

C. A. HUGHES.

ARC LAMP.

APPLICATION FILED JULY 5, 1910.

980,639.

Patented Jan. 3, 1911.

3 SHEETS-SHEET 1.

Fig. 1.

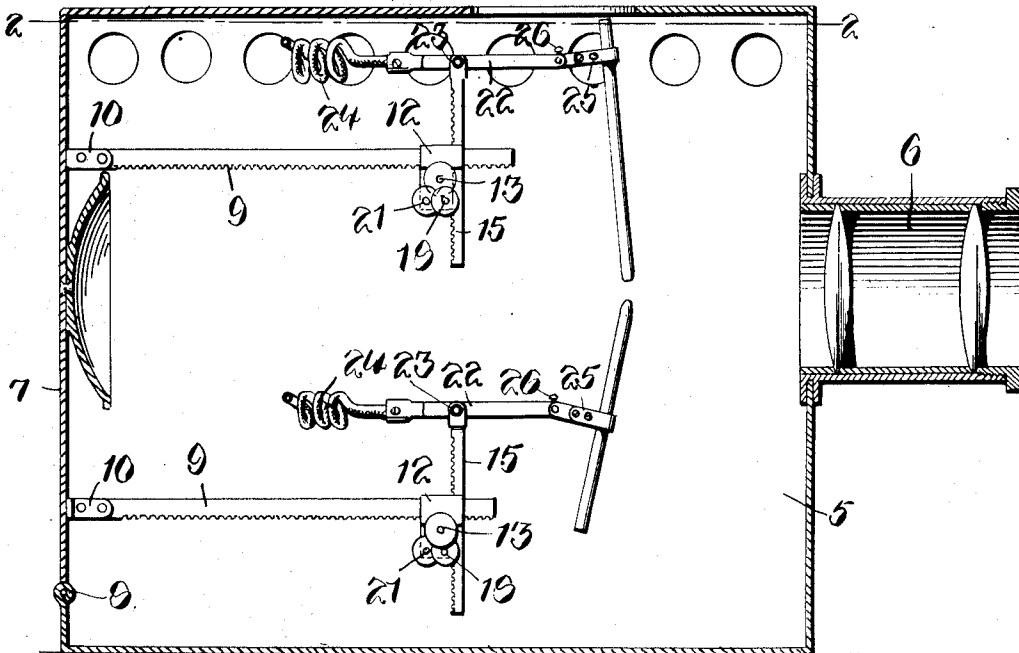
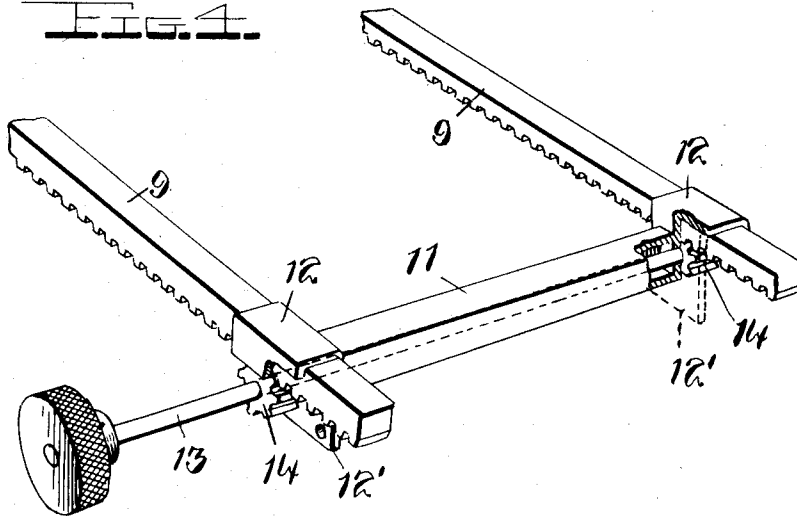


Fig. 4.



