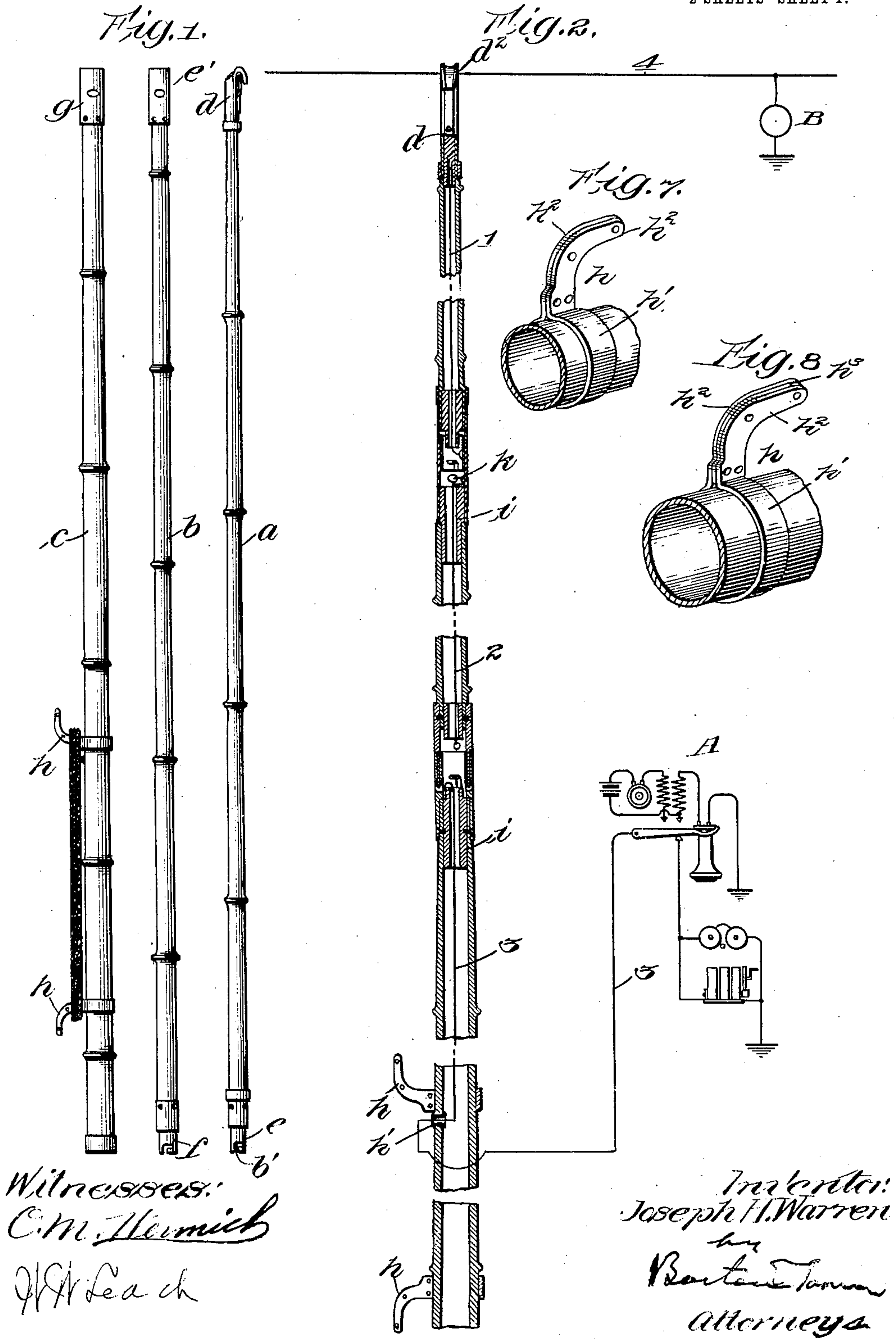


No. 824,222.

PATENTED JUNE 26, 1906.

