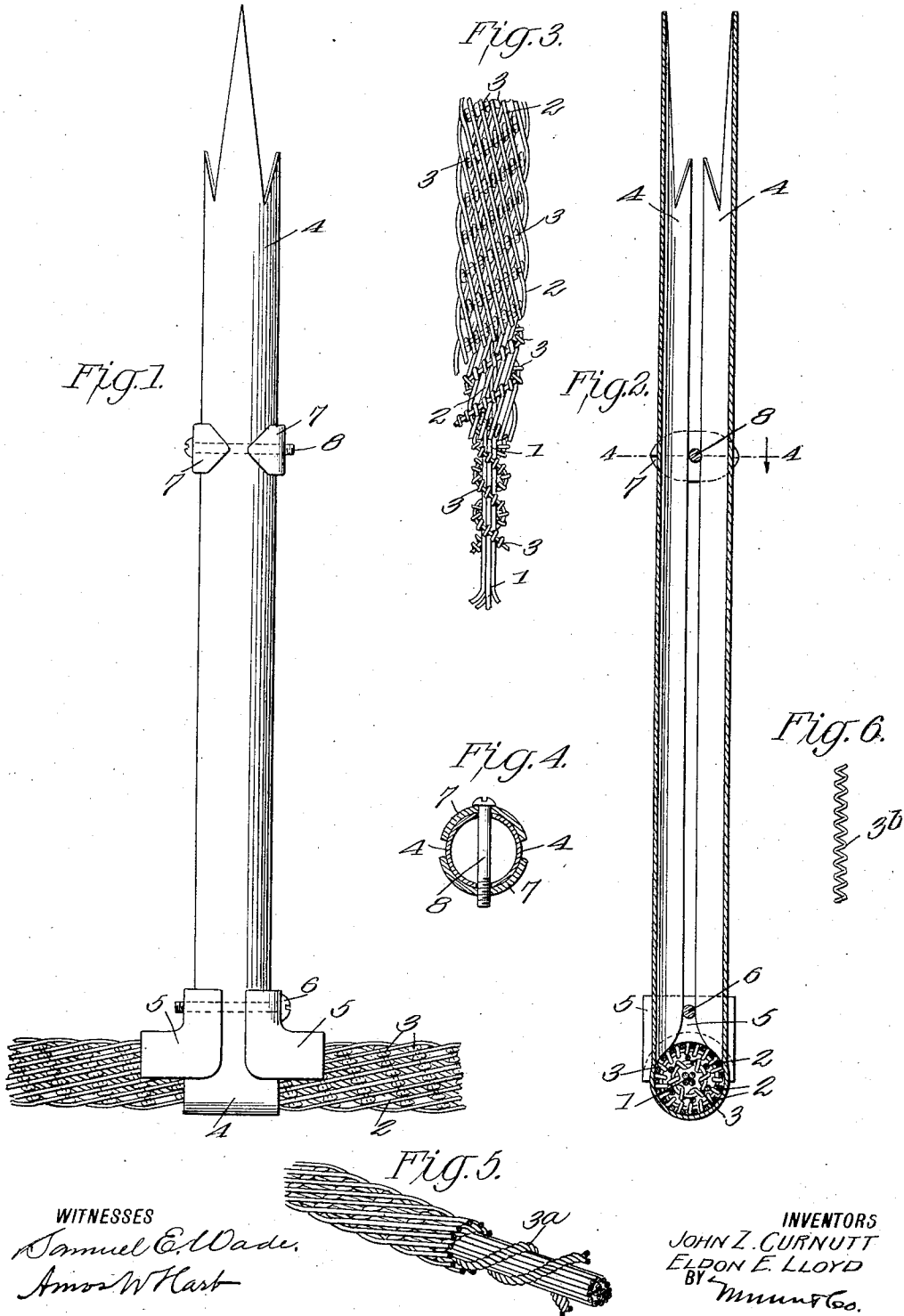


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 LIGHTNING ROD.  
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1,061,824.

Patented May 13, 1913.



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# UNITED STATES PATENT OFFICE.

JOHN Z. CURNUTT AND ELDON E. LLOYD, OF MARYVILLE, MISSOURI.

