

E. J. MURPHY.

ARC LAMP.

APPLICATION FILED OCT. 20, 1906.

935,920.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

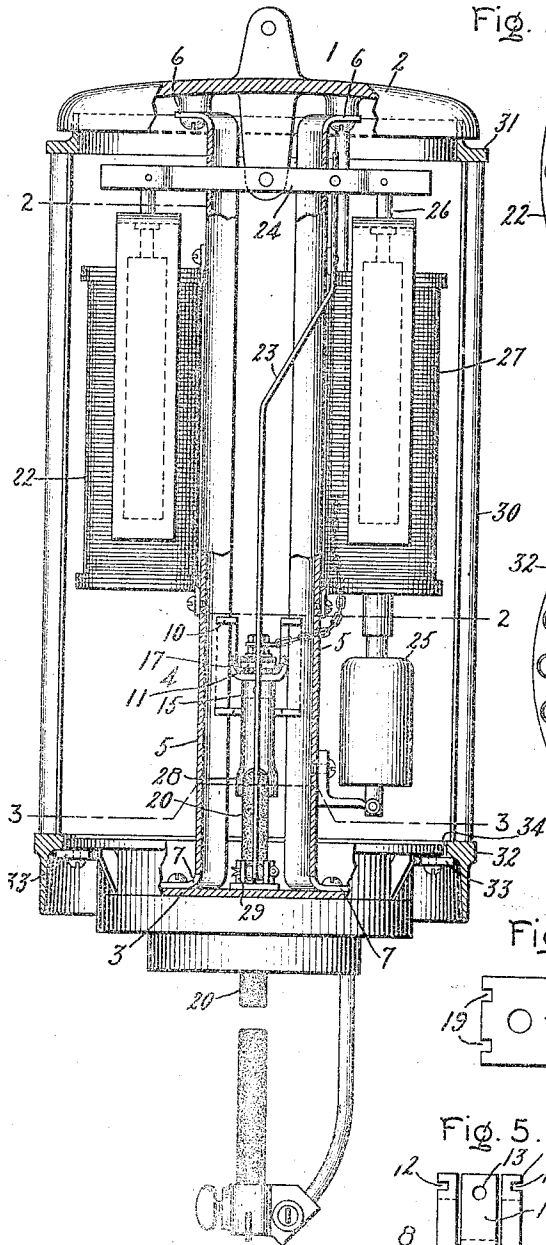


Fig. 2.

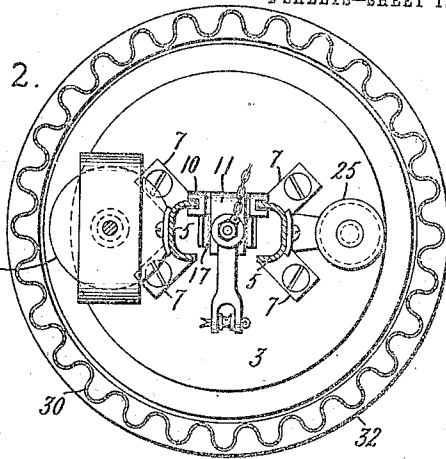


Fig. 3.

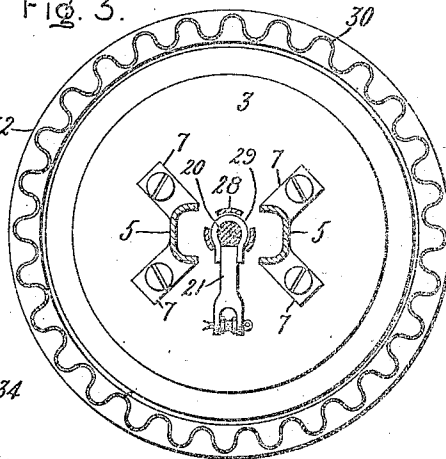


Fig. 6.

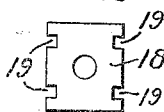


Fig. 5.

