(No Model.)

J. E. DANN & J. LAPP.

MEANS FOR PREVENTING DISTURBANCES ON TELEPHONE LINES.

No. 343,014. Patented June 1, 1886.

Fig. 1.

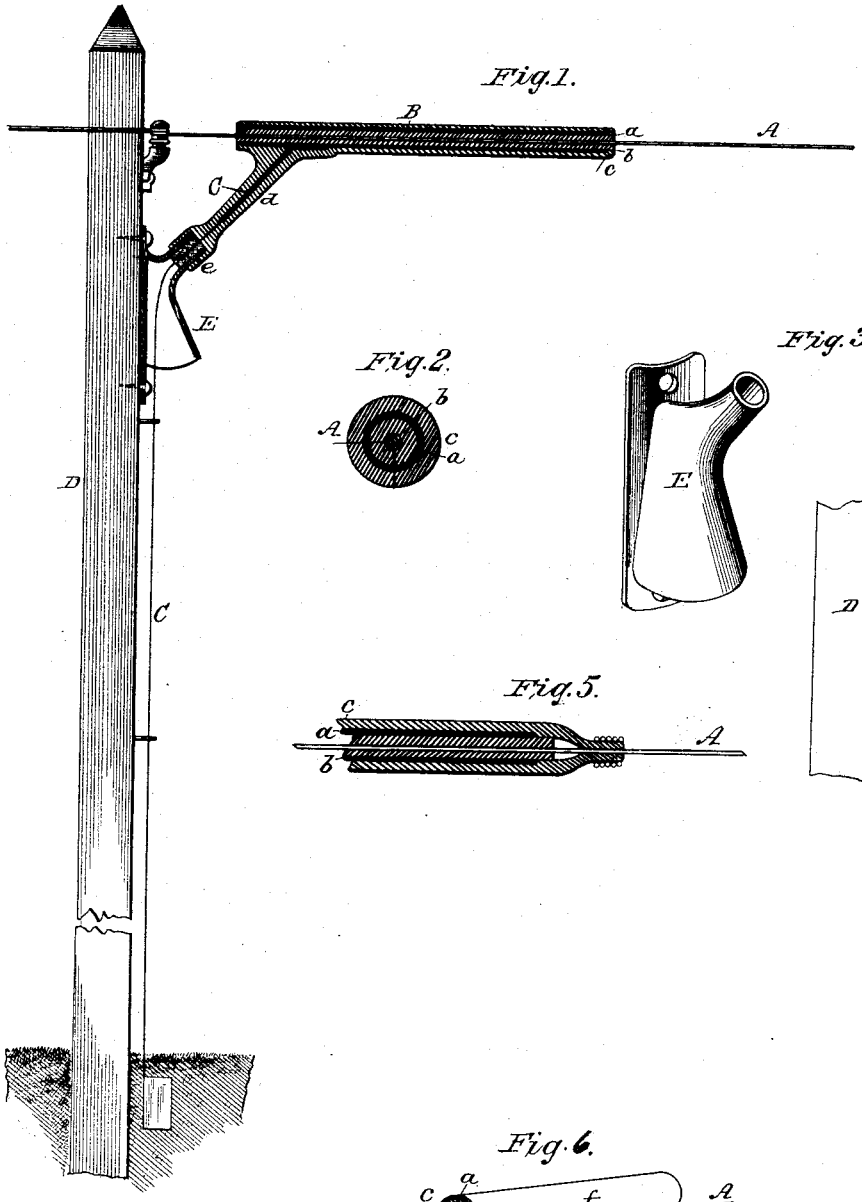


Fig. 2.

Fig. 3.

Fig. 4.

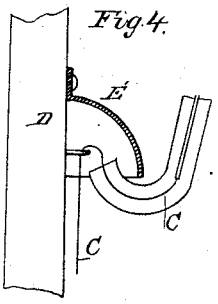
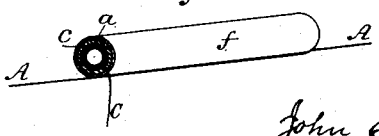


Fig. 5.

Fig. 6.



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JOHN E. DANN AND JOHN LAPP, OF HONEOYE FALLS, NEW YORK.

MEANS FOR PREVENTING DISTURBANCES ON TELEPHONE-LINES.

SPECIFICATION forming part of Letters Patent No. 343,014, dated June 1, 1886.