J. H. WARREN.
LINE CONNECTING DEVICE.
APPLICATION FILED JUNE 18, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

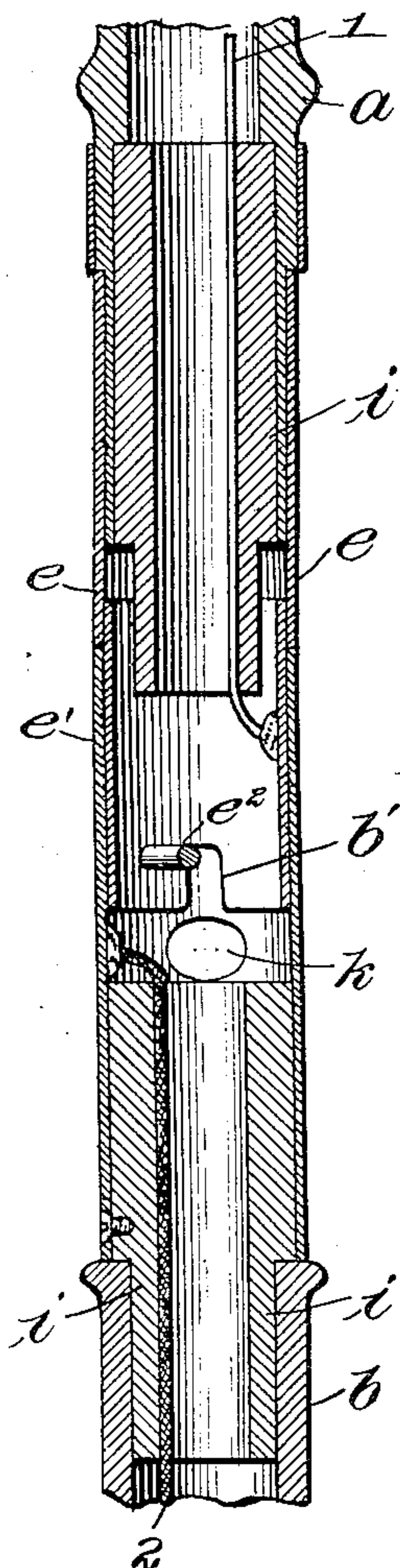


Fig. 4.

