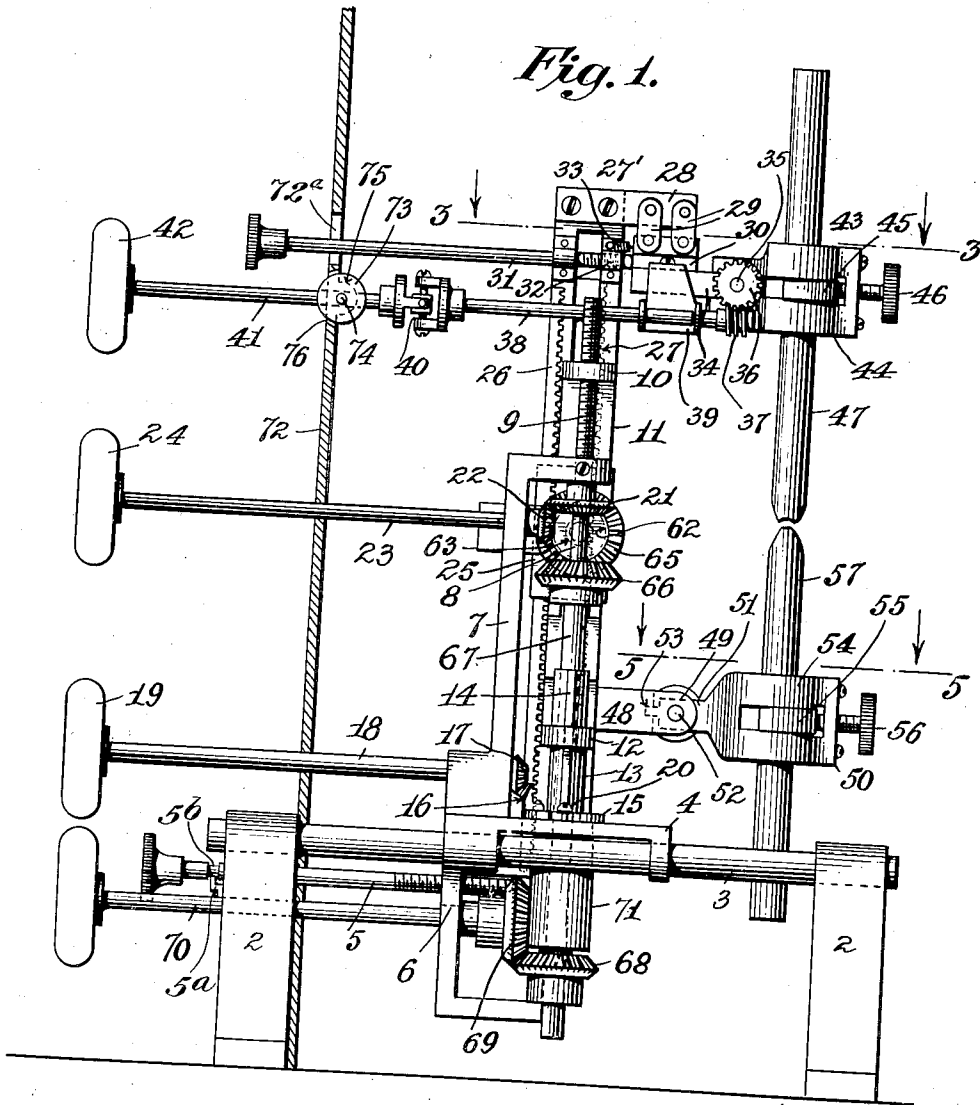


E. M. WOODEN.
ARC LAMP.
APPLICATION FILED SEPT. 7, 1911.

1,049,555.

Patented Jan. 7, 1913.
3 SHEETS—SHEET 1.

Fig. 1.