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Witnesses

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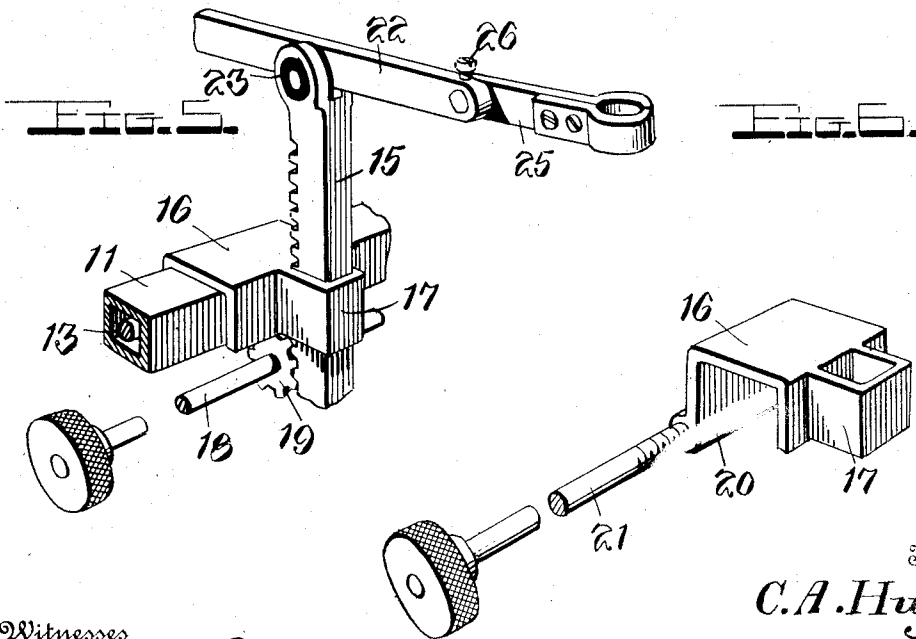
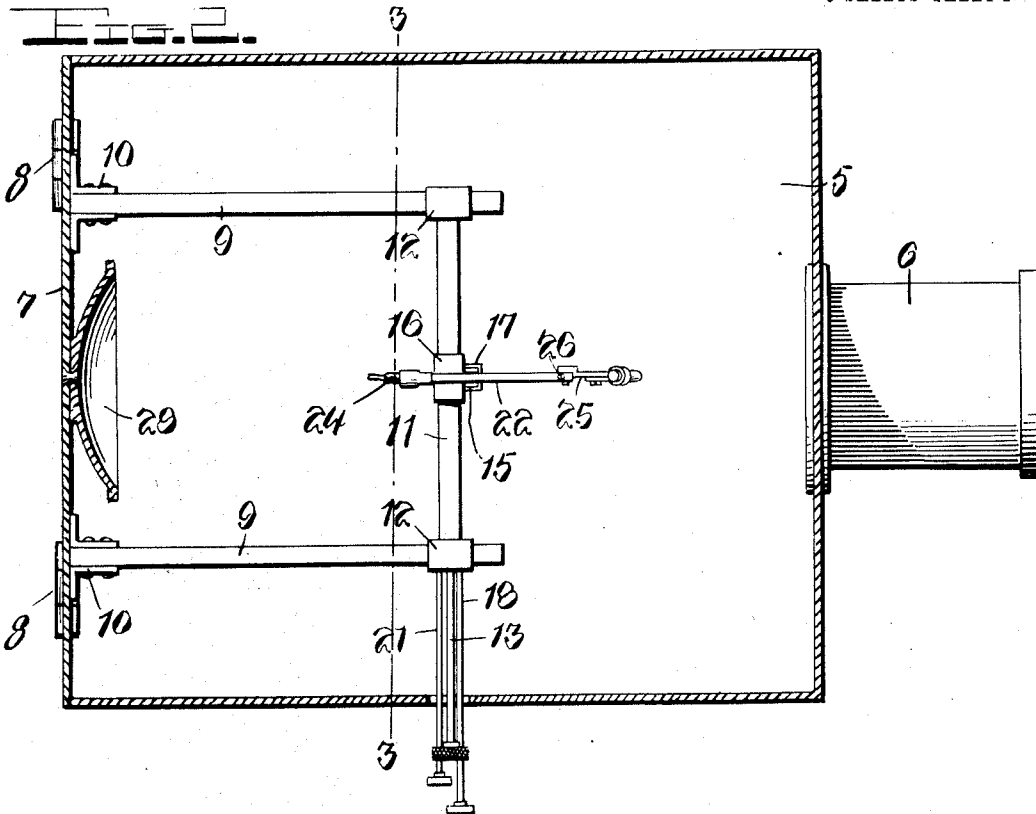
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

FIG. 3.

