

(No Model.)

O. A. ENHOLM.  
ARC LAMP.

No. 441,543.

Patented Nov. 25, 1890.

Fig. I.

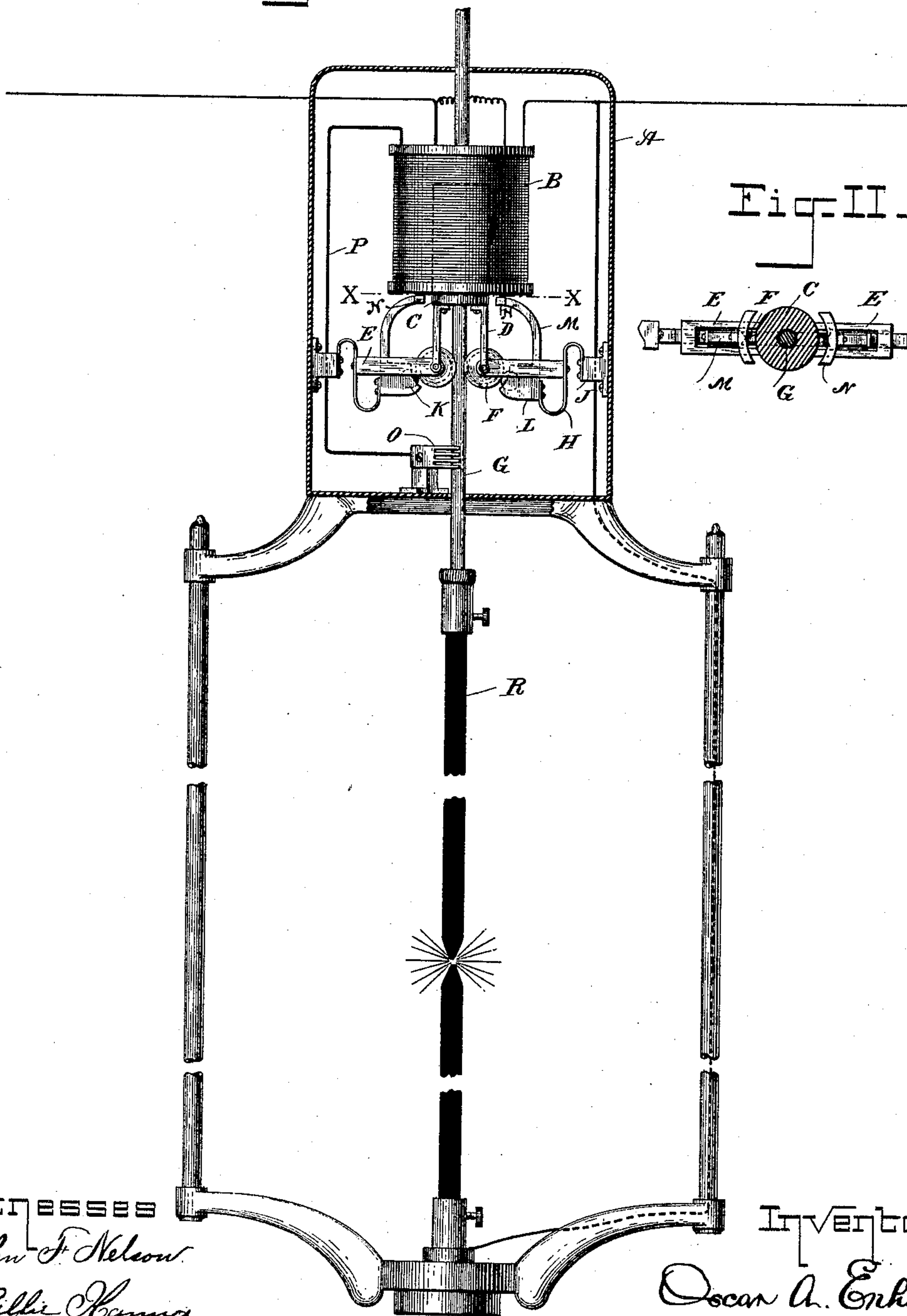
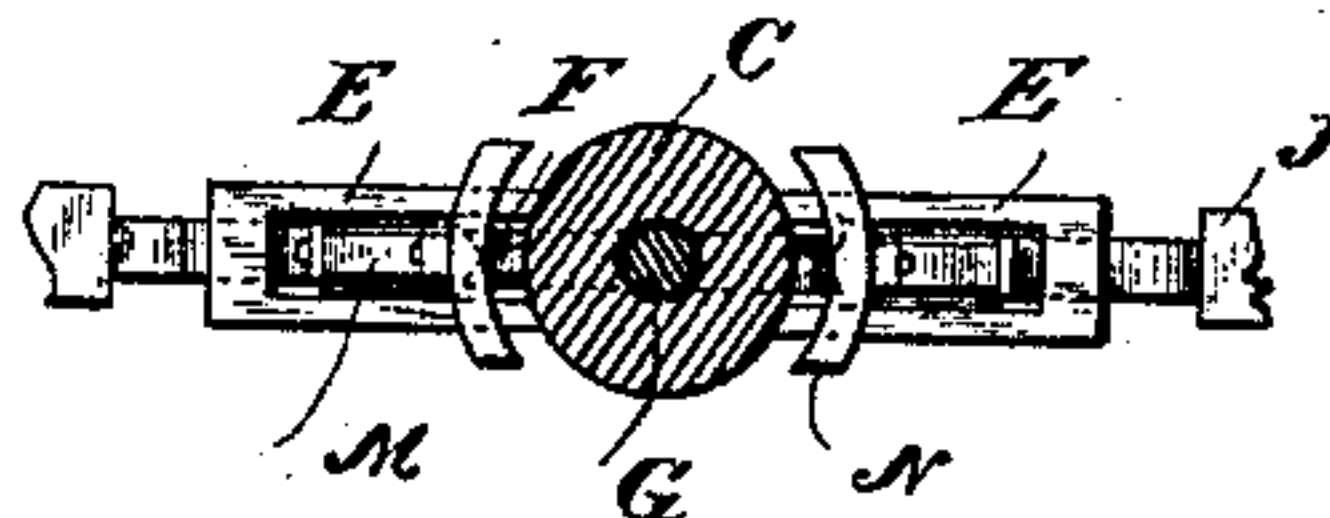


