

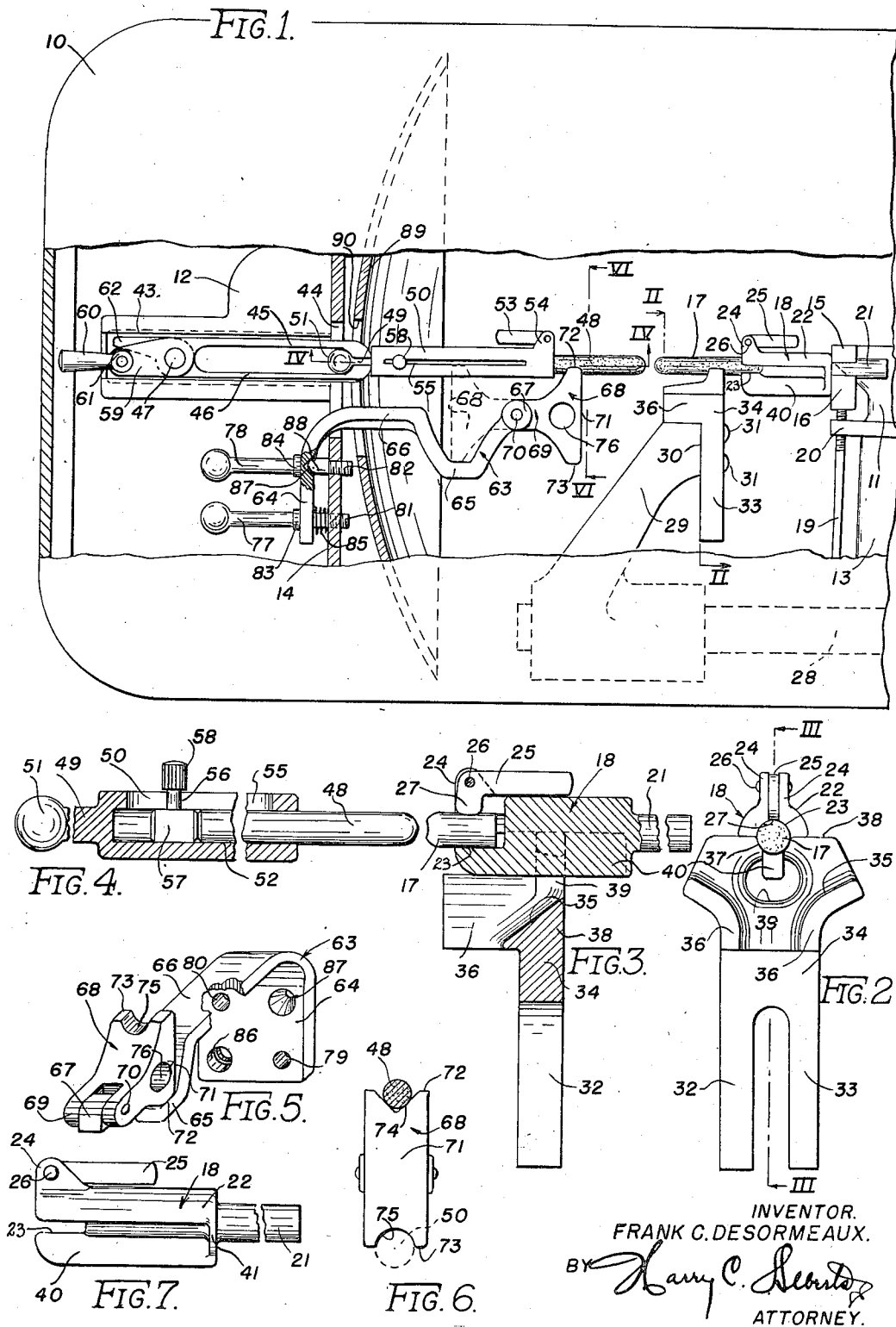
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ADJUSTABLE ELECTRODE MOUNT

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ADJUSTABLE ELECTRODE MOUNT

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10 Claims. (Cl. 176—119)

This invention relates to arc lamps and more particularly to improvements in electrode mounts and extensions therefor, although certain features thereof may be employed with equal advantage for other purposes.