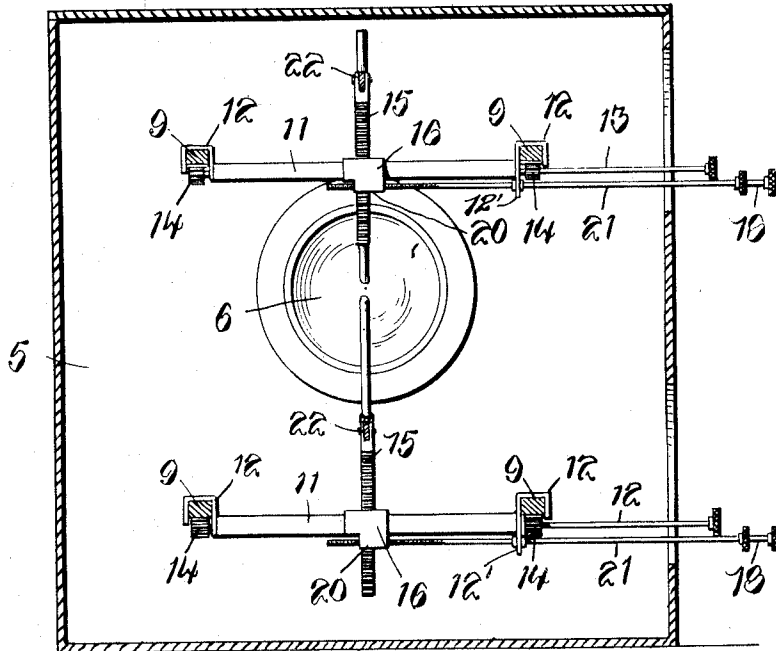
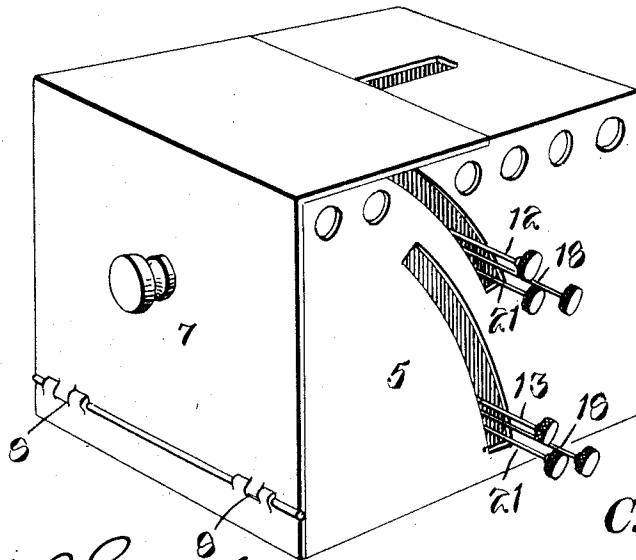


FIG. 2.



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ARC-LAMP.

980,639.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed July 5, 1910. Serial No. 570,446.

To all whom it may concern:

Be it known that I, CHARLES A. HUGHES, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to an improved arc lamp and has for its object to provide a lamp of this character which is especially designed for use in connection with moving picture machines and one which is simple, efficient and comparatively inexpensive in construction.

The invention has for a further object the provision of novel means for independently adjusting the carbon electrodes.

20 Another object of the invention is to provide a lamp housing having a reflecting element arranged therein, said reflecting element and the adjusting mechanism for the electrodes being movable upon a hinged back arranged on the housing.

25 A still further object of my invention is to provide means for simultaneously moving the electrodes longitudinally in the lamp casing whereby the center of radiance of the light may be adjustably positioned within the housing.

30 With these and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

35 Figure 1 is a vertical section through the lamp housing, the carbon electrodes and adjusting means therefor being shown in elevation; Fig. 2 is a section taken on the line 2—2 of Fig. 1; Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is a detail fragmentary perspective view of the means for adjusting the electrodes longitudinally; Fig. 5 is a similar view showing the means for independently adjusting the electrodes vertically; Fig. 6 is a detail perspective view of the means for adjusting the electrodes transversely; and Fig. 7 is a perspective view of the lamp closed.

40 Referring more particularly to the drawings 5 indicates the housing or lamp casing which is provided at its front end with an extension 6 through which the light rays are directed. Upon the rear lower edge of

the lamp housing a plate 7 is hinged. The hinges 8 are preferably, but not necessarily, of the ball bearing variety. When the lamp is to be adjusted, the top of the same is open so as to permit the plate 7 to be swung backwardly to move the electrodes from between the sides of the housing so that they may be readily adjusted in the manner which will now be specifically set forth.

60 Spaced parallel longitudinal rack bars 9 are rigidly secured between the brackets 10 to the back plate 7 adjacent to its upper and lower edge. Each pair of these rack bars support a longitudinally movable transverse bar 11 to each end of which a substantially U-shaped sliding bearing plate 12 is secured. These bearing plates extend across the top and upon each side of the bars 9. The bars 11 are hollow and the adjusting rods 13 extend longitudinally through the same. Pinions 14 are secured on these rods and engage the teeth of the racks 9. Upon one side of each of the transverse bars 11 a vertically adjustable rack bar 15 is arranged for transverse movement. A U-shaped bearing plate 16 is disposed upon the bars 11 and has formed upon one side thereof a rectangular guide sleeve 17 through which the bar 15 moves in its vertical adjustment. These bars are adjusted vertically by means of the rods 18 upon the ends of which are fixed the pinions 19 for engagement with the teeth of the rack bars 15. One of each pair of bearing plates 12 has one of its flanges extended, as shown at 12', to provide a bearing or support for the adjusting rod 18. The bearing plates 16 are also formed with the screw receiving threaded sleeves 20 which receive the screw threaded adjusting rods 21. Upon rotating these rods, it will be seen that the vertically disposed rack bars 15 will be moved transversely upon the bars 11. The adjusting rods 21 also extend through the extension 12' of the bearing 12. The rods 18 are loosely disposed through said bearing plates so that they may move longitudinally therethrough.

