

No. 757,007.

PATENTED APR. 12, 1904.

H. I. WOOD & R. C. ROBINSON.
LAMP TERMINAL.

APPLICATION FILED JULY 26, 1902.

NO MODEL.

Fig. 1.

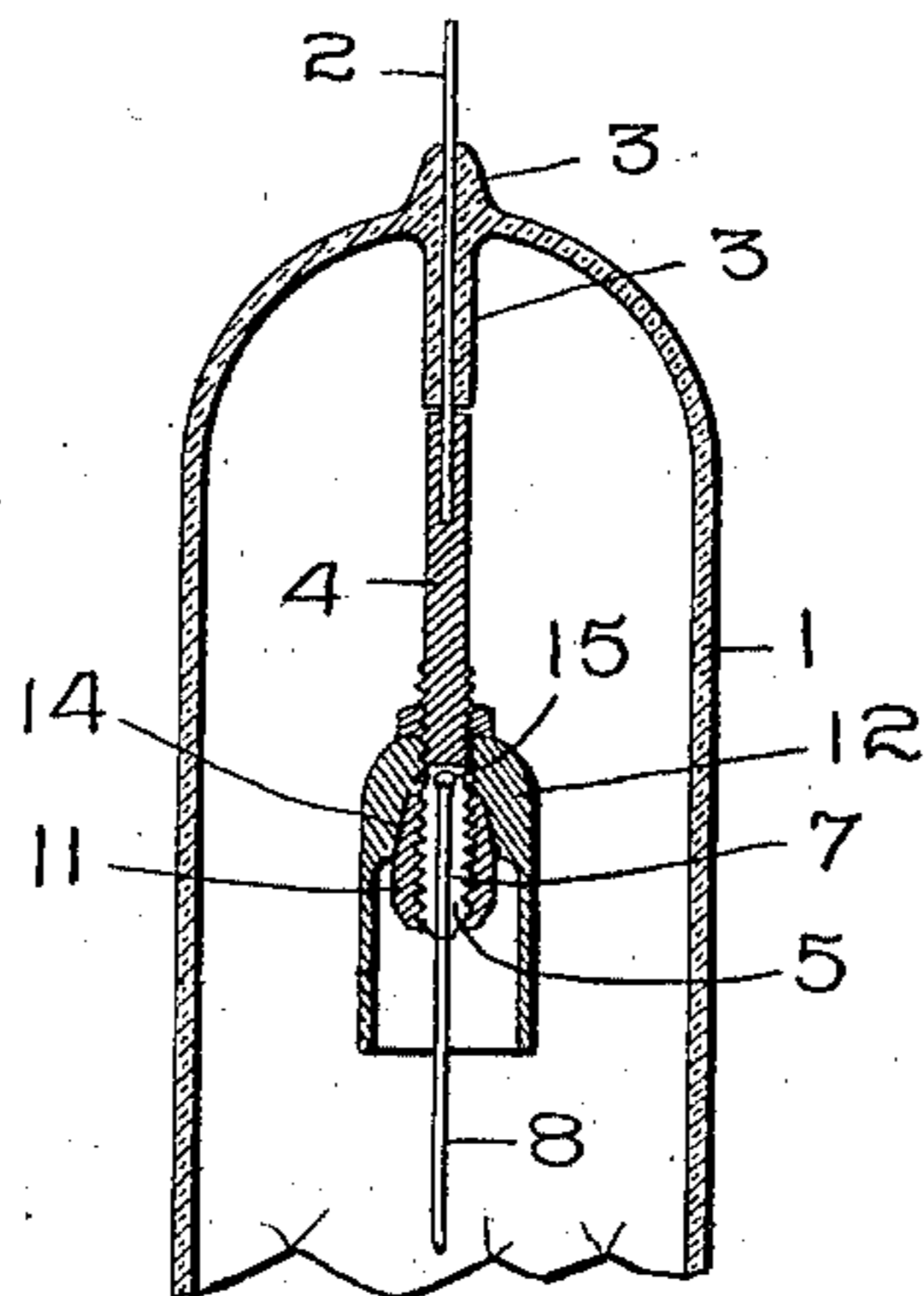


Fig. 2.

