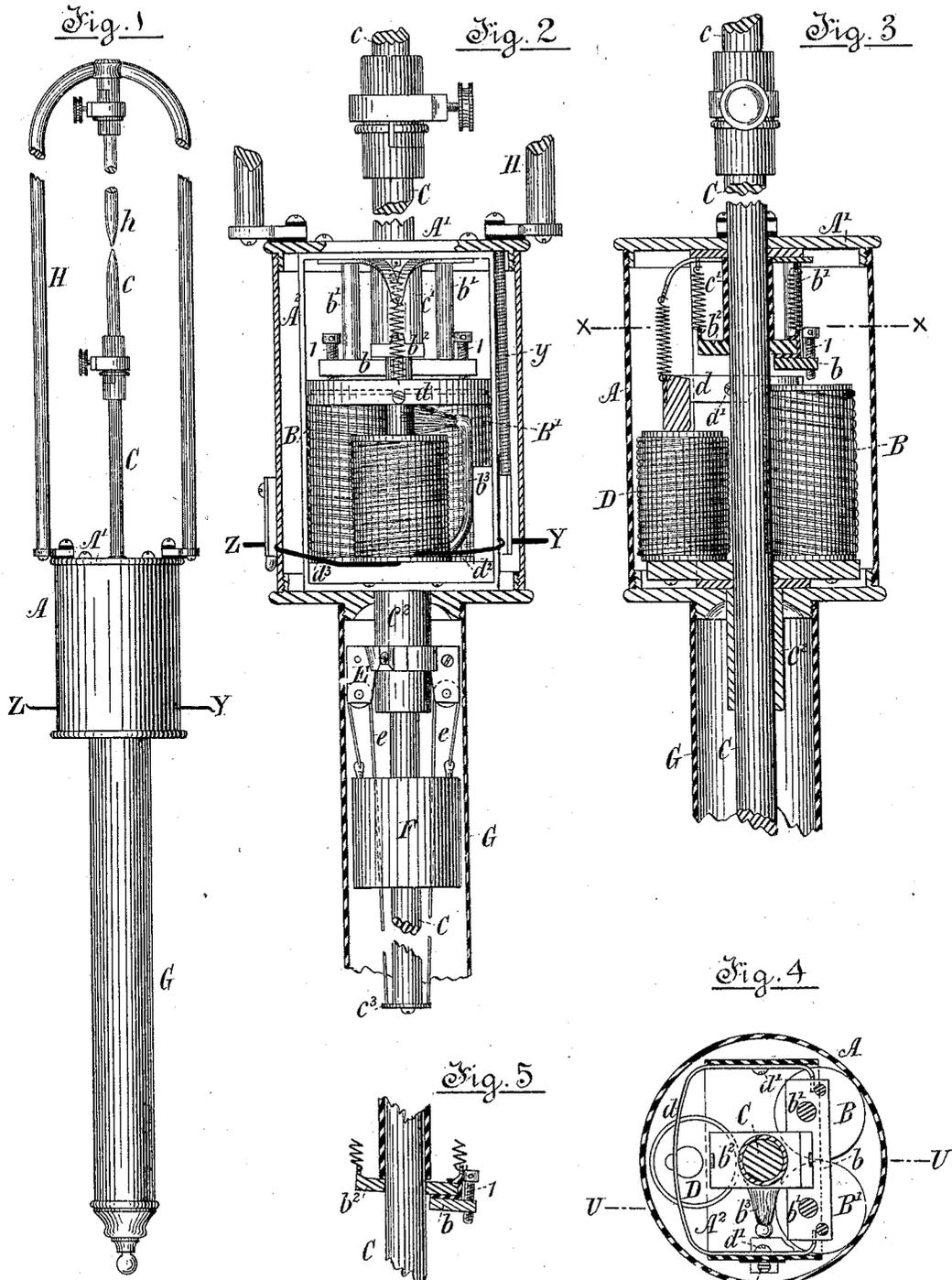


(No Model.)

J. A. I. CRAIG.
ELECTRIC LAMP.

No. 249,016.

Patented Nov. 1, 1881.



Witnesses:

Thomas J. Deane
W. V. V. V.

Inventor.

Joseph A. I. Craig,
Richard Kellogg,

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH A. I. CRAIG, OF MONTREAL, QUEBEC, CANADA, ASSIGNOR OF TWO-THIRDS TO EDWIN RUTHVEN WHITNEY AND CHARLES LUCIEN BOSSÉ, BOTH OF SAME PLACE.

ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 249,016, dated November 1, 1881.

Application filed July 20, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. I. CRAIG, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Electric Lamps; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in the general construction and arrangement of the several parts going to make up an apparatus or lamp for electric lighting, and has for its object to provide, in cheap and simple form, an efficient article, which shall be also adapted, without alteration, for any position, whether in a hall or building, where it can be suspended or hung from a bracket, &c., or for outside purposes, where it will be found specially suitable for being supported in a post or in any way which might be found desirable.

