

(No Model.)

E. FINKBEINER.
CLUTCH FOR ARC LAMPS.

No. 575,341.

Patented Jan. 19, 1897.

Fig. 1

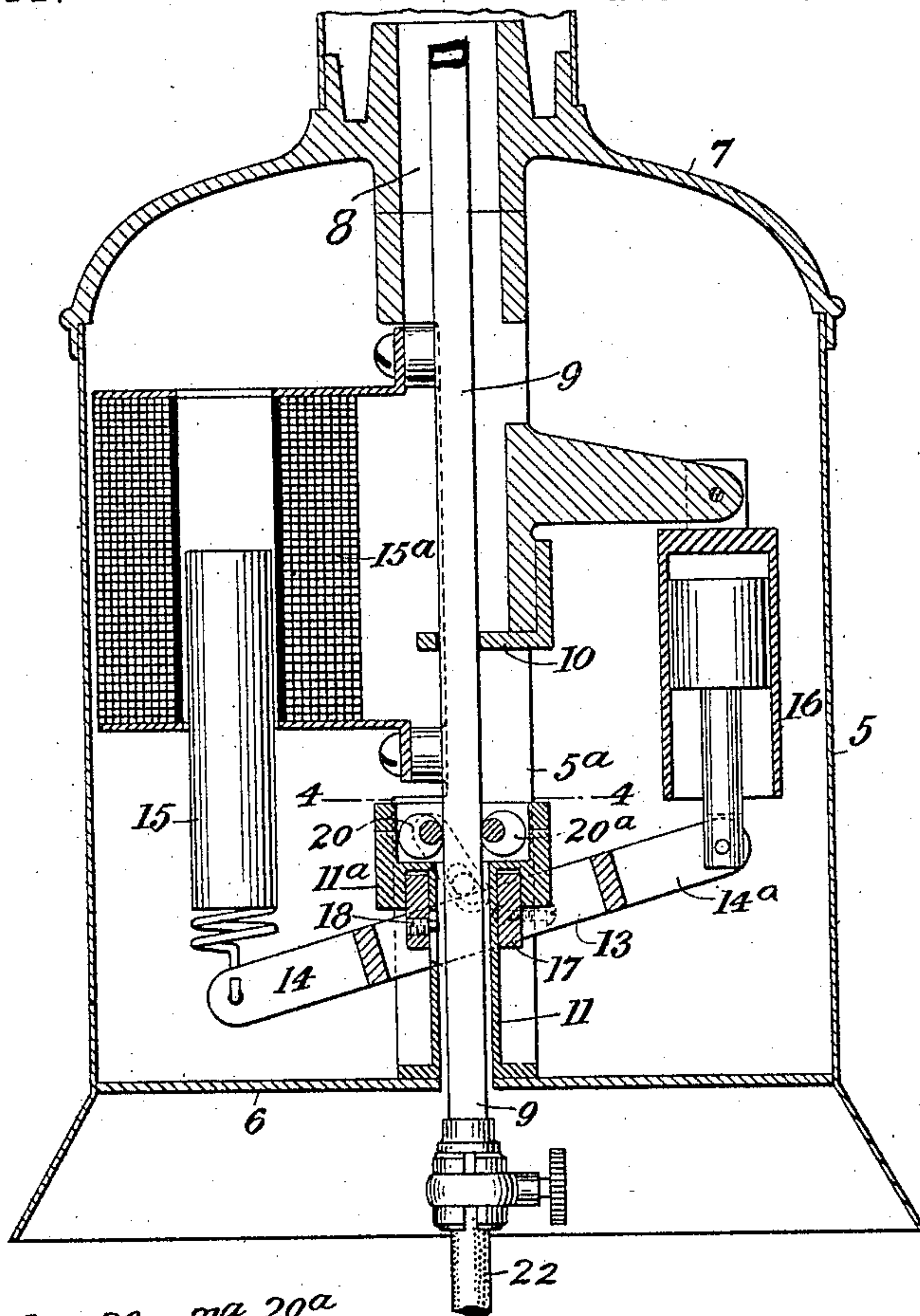


Fig. 2

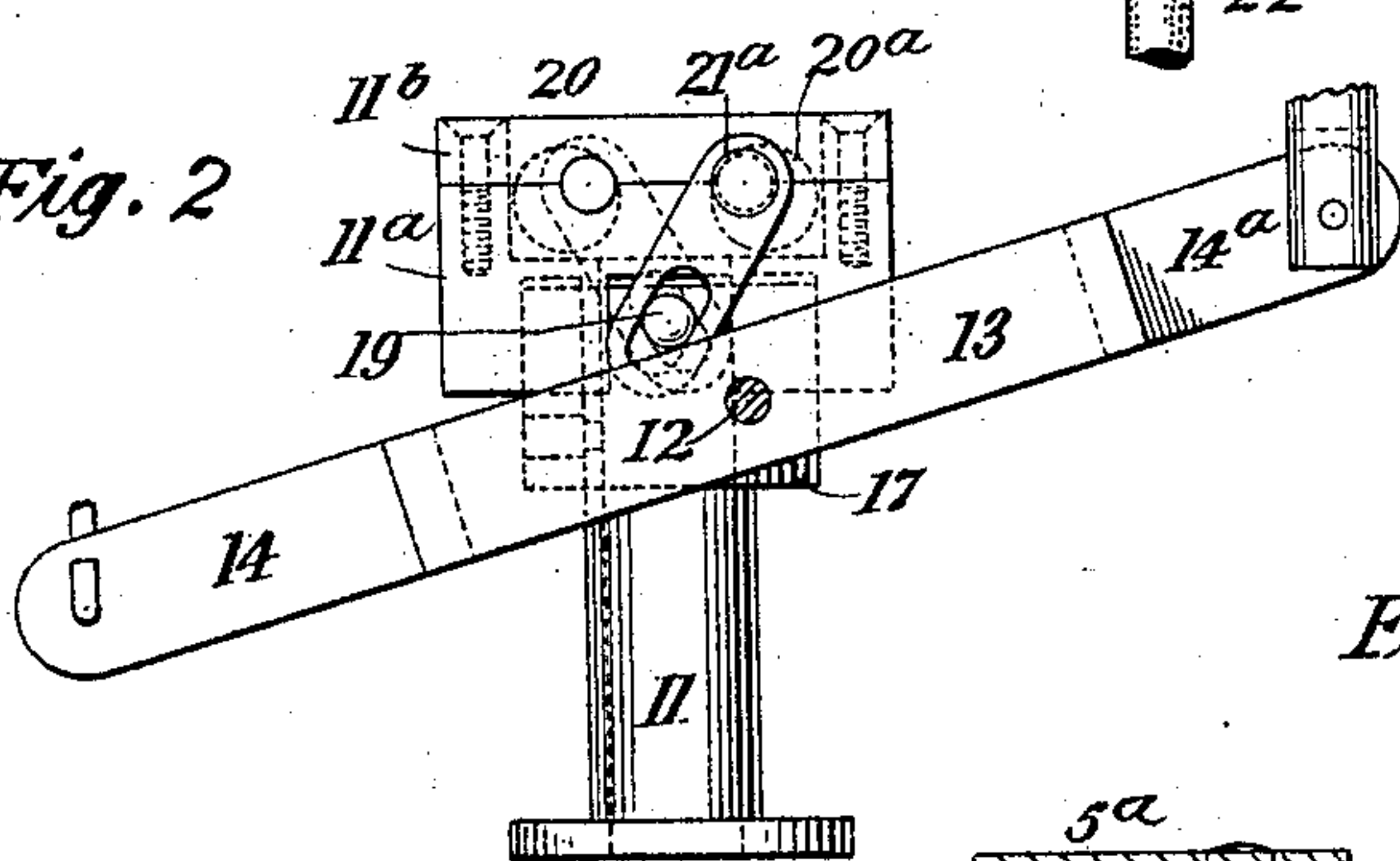