Fig. II.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 441,543, dated November 25, 1890.

Application filed February 20, 1890. Serial No. 341,126. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR A. ENHOLM, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Arc Lamps, of which the following is a specification.

My invention relates specifically to certain improvements in the clamping or clutching devices for retaining the upper carbon or candle in its proper position relative to the lower carbon, the object being to provide a more simple, convenient, and reliable regulator or controller than any now employed in this connection. To this end I provide rollers arranged opposite to each other and located on both sides of the upper-carbon holder, having grooved semicircular or V-shaped peripheries for nipping the said holder, said rollers being so constructed and arranged as that they will automatically regulate the downward movement of the upper-carbon holder, means being provided for withdrawing these nipping-rollers to their normal position when the distance between the points of the electrodes has been adjusted.

Referring to the accompanying drawings, which form a part of this specification, Figure I represents an arc lamp equipped with my improvement, as hereinbefore set forth. Fig. II is a detail view.

A represents the casing of the clamping or clutching mechanism, B being a solenoid within which is located the sliding armature-core C. Attached to and suspended beneath this solenoid are resilient hangers D, on the lower end of which are hung the inner ends of the flexibly-supported brackets E. These brackets support at their inner ends nipping or gripping regulator-rollers F, there being two of said rollers, as shown. These rollers are arranged opposite each other and on either side of the upper-carbon holder G, and are adapted to rotate thereon as the upper-carbon holder G is fed downward as the candles are consumed.

The brackets E are supported at their outer ends by means of the springs H, and they in turn are suitably secured to the lugs J at the side of the casing A.

Beneath the regulating-rollers F are located small brake-rollers K, the latter rollers being normally in contact with the rollers F, and being adapted to press against them as the upper carbon is fed downward and consumed.

The brake-rollers K are supported in the carriages or brake-beams L, which are attached to the inner ends of the spring-pieces H independently of the brackets E. The carriages L are prolonged upward and their extensions M are bent inward and toward the lower terminus of the solenoid C. These prolongations M are provided at their inner and upper ends with semicircular soft-iron bars or armatures N, which are normally excited by the proximity of the solenoid, and which through this medium serve to hold the braking-rollers K against the regulator-rollers F. The contact-brush is shown at O, and the current from the wire P on the main circuit supplies the current to the upper carbon R through the medium of the said brush. The main circuit is shown by the heavy lines and the shunt-circuit by the light lines.

The operation of the lamp is as follows: The arc is automatically formed when the upper carbon is resting on the lower carbon. The passage of the electric current through the main circuit will cause the excitation of the solenoid B, by this means drawing upwardly the core C. The armatures N, becoming likewise excited, will move toward the core C, and will, through the intermediate mechanism, apply the braking-rollers K to the nipping-rollers F. The latter will then be forced against the upper-carbon holder G, and as the core C moves upward it will draw the holder G and upper carbon R with it, thus creating the arc. While the lamp is burning any departure from the normal rate of feed, by reason of the weakening of the current in the main circuit through the increase of the distance between the points of the electrodes, will cause the current to be shunted through the shunt-circuit, which action will permit the armature-core to drop, together with the upper-carbon holder and the regulating-rollers, which are suspended from the armature-core. The said armature-core being no longer



excited, the soft-iron armatures N will become demagnetized and will fall away from the armature-core, and thus release the brake-rollers K from contact with the regulator-rollers F. When the upper electrode has reached the desired position, the main circuit will be re-established, and the regulating and brake rollers will assume their normal place.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In an arc lamp, the combination of the regulator-rollers mounted on resilient supports and provided with braking-rollers, and a carbon-holder arranged to operate in connection therewith, substantially as and for the purposes set forth.

2. In an arc lamp, the combination of the carbon-holder, the regulator-rollers having grooved peripheries and adapted to operate in connection with the upper holder, substantially as described, with the flexibly-sup-

ported brackets and the resilient hangers, as and for the purposes set forth.

3. In an arc lamp, the combination of the upper-carbon holder, the oppositely-arranged regulator-rollers suspended from the resilient supports and connected to the armature-core, the braking-rollers arranged in contact with the regulator-rollers and having spring-supports, substantially as and for the purposes set forth.

4. In an arc lamp, the combination of a carbon-holder, regulator-rollers, means for braking the rotation of same, and normally-excited bars arranged in proximity to the armature-core and connected to the braking-rollers, all adapted to operate substantially as and for the purposes set forth.

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Witnesses:

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