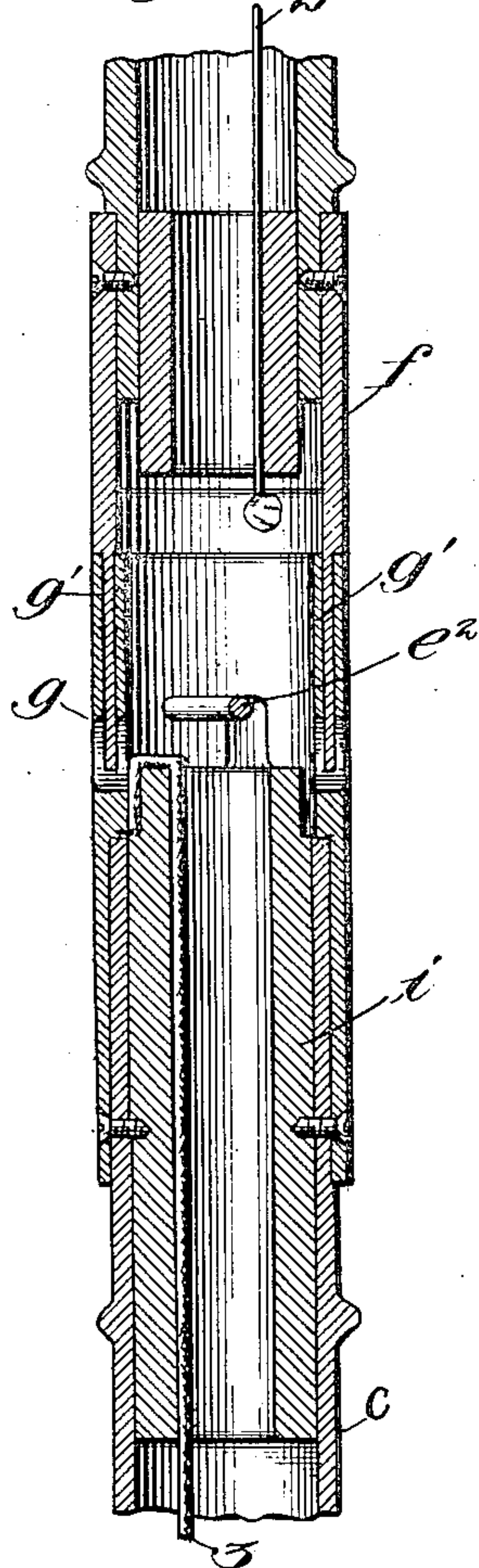


Fig. 5.

