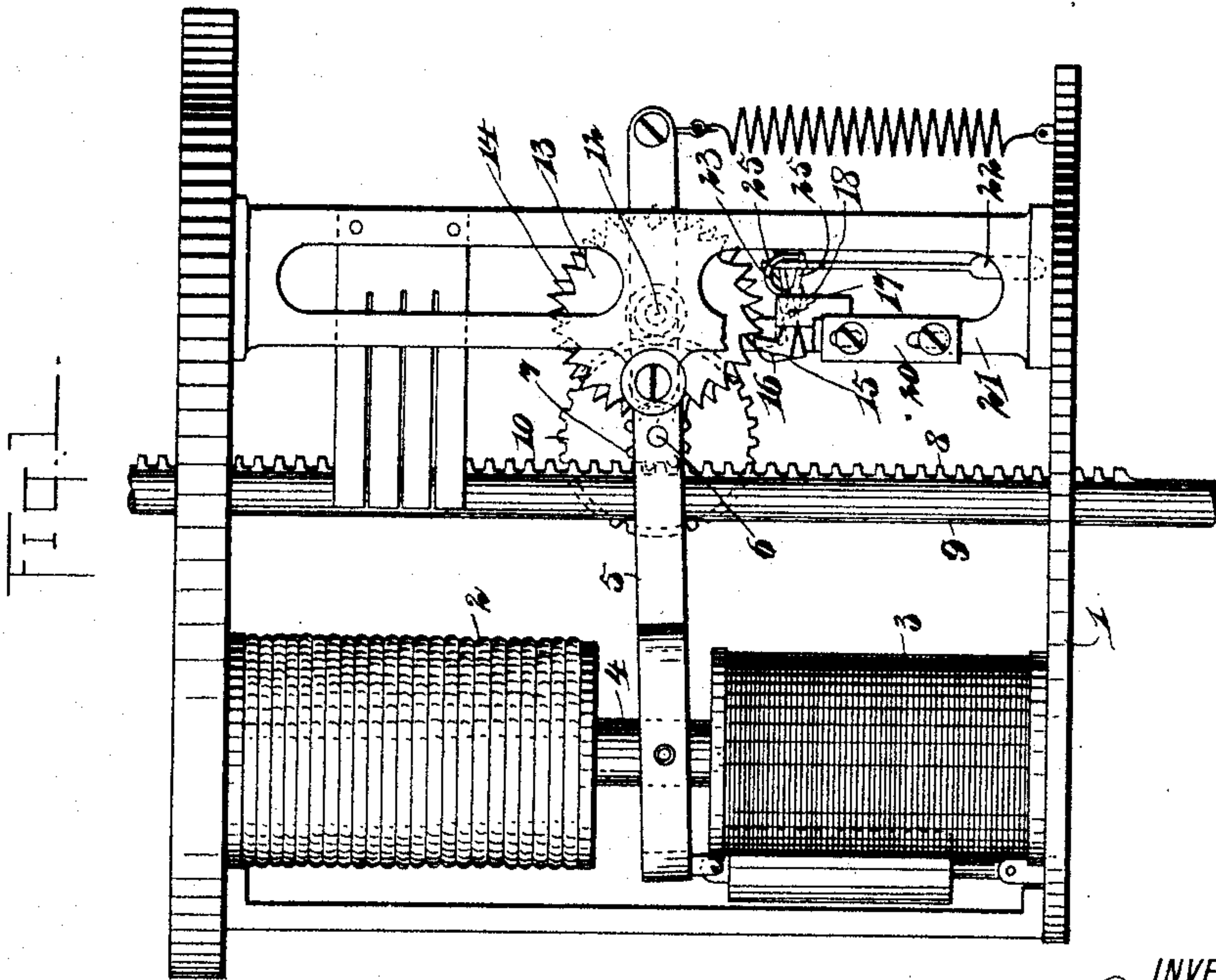
