

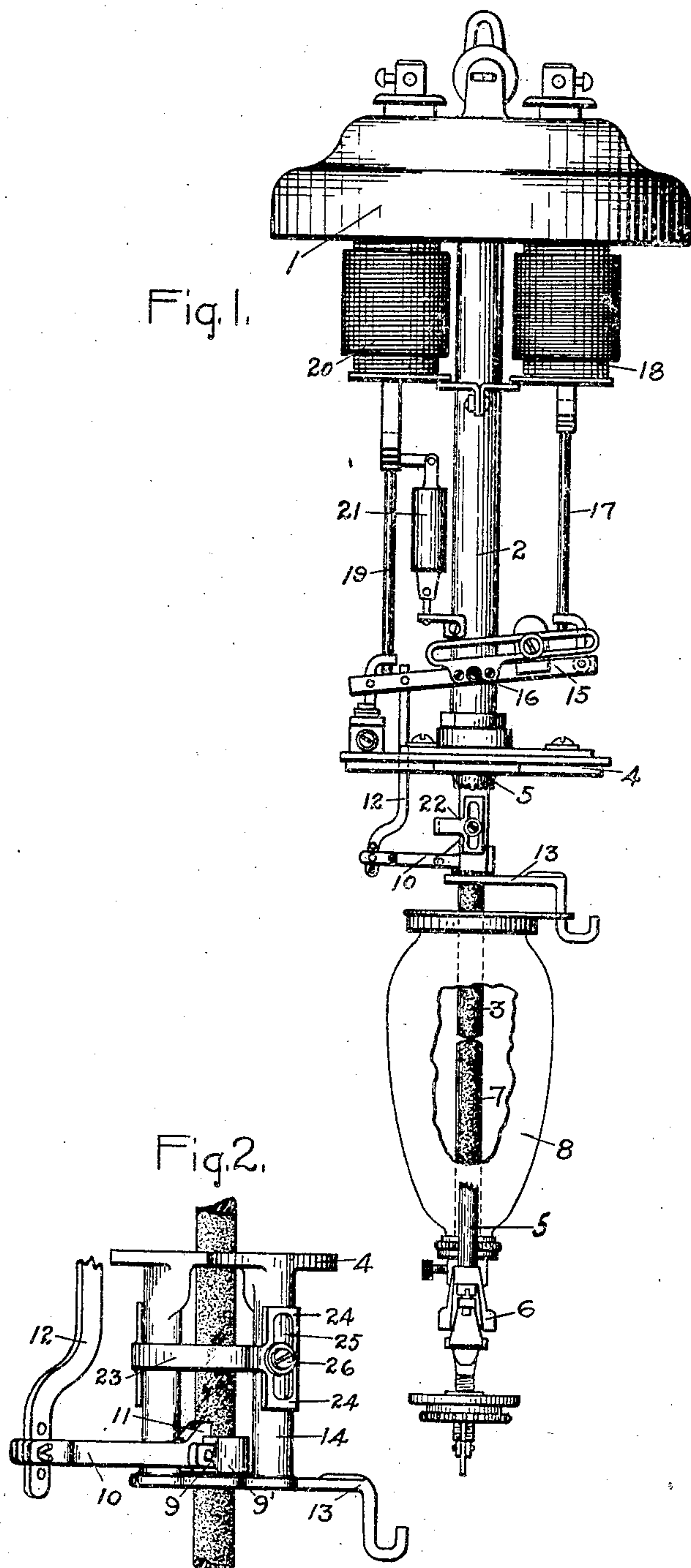
No. 769,996.

PATENTED SEPT. 13, 1904.

R. FLEMING.
ELECTRIC ARC LAMP.

APPLICATION FILED FEB. 20, 1903.

NO MODEL.



WITNESSES:

Robt L. Chapman
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INVENTOR:

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UNITED STATES PATENT OFFICE.

RICHARD FLEMING, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 769,996, dated September 13, 1904.

Application filed February 20, 1903. Serial No. 144,261. (No model.)

To all whom it may concern:

Be it known that I, RICHARD FLEMING, a citizen of the United States, residing at Lynn, in the county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

My invention relates to an improved construction of the mechanism for regulating the movement of the movable electrode of an arc-lamp.

In the operation of arc-lamps which are subjected to vibrations or jars—such, for instance, as those caused by the magnetic stresses set up in alternate-current lamp feeding and regulating mechanism—there is a tendency for the movable electrode to be jarred through the feeding-clutch. To correct this evil, I have devised means by which a slight amount of such slipping results in the clutch engaging the electrode with a grip much greater than the normal grip, thus preventing the slipping from becoming excessive and detrimental to the operation of the lamp. The means which I have devised are also useful in some other relations.

In the accompanying drawings, Figure 1 is an elevation with parts broken away, and Fig. 2 is an enlarged view showing details of construction. I have illustrated one embodiment of my invention as applied to a constant-current lamp.