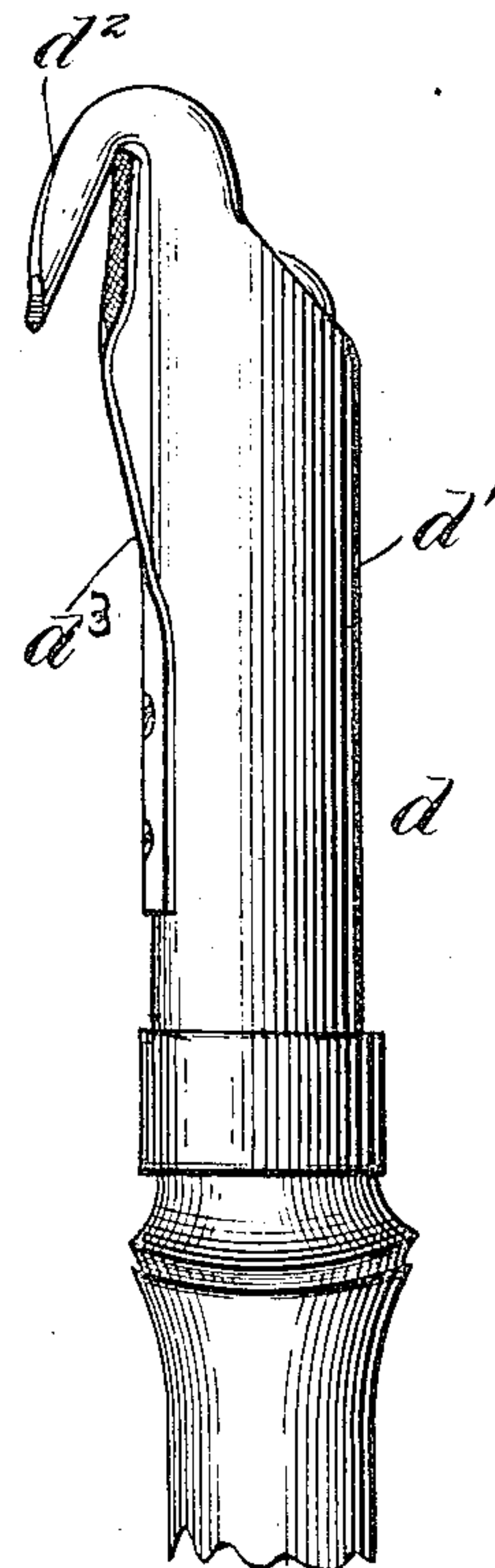
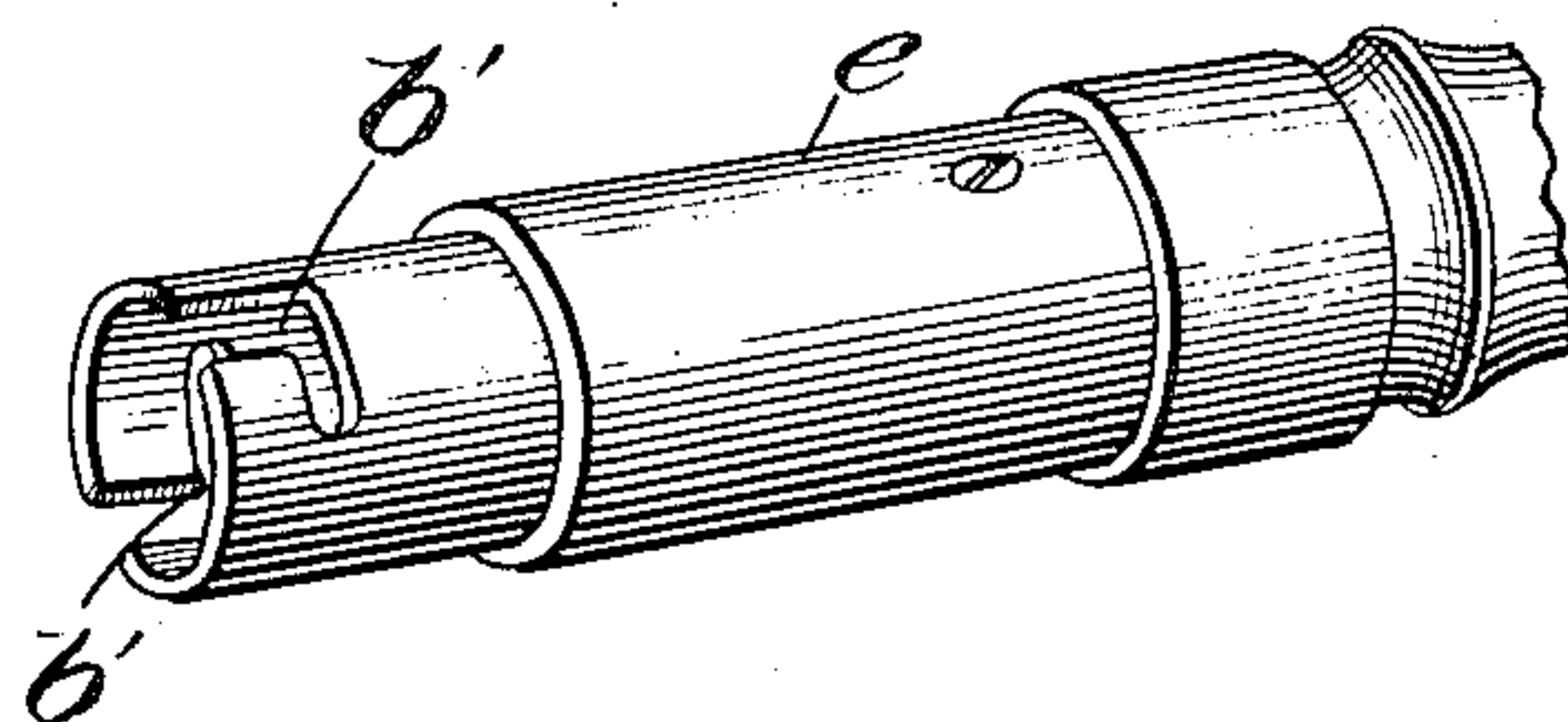
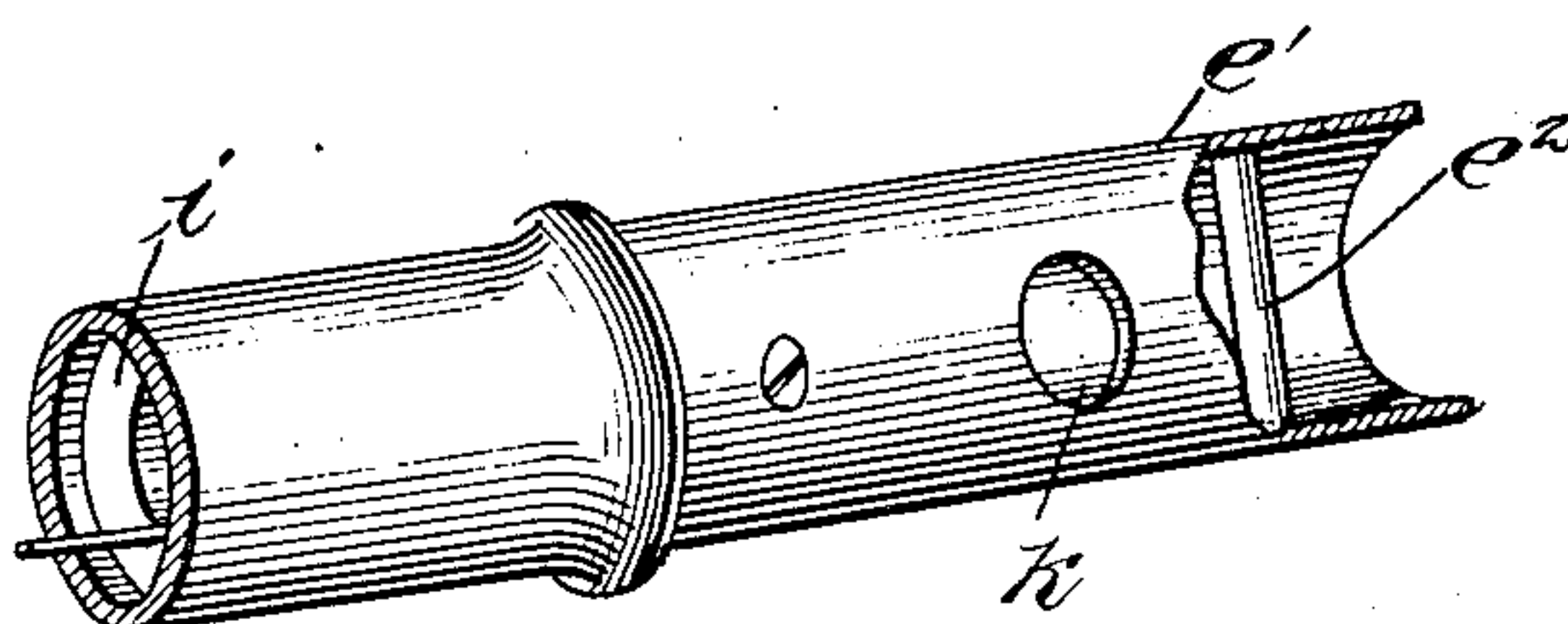