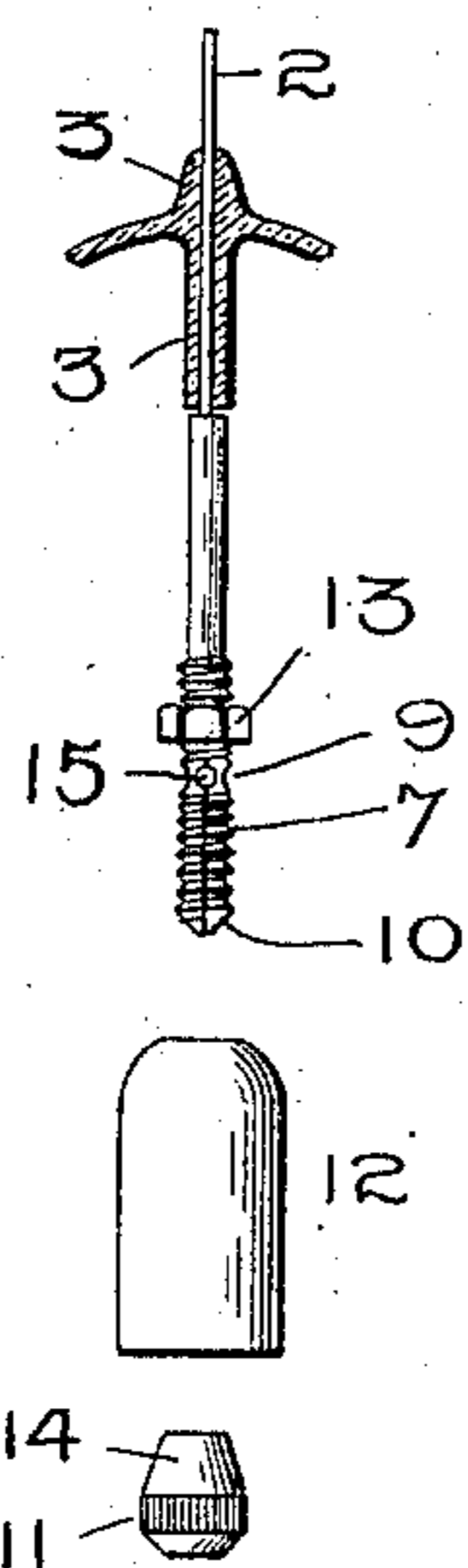


Fig. 3.