Referring to the drawings, a cap 1 is shown as the support from which the lamp mechanism depends. A tube 2, extending from the lower side of the cap 1, incloses the upper movable electrode 3 and supports at its lower end a base 4. A pair of arms 5, only one of which is shown, depend from the lower side of the base 4 and carry at their lower ends a bracket 6 quite of the ordinary construction, which supports the lower electrode 7 and inclosing globe 8.

The means for feeding the movable electrode 3 include a clutch 9, composed of a yoke 9', which surrounds the electrode. A pawl 10, shown in the drawings as a clamping member, coöperates with the yoke and is pivoted between its ends to the yoke 9'. This pawl

has an engaging portion or tooth 11, which is forced against the electrode to clamp it more or less firmly against the yoke when the other end of the pawl is elevated. The outer end of the pawl is connected to an operating-bar 12. The tooth 11 is entirely disengaged from the electrode whenever the clamp moves down to engagement with the tripping-platform 13, which is carried by a pair of arms 14, secured to the lower side of the platform 4.

In the particular form of lamp which I have shown in the drawings the operating-bar 12 is pivotally connected to a rocker 15, pivoted at 16 to the tube 2. One end of this rocker is connected to the core 17 of the shunt-coil 18, while the other end of the bar is connected to the core 19 of a series coil 20. A suitable dash-pot 21 is provided to regulate the movement of the feeding mechanism. Slight variations of voltage of the arc are taken care of by slight oscillations of the rocker-bar 15 without any intentional disturbance of the engagement between the clutch mechanism and the electrode. When, however, the voltage of the arc becomes too strong, the series coil is overbalanced by the shunt-coil to such an extent that the clutch contacts with the platform 13, as shown in the drawings, allowing the lamp to feed.

The construction which I have just described forms no part of my present invention.

While I have said that the engagement of the clutch of the electrode 3 is intentionally disturbed only when the clutch drops into engagement with the plate 13, it is nevertheless true that with lamps subjected to jars—such, for instance, as those constantly experienced by alternate-current lamps—there is a constant tendency of the pawl to release its hold upon the electrode 3. As a result there is apt to be a constant slipping of the electrode through the clutch. This "sneak-feed," as it is called, is detrimental to the proper operation of the lamp. To prevent this sneak-feed, I have provided a stop 22, which engages with the clutch 9 whenever the bar 12 is moved upward more than the normal amount. The upward movement necessary to cause the clutch 9 to engage with the stop 22 takes

place when the electrode slips through the clutch, so as to shorten the arc, and thereby produce a force tending to elevate the movable electrode greater than the normal amount.

5 The stop 22 is a bent strip of metal having a body portion 23 and offset elongated end portions 24. Slots 25 are formed in the end pieces 24 to receive bolts 26, which are tapped into the arms 14. The heads of the bolts 26
10 bear against the faces of the end pieces 24 and clamp them firmly in position against the arms 14. The stop 23 can be adjusted vertically by reason of the slots 25. The effect of the engagement between the clutch 9 and the
15 body 23 of the stop 22 taking place when the net lifting force of the arc-controlling mechanism is unduly increased is to cause the tooth 11 to grip the electrode 3 so firmly that no further sneak-feed can take place.

20 The stop device which I have described is also useful in lamps of other types—such, for instance, as that type in which the arc struck is mechanically limited to an exact length by the engagement of the clutch with a stop.
25 The engagement in this type of lamp continues until the feeding operation takes place, when it is momentarily interrupted and then resumed.

I have not described or illustrated in great
30 detail the operation and construction of the lamp in which my device is employed, since it is obvious that the device is not limited to use in connection with this particular form of lamp.

35 What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an arc-lamp, a movable electrode, a base, a tripping-platform, arms depending from said base to support said platform, a
40 stop comprising a piece of sheet metal pro-

vided with a body portion and slotted end portions, screws passing through said slots and into said arms whereby the stop is adjustably secured to said arms, and a clutch
45 for said movable electrode playing between said platform and said stop, said stop being arranged to cause the clutch to more firmly grip the electrode whenever the clutch is brought into contact with said stop.

2. In an arc-lamp, a movable electrode, a
50 clutch and means for causing it to engage said electrode and move it in one direction, a stop for limiting the movement of the clutch in said direction comprising a piece of sheet
55 metal having a body portion and two end portions, said end portions being slotted, a support for said stop, and screws passing through said slotted ends into said support for adjustably securing said stop in position.

3. In an arc-lamp, a movable electrode, a
60 clutch for gripping said electrode comprising a yoke embracing the electrode and a pawl pivoted to said yoke and having one of its ends adapted to engage said electrode, means for moving the other end of said pawl to cause
65 the first-mentioned end to engage and elevate said electrode, and a stop for engaging said clutch at a point between said electrode and said other end of said pawl to force the electrode-engaging end of the pawl more firmly
70 into contact with the electrode when a predetermined upward movement of the clutch is obtained.

In witness whereof I have hereunto set my hand this 16th day of February, 1903.

RICHARD FLEMING.

Witnesses:

DUGALD McK. McKILLOP,
JOHN J. WALKER.