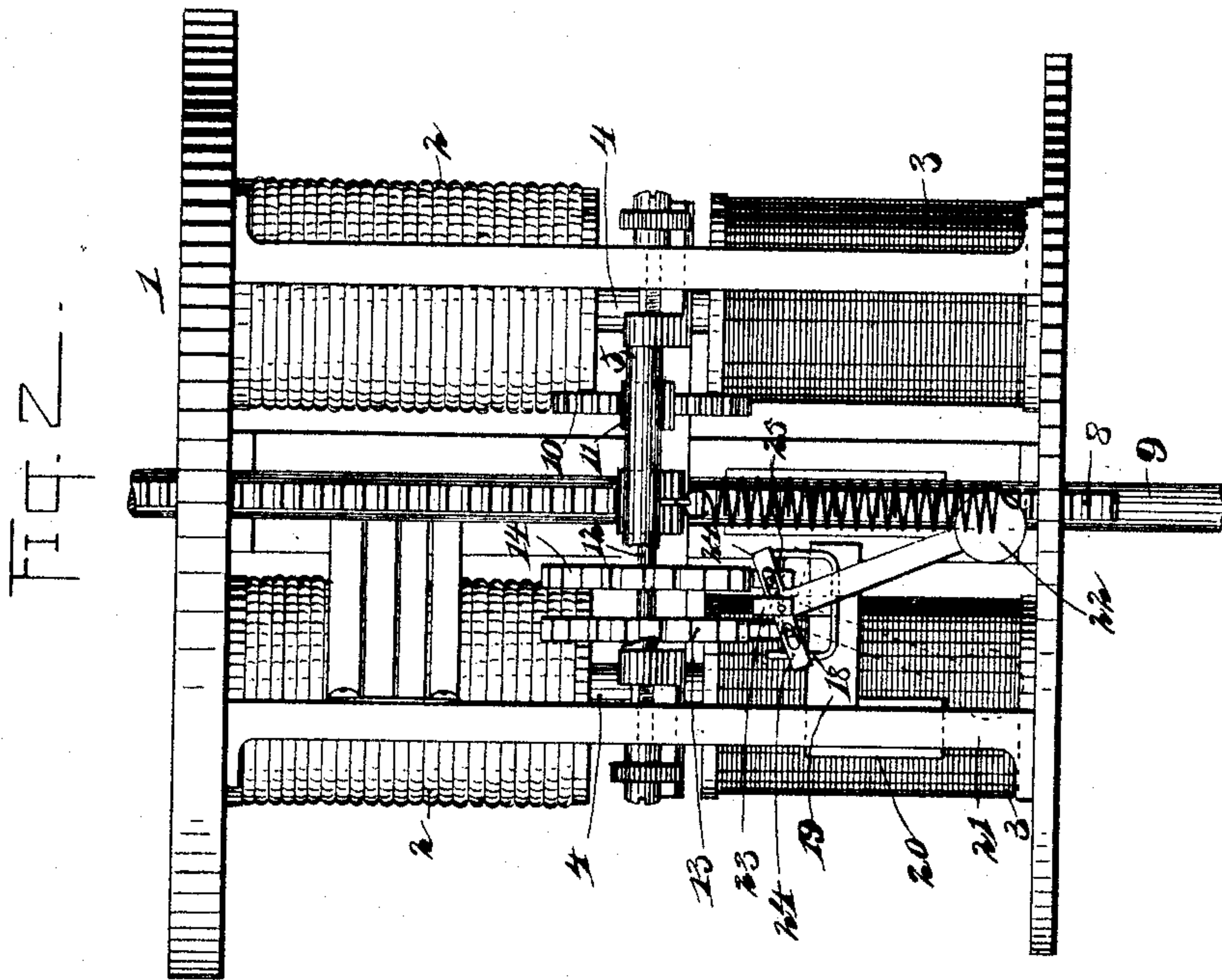