The special features of my improvements may be briefly described as follows: The lower or negative carbon is fed upward toward the positive carbon, which is held stationary and suspended by a yoke or strap extending upward from a cylindrical casing, which incloses a frame carrying the electro-magnets, armatures, and the mechanism employed for lowering the negative carbon, the rod carrying this latter passing down through this cylindrical chamber and through a collar projecting from the frame, and on which pulleys carrying a weight are attached, and the rod, pulleys, weight, and collar are inclosed by a tube screwed to the under side of the cylindrical casing above mentioned.

For full comprehension of my invention reference must be had to the annexed drawings, in which similar letters of reference indicate like parts, and where—

Figure 1 represents an elevation of my improved lamp; Fig. 2, a vertical sectional elevation of same; Fig. 3, a transverse vertical section on line U U, Fig. 4, said Fig. 4 being a sectional plan taken on the line X X, Fig. 3; and Fig. 5 is a detail showing device for lowering rod carrying negative carbon.

A represents the cylindrical chamber or cas-

ing, which is screwed or otherwise attached to a flange or cover, A', which flange or cover carries on its under side a frame, A², inside the walls of which are placed two electro-magnets, B B', provided with an armature, b, which has two pins extending from its upper side and sliding in sleeves b' b', attached to the frame A², and the armature is also furnished with two screws, 1 1, for regulating length of arc. This armature also supports and has affixed thereto one end of a collar, (shown in detail in Fig. 5,) b², which encircles a rod, C, which carries the lower or negative carbon, e, and slides up and down through the center of the frame A², sleeves c' and c² being provided therefor, as shown. The collar b² is held up against the lower end of the sleeve c' by any suitable springs. A supplementary magnet, D, is also placed within the frame A² where shown, and furnished with an armature, d, of the form indicated—viz., a strap the ends of which pass, as shown in Figs. 3 and 4, underneath the armature b, and are pivoted, as indicated at d' d', to the frame. This magnet D is connected by wires with the positive and negative poles Y and Z of the lamp, as shown at d² d³ in Fig. 2, and the magnets B B' are connected to each other in the usual way, and by means of a brush or other device, b³, to the rod C, holding the negative carbon. To aid in moving this rod C upward as the carbon is consumed, I attach to the sleeve c² a series of pulleys, E, round which pass cords e e, one end of each being attached to a revolving plate, c³, pivoted to the end of C, and their other ends tied to a hollow weight, F, which encircles the rod C, thus permitting same to pass freely up and down. A tube or casing, G, screwed to A incloses this mechanism.

To carry the positive carbon h, I arrange a yoke or strap, H, in the form and position shown in Fig. 1—viz., extending upward from the cover A' of the casing A, being insulated therefrom, but connected to the positive pole Y by a wire, y, as shown in Fig. 2.

In lighting the lamp the electric current is directed to the positive pole Y, whence it passes through the wire y to the yoke H, from

which it goes to the carbons in the usual way, and passes down through the rod C, and by means of the brush b^2 is communicated to the electro-magnets B B', the strength of the current in which attracts the armature b , and thus draws the collar b^2 down at one end, which has the effect, as will be understood from the detail in Fig. 5, of gripping the shaft C and drawing the same downward, which, of course, separates the carbons and forms the voltaic arc. When the current in the magnets B B' becomes weakened from the increased length of the arc, brought about by the consumption of the carbons, the extra strength of the current brought in at the positive pole Y will pass through the wire d^2 into the supplementary magnet D, and thus attract to the latter the armature d , the ends of which will then raise the armature b from its contact with the magnets B B', the upward movement of the collar b^2 , aided by the weight F below, having the effect of raising the rod C, and thus bringing the negative carbon c close up to the positive point h , when they are again lighted and the current is once more diverted to the magnets B B', which then attract the armature b and form the arc between the carbons.

I am aware of the patent of Kellogg, No. 229,536, dated July 6, 1880, and I do not broadly claim the invention therein shown.

Having thus described my invention, I beg to state that what I claim is as follows:

1. In an electric lamp, the combination of

a fixed carbon, a movable carbon supported on a vertically-sliding rod, electro-magnets B B, whose helices are electrically connected to rod carrying movable carbon, and with armature and the described connections, whereby said armature is adapted to draw down the rod C, a weight for raising said rod, a supplemental electro-magnet in a permanently-closed shunt, and provided with an armature and lever adapted to act upon and raise the first armature, whereby the movable carbon is permitted to rise when the distance between the carbons has increased, substantially as described.

2. The combination of the magnets B B', armature b , collar b^2 , with its springs, with the rod C and weights adapted to raise the same, and with the supplementary magnet D and armature d , the latter being adapted to operate upon the armature b , said devices having electrical connections, as described, and all being combined in the manner set forth.

3. The combination of the case A, yoke H, supporting the upper carbon, and tube containing the magnets B, B', and D and their armatures, and electrical connections, as described, with the rod C, supporting the negative carbon, the tube G, and the weight F, all as set forth.

JOSEPH A. I. CRAIG.

Witnesses:

R. ARTHUR KELLOND,
S. HAMILTON CLARKSON.