

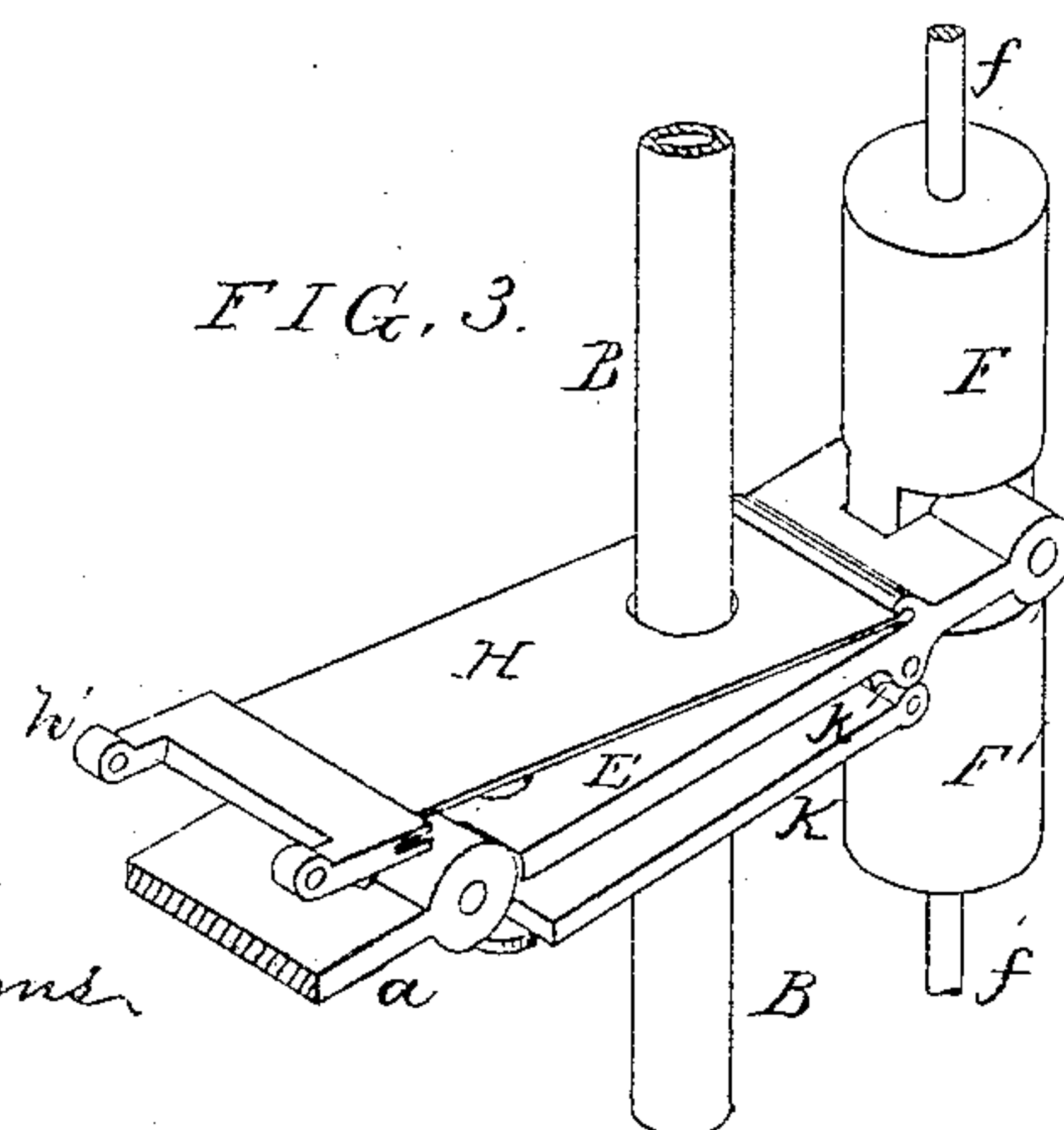
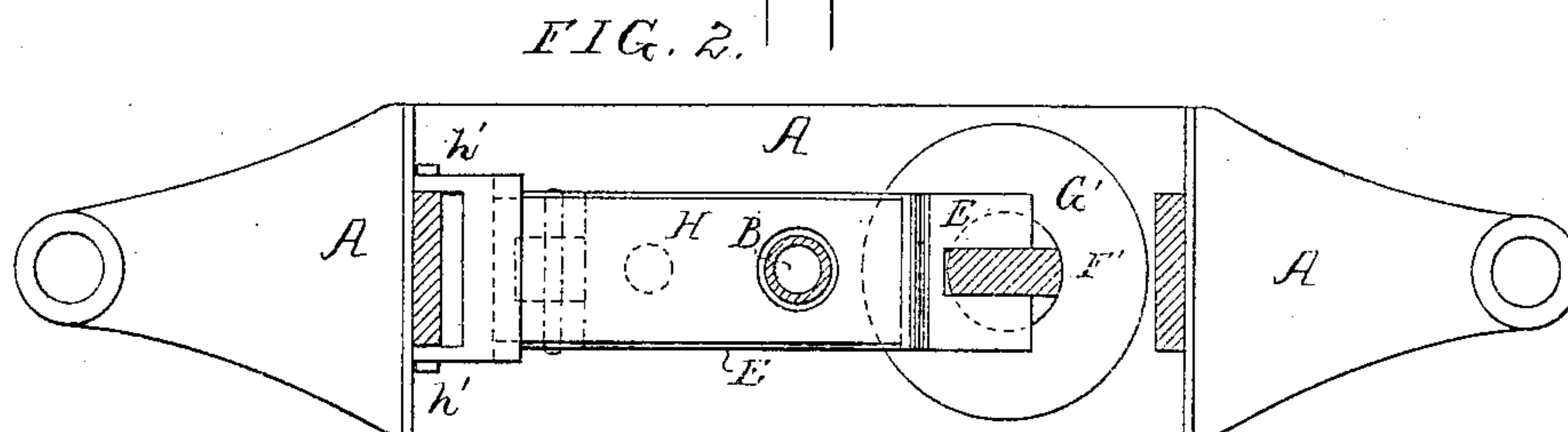
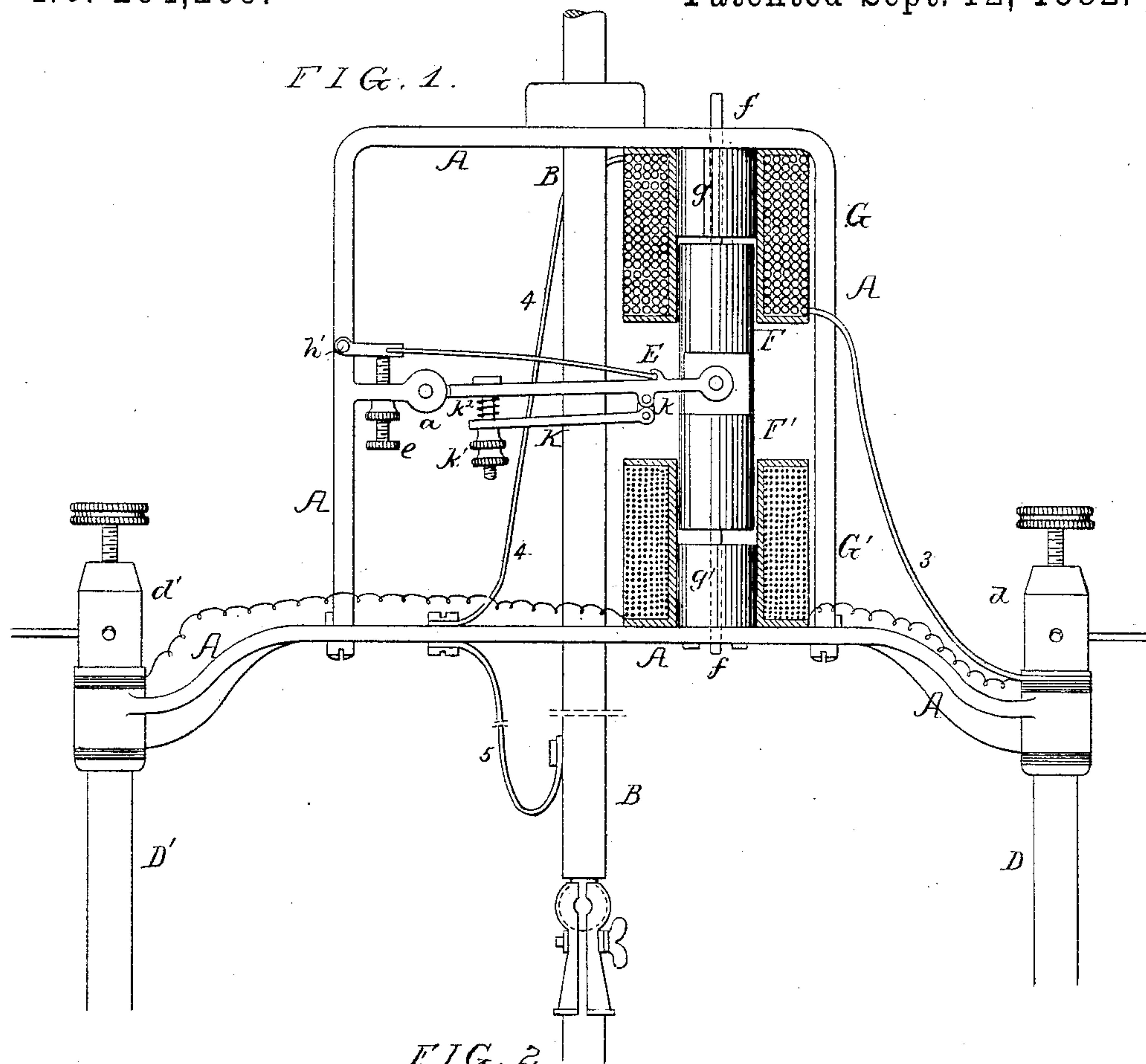
(No Model.)

W. K. FREEMAN.

ELECTRIC ARC LAMP.

No. 264,269.

Patented Sept. 12, 1882.



WITNESSES

David Williams

Harry Drury

INVENTOR:

Walter K. Freeman  
By his Attorneys  
Howe and Fay



# 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  
5 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,  
10 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  
15 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  
20 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  
25 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  
30 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  
35 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 flatspring, H, pivoted at one end, *h'*, to the frame,  
40 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  
45 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  
50 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<sup>2</sup>*, interposed between the lever and clamp, keeps the latter in its proper po-  
55 sition 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  
60 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  
65 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  
70 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,  
75 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-  
80 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. 85

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  
90 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.