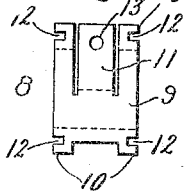
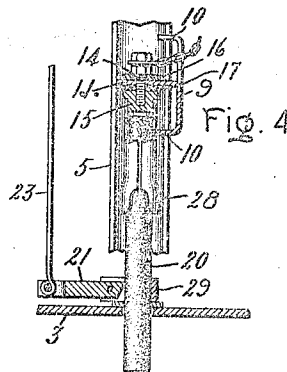


Fig. 4.



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935,920.

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3 SHEETS—SHEET 2.

Fig. 7

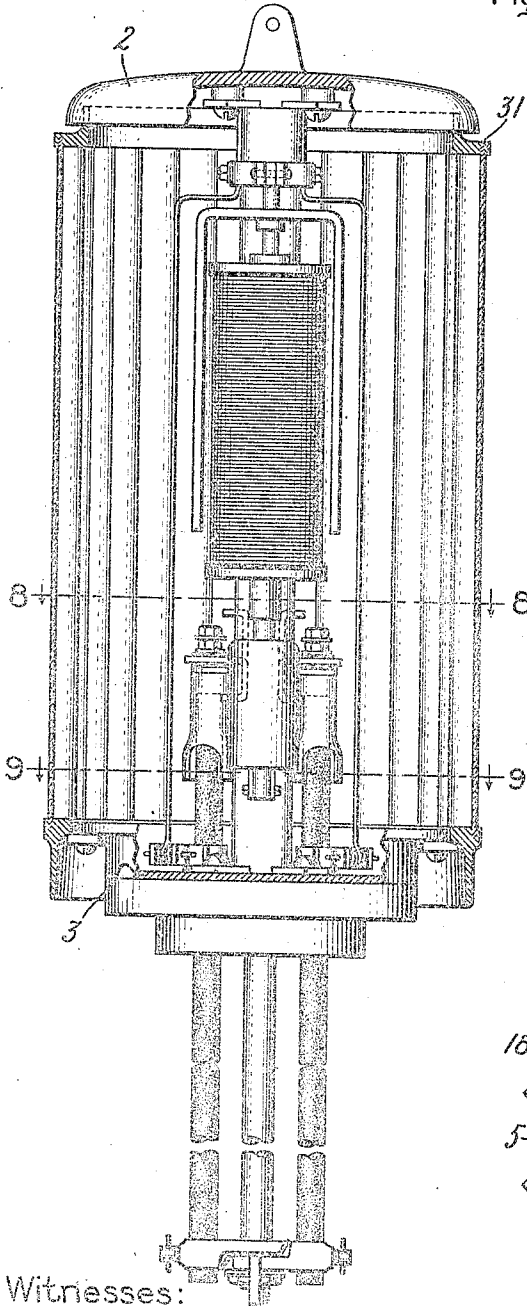


Fig. 8

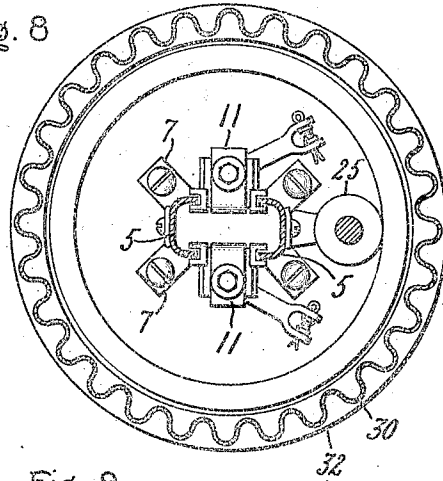


Fig. 9

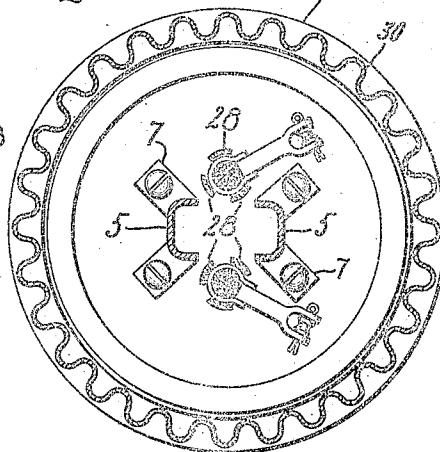
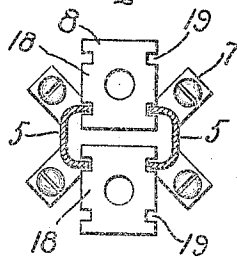


Fig. 10



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UNITED STATES PATENT OFFICE.