Attest:
M. McGuire
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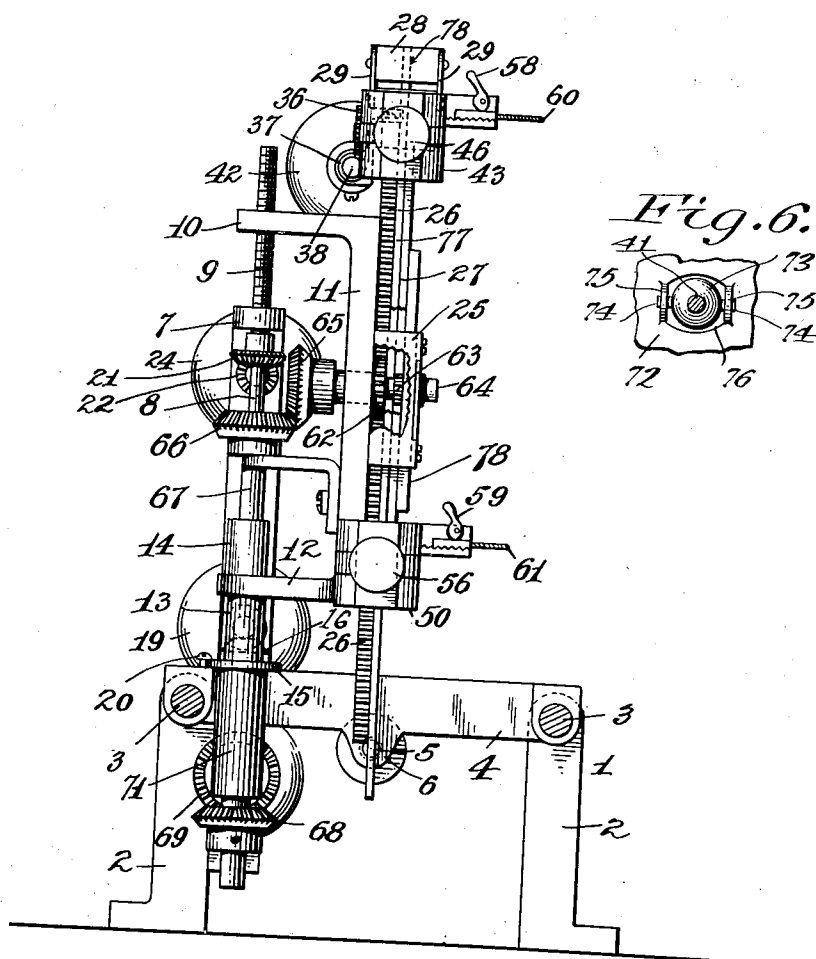
Inventor:
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Patented Jan. 7, 1913.
3 SHEETS-SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

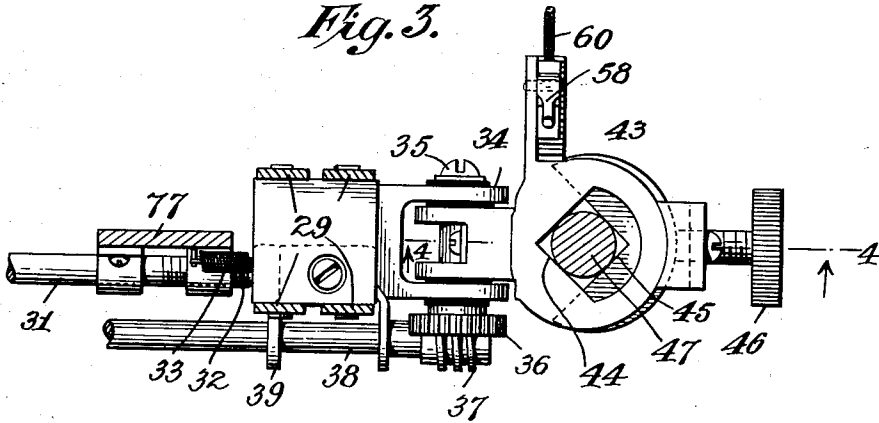


Fig. 4.

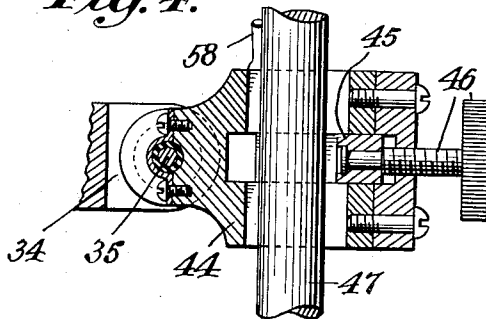
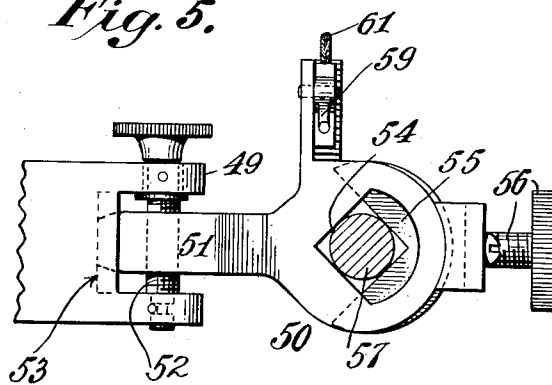


Fig. 5.



