

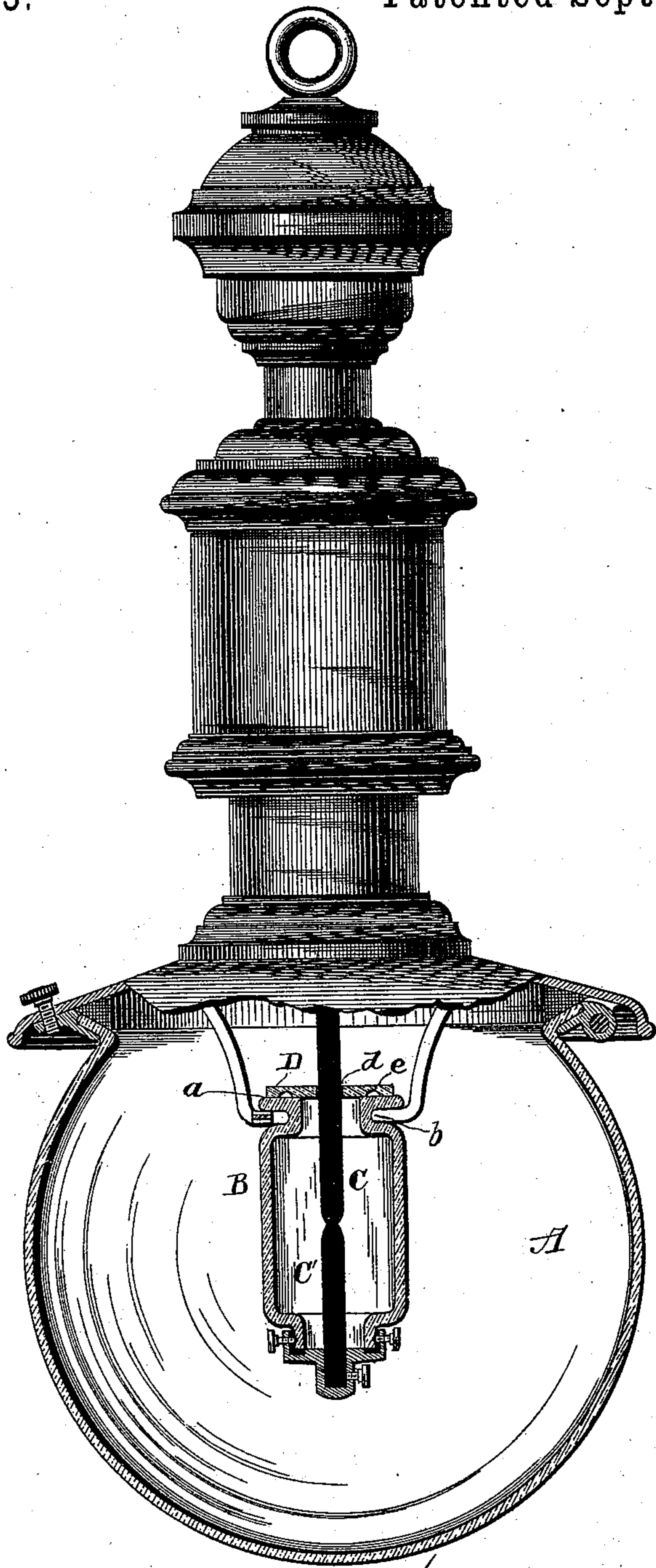
(No Model.)

2 Sheets—Sheet 1.

H. A. SEYMOUR.  
ELECTRIC ARC LAMP.

No. 546,625.

Patented Sept. 17, 1895.



