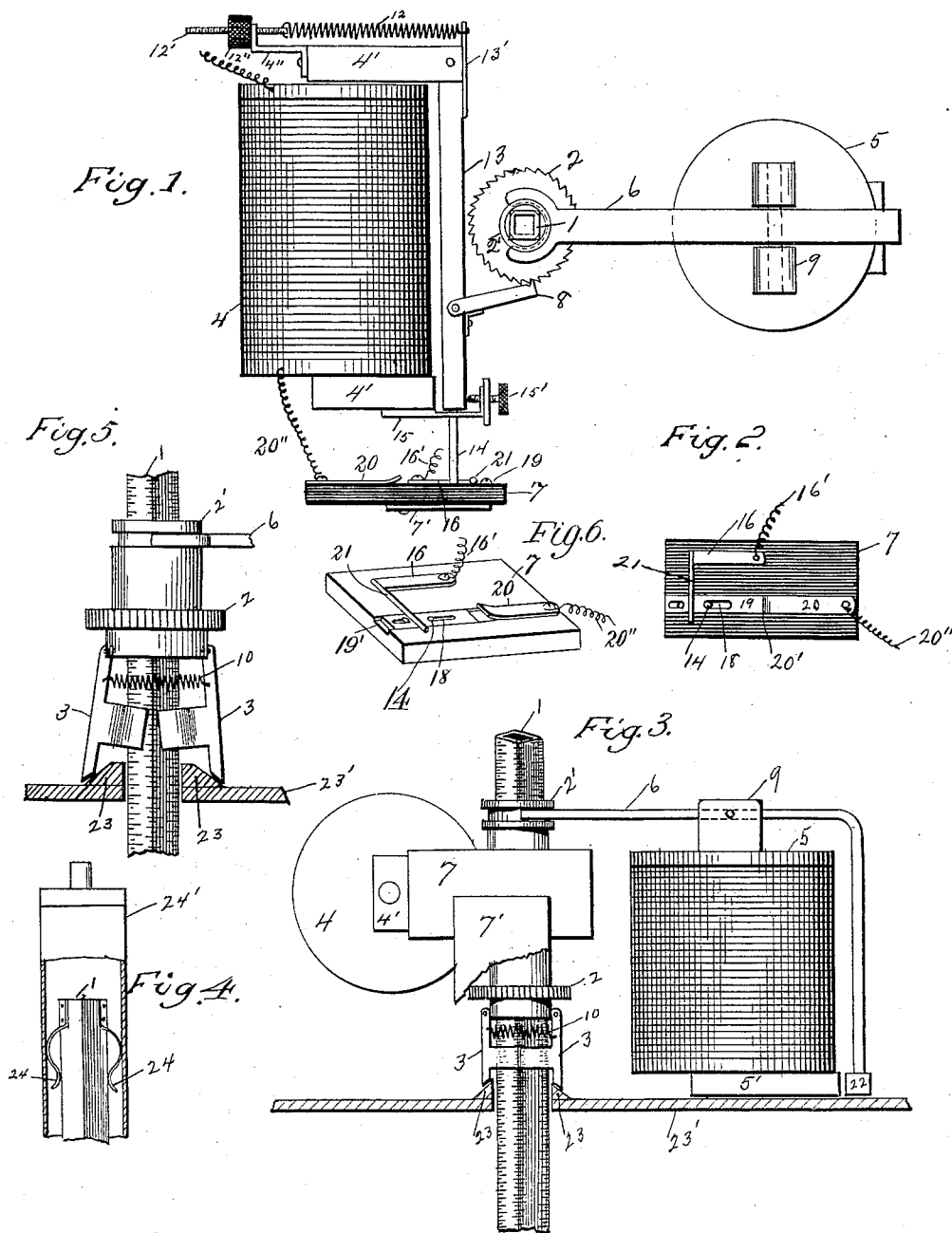


N. G. MEADE.
ELECTRIC ARC LAMP.

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ELECTRIC-ARC LAMP.

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To all whom it may concern:

Be it known that I, NORMAN G. MEADE, a citizen of the United States, residing in the city of Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Electric-Arc Lamps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to make a simple and efficient arc-lamp and one that is directly operated by the electric current acting upon an electromagnet.

The improvement consists in an entirely new feeding mechanism, consisting of a threaded carbon-rod actuated by a screw-clutch which is caused to rotate by suitable means, an adjustment for regulating the candle-power, means to prevent the carbon-rod from dropping too rapidly when released by the clutch, also a special arrangement of contacts whereby a vibratory motion is given to the armature of an electromagnet, all of which will be fully understood by this specification and the accompanying drawings, in which—

Figure 1 is a plan view of the feeding mechanism. Fig. 2 is a side elevation of the contact-block. Fig. 3 is a sectional elevation of the feeding mechanism. Fig. 4 shows spring-brake for carbon-rod. Fig. 5 shows screw-clutch released. Fig. 6 shows a perspective view of contact-block.

In the drawings, 1 is a square non-rotating carbon-rod having screw-threads at the corners, which is suitably mounted in a lamp-frame and is provided with a sleeve and collar 2' which surround it and is held in position by the arm 6, as shown in Fig. 3, being hinged at the center 9 of the magnet 5, and passing beyond the magnet is bent at right angle and passes down the length of the same and is provided with armature 22, as shown.

5' is a pole-piece of magnet 5.

2 is a ratchet-wheel attached to the sleeve 2' and is rotated by the pawl 8, that is hinged to the vibrating armature 13. (See Fig. 1.)

