

(No Model.)

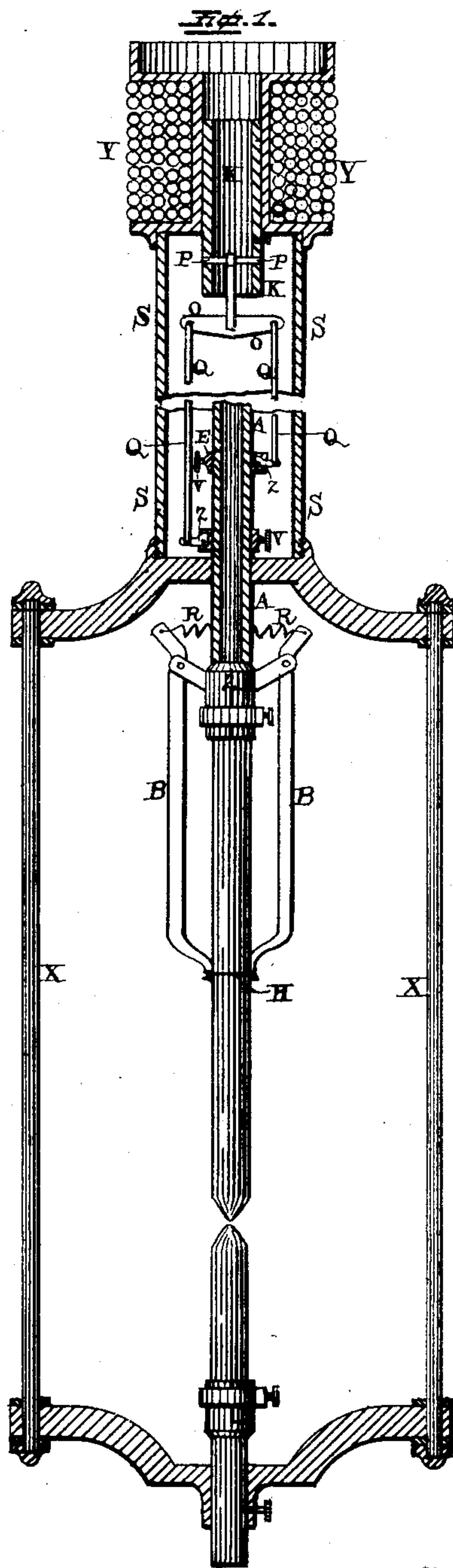
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L. G. WOOLLEY.

ELECTRIC LAMP.

No. 256,785.

Patented Apr. 18, 1882.



WITNESSES.

William H. Mortimer.  
William H. Kern.

INVENTOR.

