

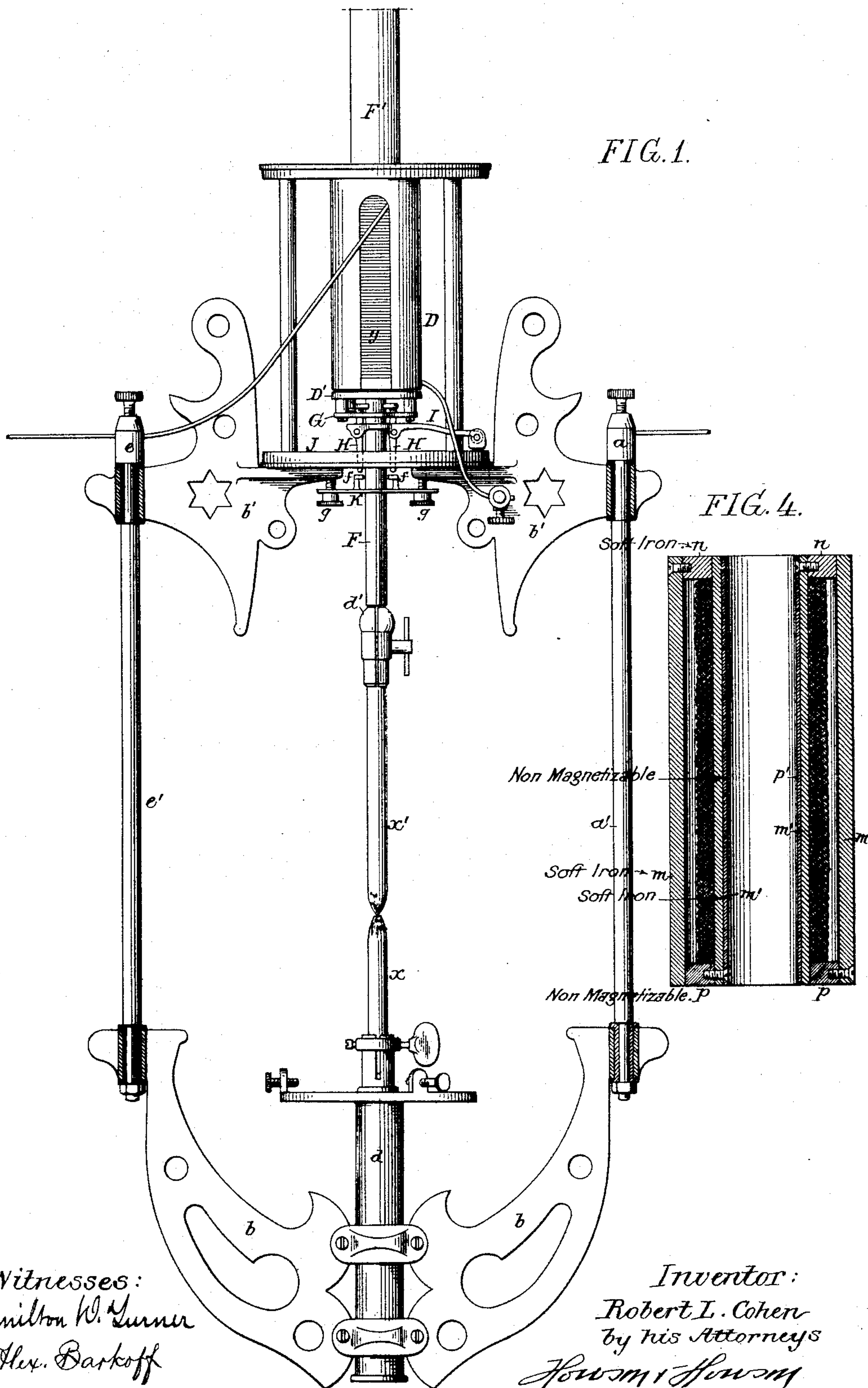
(No Model.)

2 Sheets—Sheet 1.

R. L. COHEN.
ELECTRIC ARC LAMP.

No. 410,493.

Patented Sept. 3, 1889.



