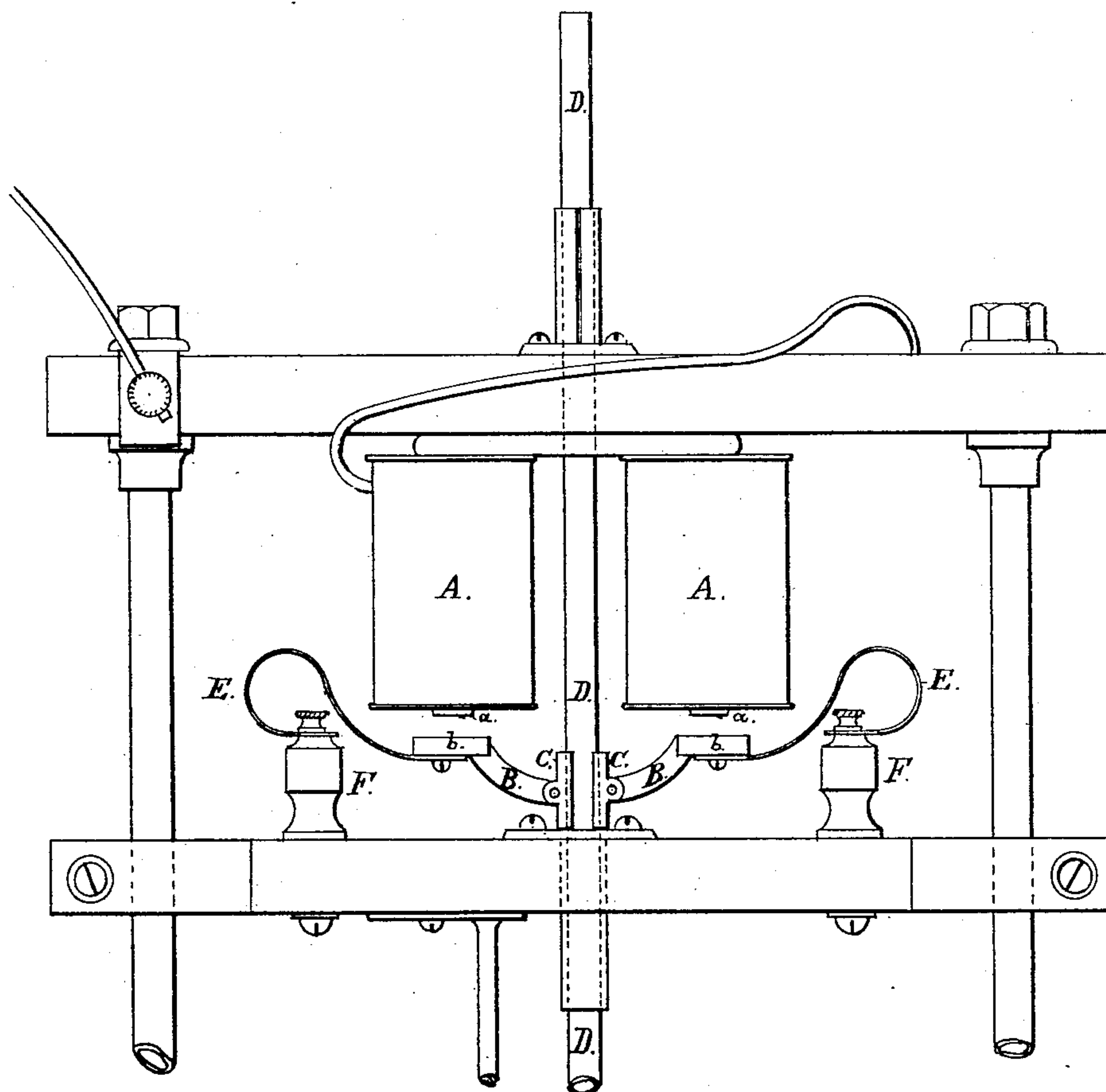


(No Model.)

H. JACOBS.  
Regulator for Electric Lights.

No. 233,416.

Patented Oct. 19, 1880.



WITNESSES:

*Almon Hall*  
*Barthman Fuller*

INVENTOR:

*Henry Jacobs*

# UNITED STATES PATENT OFFICE.

HENRY JACOBS, OF TOLEDO, OHIO.

## REGULATOR FOR ELECTRIC LIGHTS.

SPECIFICATION forming part of Letters Patent No. 233,416, dated October 19, 1880.

Application filed July 31, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY JACOBS, of the city of Toledo, Lucas county, Ohio, have invented a certain new and useful Improvement in Regulators for Electric Lamps, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, forming a part of this specification.

My invention is an improved device for regulating the distance between the carbons in electric lamps, which is in form and application as hereinafter described and claimed.

In the accompanying drawing, the single figure is a side view of the upper part of an electric lamp provided with my improved regulator, omitting the lower part of the lamp with its carbons, holders, and connections.

In the drawing, A A is an electro-magnet in the main circuit. *b b* are armatures to said magnets, supported by adjustable springs E E, which springs are curved and flat, having both lateral (toward center) and downward thrust. B B are arms projecting from the armatures and pivoted or hinged upon the shoes C C, which shoes clasp and slide upon the sliding rod and upper carbon-carrier, D. The pressure of the shoes C C upon the sliding rod D is obtained by means of the lateral thrust of the springs E E, and is regulated by means of the posts F F, which slide in slots in the frame, and may be set according to the pressure required.

In the lamp herein described the lower carbon is stationary. If the two carbon-points be brought in contact with each other, and if the lamp then be placed in the electric circuit, it is obvious that the electro-magnet A will attract the armatures *b b*, and that the rod D will be lifted by means of the clutch of the pivoted shoes C C, thus separating the carbon points and inducing the voltaic arc. It is equally obvious that when the current has become enfeebled by the wearing away of the carbon points and their too great separation the antagonistic springs E E (being properly adjusted as to tension) will carry down-

ward and force away from the weakened magnet the armatures *b b*, the arms B B, and the pivoted shoes C C, and with them the rod D, with its carbon-holder. The carbons being brought close together, the current and the luminous arc recover their original intensity, which causes a fresh attraction or contact of the armatures, so that the regularity of the light is preserved by the magnet and springs acting alternately as the current becomes too strong or too weak, increasing or decreasing the distance between the carbon points practically in proportion inversely to the resistance of the circuit or the length of the voltaic arc.

When the magnet loosens its hold the springs E E carry the rod D downward with such sudden force that, overcoming the adjusted friction of the shoes C C, the rod, by its own weight and momentum, is shot or fed downward slightly, but sufficiently to compensate for the constant shortening of the carbons.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an electric lamp, the device consisting of the magnet A, armatures *b b*, sliding rod and carbon-holder D, springs E, and pivoted shoes C, for regulating the feed of the upper carbon downward by means of the rod D, overcoming by its own weight and momentum the adjusted friction of the shoes C C, substantially as described.

2. In an electric lamp, the springs E E, having their elastic thrust both lateral and downward, substantially as shown and described, for the purposes specified.

3. The combination, in a regulator for electric lamps, of the magnet A, armatures *b b*, and sliding rod D, with the adjustable springs E E, having both lateral and downward thrust, and the pivoted shoes C C, substantially as shown and described, for the purpose specified.

Witnesses:

HENRY JACOBS.

ALMON HALL,

RATHBUN FULLER.