100 The upper ends of the vertically adjustable bars 15 are bifurcated and in these bifurcated ends of the bars the arms 22 are secured. The arms 22 and bars 15 are insulated from each other, as shown at 23, and wires 24 are secured to the rear ends of said arms and connected to any suitable source of current supply. To the forward ends of the arms 22 the carbon holders 25 are adjust-

ably connected. By loosening the set screw 26 the carbon holders may be adjusted at any desired angle so that the point of the carbon sticks 27 may be disposed in such manner with relation to each other as to secure the proper co-action of the electric currents.

To the center of the rear hinged plate 7 a reflecting mirror 28 is secured. This mirror is adapted to reflect the light rays outwardly and forwardly from the front of the lamp case or housing 5 so as to intensify and concentrate the same upon the desired point.

From the foregoing it is believed that the construction and operation of my improved arc lamp will be readily understood.

The device is comparatively simple, highly convenient and efficient in practical use and may be operated at no greater expense than is attached to lamps of this character as at present constructed.

While I have shown and described the preferred construction and arrangement of the various parts, it will be understood that the same may be modified within the scope of the appended claims.

Having thus described the invention what is claimed is:

1. An arc lamp comprising spaced pairs of parallel bars, vertical rack bars arranged between the parallel bars, positive and negative electrodes carried by the vertical bars, and means for independently moving said vertical bars vertically, transversely, and laterally to adjust the electrodes with respect to each other.

2. An arc lamp comprising spaced pairs of parallel bars, vertically movable bars arranged between said parallel bars, a carbon electrode carried by each of the vertical bars, and means engaging said longitudinal and vertical bars to independently move said vertical bars vertically and laterally to adjust the electrodes with respect to each other.

3. An arc lamp comprising spaced parallel pairs of rack bars, transverse bars connecting the rack bars and longitudinally movable thereon, a vertically movable rack bar arranged adjacent to each of the transverse bars, a carbon electrode carried by each of said vertical bars, guides for the vertical bars, and means engaging said rack bars and the vertical bars to independently move the latter bars vertically or laterally between the rack bars to adjust the electrodes with respect to each other.

4. An arc lamp comprising spaced pairs of parallel bars, longitudinally movable guides arranged upon said bars, means for moving the guides, carbon electrodes movable in the guides, means for vertically adjusting said electrodes with respect to each other, and additional means for transversely

adjusting the electrodes with respect to each other.

5. An arc lamp comprising spaced parallel pairs of rack bars, hollow transverse bars movably supported upon said rack bars, a carbon electrode movably arranged adjacent to each of said transverse bars, means for vertically adjusting said electrodes with relation to each other, an adjusting rod extending through each of the transverse bars, and pinions on said rods engaging with the rack bars to move the electrodes longitudinally with relation to each other.

6. An arc lamp comprising spaced pairs of parallel bars, vertically disposed adjustable bars transversely movable between said parallel bars and supported by the same, a carbon electrode carried by each of the vertical bars, and means for adjusting the vertical bars including means for moving said bars vertically, transversely and laterally between the parallel bars to adjust the electrodes with respect to each other.

7. An arc lamp comprising spaced pairs of parallel bars, transverse bars adjustable upon said parallel bars, bearing plates engaging said transverse bars and movable thereon, sleeves formed on said plates, vertically adjustable rack bars disposed in said sleeves, adjusting rods, pinions on the ends of said rods engaging said rack bars, an electrode mounted upon the end of each of said bars and means engaging said bearing plates to move the same and adjust said electrodes transversely with respect to each other.

8. An arc lamp comprising spaced pairs of parallel rack bars, transverse bars connecting the same and longitudinally movable thereon, a movable bearing plate on each of the transverse bars, a guide carried by each of said plates, a vertical rack bar movable in the guides, an electrode carried by each of the bars, and means for adjusting said bars including manually actuated pinions engaging the teeth of the vertical rack bars to move the same vertically, pinions engaging the parallel rack bars to move said transverse bars and the vertical bars longitudinally thereon, and a threaded rod engaged with said bearing plates to move the vertical bars transversely between the parallel bars whereby said electrodes may be independently adjusted with respect to each other.

In testimony whereof I hereunto affix my signature in the presence of witnesses.

CHARLES A. HUGHES.

Witnesses:

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INZE N. COLLINS,
DORA B. HUGHES.