Fig. 3

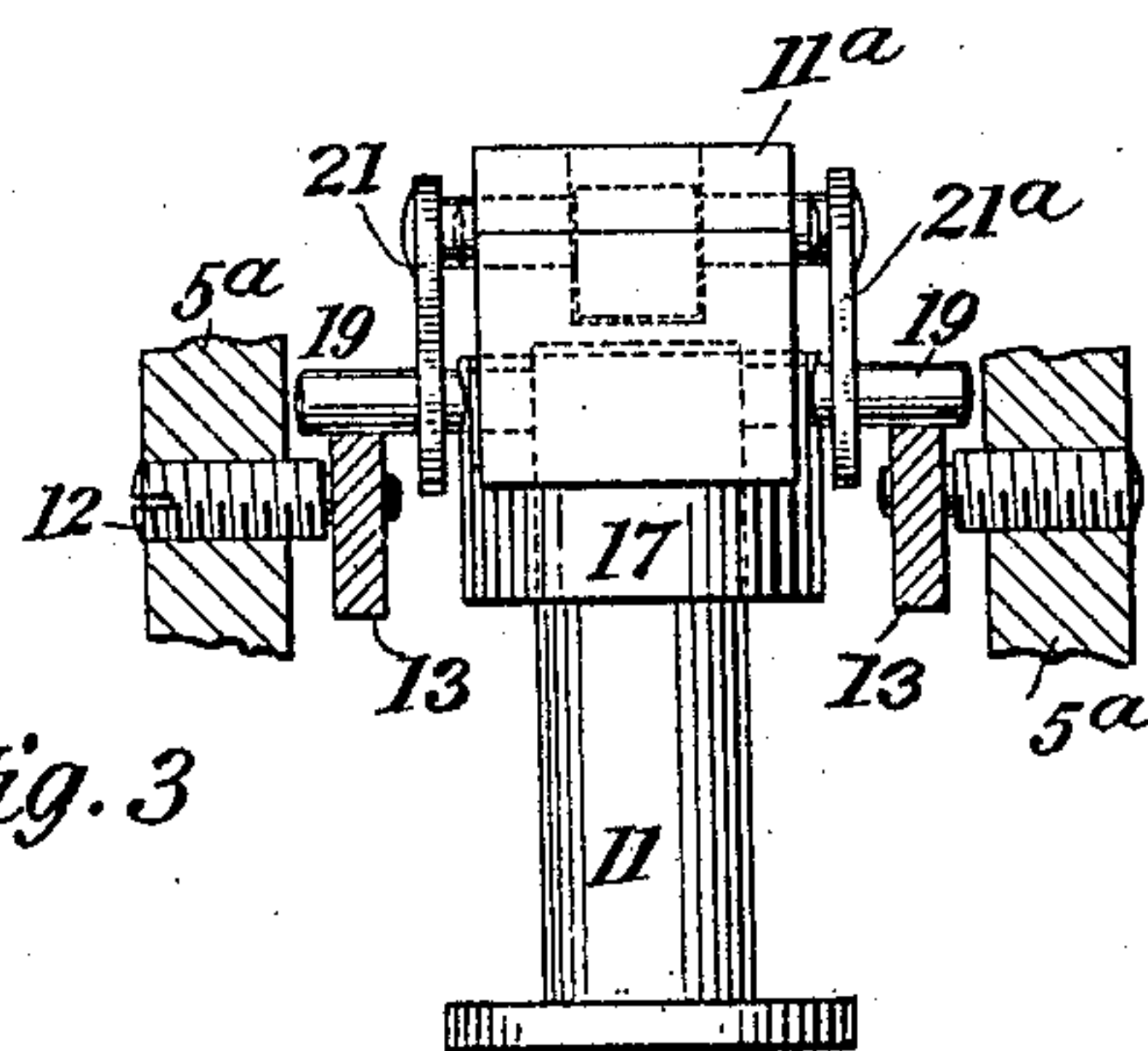
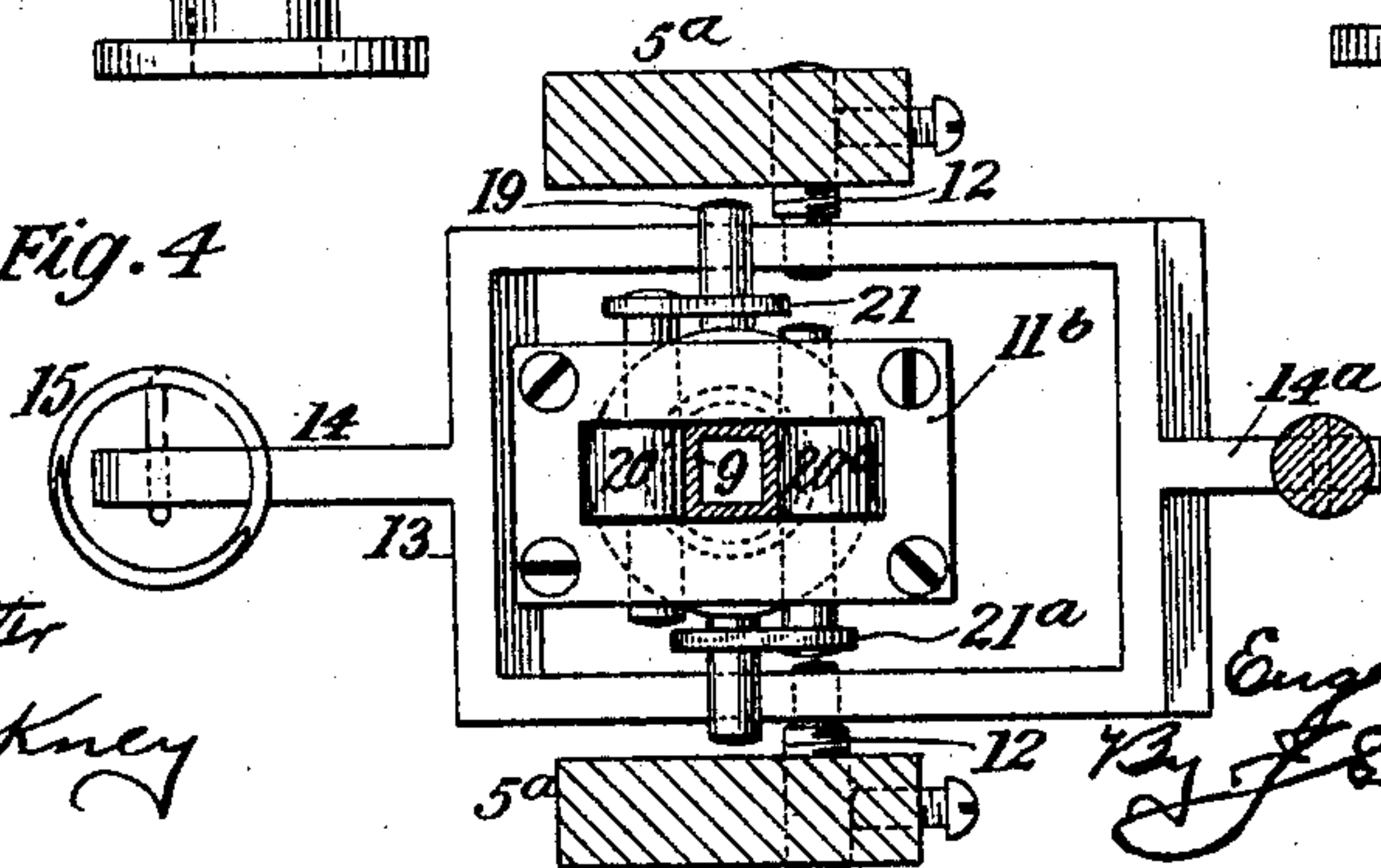


Fig. 4



Witnesses
Raphael Netter
W. C. Pinckney

Inventor
Eugene Finkbeiner
By J. M. Dorey
Att.