L. G. Woolley.  
per  
F. A. Lehmann,  
Atty.

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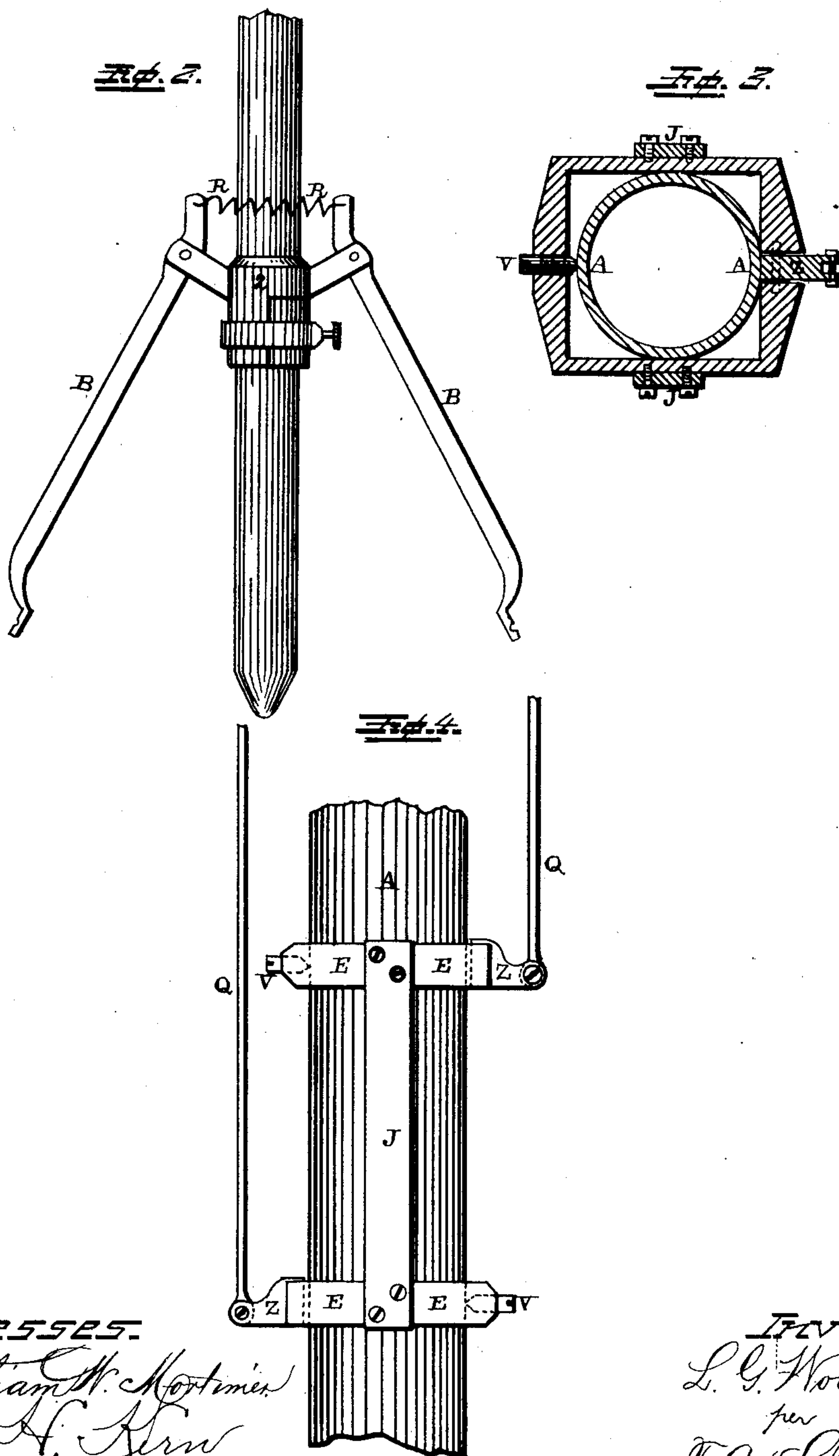
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# UNITED STATES PATENT OFFICE.

LEONIDAS G. WOOLLEY, OF MENDON, MICHIGAN.

## ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 256,785, dated April 18, 1882.

Application filed October 28, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, LEONIDAS G. WOOLLEY, of Mendon, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in electric lamps; and it consists, first, in the combination of the upper carbon with a pair of spring-jaws which are pivoted upon the carbon-clamp, and which have their lower ends fastened to the carbon by means of a wire, string, or other similar device, which will be melted or burned by the heat, so as to release the lower ends of the jaws, when the spring, which is applied to their upper ends, will cause them to instantly fly open. The object of this part of my invention is to enable an extra long carbon of from twenty-four to thirty inches to be used, so that a lamp can be made to burn a whole night or longer, if necessary, without the trouble of having to renew the carbons, and without having the additional resistance to the electricity which would ensue by having the current to pass through a carbon of such a length.

It consists, second, in the combination of two lifting devices which are applied to opposite or different sides of the upper-carbon guide or holder. The object of this part of my invention is to make use of two lifting devices, so that the lifting-tension will be applied directly and evenly to the carbon-holder, and thus dispense with all friction, and so that in case one of the lifting devices should fail to act the other will be sure to do so, and thus prevent any possibility of failure in the parts to work.

It consists, third, in the combination of the lifting devices, frames having angular openings through them, and which frames are connected together, pointed screws, and the upper-carbon guide or holder. The object of this part of my invention is to adjust the frames in which the lifting devices are pivoted upon the carbon guide or holder in such a

manner that the amount of bite which the lifting devices shall take can be readily regulated.

It consists, fourth, in the arrangement and combination of parts, which will be more fully described hereinafter.

Figure 1 is a vertical section of my invention. Fig. 2 is a detached side view of the spring-jaws. Figs. 3 and 4 are detached views of the lifting devices.

X represents the frame; S, the incasing-tube, and Y the helix, which is applied to the upper end of the tube, as shown and described in the patent granted to me July 5, 1881, and numbered 243,748. Inside of the helix Y is placed the core K, which may be provided with a set-screw or regulating device of any kind, so as to adjust the distance it shall be drawn up into the helix, and thus regulate the distance the lower ends of the two carbons are to be separated. Passed through the lower part of this core K is the pin P, to the center of which is fastened the hanging link N, which link has its lower end fastened to the cross-bar O.