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH H. WARREN, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

LINE-CONNECTING DEVICE.

No. 824,222.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed June 18, 1904. Serial No. 213,087.

To all whom it may concern:

Be it known that I, JOSEPH H. WARREN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Line-Connecting Devices, of which the following is a full, clear, concise, and exact description.

My invention relates to a line-connecting device; and its object is to provide an improved light, strong, and convenient arrangement by which a portable telephone or signaling instrument may be easily and quickly brought into temporary connection with an overhead wire, such as a telephone or telegraph wire.

I will describe my invention particularly by reference to the accompanying drawings, and the parts, improvements, and combinations which I regard as novel will be pointed out in the appended claims.

Figure 1 is a view in elevation of the removable sections comprising the line-connecting pole of my invention. Fig. 2 is a longitudinal sectional view of my device, showing the same connecting a telephone set with an overhead wire leading to a distant station. Figs. 3 and 4 are detail sectional views illustrating the manner of coupling the sections. Fig. 5 is a detail view of the clip for engaging an overhead wire. Fig. 6 is a view of a portion of two sections to illustrate the manner of connecting and locking them, and Figs. 7 and 8 are detail views of the cleat which I employ.

The same characters of reference are used to designate the same parts in each of the figures of the drawings.

The line-connecting device illustrated comprises a pole, preferably of bamboo, having removable sections *a b c*, adapted to be coupled, as hereinafter explained, the section *a* being the upper or top one when assembled, *b* the intermediate, and *c* the lower or base section. While I have only illustrated one intermediate section, it will be understood that as many more could be used as desired or simply two sections employed, according to the height of the wire to be connected with.

