(No Model.)

W. K FREEMAN.

ELECTRIC ARC LAMP.

No. 264,269. Patented Sept. 12, 1882.

FIG. 1.

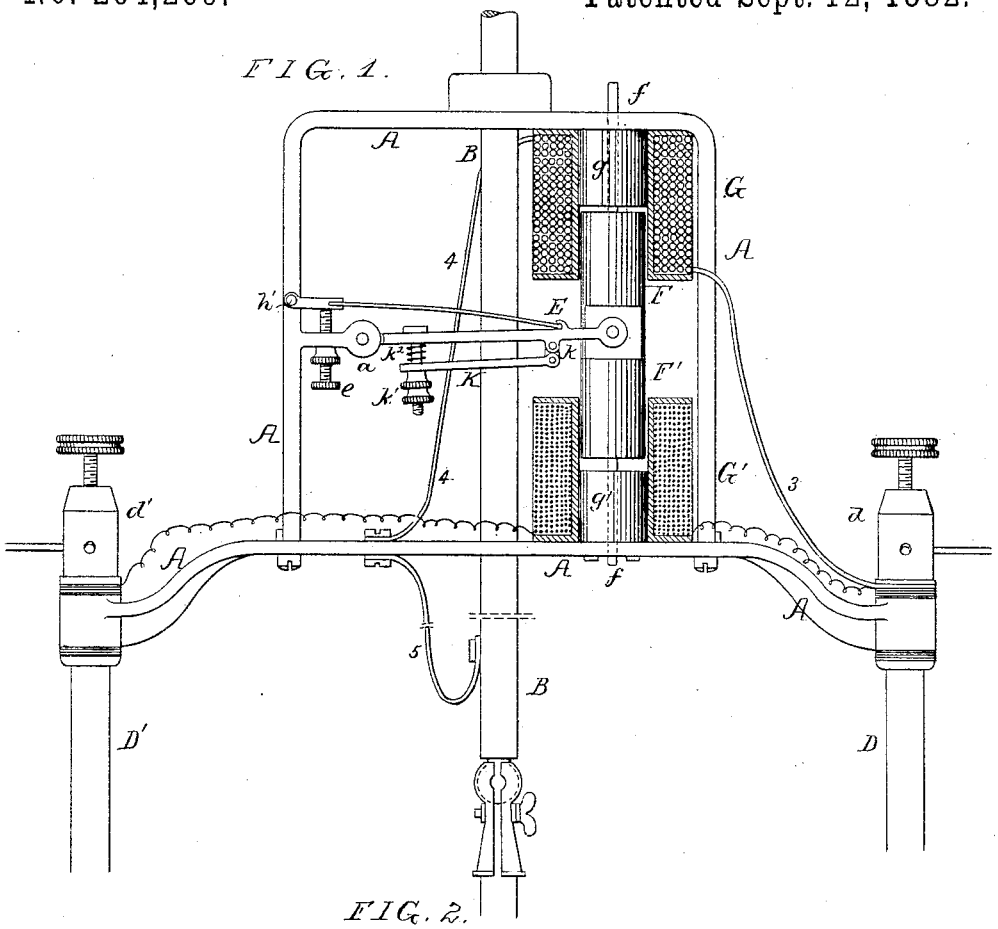


FIG. 2.

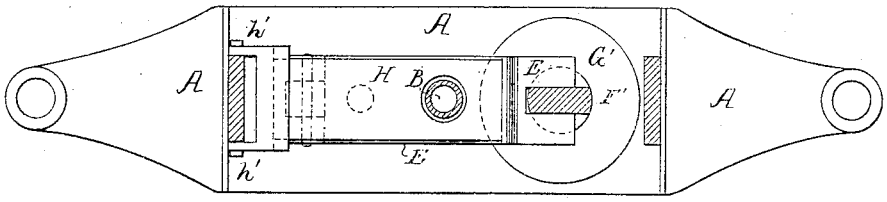
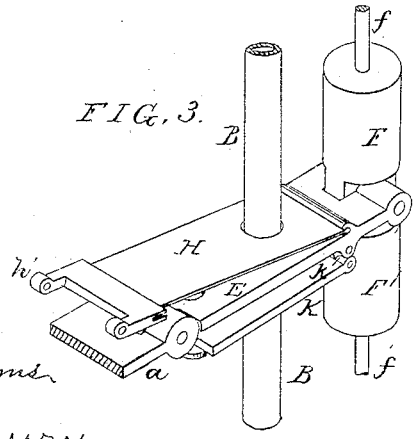


FIG. 3.