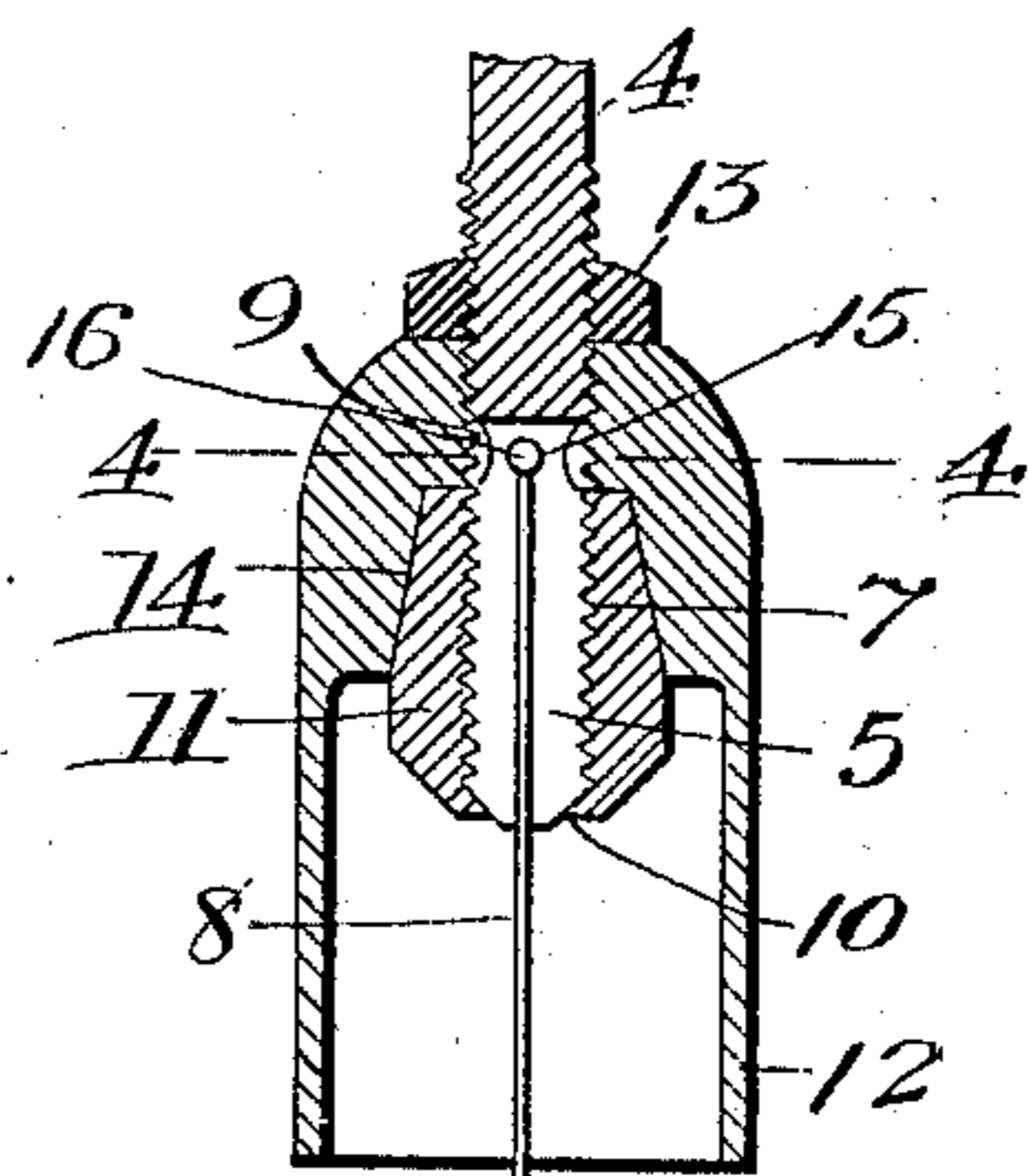
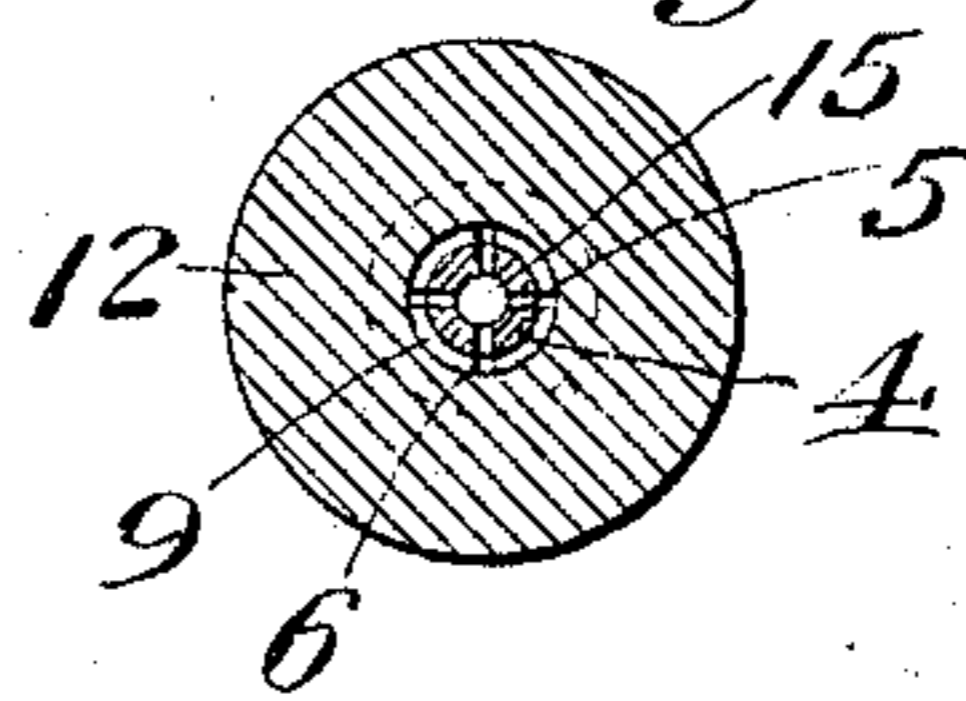