The section *a* carries at its upper end a clip *d*, which may be a cylinder *d'*, fitting over the end of the section *a*, its upper end being curved and cut away to form a hook *d²*. A tongue *d³* is secured to said cylinder with its free end extending up adjacent to the inner

surface of the hook *d²*, said tongue being adapted to press a wire held by said hook into firm engagement therewith. The upper surface of the tongue *d³* is preferably roughened, as shown, so that the tongue will clean a wire with which it is brought into engagement and make better contact therewith. The sides of the tongue at the upper part thereof are bent in to form a curved surface, so that kinking of the wire which it engages or other injury will be prevented.

The lower end of the section *a* carries a metal ferrule *e*, which is adapted to fit into a metal socket *e'*, carried by one end of the section *b*. L-shaped slots *b' b'* are provided in the ferrule *e*, and a transverse pin *e²*, passing through the socket *e'*, is adapted to enter said slots *b'* when the ferrules are coupled. By twisting the ferrule *e* when the same is inserted the pin *e²* enters the transverse portions of the slots *b'*, so that the two sections are securely locked together, the structure forming, in effect, a boyonet-joint. The clip *d* and ferrule *e* are electrically connected by a conductor 1, extending through the interior of the section. The opposite end of the section *b* is provided with a ferrule *f*, similar to the ferrule *e* before described, and a conductor 2 electrically connects the socket *e'* and ferrule *f* of section *b*, said conductor passing through the interior of the section.

The upper end of the base or bottom section *c* of the pole is provided with a socket *g*, similar to the socket *e'* above described, with the exception that it is provided in addition with an inner tube or socket *g'*, concentrically disposed with relation to the outer socket *g*, so that the section *c* may be coupled with sections of different sizes. The pole considered as a unit is gradually tapered toward the tip. The ferrules and sockets of the different sections are therefore of different diameters. The ferrule *e* of section *a* and socket *e'* of section *b* are the smallest and are adapted to be coupled together. The ferrule *f* at the lower end of section *b* would of course be of somewhat greater diameter than ferrule *e*, and the socket *g*, with which the ferrule *f* is coupled, is correspondingly larger than socket *e'*. The provision of the inner concentric tube *g'* in association with socket *g* (said tube being of the same diameter as socket *e'* of section *b*) makes it possible to couple the sections *a c* by simply inserting the ferrule *e* of section *a*

within said tube g' . A conductor 3 extends from the socket g through the interior of the section and emerges through an opening h' therein. Said conductor may be connected
 5 with suitable electrical signal transmitting and receiving mechanism, such as the telephone set A. (Illustrated in Fig. 2.) The coupling of the metal ferrules and sockets to unite the sections $a b c$ serves to electrically connect
 10 the conductors 1, 2, and 3, which form, in effect, one continuous conductor extending from the clip to the telephone set.

When the pole is not in use, the conductor 3 may be wrapped upon cleats $h h$, which are
 15 carried by the base or bottom section c . Each of the cleats h comprises an open ring h' , whose ends are extended to form arms $h^2 h^2$. To secure one of said cleats to the pole, the two arms $h^2 h^2$ are forced apart to spread
 20 or open the ring, and the ring is then fitted upon the desired section of the pole. The arms are then brought together and fastened in any desired way, as by riveting. In case the diameter of the section is so great that the
 25 arms may not be brought together after the ring is placed on said section I preferably insert a metal piece h^3 between said arms and fasten the three parts together. The cleat is thus in either case rigidly held in place
 30 upon the pole.

Where the ferrules are joined to the sections the bamboo is preferably reinforced by centrally-bored wooden plugs $i i$, and openings $k k$ are provided in the base of each of
 35 the sockets $e' g$, through which dirt or foreign matter, which might interfere with the completion of a good electrical connection between the metal ferrules, may escape.

