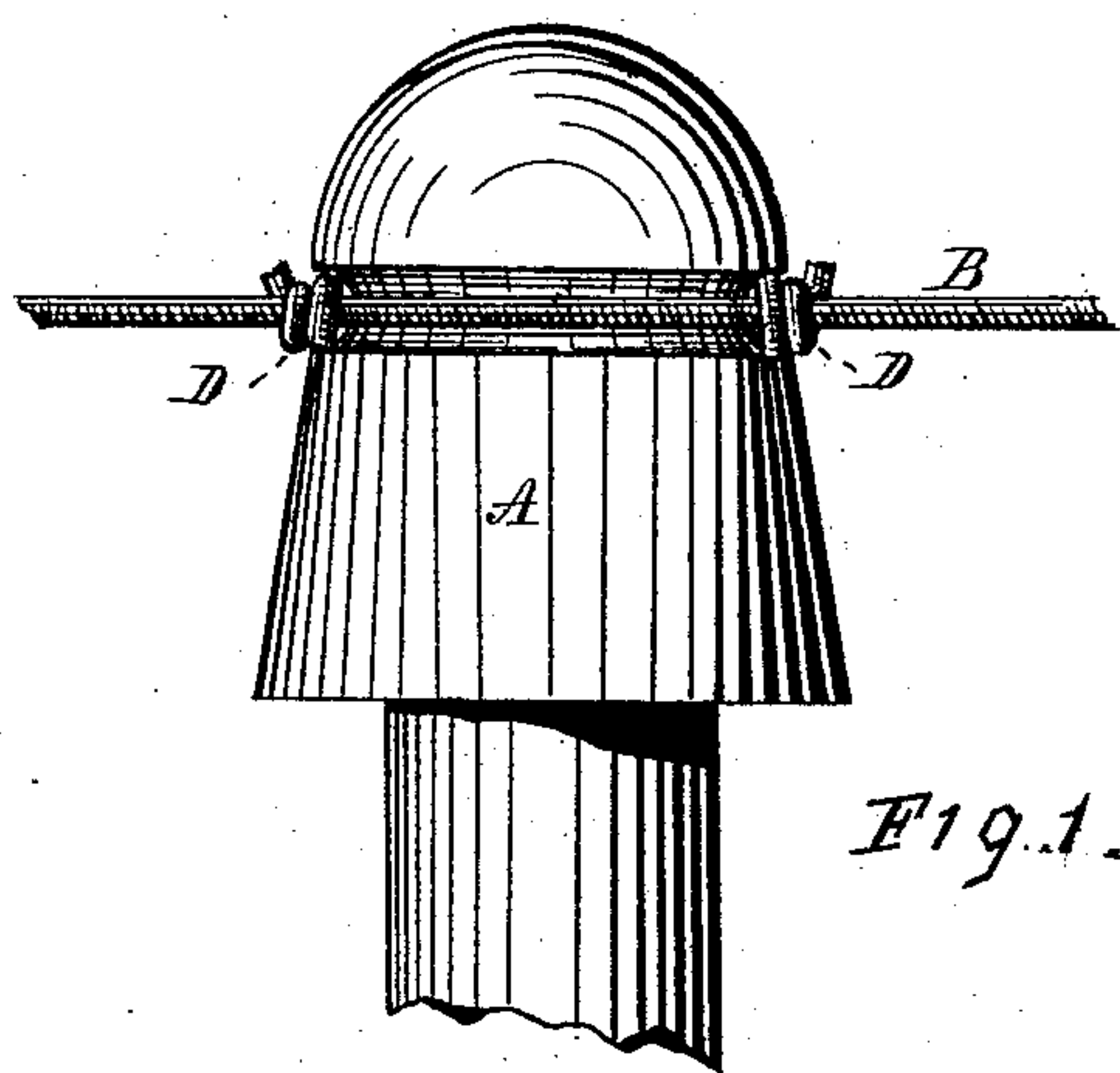


(No Model.)

C. C. HINSDALE.
INSULATED TELEGRAPH TIE WIRE.

No. 298,753.

Patented May 20, 1884.



Witnesses.
J. H. Burridge
C. H. Turner

Inventor
C. C. Hinsdale
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UNITED STATES PATENT OFFICE.

CHARLES C. HINSDALE, OF CLEVELAND, OHIO.

INSULATED TELEGRAPH TIE-WIRE.

SPECIFICATION forming part of Letters Patent No. 298,753, dated May 20, 1884.

Application filed November 19, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. HINSDALE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Insulated Telegraph Tie-Wire; and I do hereby declare that the following is a full, clear, and complete description thereof.

This invention relates to an insulated telegraph-wire tie, the nature of which consists in insulating the tie-wire, for the purpose of preventing the escape of the electric current at the points of connection with the supporting-insulator for telegraph and telephone lines.

It is well known in the telegraphic art that much waste of current occurs at the wire-connection with the insulator, owing to the accumulation of dirt, dust, and moisture on and about the insulator and wires connecting the lines with the insulators, which is a conducting medium. This waste or induction of the current is due to the ordinary mode of fastening the lines to the insulators, as the current will, in passing, leave the line and pass off through the ordinary tie-wire and dust and dirt coated insulator down the pole or off through other medium to which the insulator may be attached for sustaining the line. This waste of electric current is at times well known to be so great as to require the repeating of a message, there being not sufficient electric energy to pass over the electric wire, owing to the waste at the points of connection with the insulator. It is the purpose of the said improvement to arrest or prevent the waste or induction of the current in passing the points of the wire connection with the insulators. An insulated telegraph, *per se*, is not claimed, as the same has been known and used.