UNITED STATES PATENT OFFICE.

EUGENE FINKBEINER, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO ERNEST UNGER, OF NEW YORK, N. Y.

CLUTCH FOR ARC-LAMPS.

SPECIFICATION forming part of Letters Patent No. 575,341, dated January 19, 1897.

Application filed July 27, 1896. Serial No. 600,672. (No model.)

To all whom it may concern:

Be it known that I, EUGENE FINKBEINER, a citizen of the United States, and a resident of Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Clutches for Electric-Arc Lamps, of which the following is a specification.

My invention relates to that type of electric lamps known as the "arc-lamp," where the light is obtained by the passage of the electric current between the points of two separated electrodes.

The object of the invention is to devise simple and efficient means for regulating the voltaic arc so as to automatically preserve the necessary distance between the pencils of carbon.

The invention comprises a novel clutch mechanism operating to separate the carbon points to establish the voltaic arc and to feed forward one of the electrodes as they are consumed in the operation of the lamp.

My invention is illustrated in the accompanying drawings, in which the same parts are indicated by the same reference-numerals in the several views, and wherein—

Figure 1 is a central sectional elevation of an electric-arc lamp embodying my improvements. Fig. 2 is a side elevation of my improved clutch mechanism detached from the lamp. Fig. 3 is an end view of Fig. 2, partly in section, and showing also part of the lamp-frame in section; and Fig. 4 is a sectional plan view on the line 4 4 of Fig. 1.

Referring to the drawings, 5 indicates the frame of the lamp, provided with the shelf 6, having a central opening through which the upper-carbon-holding rod is adapted to pass, and with the cap 7, having a central portion 8, resting on the members of the frame, to which certain parts of the operating mechanism are secured. Any desirable construction of frame may, however, be employed.

The upper-carbon-holding rod is indicated at 9. It is square in cross-section, as indicated in Fig. 4, and passes through an opening in a bracket 10, secured to an arm of the frame 5. Secured to the shelf 6 is a tube 11, flanged at its bottom and arranged so that its bore coincides with the opening in the

shelf 6. The carbon-holding rod 9 passes through this tube, and a part of the clutch mechanism is connected with or mounted on said tube.

Hinged to studs 12, which are adjustably fixed in the members 5^a of the lamp-frame, is the swinging carriage 13, provided with extended levers 14 14^a. The outer end of lever 14 is connected to the core 15 of helix 15^a, and the outer end of lever 14^a to the rod of a piston operating within cylinder 16, the latter device acting as a dash-pot to prevent sudden jarring movements in the mechanism. The helix, as well as the cylinder 16, is suitably supported on the frame of the lamp, as indicated.

The top of tube 11 is enlarged, as shown at 11^a, and this enlarged portion is provided at the bottom with a circular recess whose inner walls are the same as the outer walls of tube 11. The circular block 17 is adapted to slide on tube 11 and to enter said recess in the bottom of the enlargement at the top of tube 11.

18 is a screw seated in block 17 and entering a vertical slot in tube 11 to keep said block in proper position on the tube. In opposite sides of block 17 there are secured the pins 19, which rest upon the side bars of the swinging carriage 13; to one side of the studs upon which said carriage is hinged, said block serving as a suitable connection between pins 19.

Suitably journaled in the opening at the top of enlargement 11^a are the eccentrics 20 20^a, between which the upper-carbon-holding rod 9 is adapted to pass. On the opposite sides of enlargement 11^a there are fulcrumed to the ends of the spindles of the eccentrics 20 20^a the levers 21 21^a, which are provided in their outer ends with elongated slots (see Fig. 2) engaging with the pins 19 in the sides of block 17, which pins rest on the side bars of the swinging carriage 13. In Fig. 1 the clutch mechanism is shown as grasping the carbon-holding rod 9. The upper carbon (indicated at 22) is clamped to its rod 9 by any suitable means, and the lower carbon (not shown) is to be held in a suitable socket. The top of enlargement 11^a of the tube is closed by a cap 11^b, screwed in place.

