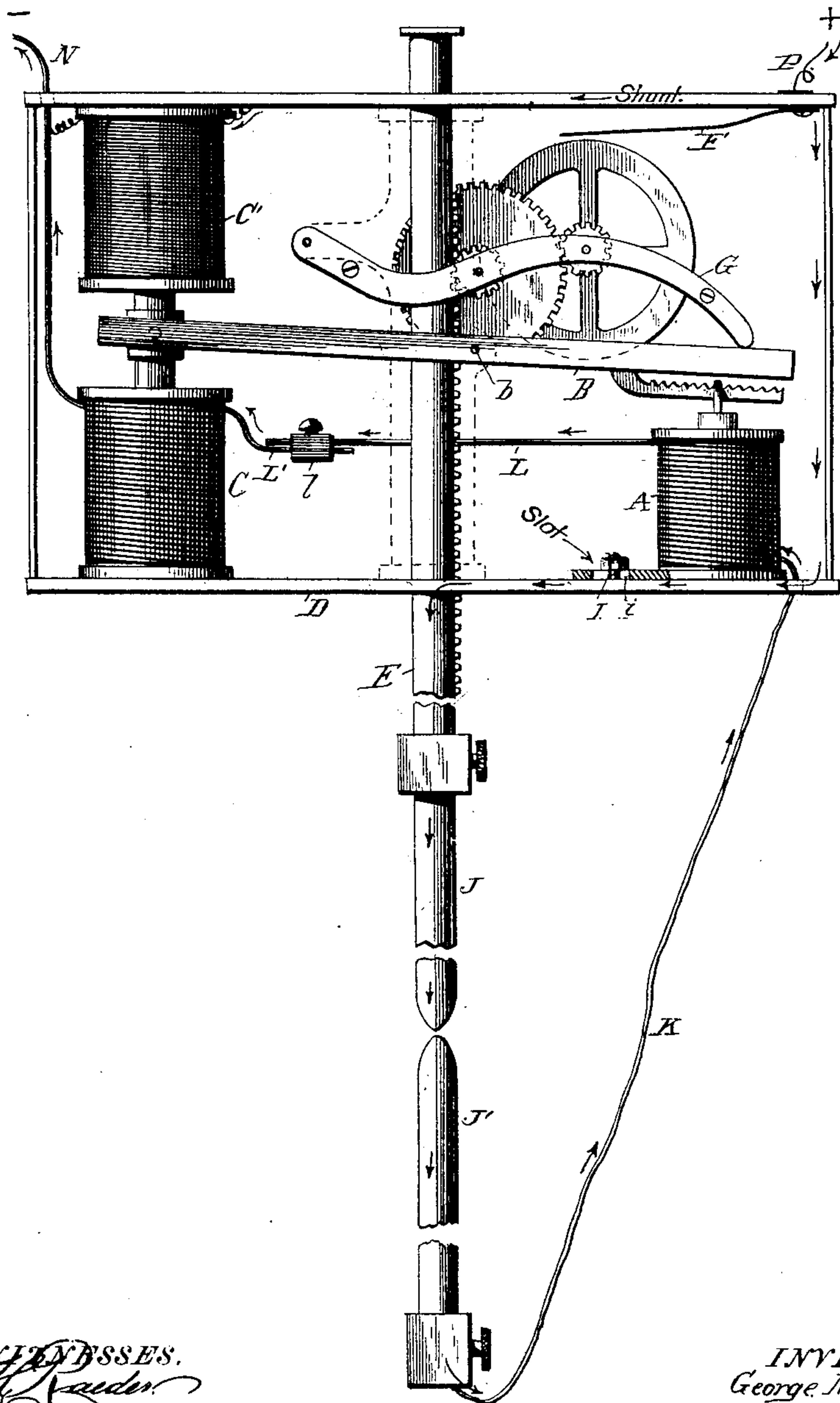


(No Model.)

G. M. LANE.  
ARC LAMP.

No. 400,692.

Patented Apr. 2, 1889.



WITNESSES.  
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# UNITED STATES PATENT OFFICE.

GEORGE M. LANE, OF ASBURY PARK, NEW JERSEY.

## ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 400,692, dated April 2, 1889.

Application filed December 26, 1888. Serial No. 294,575. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. LANE, a citizen of the United States, residing at Asbury Park, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Electric-Arc Lamps; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to electric-arc lamps, and has for its object to provide means for adjusting and retaining the arc at its proper length under a variation in the strength of current.

In arc lamps heretofore constructed the arc is adjusted either by a spring, weight, or resistance, all of which have a fixed value as a counter-force against the power of the main magnets. A lamp when adjusted in this way will give good results so long as the current is at its standard; but should it increase or decrease the lamp is thrown out of balance and a poor or unsteady light is the result. In my invention the counter-force is a magnet which is placed directly in the main circuit, and having its armature connected to the vibrating frame or lever, which is controlled by the main and the shunt magnets in the usual way; hence it will be readily understood that the force exerted to retain the arc in a fixed position is directly in proportion to the strength of the current. If the current should be below the standard, the adjusting-magnet will be weak and will have less force against the main magnets, thereby permitting them to maintain the normal arc. On the other hand, should the current be above the standard, the adjusting-magnet will have its strength augmented, thereby counteracting the increased strength of the main magnets to maintain the normal arc.

A further object of the invention is to devise a novel and simple means for regulating the length of the arc, which is effected by having the said adjusting-magnet adjustable to and from the pivotal supports of the vibrating frame or lever.

The improvement further consists in the novel features which will be hereinafter more fully described and claimed, and which are shown in the accompanying drawing, which is a side view, parts being broken away, of a lamp of ordinary construction embodying my invention.

The frame D, the carbon-holder E, the brake F, the frame G, carrying the feed-controlling mechanism, the vibrating lever B, pivoted at *b*, and the main magnets C and C', for controlling the movements of the lever B and frame G, are of old and well-known construction and relative arrangement, and are shown simply to illustrate the operation and application of my invention.

The adjusting-magnet A is arranged in the main line and its armature or core *a* is connected with the lever B. The core *a* is adjustably connected with the lever B, preferably by being suspended from the arm II, which is secured to the said lever, and the magnet A is adjustable on the frame, being held in place by the bolt I, which passes through the slot *i* in the base of the said magnet. The current enters at P and passes through frame D, carbon-holder E, upper and lower carbons, J and J', wire K, magnet A, conductor L L', magnet C, and out at N. The magnet C' is in a shunt-circuit. The conductor between the magnets A and C is composed of two wires, L and L', which are coupled together by the binder *l*. When the magnet A is adjusted, the binder *l* is loosened to permit the lengthening or shortening of the said conductor.

The operation of the invention is manifest from the foregoing statement of the object of the invention and the detailed description of the same. The adjusting or compensating magnet A is of less power than the magnet C, with which it acts in opposition, as hereinbefore stated, to maintain a steady arc.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an electric-arc lamp, the combination, with the feed-controlling lever, the magnet C in the main circuit, and the magnet C' in a shunt, the two magnets C and C' acting in opposition to each other for controlling the movements of the said lever, of the adjusting



or compensating magnet A, of less force than the feed-controlling magnets, placed in the main circuit with the magnet C, and acting on the said feed-controlling lever in opposition to the said magnet C proportionate to the strength of the current, substantially as and for the purpose described.

2. In an electric-arc lamp, the combination, with the feed-controlling lever and the magnets C and C', for controlling the movements of said lever, of the adjusting-magnet A, arranged to act on said lever in opposition to the magnet C and adjustable to and from the pivotal support of the said lever, substantially as and for the purpose described.

3. In an electric-arc lamp, the combination, of the feed-controlling lever B, the magnets C and C', the arm H, and the magnet A, adjustable on the frame and having its core sus-

ended from the said arm H, substantially as and for the purpose described.

4. The combination of the feed-controlling lever, the magnet C in the main circuit, and the shunt-magnet C', arranged to act in opposition to one another on the same end of the said feed-controlling lever, the compensating magnet A, of less force than the magnet C and in the main circuit therewith, arranged to act on the other end of the said lever in opposition to the magnet C, and having its armature connected and movable with the said lever, substantially as described.

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

GEORGE M. LANE.

Witnesses:

J. C. BERRANG,  
WALTER TRAVIS.