No. 615,407. Patented Dec. 6, 1898.

M. S. OKUN.

ELECTRIC ARC LAMP.

(Application filed June 3, 1895.)

(No Model.)

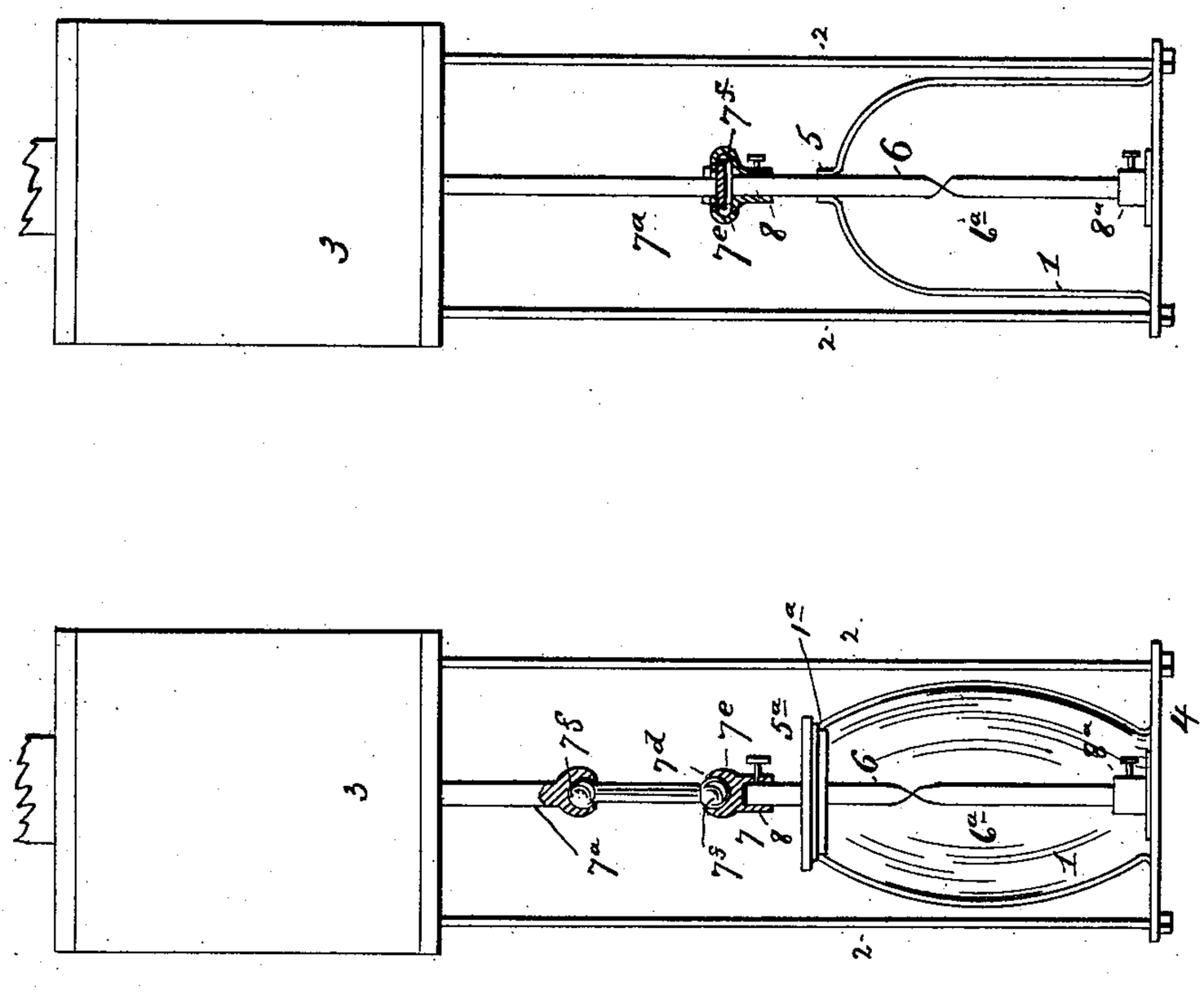

Fig. 2.

Fig. 1

Fig. 3.

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MOSES S. OKUN, OF NEW YORK, N. Y.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 615,407, dated December 6, 1898.

Application filed June 3, 1895. Serial No. 551,491. (No model.)

To all whom it may concern:

Be it known that I, MOSES S. OKUN, a citizen of the United States, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

One portion of my invention relates more particularly to the class of arc-lamps wherein the arc is sustained in a closed globe to exclude air from the carbons and wherein gas (CO and CO_2) is formed to retard the consumption of the carbons; and the invention has for its object to permit the carbon to feed freely and properly, while retarding the entrance of air into the globe.