It contemplates more especially the provision of improved adjustable electrode mounts that enable the more effective and substantially longer use of carbon electrodes which have hitherto been discarded.

It is proposed, therefore, to provide adjustable electrode mounts that may be utilized in conjunction with used electrodes that are too short for direct support in the primary mounts. This also entails the use of an additional auxiliary support that is adjustably associated to the standard support so as to be readily available for use in conjunction with the mount extensions, thereby affording the extended use and burning of the electrodes until the body thereof is practically exhausted. This results in an appreciable savings of electrodes and provides for economy and greater efficiency of operation.

One object of the present invention is to simplify the construction and improve the operation of devices of the character mentioned.

Another object is to provide an improved auxiliary electrode support serving as an electrode extension support to increase the longevity of use and operation of electrodes for arc lamps.

Still another object is to provide an adjustable arc lamp electrode mount to enable the efficient burning of used electrodes.

A further object is to provide an adjustable support for electrodes that is instantly available for use as an electrode mount extension.

A still further object is to provide adjustable electrode mount for an arc lamp in conjunction with improved lateral supports therefor to avail the burning of electrodes beyond their minimum length for which the lamp is designed.

Still a further object is to provide an adjustable attachment serving as a lateral electrode extension mount to avail the continued use of electrodes beyond their normal minimum length.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the drawing:

Figure 1 is a fragmentary sectional view in elevation taken through a commercial arc lamp of known construction with adjustable electrode mounts and lateral supports thereof embodying features of the present invention.

Figure 2 is a view in elevation of an electrode

mount taken substantially along line II—II of Figure 1.

Figure 3 is a sectional view in elevation taken substantially along line III—III of Figure 2.

Figure 4 is a sectional view taken substantially along line IV—IV of Figure 1.

Figure 5 is a perspective view of an adjustable electrode mount extension adapted to support both an electrode of normal size and one that is shorter than its normal minimum length for continued use.

Figure 6 is a sectional view in elevation taken substantially along line VI—VI of Figure 1.

Figure 7 is a side view in elevation of an electrode extension shown in Figure 2 and embodying features of the present invention.

The structure selected for illustration comprises a casing 10 of any desired shape, contour, and size for confining the instrumentalities of a commercial arc lamp embodying a pair of primary electrode mounts 11 and 12 supported by standards 13 and 14. The standards 13 and 14 are supported by the casing 10 and confront each other to support the instrumentalities to be hereinafter described. The standard 13 extends downwardly to the bottom of the casing 10, and terminates upwardly in a stationary jaw 15 which confronts a moveable arcuate jaw 16 to directly receive a carbon electrode 17 therebetween or an extensible mount 18 thereof. A threaded rod 19 extends through a bracket 20 integrally or otherwise attached to the standard 13, and the threaded extremity thereof operatively engages the moveable jaw 16 to enable the adjustment thereof for engagement or releasable disengagement of the electrode 17 or its extension 18 that has a shank of the same diameter. The threaded rod 19 that adjusts the jaw 16 has a winged or other type of head that is accessible within the casing 10 for convenient adjustment and manual manipulation.

As shown, the shank 21 of the electrode extension 18 is of the same diameter as the electrode 17, but it terminates in an enlarged cylindrical head 22 provided with an end bore 23 having a diameter somewhat greater than the diameter of the electrode 17 for the reception thereof. A pair of confronting ears 24 extend from the forward edge of the cylindrical head 22, these being furcated so that the space therebetween communicates with the interior bore 23 thereof to receive a lever 25 pivotally carried by a pin 26 bridging the ears 24. The lever 25 has an offset arm 27 in the path of the bore 23 so as to project through the cylindrical head 22 be-

tween the furcated ears 24 to engage the electrode 17 disposed in the bore 23 so as to effect the support thereof in axial alignment with the shank 21 of the electrode extension 18.