EDWIN J. MURPHY, OF GLASGOW, SCOTLAND, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ARC-LAMP.

935,920.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed October 26, 1906. Serial No. 340,699.

To all whom it may concern:

Be it known that I, EDWIN J. MURPHY, a citizen of the United States, residing at Glasgow, Scotland, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

My invention relates to electric arc lamps and has for its object to simplify and improve the construction of the same.

To this end my invention consists in certain novel features of construction to be hereinafter particularly pointed out in the claims.

For a full understanding of the invention and of its various objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing wherein—

Figure 1 shows partly in side elevation and partly in section a lamp arranged in accordance with one form of my invention; Figs. 2 and 3 are cross-sections taken on lines 2, 2 and 3, 3, of Fig. 1 respectively; Fig. 4 is a detail; Fig. 5 shows a blank from which the follower for the upper electrode holder is made; Fig. 6 shows a modified form of follower; Fig. 7 shows a partial vertical section of a twin carbon arc lamp illustrating the second form of my invention; Fig. 8 is a horizontal section on the line 8—8 of Fig. 7 looking downward, illustrating the application of the stamped metal follower to the twin carbon arc lamp; Fig. 9 is a horizontal section on the line 9—9 of Fig. 7 looking downward, illustrating the relative position of the ring clutch to the enlarged lower portions of the electrode holders during a phase of operation; and Fig. 10 is a detail view showing the use of two followers of the form shown in Fig. 6.

Referring to the drawing, 1 indicates the frame of an arc lamp comprising a hood or lamp-top 2, a platform 3, and a backbone 4 connecting the hood and platform members. The backbone consists of two channel-shaped pieces of sheet metal 5, which are conveniently connected at their opposite ends to the members 2 and 3 by means of ears 6 and 7 which are formed by splitting the ends of the backbone members and bending the split portions laterally. The two backbone members are so arranged that the channels face each other, whereby convenient guides are provided for the follower 8 for the upper electrode. This follower may be made of a

piece of sheet-metal which is first shaped as indicated in full lines in Fig. 5, and portions of which are then bent at right angles to the main body portion along the dotted lines. The finished follower therefore comprises a body portion 9 having at each end a pair of laterally projecting ears 10 and a further elongated ear 11, projecting laterally from the middle portion thereof. The ears 10 are provided with notches 12 which engage with the edges of the channels of the guides. The ear 11 is provided with a perforation 13, through which passes a screw terminal 14 which is secured into the upper end of the electrode-holder 15. The follower and electrode-holder are therefore rigidly connected together. Insulating washers 16 and 17 may be placed between the follower and the electrode-holder, whereby the upper electrode is insulated from the frame. When only a single set of electrodes is employed, the upper electrode is preferably arranged to move midway between the channel members, the notches in the follower engage with one edge of each of these members so that the ear 11 projects into the space between them. This is the arrangement shown. It will be seen that by making two passages through the platform the lamp may be adapted for operation with two sets of electrodes, as shown in Figs. 7, 8, 9 and 10. Fig. 8 clearly shows the relation of the follower 9 to the guide bars 5 that constitute the backbone of the lamp and that connect the hood 2 to the platform 3, one being arranged on each side of the vertical axis of the lamp. With this arrangement the same followers may be used, but they are rotated through an angle of 180° so that the ear 11 projects outwardly from the channel members. In this way space is provided for two followers on each pair of guides, as clearly shown in Fig. 8.