When a current of electricity is passed

through magnetizing-helix 15^a, the core 15, becoming magnetized, is lifted, thereby raising lever end 14 of swinging carriage 13, and consequently, through the medium of pins 5 19 19, resting on said carriage 13, causing block 17, carrying said pins, to slide upward on tube 11. The movement of the levers 21 21^a, by reason of their engagement with pins 19 19, will so adjust the eccentrics 20 20^a as 10 to cause them to grasp the carbon-holding rod 9 and lift the same, thus separating the carbon points and establishing the electric arc. As the length of the arc becomes longer by the burning away of the carbons the resistance in the lamp increases and the core 15 will 15 gradually descend, thus moving down lever end 14 of the carriage 13 and permitting pins 19 19 to descend, thus swinging eccentrics 20 20^a in the direction to lessen their grasp on the carbon-holding rod 9 and allowing the carbon to feed downward to reestablish the normal condition of the arc, and the increased 20 flow of the current lifting core 15 and with it lever end 14 of carriage 13 the pins 19 19 will be again forced upward, thereby so swinging 25 the eccentrics as to cause them to again firmly grasp the carbon-holding rod 9.

Having thus described my invention, what I claim as new, and desire to secure by Letters 30 Patent, is—

1. In a regulator for electric-arc lamps, the combination with a tube through which the carbon-holding rod is adapted to pass, of a 35 pair of eccentrics journaled at the upper end of said tube, levers fulcrumed to the respective spindles of said eccentrics and having slots in their outer ends, a device adapted to move vertically on said tube and having projections passing through the slots of said 40 levers, and a pivoted carriage supporting said projections.

2. In a regulator for electric-arc lamps, the combination with a tube through which the carbon-holding rod is adapted to pass, of a 45 pair of eccentrics journaled at the upper end of said tube, levers fulcrumed to the respective spindles of said eccentrics and having slots in their outer ends, a pair of pins suit-

ably connected together to move vertically with relation to said tube and passing through 50 the slots of said levers, and a pivoted carriage on which said pins are supported.

3. In a regulator for electric-arc lamps, the combination with a tube through which the carbon-holding rod is adapted to pass and a 55 block adapted to slide on said tube, of a pair of eccentrics journaled at the upper end of said tube, a pair of levers fulcrumed to the spindles of said eccentrics and having slots in their outer ends, a pair of pins connected 60 to aforesaid block in proper relation to said levers and passing through the slots thereof, and a pivoted carriage on which said pins rest.

4. The combination with a tube through which the carbon-holding rod is adapted to 65 pass and provided with an enlargement at the top having recesses above and below, and a block adapted to slide on said tube and to enter the recess at the bottom of said enlargement, of a pair of eccentrics journaled within 70 the recess at the top of said enlargement, levers fulcrumed to the respective spindles of said eccentrics and having elongated slots in their outer ends, a pair of pins connected to aforesaid block and passing through the slots 75 of said levers, and a pivoted carriage on which the pins of said block rest.

5. The combination with a tube through which the carbon-holding rod is adapted to 80 pass and a pair of eccentrics journaled at the upper end of said tube, levers fulcrumed to the respective spindles of said eccentrics and having elongated slots in their outer ends, pins suitably connected together to move vertically with relation to said tube, a carriage 85 pivoted to swing on the lamp-frame and supporting said pins and provided with end levers, a check or dash-pot connected with one of said levers and a helix and its core the latter connected to the other of said levers. 90

Signed at New York, in the county and State of New York, this 13th day of June, 1896.

EUGENE FINKBEINER.

Witnesses:

J. E. M. BOWEN,
M. C. PINCKNEY.