5 In consequence thereof, the lever 25 will engage the electrode 17 to retain such in position for support by the electrode extension 18. The lever 25 may be displaced to its vertical inoperative position to instantly release the electrode
10 17. In order to support the positive carbon 17 laterally of its primary mount 11, a rod 28 extends from the standard 13 proximate to the bottom of the casing 10 to carry an upwradly extending bracket 29 having a vertical surface 30
15 provided with adjustable screw fasteners 31 to engage the furcations 32—33 (Figure 2) of an electrode supporting bracket 34. The bracket 34 has an arcuate outwardly-flared top portion 35 formed in a lateral outwardly flared furcated extension
20 36 that extends beneath the carbon 17. The carbon 17 is supported and guided on an arcuate correspondingly sized recess 37 defined in the top edge 38 constituting a vertical end wall of the top portion 35 of the bracket 34.

25 The bracket recess 37 communicates with a circular aperture 39 (Figure 2) provided in the end wall 38 to serve as a complement of the lower half of the electrode extension head 18 (Figures 2 and 7) which is correspondingly shaped
30 to be guided therethrough to feed the positive electrode 17 with or without its extension 18 depending upon the length of the carbon 17. It should be noted that the electrode extension 18 increases the electrical resistance in the circuit
35 to compensate for the lowered electrical resistance of abnormally short carbon electrodes 17 to restore its initial arcing efficiency and provide for the use of even shorter electrodes 17 than was possible with the structure described
40 and illustrated in my copending application eventuating into Letters Patent No. 2,151,194 dated March 21, 1939. It will be noted that the lower half of the cylindrical electrode extension head 22 has spaced outside segments
45 removed to define a central longitudinal straight rib 40 along the bottom thereof to project through the slot communicating between the top edge recess 37 and the end wall aperture 39. Therefore, the head 22 of the electrode extension 18 will pass through the bracket 34 until
50 the wall between the bracket recess 37 and aperture 39 (Figure 2) is engaged by the end face 41 (Figure 7) of the electrode extension head 22.

The mount 12 for the negative electrode 48
55 has a tubular horizontal bore 43 extending completely therethrough in registry with a somewhat larger opening 44 provided in the plate or standard 14. A feeding mechanism (not shown) is operatively connected to a pair of electrode engaging jaws 45 and 46 pivoted as at 47 for slidable movement within the bore 43 while grasping the shank of the carbon electrode 48 or the shank 49 of corresponding diameter comprising part of the electrode mount extension 50. The
60 shank 49 preferably has a spherical extremity 51 to preclude the accidental removal thereof from the jaws 45—46 when the electrode 48 is ejected or pulled from the extension 50. It is to be noted that the mount extension 50 has a tubular
65 bore 52 provided axially therein to receive the carbon electrode 48 and secure such therein by means of a lever 53 pivoted to furcated ears 54 and having precisely the same shape and action of the lever 25 provided on the positive electrode extension 18.
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In order to enable the convenient and effective removal of the electrode 48 from the extension head 53, the latter is provided with a longitudinal slot 55 that communicates with the bore 52 thereof so that the stem 56 of an ejector 57 may project therethrough. The ejector 57 is cylindrical in shape and conforms in size with the interior bore 52 for reciprocal movement therein to engage the end of the electrode 48 for effecting the displacement thereof from the bore 52.
10 The ejector stem 56 has a knob 58 preferably though not essentially in threaded engagement therewith to enable the assembly of the ejector by incorporation into the bore 52 for which the knob 58 is attached thereto.
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It is worthy of note that the elongated slot 55 may be in alignment and communication with the space between the ears 54 of the engaging lever 53 so that the ejector stem 56 will be slidable therebetween for assembly purposes. For illustrative purposes, the elongated slot 55 is shown radially displaced from alignment with the furcated ears 54. With the alignment of the elongated slot 55 spaced between the lever furcations 54, the ejector head 58 may be formed integral with the stem 56 and be displaced sufficiently therefrom to clear the furcations 54 for assembly purposes to avoid the necessity of the threaded connection therebetween.
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In order to effect the grasping engagement or releasable disengagement of the electrode mount shank 49 or the electrode 48 depending upon which is grasped between the jaws 45 and 46, the jaw 46 is provided with a rigid extension 59 beyond the pivot 47 to pivotally receive a lever 60. The lever 60 is operatively connected to an eccentric 61 disposed in the path of the extension 62 comprising a part of the jaw 45. In consequence thereof, the jaws 45 and 46 are caused to approach or separate responsive to the pivotal manipulation and positioning of the lever 60 which operates the eccentric 61 against the jaw extension 62.
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So that the negative electrode 48 may be supported a substantial distance beyond the primary mount 12 through the medium of the replaceable jaws thereon, an elongated supporting member 63 having a depending bracket extension 64, is adjustably mounted for support by the standard 14. The member 63 terminates in a substantially U-shaped portion 65 having converging flaring sides depending from the horizontally straight portion 66 to provide a terminus 67. The terminus 67 receives an auxiliary rest or member 68 having a furcated shank 69 pivotally mounted on a pin 70. The member 68 has a flat front surface 71 (Figures 1 and 6) with normally disposed flat side edges 72 and 73 that are provided with longitudinal grooves 74 and 75 to selectively receive the negative electrode 48 and the electrode extension 50, respectively, for effecting their support in axial alignment with the positive electrode 17. The supporting member 68 is pivotally mounted to extend beyond the pivotal pin 70 so that the side edge 72 with its groove 74 will be upright and receive the electrode 48 in a horizontal position axially aligned with the electrode 17. The member 68 can also be pivoted to its extreme counterclockwise position (viewed from Figure 1) so as to rest in the substantially U-shaped portion 65 of the member 63 (Figure 5), thereby bringing the side edge 73 with its groove 75 in horizontal alignment with the electrode extension 50 to effect the axial alignment and support thereof
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relative to the electrode 17. A hole 76 is provided transversely through the member 68 to reduce its weight and enable the use of a rod or plier handle to flip it to one or the other of its pivotal positions.