The invention herein described and claimed is distinguished from the ordinary insulated lines and cables, as herein shown, and which may be employed on telephone-lines.

That the said invention may be more fully understood, reference will be had to the following specification and to the annexed drawings, making part of the same, in which—

Figure 1 is a view of an insulator having the tie-wire attaching the line thereto. Fig. 2 is a top view of Fig. 1. Fig. 3 represents the insulated tie-wire.

Like letters refer to the same parts in the drawings.

In Figs. 1 and 2 the insulator A is or may be of the ordinary kind in use and supported in the usual way; and B, the telegraph line or wire attached to the insulator by the improved insulating tie-wire C, Fig. 3, the ends of which are coiled to receive the line B, as shown at D, Figs. 1 and 2. The wire for the tie is first cut in suitable lengths and then coated or covered with a strip or ribbon of papers saturated with gutta-percha, or its equivalent, which is wound around the wire, so that the strip will lap over on the preceding part of the strip, as indicated by the dotted lines *a a*, Fig. 3, which represent the inside part covered by the other portion of the strip E. After the first covering is thus made, a second one or more is wound on, the last covering being, preferably, of tape or some other textile fabric, which is also charged with gutta-percha, the same as the first covering. In place of the said paper and tape, other insulating-coverings may be employed for the same purpose. It is preferred to make the covering thicker or of longer diameter in the central part of the wire tie and taper toward the ends, as shown in Fig. 3, the purpose of which is to give more wearing-surface and strength to the covering at the part most needed. The windings or coils of the strips may be made in a reverse direction to each other.

To enlarge the central part of the coating, the strips of paper, tape, or equivalents thereof, are lapped over more in the preceding part of the strip than the parts toward the ends, causing an increase of the covering material in the central part and less amount to the ends, making the tie-wire, when covered, of tapering form from the middle to the ends, as seen in Fig. 3. It may, however, be of a uniform diameter without departing from the essential features of the invention. The ends of the covering are fastened by any suitable means, to prevent the coating from unfolding when the tie-wire is insulated by covering. It is bent around the insulator in the groove thereof and the line passed through the coiled ends, as seen in Figs. 1 and 2. The elasticity of the coating and the jointed or lapped nature of the covering-strips admit of the wire being bent or curved around the insulator without injuring it or impairing its insulating properties. The gutta-percha referred to is dis-

solved or reduced to such consistency in a suitable vessel, and the said covering-strips are saturated therein, from which they are drawn and wound around the wire, which on being
 5 allowed to set or dry becomes firm and impervious to the action of climate influence, and the wire becomes intact from the action of the weather, and from the dirt and moisture which gathers about an insulator and the wires which
 10 form a conducting medium in ordinary tie-wires.

I am aware of the fact that tie-wires have been insulated heretofore in various ways, and do not claim, broadly, such a wire. One of
 15 the methods heretofore followed has been to insert the tie-wire into a tube of rubber, and also insert the main wire into a tube or sleeve of rubber, the rubber tubes lying contiguous to the glass or other insulator. These rubber
 20 tubes, and even sheets of rubber, are objectionable, as they are liable to such changes in their texture from oxidation, &c., as to not effect a perfect insulation, and, moreover, are expensive both at the outset, and from the fact
 25 that after becoming worn away at any point they necessitate the substitution of other complete tubes or sleeves. My method of insulating is superior to that heretofore followed, in that it is much easier to manipulate an insulating material of the character herein specified, and is far less expensive, both in the first
 30 instance and from the fact that any portion of an old insulator can be removed and another of the same character substituted; or the whole of the old material wrapped around
 35 the wire can be removed and another substituted at much less cost than is incident to the aforesaid tubes. Again, with one of this character I can accomplish the important object
 40 above set forth—that is to say, can readily make the insulating material thicker at the point or points where the most wear is experienced.

I am also aware of the fact that various conductors have been wrapped with insulating material to prevent the waste of current, and do not broadly claim as my invention a conductor thus wrapped. 45

I claim—

1. The combination, with the main wire, the supporting-insulator, and the tie-wire, of a strip of textile fabric coated with gutta-percha or equivalent material, and wrapped around the tie-wire in superposed convolutions, substantially as and for the purposes set forth. 50 55

2. The combination, with the main wire, its supporting-insulator, and the tie-wire, of a strip of textile fabric coated with gutta-percha or its equivalent, and wrapped helically around the tie-wire, substantially as set forth, to have a portion of each coil or convolution thereof lap over or under a portion of each adjacent coil or convolution, as and for the purposes described. 60

3. The combination, with the main wire, of a tie-wire for supporting the main wire, and an insulating strip or strips of flexible material wrapped around the tie-wire and arranged, substantially as set forth, to have a greater number of convolutions at the point or points receiving the strain, substantially as set forth. 65 70

4. The combination, with the main wire and the tie-wire for supporting the main wire, of an insulating-strip of flexible material wrapped helically around the tie-wire, and a second strip of insulating material wrapped upon the outside of the first strip, to increase the thickness of the insulating material at points of wear, substantially as set forth. 75

In testimony whereof I affix my signature in presence of two witnesses. 80

CHARLES C. HINSDALE.

Witnesses:

J. H. BURRIDGE,
 C. H. TUMEY.