## LIGHTNING-ROD.

1,061,824.

Specification of Letters Patent.

Patented May 13, 1913.

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*To all whom it may concern:*

Be it known that we, JOHN Z. CURNUTT and ELDON E. LLOYD, citizens of the United States, and residents of Maryville, in the county of Nodaway and State of Missouri, have invented an Improvement in Lightning-Rods, of which the following is a specification.

As is well known, the efficiency of a lightning-conductor depends largely upon the amount of the exposed surface which is free, or out of contact with any other; and the object of our invention is to provide a conductor or rod having a maximum free surface and minimum weight. To this end, we have devised the construction and combination of parts hereinafter described, and illustrated in the accompanying drawing, in which—

Figure 1 is a side view of a portion of our cable or rod proper and a top or point secured thereto. Fig. 2 is a vertical section of the same. Fig. 3 is a plan view of a section of the cable showing the relative arrangement of the several wires composing it. Fig. 4 is a transverse section on the line 4—4 of Fig. 2. Fig. 5 is a perspective view showing a modification of the cable in respect to the wires interposed between and separating the tension wires from the conductors proper. Fig. 6 is a plan view of another modification of the spacing wire which is coiled about the tension wire.

The cable or rod proper comprises a series of central tension wires 1, which, of course, also serve as conductors; a series of spirally wound wires 2, surrounding the tension wires 1, and serving as the main conductors; and a spiral wire 3, wound spirally about the tension wires 1 and thus interposed between them and the spiral conductors 2.

The tension wires 1 are straight and laid together. The spirally wound wire 3 may be constructed in various ways, but, as shown in Figs. 2 and 3, it consists of a stout wire around which a smaller one is wound spirally in such manner that the convolutions are slightly separated, that is to say, separated sufficiently to form a space that will admit one of the outer conducting wires. In other words, the conducting wires 2 severally lie in the spaces between the convolutions of the spiral wire 3 and are thus separated from each other without possibility of ever coming in contact. The intermediate wire 3 thus not only serves for separating

the conductors proper 2 from the tension wires 3, but also holds the conductors 2 separated from each other. By this means we produce a cable that has great tensile strength, but has also a large conducting surface which is formed of many wires that are as free as practicable from contact with other media.

In Fig. 5, we illustrate a slight modification in which the spacing medium 3<sup>a</sup> is formed of two wires twisted together, the conductors 2 in this instance lying between the adjacent twists or convolutions of the two wires. It is also practicable to form the spacing medium of a single, spirally twisted wire 3<sup>b</sup>, such as illustrated in Fig. 6. The several parts of the cable are preferably constructed of copper wire.

The top or terminal 4 illustrated in Figs. 1, 2, and 4, is formed of a single strip of copper whose middle portion is bent or looped around the cable and extended to the requisite height and provided at the ends with a series of points. Each of the arms or sections of the strip is curved in cross section, as shown best in Fig. 4. The top or terminal is secured to the cable by means of elbows 5, which are clamped together by a screw 6, which intervenes the two parts of the terminal, and the members of the terminal are further secured together by clamps 7 and a screw 8, the latter passing between the members, the same as in the case of the screw 6. We thus produce a terminal which is composed of a single piece having no joints and the entire surface of the metal being open to the passage of electricity; and it is also provided with multiple points.

What we claim is:—

1. A lightning rod comprising central tension wires, outer wires wound spirally around the latter and forming the conductor proper, and a spacing medium consisting of wires wound spirally on each other and about the aforesaid tension wires, thus intervening the latter and the conducting wires, and each of the conducting wires lying in a space provided between the convolutions of the spacing medium, as described.

2. The improved lightning-conductor, comprising a cable or main conductor and a series of terminals projecting therefrom, the same being formed of a strip of copper looped about the cable and the members thereof extended parallel and provided with

multiple points, and means securing the terminal to the cable and spacing the members thereof from each other, substantially as described.

- 5 3. The improved terminal for a lightning-conductor, formed of a strip of copper looped at its middle and the extended members arranged parallel and curved in cross section and also provided with multiple

points, and means for clamping the two 10 members together but holding them separate, substantially as described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."