In order to support and adjust the bracket member 63, a pair of fastening studs 77 and 78 project through diagonally disposed apertures 79 and 80, provided in the plate 64 (Figure 5), these being provided with threaded extremities 81 and 82, respectively, to engage correspondingly threaded apertures provided in the plate 14. The studs 77 and 78 have apertures 83 and 84 provided thereon to engage the brackets to retain such in any adjusted position against a coil spring 85 which is disposed in a counter-sunk recess 86 provided in one corner of the bracket 64. In the opposing diagonal aperture of the bracket 64, a recess 87 is formed to receive an enlarged head 88 of the threaded stud that engages the plate 14, and is adjustable in and out to hold the bracket 64 in any desired position so that one or the other of the grooved edges 72 and 73 of the auxiliary electrode rest 69 will support the electrode 48 in axial alignment with the positive electrode 17. It is apparent, therefore, that the bracket 64 is adjustable to properly support carbon electrodes 48 either directly or indirectly depending upon the position of the auxiliary rest 69.

In order to reflect the light between the arcing electrodes 17 and 48 a concave reflector 89 is attached to the standard 14, it being provided with an axial opening 90 to receive the negative electrode 48, the negative electrode extension 49, and the auxiliary rest support 63 therethrough. The arc between the electrodes 17 and 48 is adjusted to the focal point of the reflector 89 so as to reflect light through the lens provided in the casing 10 (not shown) to direct and concentrate the light rays therethrough.

With the arrangement of parts above described, it will be apparent that new electrodes 17 and 48 may be utilized to their extreme minimum length for direct support in the mounts 12 and 15, and when a substantial number of burned down electrodes have accumulated, the extensions 13 and 49 are attached to the mounts 12 and 15 so that the electrodes that have been burned down and are too short for direct mounting, can be utilized for maintaining the proper arc therebetween. In that event, it is only necessary to flip the auxiliary rest 69 so as to effect the support of the enlarged portion 50 of the extension 49.