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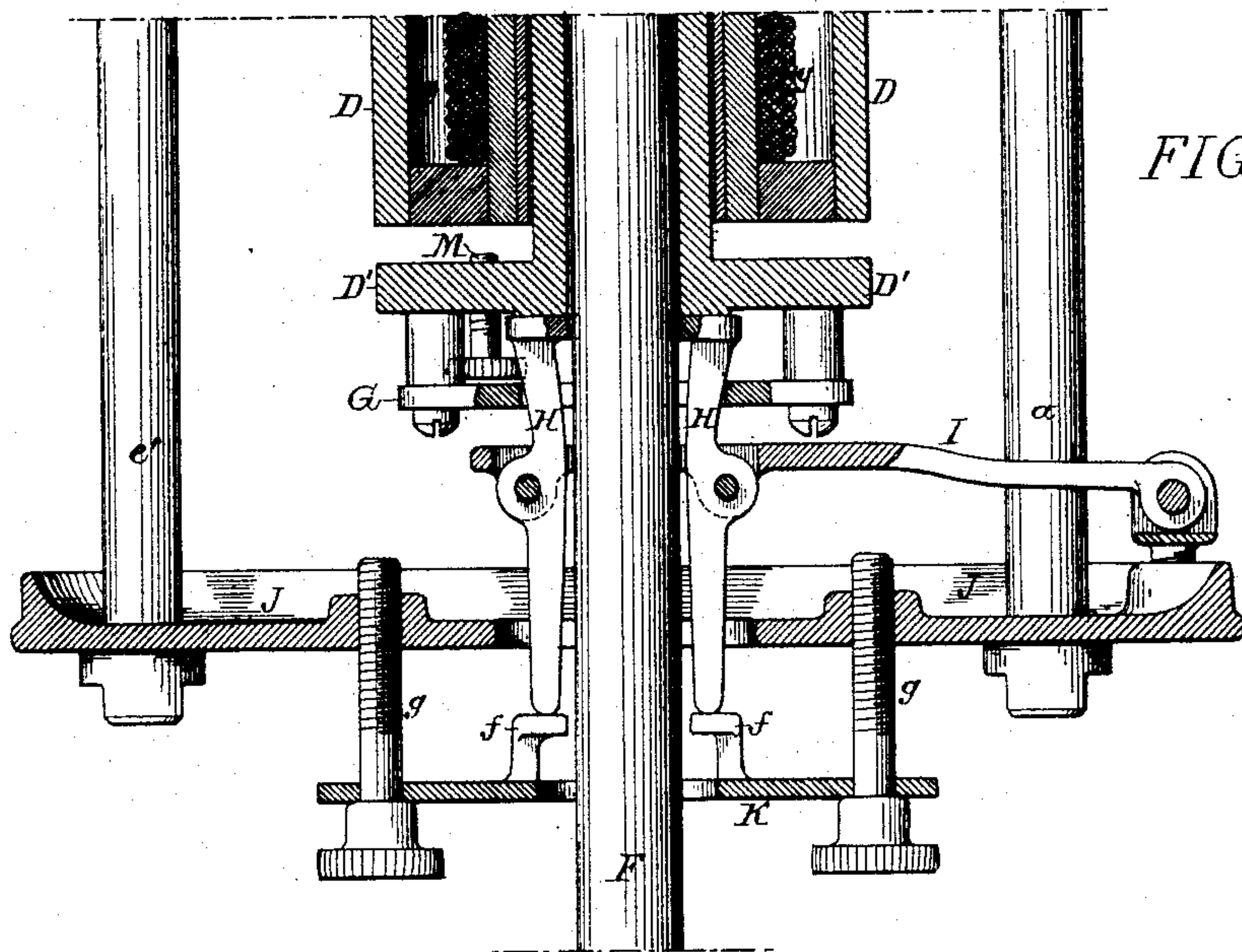
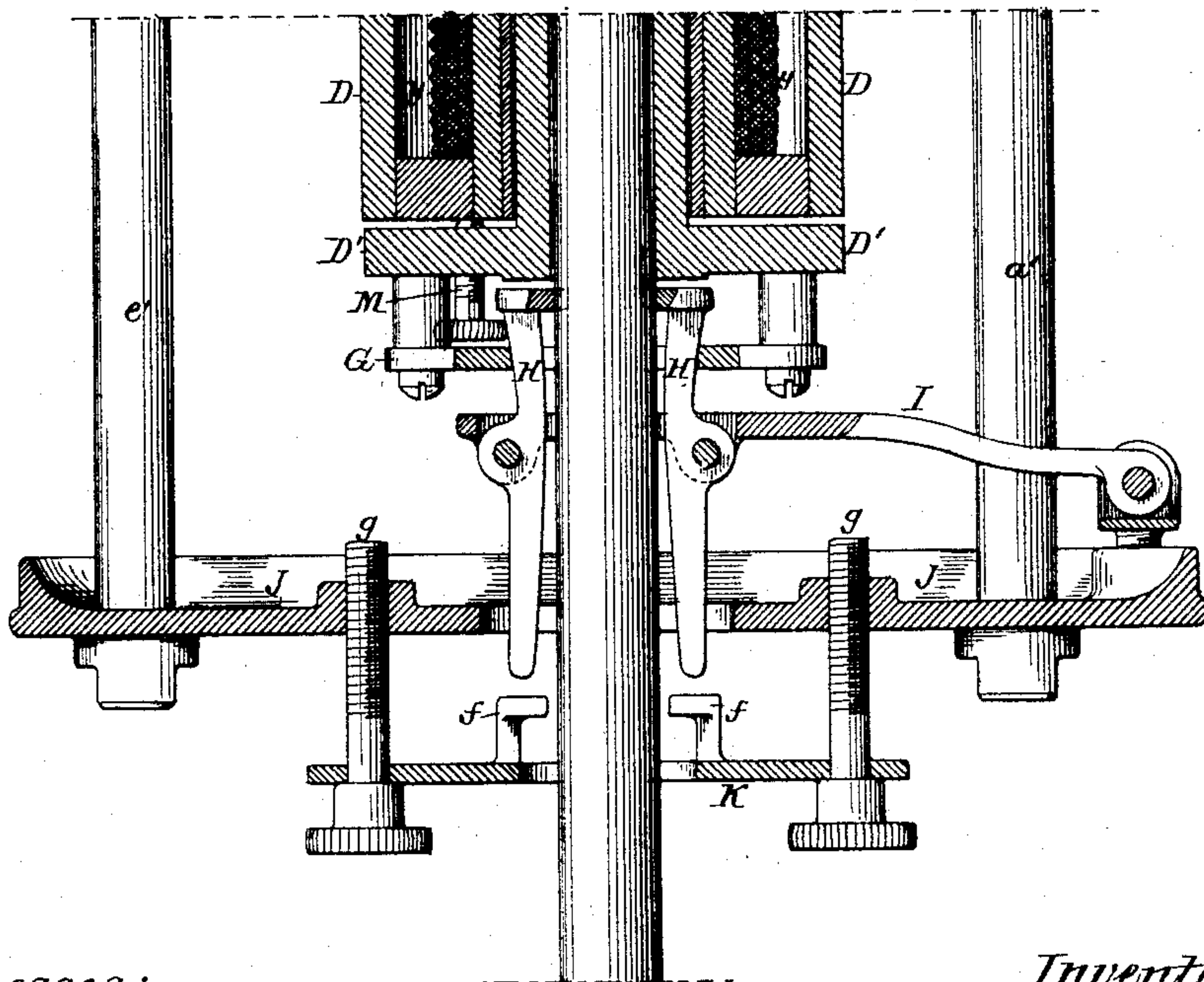