Application filed January 27, 1886. Serial No. 189,954. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. DANN and JOHN LAPP, of Honeoye Falls, in the county of Monroe and State of New York, have invented a new and useful Improvement in Means for Preventing Disturbances on Telephone-Lines, of which the following is a specification.

It is well known that if two electrical conductors be placed side by side in a certain proximity, a current sent through one of them will ordinarily create an electrical disturbance in the other. This result is particularly objectionable in telephonic lines, since it not only destroys privacy of communication, but what is still more important in long circuits, it greatly retards transmission, which is often equivalent to preventing it altogether.

We have devised an improved apparatus for preventing the disturbance above referred to, and the construction of the same is as hereinafter described, and shown in accompanying drawings, in which—

Figure 1 is a partly sectional view illustrating the general construction of our device and its application to a line-wire. Fig. 2 is a cross-section of the device and line-wire. Fig. 3 is a perspective view of the hood for protecting the earth-wire. Fig. 4 illustrates a modification of the hood. Fig. 5 is a sectional view showing a detail. Fig. 6 is a perspective view of a modification.

Referring in the first instance to Figs. 1 and 2, the letter A indicates a telephonic or ordinary telegraphic line-wire, and B the device we employ for preventing electrical disturbance in a neighboring wire. (Not shown.) Said device is composed of a cylinder, *a*, of copper or other good conducting material, which is insulated or held out of contact with the wire A by means of an interposed tube, *b*, of rubber, and connected with the earth by the metal strip or wire C. Another rubber tube, *c*, surrounds and incloses the copper cylinder and protects it from exposure to the atmosphere or to moisture. We make the copper cylinder *a* shorter than the rubber tube *b*, and the outer tube, *c*, longer than the latter, so that its ends may be clamped tightly around and on the wire A, as shown in Fig. 5, so as to effectually exclude moisture. It is important that moisture shall also be prevented from access to the earth-wire C for a portion of its length. To this end we inclose its upper portion (see Fig. 1) in a rubber sheath, *d*, which is cemented or otherwise suitably connected to a rubber tube, *e*, so as to form a water-tight joint between them. To the adjacent post, D, or other fixed object, we attach a sort of hood, E, Figs. 1 and 3, which is made of any suitable material. In the open mouth or upper end of this hood a cork, *e*, is inserted, and the earth-wire C passes through it and the body of the hood, while the sheathing *d* is drawn over both the cork and neck of the hood and secured tightly around the latter. In this manner all danger of accumulation of ice sufficient to form an earth-conductor is entirely obviated.

In Fig. 4 we illustrate a modification of the hood, the same, E', being open at the bottom only, and the earth-wire C being passed up underneath and secured to a support projecting from the post.

It will be seen that in Fig. 2 we have represented the copper and rubber tubes as divided or slotted lengthwise. This construction we propose to employ when convenience may suggest it, in applying our device to line-wires already suspended, since the slit allows the tubes to be slipped over the wire and each other without necessitating dividing or disconnecting the wire at any point; but ordinarily, in applying the device to new wires, it will be more expedient to attach it when the same are being erected; and for convenience it may be furnished already attached to a section of wire suitable to be embodied in and form part of the line-wire proper.

In the modification, Fig. 6, we show a metal cylinder, *f*, to which the line-wire A is attached. Within it we place a copper cylinder, *a*, and surround it with a rubber tube, *c*, that effectually insulates it from the outer metal tube, *f*.

What we claim is—

1. The improved device for the purpose stated, the same being formed of the interior and exterior rubber tubes, the interposed copper cylinder, and an insulated earth-wire attached to the latter, substantially as described.

2. The device hereinbefore described for preventing electrical disturbances on telephone-

lines, the same consisting of a conducting-cylinder and insulating tube having lengthwise slits, as shown and described.

3. The combination of the inner rubber tube, *b*, the copper cylinder *a*, and the outer rubber tube, *c*, which is made longer than the others, to adapt it to be tied over them and around the line-wire, as shown and described.

4. The combination, with the line-wire, a device for preventing electrical disturbance in a neighboring wire, and an earth-wire, of a hood arranged below the said line-wire and applied to the earth-wire for covering a portion of it and protecting it from moisture, as shown and described.

5. The combination, with the line-wire and a device attached thereto, of the earth-wire and the hood having an open mouth and a sheathing applied to it and the said earth-wire, as shown and described.

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