The invention consists in a closed globe having a small opening leading into it to permit the passage of a carbon, while retarding the entrance of air, said opening serving to guide the carbon, combined with carbon-feeding mechanism and a pivotal connection between the carbon and its feeding mechanism, whereby the carbon may pass freely through the opening in the globe to permit of its proper feeding.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a side view, partly in section, of an arc-lamp embodying my invention, showing the devices for connecting the carbon with its carrier. Fig. 2 is a similar view, partly in section, of a modification; and Fig. 3 is a side elevation, partly in section, showing improved devices for retarding the consumption of the carbons.

Referring now to the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, the number 1 indicates a globe within which the arc is to be formed.

2 is a suitable frame or support therefor, and 3 is a suitable mechanism, casing, or box carrying said frame or support.

The globe 1 may be sustained in any suitable manner. In Fig. 1 I have shown the lower end of the globe 1 open and resting on a plate or disk 4, carried by the frame or support 2, by which plate the lower end of the globe is closed. At its upper end the globe 1 has a small opening 5 leading into it to permit the passage into said globe of the upper carbon 6, while retarding the entrance of air into said globe through said opening around said carbon. This opening 5 may be formed in any suitable manner. In Figs. 1 and 3 I have shown the globe 1 at its upper end as provided with a cover, disk, or plug 5^a, in which the opening 5 for the passage of the carbon is formed. In this case the cover, disk, or plug 5^a closes the upper opening or open end 1^a of the globe 1. In Fig. 2 the opening 5 is formed directly in the upper end of the globe 1. In any case, however, no matter how formed, the globe 1 will have an opening, as 5, leading into it for the passage of the carbon 6. This opening 5 will be of such a size that the carbon will fit comparatively snugly therein, yet with sufficient freedom to enable it to move longitudinally therein for regulating the arc. The opening 5 in the globe 1 guides the carbon, and in order to prevent the carbon from having side pressure on the walls of said opening 5, which would create friction were it rigidly connected with a carbon-feeding rod, and thus prevent free feeding of the carbon, I connect the carbon 6 with its feeding devices or mechanism by a pivotal connection which will allow the carbon to pass freely through the opening 5 at all times.

7^a is a carbon carrier or feeding rod, and 8 is a carbon-holder which supports the carbon 6. The connection between the carbon feeding rod or carrier and the carbon-holder is such that it will allow the carbon to have motion of translation or progressive motion laterally. With this arrangement the carbon can assume any necessary positions in order to allow it to feed freely into the globe 1 through opening 5 without being retarded by frictional contact with the walls of the opening 5. This opening 5 in the globe also serves to guide the carbon in line with the lower carbon 6^a.

The carbon 6 is yieldingly supported by ball-and-socket joints 7^d 7^e, connecting the carbon-holder 8 with the carbon-rod 7^a; but the positions of the ball and socket may be reversed. Such two joints interposed between the rod 7^a and holder 8 permit the carbon to have motion of translation laterally in all directions, as well as pivotal or oscillatory movement.

In Fig. 2 the ball 7^f is replaced by a flat disk or extension which receives the socket 7^e, the upper edges of which socket are inwardly flanged, so as to allow the carbon to have side movement or motion of translation laterally to reduce frictional contact between the carbon and the walls of the opening 5 of the globe 1. The lower carbon 6^a may be supported in any suitable manner.

In Fig. 3 the lower end of the globe 1 is open, its upper end being secured to the cover or disk 5^a, from which it depends, the opening 5 being formed in said cover or disk to guide the carbon 6. The cover or disk 5^a rests on a plate, ring, or cover 5^c, which is carried by the frame or support 2, the cover or plate 5^c having an opening 5^d for the passage of the globe or shield 1. 1^b is an outer protecting globe or envelop which is supported by the cover or plate 5^c, as by clips 12, which permit ready removal of the globe 1^b or otherwise. The lower-carbon holder 8^a is shown carried by the globe 1^b, so as to prevent ingress of air at that point. In the above-described arrangement a tight fit is made between the parts 1^a and 5^a, as also between the parts 5^c and 5^a, to retard the admission of air to the globe or shield. When the globe or shield 1 is to be cleaned, it is only necessary to lift it from the cover or plate 5^c without removing the globe 1^b. The small inner globe or shield 1 retains the heat in proximity to the carbon-points to assist their incandescence, while keeping the hot air from the outer globe 1^b.