FIG. 3.

FIG. 2.



Witnesses:
Hamilton W. Turner.
Alex. Barkoff.

Inventor
Robert L. Cohen
by his Attorneys
Hosmer & Hosmer

UNITED STATES PATENT OFFICE.

ROBERT L. COHEN, OF CAMDEN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO
WILLIAM F. ANDERSON, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 410,493, dated September 3, 1889.

Application filed September 27, 1888. Serial No. 286,557. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. COHEN, a citizen of the United States, and a resident of Camden, New Jersey, have invented certain
5 Improvements in Electric-Arc Lamps, of which the following is a specification.

One object of my invention is to so construct the regulating devices for an arc lamp as to adapt the same to currents of any desired strength or intensity, and a further object is to provide a powerful operating-magnet for said regulating devices. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying
15 drawings, in which—

Figure 1 is a side view of an arc lamp constructed in accordance with my invention. Figs. 2 and 3 are sectional views showing the regulating device in different positions, and
20 Fig. 4 is a vertical section of the operating-magnet.

The frame of the lamp may be constructed in any desired manner, the current entering the lamp at the binding-post *a*, and passing
25 thence through one of the side rods *a'* and bottom frame *b* to the lower-carbon holder *d*, and thence in the form of the arc from the lower carbon *x* to the upper carbon *x'* through its holder *d'*, rod *F*, and devices acting there-
30 on to the upper frame *b'*, thence through the wrapping *y* of the magnet *D*, forming part of the regulating device, and thence to the binding-post *e* at the opposite side of the frame, the rod *e'* at this side being insulated from
35 the frame at top and bottom. The rod or tube *F*, carrying the carbon-holder, passes through the core of the magnet *D* and into the hollow casing *F'* above the same.

Below the magnet *D* is an armature *D'*, suspended from which is an annular plate or ring
40 *G*, and through a central opening in this ring project the upper arms of two levers *H H*, which are hung to an arm *I*, pivoted to a base-plate *J*, the lower arms of these levers
45 projecting down through an opening in said base-plate and terminating above lugs *f* on a plate *K*, supported beneath the base-plate by adjusting-screws *g*, adapted to threaded openings in said plate.

50 The normal position of the parts is that rep-

resented in Fig. 2, the armature *D'* being attracted to the magnet *D* to an extent limited by an adjustable screw *M*, and the plate *G* of the armature acting upon the upper arms of the levers *H*, so as to force the same inward
55 and cause them to tightly grip the upper-carbon holder *F* and prevent the descent of the same. When, however, the arc between the two carbons becomes so long as to afford undue resistance to the current, the magnet *D*
60 is weakened to such an extent that the armature *D'* is permitted to drop, and the effect of this movement is the release of the upper arms of the levers *H*, so that they fail to tightly grip the rod *F*, and hence permit the same to
65 drop or slide downward. The levers *H* are carried down with the armature *D'* until the descent is arrested by the contact of the lower arms of said levers with the lugs *f*, as shown in Fig. 3. As soon as the ends of the carbons
70 approach each other, however, the resistance is lessened and the strength of the magnet *D* is restored, so that the armature *D'* is again attracted, thereby effecting first the closing
75 of the upper arms of the levers *H* upon the rod *F* of the upper-carbon holder, and then the lifting of said levers and the carbon-holder in order to again form an arc of the proper length.

The distance to which the clamping-levers
80 are permitted to drop is regulated by raising or lowering the plate *K* and its stop-lugs by means of the supporting-screws *g*, and the rise of the armature *D'* is governed by the adjusting-screw *M*, which holds the armature at a
85 greater or less distance from the end of the magnet, so that the regulating devices can be readily adapted for any desired length of arc and for use with currents of any desired in-
90 tensity.

The magnet *D* has an outer rim *m* of soft iron, and an inner tube or core *m'* of the same material, the outer rim being cut away on each side, as shown in Fig. 1, so as to constitute a horseshoe-magnet, and being connected
95 to the inner core at the top by an iron ring *n*, the wire *y* being wrapped upon said inner tube or core, so that both said inner tube and the outer rim are magnetized when the current is passing through the wire, a large sur- 100

face being thus presented for attracting the armature D'.

The core and rim may be disconnected at the bottom; but I prefer to insert a ring *p* of 5 non-magnetizable metal, and also to line the core *m'* with a tube *p'* of non-magnetizable metal.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, 10 is—

1. The combination of the upper-carbon holder, a pair of gripping-levers therefor, the upper arms of said levers having gripping-jaws for engaging with the rod and having 15 inclined or flaring outer faces, a magnet having an armature with closing-plate for engaging with said inclined outer faces of the levers, a carrier for said levers, and stops for

engaging with the lower arms of the levers and limiting the descent of the same, substantially as specified. 20

2. The regulating-magnet consisting of an inner tubular shell, an outer shell having openings in opposite sides, so that it forms a horseshoe-magnet, a piece of magnetizable 25 metal connecting the inner and outer shells at the top, and the wire wrapping interposed between the inner and outer shells, substantially as specified.

In testimony whereof I have signed my name 30 to this specification in the presence of two subscribing witnesses.

ROBERT L. COHEN.

Witnesses:

WILLIAM D. CONNER,
HARRY SMITH.