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UNITED STATES PATENT OFFICE.

EARLE M. WOODEN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-THIRD TO ANTHONY B. CAVANAGH, OF NEW YORK, N. Y.

ARC-LAMP.

Patented Jan. 7, 1913.

Specification of Letters Patent.

Application filed September 7, 1911. Serial No. 648,210.

1,049,555.

To all whom it may concern:

Be it known that I, EARLE M. WOODEN, a citizen of the United States, residing in the borough of Manhattan of the city of New York and State of New York, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification, reference being had to the accompanying drawings, which form a part hereof.

This invention relates to arc lamps and particularly to lamps of this type which are used in connection with moving picture machines.

The principal object of the invention is to provide a lamp having improved means for supporting the electrodes or carbons and for adjusting them into any desired position.

A further object of the invention is to provide means for insuring that the arc will be maintained at a substantially fixed point.

Further objects of the invention will be more fully set forth in the following description of an apparatus embodying my invention which consists in the new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the drawings, Figure 1 is a side elevation of an arc lamp constructed according to my invention, the frame plate thereof being shown in vertical section. Fig. 2 is a vertical section through a portion of the frame of the machine, certain parts being broken away or omitted. Fig. 3 is a horizontal cross section taken on the line 3-3 of Fig. 1 upon an enlarged scale and illustrating means for adjusting the upper electrodes. Fig. 4 is a vertical section taken on the line 4-4 of Fig. 3 and illustrating the means for clamping the upper electrode. Fig. 5 is a horizontal section taken on the line 4-4 of Fig. 1 and illustrating the means for clamping or adjusting the lower electrode. Fig. 6 is a fragmentary view in section looking from the right toward the guard plate of the lamp and showing a suitable manner of extending a movable operating spindle through the same.

Upon the frame 1, comprising standards 2 and horizontal guide bars 3, a movable slide or carriage 4 is mounted. This slide is adjusted along the guide bars 3 by means of an adjusting screw 5 which is threaded through a bracket 6 extending down from

the slide 4. The adjusting screw 5 may be mounted in the standard 2 which may have a flange portion 5^a bearing in an annular recess 5^b to prevent longitudinal movement of the screw 5, as indicated in Fig. 1. On the upper side of the slide 4 the upper bracket 7 is mounted and between these brackets a vertical spindle 8 is mounted, the upper end of which spindle is formed with threads so that its upper extremity forms a vertical adjusting screw 9. This adjusting screw 9 passes through the horizontal ear 10 on the sweep 11 and the lower end of this sweep is provided with a lower horizontal ear 12 which is mounted to slide longitudinally on a sleeve 13 which is attached to the upper side of the slide 4. The sleeve 13 has a longitudinal key 14 fitting the ear 12 so that when the sleeve is rotated on the axis of the spindle, the sweep may be swung around into any position desired. The sleeve 13 has a flange 15 at its lower end which is provided at one side with a segment 16 meshing with the bevel gear 17 carried on an adjusting stem 18. By rotating the adjusting stem 18 by means of the hand wheel 19, the sleeve 13 can be rotated so as to swing the sweep 11 around and may be clamped in any position by a clamping screw 20 engaging the edge of the flange 15. In order to adjust the sweep vertically, the adjusting screw 9 may be rotated by the bevel gear 21, which is attached to it and which engages with the bevel pinion 22 on the stem 23, carrying a hand wheel 24 as shown.

In order to mount the electrodes, I provide the outer face of the sweep 11 with a guide 25 through which racks 26 and 27 slide vertically. The rack 26 is formed at its upper end into a head 27 having a short horizontal arm 28 with two pair of links 29 which suspend a block 30. This block may be adjusted outwardly from the rack by an adjusting screw 31 which is threaded in a socket 32, the point of the screw resting against the block 30. A spring 33 holds the block against the end of the screw. As indicated in Fig. 3, the block 30 has a pair of forks 34 between which a horizontal shaft 35 passes, said shaft being insulated and provided with a rigid worm wheel 36. Meshing with the worm wheel 36, there is a suitable worm 37 on the shaft 38 mounted in a bracket 39 attached to the block, and this shaft 38 has a universal connection

which attaches it to a stem 41 carrying a hand wheel 42. By rotating the hand wheel 42, evidently the worm wheel can be rotated and this adjusts an electrode holder 43 rigid with the worm wheel, which presents fixed jaws 44; a movable clamping jaw 45 operated by the clamping screw 46 clamps the upper electrode 47 in position as shown.