It will be understood that in all the arrangements of globes shown the globe is tightly closed, so that gas will form therein to retard the consumption of the carbons, the presence of the carbon 6 in the opening 5 of the globe serving to retard the entrance of air therethrough, while said opening allows the carbon to feed freely therein in conjunction with the movable connection between the carbon-carrier and the carbon-holder.

Having now described my invention, what I claim is—

1. In an arc-lamp, a carbon-operating rod, a carbon-holder, means connecting said holder with said rod and permitting the carbon to have independent motion of translation laterally during operation, and means for guiding the carbon.

2. In an arc-lamp, a carbon-operating rod, a carbon-holder, means connecting said holder with said rod and permitting the carbon to have independent motion of translation laterally in all directions during operation, and means for guiding the carbon.

3. In an arc-lamp, a carbon-operating rod, a carbon-holder, means connecting said holder with said rod to permit the carbon to have independent motion of translation laterally during operation while preventing the carbon from having movement independent of the carbon-feeding rod in the direction of the feeding movement.

4. In an arc-lamp, the combination of carbon-feeding mechanism, a carbon-operating rod and a carbon-holder, with means connecting said carbon-rod with said holder and permitting the carbon to have motion of translation laterally and also pivotal or oscillatory movement, and with a globe having an opening for the passage of a carbon arranged to guide the carbon into the globe.

5. In an arc-lamp, the combination of carbon-feeding mechanism, a carbon-operating rod and a carbon-holder, with means connecting said carbon-rod with said holder and permitting the carbon to have motion of translation laterally in all directions and also pivotal or oscillatory movement, and with a globe having an opening for the passage of a carbon arranged to guide the carbon into the globe.

6. In an arc-lamp, the combination of carbon-feeding mechanism having a carbon-feeding rod, with a carbon-holder, means suspending said holder from said rod and permitting said holder to have progressive lateral movement at the point of suspension, and means for guiding a carbon when carried by said holder.

7. In an arc-lamp, the combination of carbon-feeding mechanism having a carbon-feeding rod, with a carbon-holder, means suspending said holder from said rod and permitting the holder to have progressive lateral movement in all directions, and means for guiding a carbon when carried by said holder.

8. In an arc-lamp, a carbon operating rod or carrier, a carbon-holder, and an intermediate rod universally connected with said operating-rod or carrier and with the carbon-holder, for permitting the carbon-holder to have lateral movement, and means for guiding a carbon when carried by the holder.

9. In an arc-lamp, the combination of carbon-feeding mechanism and a carbon-feeding rod, with a carbon-holder, one of said parts having a disk or extension and the other part being movably suspended on said disk or extension so as to slide laterally in various directions during operation, and means for guiding a carbon when carried by said holder.

10. In an arc-lamp, a carbon operating rod or carrier, a carbon-holder, an intermediate rod, and ball-and-socket joints at the ends of the intermediate rod connecting said carbon operating rod or carrier with said carbon-holder, and means for guiding a carbon when carried by said holder.

11. In an arc-lamp, a globe closed below the arc, a globe or shield therein having a cover or disk provided with an aperture for the passage of a carbon, said cover or disk closing the upper opening of the outer globe, substantially as set forth.

12. In an arc-lamp, a globe closed below the arc, a plate or ring thereon provided with an opening, and a globe or shield having a cover or disk provided with an aperture for the passage of a carbon, said cover or disk

being supported by said ring, substantially as and for the purposes specified.

13. In an arc-lamp, the combination of carbon-feeding mechanism and a carbon-holder, a globe or shield having a cover or disk provided with an opening for the passage of a carbon, a plate or ring to support said cover or disk and a closed outer globe or envelop connected with said plate or ring, and means for supporting said plate or ring, substantially as set forth.

14. In an arc-lamp, the combination of a globe or envelop, a plate or ring connected therewith and having an opening, means for supporting said plate or ring, an inner globe or shield and a cover or disk therefor, said inner globe or shield passing through the opening in said plate or ring, the cover or disk of the inner globe closing the opening in the plate or ring of the outer globe, said cover or disk having an opening for the passage of a carbon, substantially as described.

15. In an arc-lamp, the combination of a globe or envelop, a plate or ring connected therewith and having an opening, means for supporting said plate or ring, an inner globe or shield open at its lower end and a cover or disk therefor at its upper end, said inner globe or shield passing through the opening in said plate or ring, the cover or disk of the inner globe closing the opening in the plate or ring of the outer globe, said cover or disk having an opening for the passage of a carbon, substantially as set forth.

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