3 3 is a split screw-clutch hinged at the bot-

tom of the sleeve 2' and is held in contact 50 with the threaded rod by the coiled spring 10.

23' is a portion of the frame of lamp to which the mechanism is applied.

23 23 is a collar resting securely on plate 23' and is beveled on its upper side. The bottom 55 of the screw-clutch is beveled, so that when it is lowered to come in contact with the bevel-collar 23 the split clutch opens and releases the threaded rod 1, which may then be raised or lowered, as desired. Fig. 5 shows the 60 clutch opened and the rod released. Fig. 3 shows the clutch closed.

24' is the case for the carbon-rod which extends above the lamp.

I secure the light springs 24 24 to the top 65 of the carbon-rod 1, as shown in Fig. 4, to cause friction, so that the rod will not drop too rapidly when released by the clutch.

4 is a shunt-magnet mounted horizontally in the frame of the lamp 4' 4', being the pole- 70 pieces of the magnet, in one of which the armature 13 is hinged. This armature is provided with a small arm 13' at one end, to the end of which I secure coiled spring 12, as shown in Fig. 1. At the opposite end of this 75 pole I secure small bracket 4'', which is provided with a hole to receive threaded rod 12', which is secured to one end of the coiled spring 12 and has a nut 12'' to regulate the tension of spring 12, which spring governs the arma- 80 ture and regulates the candle-power.

15 is a bracket secured to pole-piece 4' and has a screw 15' to regulate the distance the armature travels.

7 is a block of non-conducting material the 85 top of which is shown in plan view, Fig. 1, and its position in the lamp is shown in Fig. 3, it being secured at the top of this metal piece 7'. This metal piece extends downward from the block and is secured to the base 23', which 90 base is a part of the frame of the lamp. The lower part of this support is broken off in Fig. 3 in order to show the working of the screw-clutch.

Fig. 2 shows a side elevation of the inner 95 side, or side toward the center of the lamp, of the block 7, which has movable sliding strip 19, working in groove 19', as shown in Fig. 6.

Strip 19 contains long slot 18, through which the end of pin 14 just passes. This metal strip has contact with metal spring 20 at 20'.

Fig. 6 shows block 7 tipped back in order to better show this contact. Strip 19, working in groove 19', is moved by armature 13 and pin 14 just far enough under the point of spring 20 to make a good contact. Spring 20 is secured to the surface of block 7, and its point of contact is slightly turned up to cause a long make and break, yet one which is accomplished instantly.

16 is a short metal spring secured to the surface of block 7 above and parallel to sliding strip 19, and has connecting current-wire 16' connected thereto at one end and at the other the small metal cross-piece or rod 21, which presses against sliding strip 19.

The operation is as follows: When the current is turned on, the magnet 5, being in the main circuit, attracts armature 22 and raises arm 6, which lifts the screw-clutch together with the carbon-rod 1, the arms of the clutch sliding up the bevel-collar 23, and are drawn around the rod 1 by spring 10 into normal position, as shown in Fig. 3, which position is maintained until the carbons are burned away, when the shunt-magnet 4 becomes magnetized and draws armature 13 toward it, at the same time turning ratchet-wheel 2 and breaking the circuit, which causes the armature 13 to vibrate until the carbons are lowered to normal position. This operation is repeated as occasion demands till the carbons are consumed or the current turned off, in which latter case the clutch drops apart down bevel-collar 23 and stands ready to start again as soon as the current is turned on.

I sometimes use a round threaded rod in place of the square threaded rod 1, making a long slot in the same, which has a key to keep it in position. It is not necessary for the split screw-clutch to spread as far as shown in Fig. 5 in order to be released, and I generally do not have it drop as low as shown.

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In electric-arc lamps, a screw-clutch composed of collar 2', ratchet-wheel 2, spring 10, hinged jaws 3, 3, in combination with beveled collar 23, 23, and means for actuating the clutch, substantially as shown and described.

2. In electric-arc lamps, a collar 2', ratchet-wheel 2, spring 10, hinged jaws 3, 3, having their inner faces threaded and engaging with threads on carbon-carrier 1, and the beveled collar 23, 23, substantially as described.

3. In electric-arc lamps, a contact, or circuit-breaker consisting of non-conducting piece 7, spring 20, sliding piece 19 with slot 18, and pin 14, spring 16 and piece 21 bearing on sliding piece 19, combined to operate substantially as shown and described.

4. In electric-arc lamps, the combination of a main magnet 5, pole-pieces 5', and 9, bent lever 6, armature 22, collar 2' and ratchet-wheel 2, spring 10, hinged jaws 3, 3, and bevel-collar 23, 23, of spring-clutch, substantially as shown and described.

5. In electric-arc lamps, the combination of a shunt-magnet 4, armature 13 and pin 14 moving in slot 18 of sliding piece 19 in circuit breaker or contact, substantially as shown and described.

6. In electric-arc lamps, the combination of a shunt-magnet 4, armature 13, pin 14, pawl 8, lever 6, main magnet 5, armature 22, collar 2', and ratchet-wheel 2, spring 10, hinged jaws 3, 3, beveled collar 23, 23, block 7, springs 16 and 20, with movable piece 19, slot 18, and piece 21 of contact or circuit breaker, substantially as shown and described.

In witness that I claim the foregoing I hereby sign my name in the presence of two witnesses.

NORMAN G. MEADE.

In presence of—

R. G. OWENS,

N. E. THOMAS.