To each end of the cross-bar O is fastened a connecting-rod, Q, the lower ends of which rods Q are fastened to the dogs Z, which are pivoted in the frames E. These two frames have oblong or angular openings made through them, so that they can be passed down over the top of the upper-carbon holder or guide A, and the two frames are connected together upon opposite sides by the two connecting-plates J, so that when one frame is moved the other will be moved at the same time. The openings through these frames are preferably made just about wide enough to allow the carbon holder or guide A to pass through them, while they are made long enough to allow a sharp-pointed screw, V, to be passed through the frame and bear against the side of the holder in the other direction. The dogs Z are pivoted in the opposite side of the frame from which the set-screws pass through, and these frames are so arranged that the dogs and screws are applied to opposite sides of the holder.

It will readily be seen from the above-described construction that the dogs being applied to opposite sides of the holder will be made to lift the holder squarely upward when-



ever the core is drawn upward by the helix, and thus all friction or binding upon the holder where it passes through the top part of the frame is avoided. By means of the screw V the holder can be adjusted in relation to the dogs Z so as to regulate the distance they shall turn upon their pivots, and thus the amount of bite which they shall take upon the holder. Two separate dogs being used, as is here shown, should one fail to act the other one is sure to do so, and thus all possibility of failure upon the part of the lifting device to act is avoided. The whole of the operating parts of the lamp being thus hidden from view, a much neater and more tasty and beautiful shape is given to the lamp.

In the lamps heretofore constructed carbons have been used which are only long enough to burn six or eight hours, and hence where it is desired to use a lamp for a considerable length of time the carbon must be renewed at least once during the evening. Where the lamps are to be used out of doors and suspended in places where it is not easy to reach them, this renewing of the carbons is a matter of great difficulty and trouble. This difficulty I overcome by making provision to burn a carbon of twenty-four to thirty inches in length or longer, if necessary, and that without increasing the electrical resistance which would ensue from passing a current through a carbon of such a length. For this purpose I pivot upon the clamp 2, which is secured to the upper end of the upper carbon, the two jaws B, which are connected together at their upper ends by means of a suitable spring, R. The lower portions of these jaws extend downward one-half, or to a greater distance, if necessary, along the side of the upper carbon, to which carbon they have their lower ends fastened by means of a thread, cord, or light wire. These levers act as conductors for the current, and from the lower ends of the levers the current passes through the carbon itself. When the carbon has been burned away, so that the cord or wire H is made to approach the point of ignition, the heat causes the thread or cord to burn or the wire to melt, when the spring R instantly causes the two jaws to spring open, and the current then passes directly through the carbon itself. By means of electrical conductors, which extend down along the side or sides of the carbon, it will readily be seen that a carbon of any desired length can be used, and that without in the least increasing the resistance of the current. Of course a single set, or any number of sets, or single arms alone may

be employed in this manner, varying according to the length of the carbon and the circumstances under which it is used. These may be varied at will without departing from the spirit of my invention. If a single arm is used, suitable tripping devices will be employed, and which may be operated by the movement of the holder or the carbon itself.

Having thus described my invention, I claim—

1. In an electric lamp, the combination of a carbon-clamp and a suitable electrical conductor or conductors, which are pivoted upon the clamp so as to rise and fall with the carbon, to which they are fastened at their lower ends, before the lower half of the upper carbon is consumed, substantially as shown.

2. The combination of a carbon, the carbon-clamp, one or more electrical conductors, a spring for moving the conductor or conductors, and a fusible wire or string by which the lower ends of the conductors are fastened to the carbon, substantially as described.

3. The combination, with a carbon-clamp, 2, of one or more pivoted jaws, B, which have their lower ends fastened to the carbon by a string or wire and a spring, R, which is secured to their upper ends for throwing the lower arm or arms outward when the cord or wire H is destroyed by heat, substantially as set forth.

4. In an electric lamp, the combination of the carbon holder or guide, a lifting mechanism, suitable frames, and two or more dogs pivoted in the said frames and applied upon opposite sides and at different elevations along the sides of the guide, substantially as specified.

5. In an electric lamp, the combination of the helix, the core, the pivoted rod O, connected to the helix, the two connecting-rods Q, the frames E, the dogs Z, and set-screws V, the dogs being applied at different heights along the sides of the guide A, substantially as specified.

6. In an electric lamp, the combination of the helix Y, core K, pin P, connecting-rods N Q, pivoted lever O, two frames, E, connected together, the two dogs, and the set-screws, substantially as set forth.

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

LEONIDAS G. WOOLLEY.

Witnesses:

HARRY C. ROBERTS,  
WILLIAM HARRIS.