In the operation of my device the sections
 40 are coupled together and the clip d brought into engagement with a telephone or telegraph wire, as desired, and a suitable signal receiving and transmitting mechanism connected with the conductor 3. Referring to
 45 Fig. 2, I have shown the clip d in engagement with a wire 4, extending to a distant station B, the clip being connected by way of conductors 1 2 3 with the telephone set A. Signals may thus be transmitted to the distant
 50 station and conversation carried on.

I claim—

1. In a line-connecting device, in combination a hollow pole comprising a number of removable sections, conductors within said sections, a clip carried by the top section adapted to make electrical connection with an overhead wire, said clip being connected with the conductor within the top section, and metal ferrules for uniting said sections and connecting said conductors.
 55

2. In a line-connecting device, in combination a hollow bamboo pole comprising a number of removable sections, a clip carried by one of said sections adapted to grasp and
 65 make electrical connection with an overhead

wire, a conductor extending from said clip through said section, metal ferrules adapted to unite said sections to form bayonet-joints, and conductors extending through the other sections, the conductor of the bottom section
 70 passing through an opening therein, said conductors being connected by the ferrules when said sections are joined, and cleats carried by the bottom section upon which the conductor thereof may be wound.

3. In a line-connecting device, in combination a pole comprising a number of removable sections, means for uniting said sections, a clip carried by one of said sections, said clip comprising a body portion secured to said
 80 section, a hook carried thereby adapted to engage a conducting-wire, a tongue carried by the body portion of said clip adapted to maintain said wire in firm contact with said hook, said tongue being roughened and bent
 85 inward at its sides to form a curved surface, whereby the wire is cleaned and injury to the wire prevented, and a conductor connected with said clip.

4. A line-connecting device consisting of a
 90 pole, the diameter whereof increases from a minimum at the top to a maximum at the base, said pole comprising a number of separate lengths or sections removably fitted together by ferrules and sockets, each ferrule
 95 and socket having a diameter different from the remaining ferrules and sockets, a clip carried by the upper section of the pole adapted to engage a wire, a conductor connected with said clip and a tube within one of the larger
 100 sockets, said tube being of a diameter adapted to fit the ferrule of an upper section, said tube and socket being concentrically disposed; whereby said larger section may be coupled with sections of different sizes.

5. In a line-connecting device, the combination with a pole, of a clip carried by said pole adapted to make connection with a conducting-wire, a conductor connected with said clip, and cleats carried by said pole upon
 110 which a portion of said conductor may be wound, each cleat comprising an open ring h' fitting upon said section, arms $h^2 h^2$ formed by the ends of said ring, and means for fastening said arms together to close said ring and
 115 secure the cleat rigidly in place upon the pole.

6. In a line-connecting device, the combination with a pole, of a clip carried by said pole adapted to make connection with a conducting-wire, a conductor connected with
 120 said clip, and cleats carried by said pole upon which a portion of said conducting-wire may be wound, each cleat comprising an open ring h' fitting upon said section, arms $h^2 h^2$ formed by the ends of said ring, a metal piece
 125 h^3 placed between said arms, and means for securing said arms and metal piece together, whereby the cleat is held rigidly in place upon the pole.

7. In a line-connecting device, in combina- 130

tion a hollow pole comprising top and bottom and intermediate sections, conductors within said sections, a clip carried at the upper end of the top section adapted to make
5 electrical connection with an overhead wire, said clip being connected with the conductor within its section, metal ferrules carried at the lower ends of said upper and intermediate sections, each of said ferrules having L-
10 shaped slots therein, metal sockets carried upon the upper ends of said intermediate and bottom sections, said sockets having transverse bars therein adapted when the sections

are joined to enter the L-shaped slots of said ferrules and lock said sections, each socket 15 having an opening in the base thereof through which foreign matter may escape, said sockets and ferrules when united connecting said conductors.

In witness whereof I hereunto subscribe 20 my name this 9th day of June, A. D. 1904.

JOSEPH H. WARREN.

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