Further, with the use of the electrode mount 18 that is shaped to serve as a complement of the supporting bracket 34, the positive electrode 17 can be utilized until it is burned down to almost negligible size in that the enlarged portion of the extension 18 passes through the top extremity of the bracket plate 34 while heretofore the extension 18 could only be adjusted in the direction of the negative electrode 48 to the extent limited by the adjacent or confronting surfaces of the bracket 34. This construction affords increased use of short electrodes 17 for a length equivalent to the longitudinal extent of the enlarged portion 18 of the electrode extension. Then, too, the upper extremity 38 of the bracket 34 serves as an auxiliary rest for the electrode extension 18 as such passes therethrough.

Various changes may be made in the embodiment of the invention herein specifically disclosed without departing from or sacrificing any of the advantages of the invention or any features thereof, and nothing herein shall be construed as

limitations upon the invention, its concept or structural embodiment as to the whole or any part thereof except as defined in the appended claims.

I claim:

1. In an arc lamp, the combination with confronting mounts for sustaining carbon electrodes, of auxiliary support means spaced from said mounts for supporting said electrodes in horizontal alignment, electrode extension mount supporting means adjustably associated with said confronting mounts, and an auxiliary rest pivotally connected to one of said auxiliary support means and spaced from one of said first named mounts to sustain an electrode in one pivotal position and an electrode extension in another pivotal position.

2. A carbon electrode supporting device comprising a bracket, means on said bracket for enabling the attachment thereof to a frame member, and an auxiliary rest adjustably associated with said bracket to cooperate with electrodes in one position of adjustment and with an electrode extension in another position of adjustment.

3. In a device of the character described, the combination with an extension for a carbon electrode, of an auxiliary support for said electrode extension, said auxiliary support comprising a body, means adjustably connected to said body to enable the attachment thereof to a frame, and a member pivotally connected to said body to receive said electrode thereon in one position and an electrode extension in another position of pivotal adjustment relative to said body.

4. In a device of the character described, the combination with a mount for supporting a carbon electrode or an electrode extension, of an auxiliary rest associated with said mount, said auxiliary rest comprising a bracket member, means for adjustably connecting said bracket member to a frame, and a rest pivoted to said bracket member to receive an electrode thereon in one position and an electrode extension in another position.

5. In a device of the character described, the combination with a positive electrode mount, of a negative electrode mount confronting said positive mount, electrode engaging means in the path of said movable mount to support a horizontally extending electrode in conjunction with said movable mount, and electrode extension for said movable mount, and an auxiliary rest pivotally connected for adjustment relative to said negative mount to support an electrode in one extreme pivotal position and an electrode extension in another extreme pivotal position.

6. In an arc lamp, the combination with an electrode mount, of a bracket member serving as an auxiliary support in conjunction with said mount, and a lug pivoted to the extremity of said bracket member to present opposite edges thereof in alignment with said mount, the opposite edges of said lug being grooved to receive an electrode therein in one position and an electrode extension in another position of displacement relative to said bracket member.

7. In an arc lamp, the combination with an electrode mount, of an adjustable bracket member serving as an auxiliary support in conjunction with said mount, and a lug pivoted to the extremity of said bracket member to present opposite edges thereof in alignment with said mount, the opposite edges of said lug being grooved to receive an electrode therein in one position and an electrode extension in another

position of displacement relative to said bracket member.

8. In an arc lamp, the combination with an electrode mount, of an adjustable supporting member for engaging a horizontally disposed electrode at a point spaced from said mount, and means pivotally associated with said supporting member, said last named means having opposite extremities to engage an electrode or an electrode extension substituted for an electrode in said mount depending upon the pivotal position of said last named means.

9. In an arc lamp, the combination with an electrode mount, of an adjustable supporting member for engaging a horizontally disposed electrode at a point spaced from said mount, and means pivotally associated with said supporting member, said last named means having grooved

opposite extremities to engage an electrode or an electrode extension substituted for an electrode in said mount depending upon the pivotal position of said last named means.

10. In an arc lamp, the combination with an electrode mount, of a supporting member for engaging a horizontally disposed electrode at a point spaced from said mount, means associated with said supporting member, said last named means having a pivotally connected portion, and spaced arcuate extremities on said pivotally connected portion to engage an electrode or an electrode extension substituted for an electrode in said mount depending upon the pivotal position of said last named means relative to said supporting member.

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