Witnesses  
*E. D. Nottingham*  
*G. F. Downing*

*H. A. Seymour* Inventor

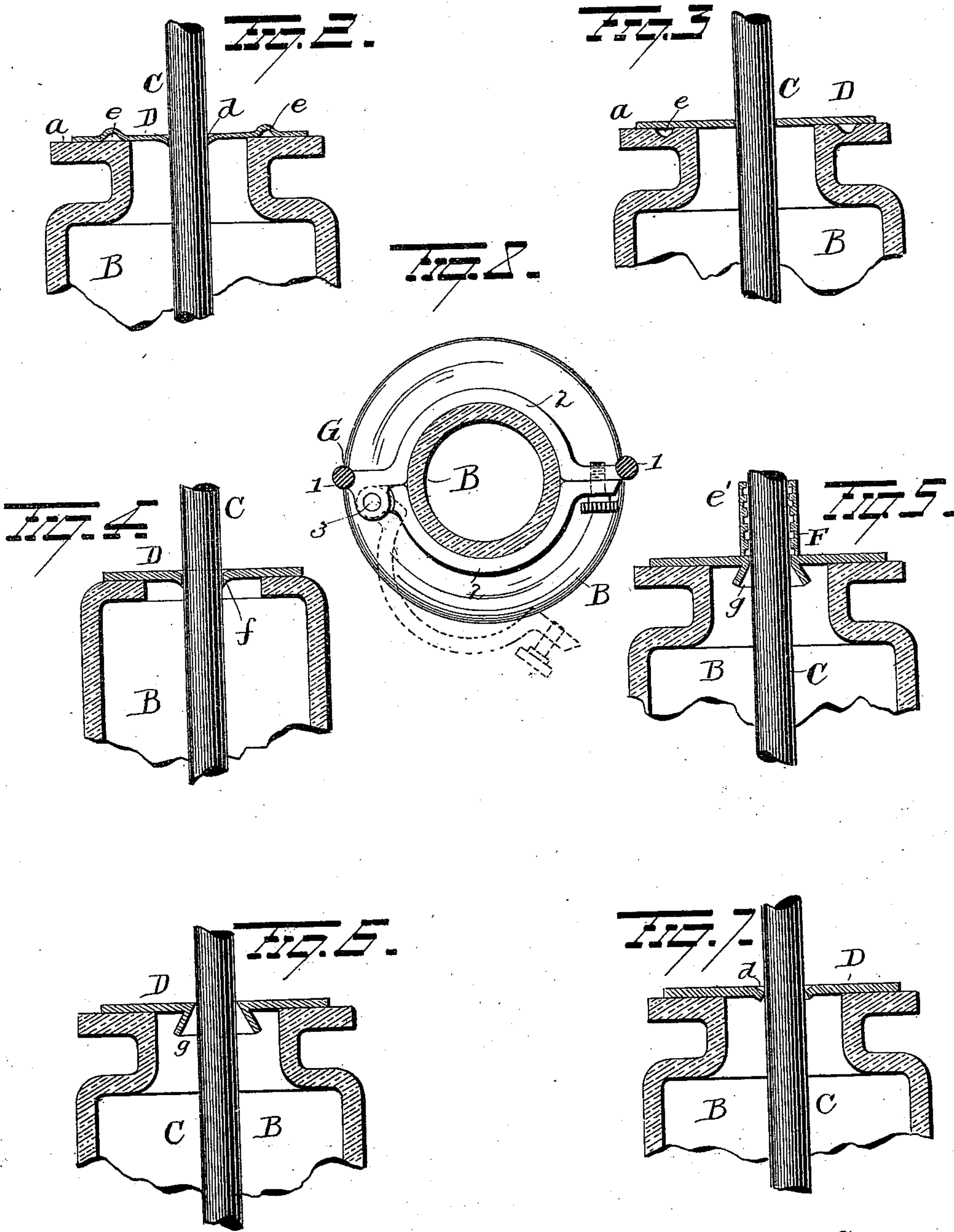
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Inventor  
*Henry A. Seymour*



# UNITED STATES PATENT OFFICE.

HENRY A. SEYMOUR, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR  
TO THE JANDUS ELECTRIC COMPANY, OF CLEVELAND, OHIO. .

## ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 546,625, dated September 17, 1895.

Application filed July 20, 1895. Serial No. 556,623. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. SEYMOUR, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Electric-Arc Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in electric-arc lamps, the object of the invention being to provide simple and efficient means for preventing the ingress of air to the arc-inclosing globe of an arc lamp for the purpose of prolonging the life of the carbon electrodes of the lamp.

With these ends in view the invention consists in an arc-inclosing globe having a laterally-adjustable cover seated directly upon its upper and open end, the cover being provided with an opening just sufficient in size to receive and admit of the feeding through it of the upper carbon.