Fig. 4.



Witnesses:

Marcus L. Byng
Helen C. Ford

Inventors:

Howard I. Wood,
Ralph C. Robinson,

by *Albert G. Davis* Att'y.

UNITED STATES PATENT OFFICE.

HOWARD I. WOOD AND RALPH C. ROBINSON, OF SCHENECTADY, NEW YORK, ASSIGNORS TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

LAMP-TERMINAL.

SPECIFICATION forming part of Letters Patent No. 757,007, dated April 12, 1904.

Application filed July 26, 1902. Serial No. 117,117. (No model.)

To all whom it may concern:

Be it known that we, HOWARD I. WOOD and RALPH C. ROBINSON, citizens of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Lamp-Terminals, of which the following is a specification.

The invention which we have hereinafter described and claimed relates to improvements intended more particularly for use in electric lamps of that type in which the light is produced by the passage of a current of electricity through mercury vapor in a tube from which other gases and vapors have been removed. In these lamps a mass of mercury placed at one end of the tube forms one terminal and a solid body of iron, carbon, or the like forms the other. A carbon filament or rod has been used in these lamps to extend from one terminal toward the other and assist in forming the arc in starting the lamp, thus forming a supplemental terminal.

As our present invention does not relate to the general structure of the lamp, we have illustrated and described only so much of it as is necessary for a proper understanding of our invention. Lamps of the character referred to are described in the application of Ezechiel Weintraub, Serial No. 95,660, filed February 26, 1902, and the application of Howard I. Wood, Serial No. 116,463, filed July 21, 1902.

The object of our invention is to improve the construction of the solid terminal of the lamp and provide a means for suitably holding the supplemental terminal or extension in place; and it consists in certain features which will be more fully pointed out in the claims.

One embodiment of our invention is illustrated in the accompanying drawings, of which—

Figure 1 is a sectional elevation showing a portion of the containing-tube with the terminal parts assembled. Fig. 2 is a view in elevation, showing the parts separated. Fig. 3 is a sectional elevation taken similarly to Fig. 1, but on a larger scale, showing details of construction; and Fig. 4 is a section taken on the line 4 4 of Fig. 3.

In the drawings the inclosing tube 1 of the lamp is provided at its upper portion with a pair of opposing projections 3, one of which extends into the tube, the other extending out. These projections form a support or bearing for the sealed-in wire 2, which is preferably made out of platinum and which carries the current through the walls of the tube. To the inner end of the wire 2 one end of a stem or rod 4 is secured in any suitable manner, as by forming an axial hole in the rod 4 of slightly less diameter than the diameter of the wire 2 and then forcing the end of the wire 2 in the hole thus formed. This stem or rod 4 is substantially axial with respect to the tube and is made out of conducting material, such as carbon or steel. The other end of this rod or stem is threaded, the threaded portion extending along a considerable portion of the length of the stem. Slits or kerfs 5 and 6 are formed in the threaded end of the stem or rod and are made on planes passing through the axis of the stem and at right angles to each other. These kerfs or slits form fingers or jaws 7, which are quadrantal-shaped in cross-section. The fingers 7 are adapted to grasp and hold the carbon rod or filament 8, which forms the supplemental terminal. The inner edges of these fingers may be cut away to form an axial channel or recess for the reception of the rod, if desired. The rod is encircled by groove 9 at the upper end of the kerfs or slits 5 and 6, thus increasing the flexibility of the fingers 7.