(No Model.)

J. J. WALSH.
ELECTRIC ARC LAMP.

No. 585,726.

Patented July 6, 1897.



WITNESSES.

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INVENTOR

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UNITED STATES PATENT OFFICE.

JAMES J. WALSH, OF PARIS, TEXAS.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 585,726, dated July 6, 1897.

Application filed July 29, 1896. Serial No. 600,905. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WALSH, of Paris, in the county of Lamar and State of Texas, have invented new and useful Improvements in Electric-Arc Lamps, of which the following is a full, clear, and exact description.

This invention relates particularly to means for regulating the feed of the carbon-carrying rod. The ordinary escapement-and-pawl mechanism used on lamps is very objectionable in practice. The stroke is necessarily unequal, as the resistance to the passing of the teeth of the escapement is less on one end of the pawl than on the other, as a close adjustment, which would just let the front end of the pawl pass, would have a tendency to prevent the rear end from passing by the greater resistance of the rear end against the wheel, and if not adjusted closely the rod will feed too fast.

The object of my invention is to overcome these difficulties, and with this end in view I employ two escapement devices, one arranged at the side of the other and alternately acted upon.

I will describe an electric-arc lamp embodying my invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a side elevation of a portion of an arc-lamp embodying my invention, and Fig. 2 is an elevation at right angles to Fig. 1.

The invention comprises the fixed frame 1, in which are mounted the working solenoids 2 and the shunt-solenoids 3. Coacting with these solenoids are the cores 4, carried by a frame 5, mounted to swing in the frame 1 in the usual manner. In the frame 5 is mounted a shaft 6, which carries a pinion 7, meshing with a rack 8 on the carbon-carrying rod 9, movable vertically through the frame 1. On this shaft 6 is also mounted a gear-wheel 10, meshing with a pinion 11 on a shaft 12, having bearings in the frame 5. Escapement-wheels 13 and 14 are mounted on the shaft 12 side by side and so arranged that the teeth of one escapement-wheel will alternate with the teeth of the other escapement-wheel—

that is, a straight line parallel with the shaft 12 touching the point of any tooth in one wheel will pass half-way between the points of two teeth in the other wheel.

Coacting with the escapement-wheels 13 and 14 are pivoted escapement-dogs 15 and 16. The escapement-dogs 15 and 16 may be mounted in a hanger or similar device depending from the rocking frame 5, but preferably I mount them in a device connected with the fixed frame 1. As here shown the dogs 15 and 16 are mounted to rock independently on a shaft 17, supported in arms 18, extended upward from a bracket 19, mounted on one of the uprights of the frame 1. As hereshown this bracket has a vertical portion 20 mounted to slide vertically on an upright 21. Screws passing through slot-openings in the vertical portion 20 of the bracket 19 and engaging in tapped openings in the upright 21 provide for a vertical adjustment of the bracket. These dogs 15 and 16 are regulated by a pendulum 22, having the upper end of its rod pivoted to a finger 23, extended from the bracket 19. Extended laterally from each side of the pendulum-rod and in line with its pivotal point are arms 24, which are provided with longitudinal slots, through which outwardly-extended stem portions 25 of the dogs 15 and 16 project.

In operation as the carbon-carrying rod 9 moves downward by gravity the gearing will be rotated, and during the rotation of the escapement-wheels 13 and 14 they will be alternately engaged by the escapement-dogs 15 and 16. The pendulum will cause the dogs to have a perfectly uniform action with the escapement-wheels, and it is obvious in this construction that the resistance is exactly equal between each escapement device. I have found in practice that with an ordinary escapement mechanism as closely adjusted as possible the carbon-rod will feed its full length in one minute and thirty seconds. I have arranged my device in the same lamp and find that it required eight minutes for the carbon-rod to move its full length, and I further found that by this slow feed the change in voltage is reduced to a minimum, being scarcely perceptible by voltmeter tests, and at any time of feeding it has not exceeded two volts.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A feed-regulator for a carbon-carrying rod of an arc-lamp, comprising a pair of escapement-wheels arranged on one shaft, the teeth of one wheel alternating with those of the other, and pendulum-governed escapement-dogs alternately coacting with the escapement-wheels, the said dogs being mounted to swing independently, one of the other, substantially as specified.

2. In an electric-arc lamp, a regulator for the carbon-carrying rod thereof, comprising a pair of escapement-wheels arranged side by side, the teeth of one wheel alternating with those of the other, escapement-dogs coacting with said escapement-wheels and mounted to swing independently, a holder for said dogs extending from the fixed frame of the lamp, and a pendulum for governing the movement of said dogs, substantially as specified.

3. An electric-arc lamp, comprising a fixed frame, a rocking frame mounted therein, a carbon-carrying rod extending through the

fixed frame and through the rocking frame, a shaft in said rocking frame, a pinion on said shaft engaging with the rack on the carbon-carrying rod, a gear-wheel on said shaft, a second shaft mounted in the rocking frame, a pinion on said second shaft engaging with the gear-wheel, a pair of escapement-wheels mounted on said second shaft, the teeth of one escapement-wheel alternating with the teeth of the other escapement-wheel, a bracket adjustably supported on a portion of the fixed frame, dogs mounted to rock in said bracket and engage alternately with the escapement-wheels, a pendulum having its rod pivotally connected to the bracket, laterally-extended arms on said rod provided with slots, and rearwardly-extended stem portions on the dogs passing through said slots, substantially as specified.

JAMES J. WALSH.

Witnesses:

WALTER BATES,
CARLTON PYLE.