The rack 27 extends downwardly and is rigid with an arm 48 which extends out under the arm 28 and this arm has two forks 49, as shown in Fig. 5, between which the lower electrode holder 50 is mounted. This electrode holder has a shank 51 which extends between the forks 49 and is threaded to a horizontal adjusting screw 52 mounted in the forks 49. Between the forks 49 a horizontal guide groove 53 is formed which receives the end of the shank 51 so as to support the holder against gravity.

By rotating the adjusting screw 59, the position of the holder can be adjusted in a horizontal direction between the forks 49. The holder 50 is similar in construction to the holder 43 comprising fixed jaws 54 and a cooperating movable jaw 55 actuated by a clamping screw 56. Between the jaws, the lower electrode 57 is clamped as indicated. The holders 43 and 50 are provided with cam levers 58 and 59 for securing the conductors 60 and 61 which carry the current to or from the electrodes.

As the electrodes become consumed they may be fed toward each other by means of the racks 26 and 27 which cooperate with two pinions 62 and 63, said pinions being rigidly mounted on a horizontal stub shaft 64 passing through the sweep 11 and the guide 25. The stub shaft 64 may be rotated through bevel gears 65 and 66, the latter of which is rigidly attached to the hollow shaft 67, which extends downwardly around the spindle 8 and through the sleeve 13, carrying the bevel gear 68 rigidly on its lower end. Bevel gear 68 may be rotated by a bevel gear 69 carried on a stem 70. The sleeve 13 has a downward extension below the slide 4 which forms a bearing 71 for this sleeve. The pinion 62 has twice the diameter of the pinion 63, so that there is twice as much feeding movement given to the upper electrode. This arrangement is adopted in order to compensate for the consumption in the upper electrode which is usually twice as fast as the lower.

The stems referred to above all pass through a vertical guard plate 72; in order to permit the vertical movement of the stem 31 with the rack 26, a vertical slot 72^a is formed in the plate; and in order to enable the stem 41 to rock at the point where it passes through the plate when the upper

holder 43 is adjusted, I let the stem 41 slide through a round block 73, the ends of which are formed into gudgeons 74 rotatably mounted in ears 75 formed on the plate as shown in dotted lines in Fig. 1; and this block is set in an opening 76 in the plate.

In order to hold the racks 26 and 27 apart, and assist in guiding them, I provide a center plate 77 to which the rack 26 is attached, and on the upper side of the guide 26 a vertically extending guide bar 78 is provided, as shown in Fig. 2.

With the construction described, it will be evident that by rotating the adjusting screw 5, the slide or carriage 4 may be adjusted in any desired position along the guide bars 3. By rotating the hand wheel 24, the sweep 11 may be raised or lowered so as to elevate or depress the lighted point or arc. By rotating the hand wheel 19, the sweep 11 can be adjusted around in an arc on the spindle 8 as an axis. The adjusting screw 31 enables the upper electrode holder to be adjusted outwardly and upwardly and the hand wheel 42 enables the angle of the upper electrode to be adjusted around the pin or shaft 35. By rotating the stem 70, the electrodes may be fed toward each other at the proper speed to maintain the arc at a fixed point. Through the medium of the adjusting screw 52, the lower electrode holder may be adjusted horizontally.

I claim as my invention:

1. In an arc lamp, in combination, a bracket, a sweep having a vertical axis of rotation on said bracket, means for adjusting said sweep vertically on said bracket, a sleeve rotatably mounted on said axis of rotation, said sweep having a non-rotative sliding connection with said sleeve, means for adjusting said sleeve to change the position of said sweep, and electrode holders supported by said sweep.

2. An arc lamp comprising a bracket, a sweep movably mounted on said bracket, upper and lower electrode holders carried by said sweep, said upper electrode holder comprising an arm carried by said sweep, a block, links suspending said block from said arm, a clamp for the electrode pivotally mounted in said block, means for adjusting said clamp about the pivot and means for laterally swinging said block, whereby the upper electrode may be adjusted with relation to the lower.

This specification signed and witnessed this 5th day of September, A. D. 1911.

EARLE M. WOODEN.

Witnesses:

AMBROSE L. O'SHEA,
A. M. AUSTIN.