The lower end of the rod 4 is cone-shaped, as indicated at 10. An internally-threaded nut or cap 11 is screwed on the rod 4 and is provided at its lower end with an interior cone-surface which is adapted to engage the cone end of the rod 4 and force the fingers 7 together, thus forming a positive clamping device for firmly holding the carbon filament 8 in place. The upper end of this cap is conical, as shown at 14, for a purpose hereinafter explained.

The main terminal 12 is formed of a piece of conducting material, such as steel or carbon, and is tubular in form, so that sections taken perpendicular to the axis are annuluses

and is throughout the major portion of its length of substantially uniform diameter. The terminal 12 is considerably larger in diameter than the stem or rod 4. The upper portion of the terminal is rounded off to form an approximately hemispherical end. The lower end of the terminal is hollowed out to leave practically nothing but a thin shell, the internal diameter of the shell being considerably greater than the diameter of the rod 4. The upper end is threaded internally to receive the rod 4, while intermediate the end portions is a conical portion tapered to fit the upper end of the cap 11. A clamping-nut 13 is placed on the rod 4 above the terminal 12.

The carbon is inserted between the fingers or jaws 7, and the cap 11 is screwed on, forcing the jaws together with the desired amount of force. The terminal 12 is then screwed down tightly against the cap 11, the conical bearing-surface insuring proper alinement, and the nut 13 is then forced down on the terminal 12, firmly clamping it against rotation.

We have shown at 15 a hole passing diametrically through the rod 4 at the upper end of the kerfs 5 and 6, and at 16 we have shown the end of the carbon filament 8 enlarged to fill the recess thus formed. This enlargement may be formed by applying a little carbon paste to the end of the filament before or after the filament is inserted in the clamp. When the rods 4 and 8 are so formed, the rod is retained wholly or in part by the engagement of the walls of the recess with the enlarged end of the filament. We find this of advantage in connection with the clamping-nut 11, where the terminal is subject to an unusual amount of heat and consequent expansion.

While we have described our improvement in connection with mercury arc-lamps, we do not intend to be limited to the use of our invention in connection with such lamps only, nor do we intend to be limited to the exact details of construction shown or described.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination, a conducting-rod, a main terminal carried thereby, and a clamping device also carried by said rod.
2. In combination, a conducting rod or stem, a main terminal detachably carried by said

rod, and movable clamping means also carried by said rod, said main terminal and said clamping means being formed with cooperating surfaces for positioning said main terminal.

3. In combination, a conducting stem or rod having one end threaded, a portion of said threaded end being slitted to form clamping-jaws, a nut on said rod, means for forcing said jaws together when the nut is screwed along said rod, and a tubular terminal also mounted on said rod having a portion of its interior threaded to fit said threaded rod and another portion of its interior of larger diameter to surround said clamping-nut.

4. In combination, a rod or stem, and a main terminal and a separate supplemental terminal each detachably secured to said rod.

5. In an electric lamp, a rod having an axial opening or recess formed in one end, said recess being enlarged to form a chamber at its inner end, and a second rod forming one of the terminals of the lamp of less diameter than the first-mentioned rod having an enlarged end inserted in said recess in said first-mentioned rod so that the enlarged end of the second rod is retained by the walls of the chamber in the first-mentioned rod.

6. In combination, a rod, a main terminal carried thereby, a clamping device also carried by said rod, and a supplemental terminal secured to said rod by said clamping device.

7. In combination, a rod, a main terminal detachably mounted thereon, a clamping device also carried by said rod, and a supplemental terminal detachably secured to said rod by said clamping device.

8. In an electric lamp, a rod having one end slitted to form clamping-jaws, an axial recess in said slitted end terminating in an enlarged chamber, and a terminal for said lamp consisting of a rod with an enlargement at one end and located in said recess with said enlargement in the enlarged chamber.

In witness whereof we have hereunto set our hands this 25th day of July, 1902.

HOWARD I. WOOD.
RALPH C. ROBINSON.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.