Instead of making the follower or followers of sheet-metal, a porcelain block 18, such as shown in Figs. 6 and 10 may be employed, there being four notches 19 arranged in the edges of the block in such positions that they engage with all four edges of the channel members when a single central pair of electrodes is employed. When, however, it is desired to make use of two pairs of electrodes, two of the followers are used, as before (see Fig. 10), and they are so positioned that only two of the notches on each

follower engage with the channel members, the end at which the other two are located projecting laterally from the plane of the channel members. The feeding of the upper electrode 20 may be accomplished in any suitable manner, as by means of a clutch 21 and a series regulating magnet 22, the core of which is connected to the clutch through a rod 23 and a lever 24. 25 is the usual dash-pot, the movable member of which is secured to the lever 24, either directly or through the core 26 of a shunt magnet 27.

Considerable difficulty is sometimes experienced in trimming lamps, by reason of the shifting of the clutch so as to prevent the ready insertion of the electrode through it.

One feature of my invention consists in means for guarding against the shifting of the clutch when the electrode is removed, thereby making it possible to insert a new electrode without difficulty. To this end the electrode-holder 15 is preferably made in the form of a split tube enlarged somewhat in diameter at its lower end as at 28, so that when the holder is permitted to drop to its lowermost position, the enlarged portion 28 surrounds the ring 29 of the clutch and holds it against displacement, as indicated in Figs. 3 and 9.

A further feature of my invention consists in a light and stiff casing adapted to cover the mechanism between the lamp-top and the platform. To this end I form the casing of a cylindrical tube 30 made of sheet-metal which is corrugated longitudinally, and at the ends of the tube I arrange metal rings 31 and 32 which are preferably cast in place. The casing may conveniently be held in position by means of adjustable clips 33 carried by the platform and arranged to be adjusted beneath a flange or shoulder 34 on the ring 32.

While I have described in detail the best form of my invention known to me, I do not desire to be limited to this particular construction, since in its broader aspect my invention may take various other forms as will appear from the terms of the appended claims.

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

1. An arc lamp frame consisting of a hood, a platform, and two parallel channel bars, the ends of said channel bars being bent laterally to form ears, and means for securing the ears at one end of said bars to the hood and those at the other end to the platform.

2. In an arc lamp, the combination of a pair of parallel guide bars each having a pair of guide edges, an electrode holder, and a follower having four guide channels adapted to receive and be guided selectively by

the four guide edges of the bars or by one guide edge of each bar.

3. In an arc lamp, a pair of vertically arranged guide bars, a follower, an electrode holder secured to the follower, the said follower having four guide channels spaced to have a selective sliding fit with said guide bars so as to support the electrode holder either between the bars or at one side thereof.

4. In an arc lamp, a pair of parallel guide bars each having a pair of guide edges, a follower having four notches each shaped for engagement with one edge of a bar, and means for supporting an electrode holder from said follower, the said notches being so spaced that the position of the follower and the guide bars may be reversed so as to support the electrode holder between the bars or at one side thereof.

5. In an arc lamp, an electrode, an electrode holder, a clutch engaging said electrode for feeding the same, and means on said holder for engaging said clutch and holding it against displacement when the electrode is removed.

6. In an arc lamp, an electrode, an electrode holder, a clutch having a portion arranged to surround the electrode positioned in said holder, and means on the holder for holding the clutch against displacement upon removal of the electrode.

7. In an arc lamp, an electrode, an electrode holder, a clutch arranged to surround the electrode positioned in said holder, and a socket in said holder for receiving said clutch upon removal of the electrode.

8. In an arc lamp, an electrode, an electrode holder, a clutch arranged to receive and actuate the electrode positioned in said holder, and means on said holder for maintaining the clutch against lateral displacement when the electrode holder has been moved to a predetermined position.

9. In an arc lamp, an electrode, an electrode holder, a clutch arranged to surround and feed the electrode positioned in said holder, said holder being provided with a socket arranged to receive the clutch when the electrode holder has been moved to a predetermined position.

10. In an arc lamp, a platform having an opening for the passage of an electrode, an electrode, an electrode holder, a clutch arranged to surround the electrode positioned in said holder, and means on said holder for engaging said clutch and for maintaining the opening therein in alinement with the said opening in the platform when the electrode is removed.

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Witnesses:

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