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UNITED STATES PATENT OFFICE.

WALTER K. FREEMAN, OF BROOKLYN, NEW YORK, ASSIGNOR TO W. F. JOBBINS, OF EAST ORANGE, NEW JERSEY.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 264,269, dated September 12, 1882.

Application filed June 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALTER K. FREEMAN, a citizen of the United States, and a resident of Brooklyn, New York, have invented certain Improvements in Electric-Arc Lamps, of which the following is a specification.

My invention consists of certain improvements in the construction of the regulating devices for the carbons of electric-arc lamps, as more fully described hereinafter.

In the accompanying drawings, Figure 1 is a side view, partly in section, of the upper part of an electric lamp illustrating my invention; Fig. 2, a plan view on the line 1 2, Fig. 1; and Fig. 3, a perspective view of a part of my invention.

A is the upper frame, which carries the regulating devices, and through which passes the movable carbon-holder B. To this frame are also secured the rods D D′, insulated therefrom and carrying the lower-carbon holder in the usual manner.

To a lug, *a*, on one side of the frame A is pivoted the clamp-lever E, carrying at its outer end the two half-cores F F′, preferably made in one piece, and having non-magnetic guide-rods *f*, passing through the frame or through the fixed half-cores *g g′* of the two electro-magnets G G′. The coils of the electro-magnet G are of thick wire, and in the main working-circuit, which, presuming that the current enters at the binding-post *d*, passes through the conductor 3, coils of the electro-magnet G, conductor 4, frame A, conductor 5, upper-carbon holder, carbons, lower-carbon holder, rod D′, and out at the binding-post *d′*. The coils of the electro-magnet G′ are of fine wire in the shunt-circuit between the two binding-posts *d d′*. A flat spring, H, pivoted at one end, *h′*, to the frame, acts at the other end on the lever E to raise it, and is acted on by an adjusting-screw, *e*, to ease the movement of the lever by balancing the weight of the latter and the parts carried by it. The lever E carries at its under side the clamp K for the movable carbon-holder B, which is guided in the frame A, but passes freely through enlarged openings in the lever E and spring H, while fitting more closely in the clamp K, carried by the lever E. This clamp is connected to the lever by a link, *k*, or similar pivot-joint at one end, and by a bolt and nuts *k′* at the other end, so that the clamp K may be adjusted to the proper angle. A small spring, k^2, interposed between the lever and clamp, keeps the latter in its proper position relative to the lever E.

When a current is passed through the main working-circuit the axial magnetism of the electro-magnet G and the magnetism of the fixed core *g* will act on the core F so as to raise the lever E and with it the clamp K, which raises the carbon-holder B and separates the carbons to form the electric arc.

As the consumption of the carbons increases the resistance in the main circuit the leakage through the coils of the electro-magnet G′ in the shunt-circuit will cause the axial magnetism and the magnetism of the fixed core *g′* to so act on the core F′ as to draw down the lever E and cause the clamp K to release the holder B, which is, however, immediately raised again by the consequent increase of the current in the coils of the electro-magnet G in the main circuit.

I do not desire to claim in this case, broadly, the combination of the regulating clamp and lever with an electro-magnet having fixed and movable cores; but

I claim as my invention—

1. The combination of the movable carbon-holder of an electric-arc lamp, lever E, pivoted to the frame, and clamp K, adjustable on said lever, with cores pivoted to the lever, and electro-magnets in the shunt and main circuits acting on said cores, substantially as described.

2. The combination of the movable carbon-holder of an electric-arc lamp with a lever, E, clamp K, connected to the lever at one end by a pivot-joint and at the other by devices for adjusting its position in relation to said lever, and with electro-magnets in the shunt and main circuits acting on said lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER K. FREEMAN.

Witnesses:
JOHN H. KATTENSTROTH,
HUBERT HOWSON.