In the accompanying drawings, Figure 1 is a view in side elevation of one embodiment of my invention. Figs. 2, 3, 4, 5, 6, and 7 are modifications. Fig. 8 is a detached view of the globe-supporting bracket.

A represents the outer globe, B the inner and arc-inclosing globe, and C C' the carbons of an electric-arc lamp. Globe A is of any desired form and construction and is secured in an air-tight manner to the casing of the lamp. The arc-inclosing globe B, as represented in Fig. 1, is constructed with a broad flat seat *a* at its upper end, which supports a thin flat disk or cover D, which is provided with an opening *d*, through which passes the upper or feeding carbon C. While the diameter of the opening *d* is sufficiently great to allow of the free adjustment and movement of the feeding carbon, still the carbon fits therein so closely that very little air can pass into the globe.

Cover D has an extended bearing-surface on the seat *a*, which is ground or otherwise made perfectly flat and even, thereby producing practically an air-tight joint between the cover and its seat. The cover may be provided with one or more annular grooves *e*, which will act as gas-checks and prevent

the escape or ingress of gas or air. The opening *d* may be formed with downwardly-bent or beveled walls *f* to permit of the free and unimpeded movement and adjustment of the feeding carbon. In its operation, current being sent through the lamp will separate the carbons and establish an arc between them. The combustion of the carbons in contact with the air within the arc-inclosing globe will result in the formation of an inert gas, which will surround and completely inclose and protect the carbons at the arc from contact with the outer air, and hence, the oxidation of the carbons being prevented, they will last for a long period of time, varying from one hundred and fifty to two hundred hours and even longer.

While the cover D serves to maintain practically an air-tight joint around the feeding carbon, still it is free to move laterally and accommodate itself to carbons which have any irregularities on their surface or which are crooked or are not adjusted in alignment with the carbon-rod and lower carbon, and owing to the fact that the cover may be thin and light in weight and the further fact that it is supported on a perfectly smooth and non-corrosive seat its lateral adjustment is attended by very little friction or wear and does not interfere with the most sensitive and delicate adjustments of the feeding carbon, which are essential to the production of an arc uniform in its length and brilliancy. The cover D serves not only to pack the joint about the feeding carbon, so as to prevent the ingress of air to the arc-inclosing globe, but also serves as a safety-valve to allow of the escape of any explosive gases should any be generated within the globe.

In the operation of the lamp inert gases will be formed within the arc-inclosing globe by the slow but gradual consumption of the carbons therein. The contained gas within the inner globe is at all times subject to varying degrees of heat due to the very slight and almost imperceptible fluctuations of the arc, and hence is being constantly expanded and contracted. When it is expanded, any excess escapes into the outer globe, and when it is contracted any deficiency is supplied from the contents of the outer globe.



In Fig. 3 the construction is similar to that of Fig. 1, excepting the cover is made of sheet metal instead of glass. The seat A instead of the cover is provided with one or more annular grooves, which will serve as gas-checks. In Fig. 4 the arc-inclosing globe is constructed without a neck, its walls extending inwardly and forming a flat seat for the cover or valve. Fig. 5 shows a cover provided with a sleeve F, in which a number of annular grooves *e'* are formed to insure the accumulation of gas therein to check the escape of gas from the globe or the ingress of air thereto. In this construction the cover is provided with a downwardly-projecting and outwardly-flaring flange *g*, which serves as a guide to center and guide the carbon through the opening in the cover when the carbon is inserted from the lowerside. Fig. 6 represents a plain cover and seat with an outwardly-flaring flange on the under side of the cover, while Fig. 7 shows a plain cover and seat.

By utilizing the top of the globe itself as a seat for the cover or valve I insure not only a very simple and cheap construction and arrangement of parts, but one that is most efficient and durable in use. The cover in Fig. 1 is made of glass, porcelain, or other similar and suitable material which does not oxidize or corrode. In the other figures the cover is represented as being made of metal.

G represents a bracket composed of depending arms 1 and a ring 2, said ring being made in two parts hinged at 3 and adapted to encircle and firmly clasp the neck *b*, formed on the upper end of the arc-inclosing globe, as shown in Figs. 1 and 8. The free end of the movable section of the ring is provided with a screw adapted to enter a screw-threaded perforation in the outer end of the fixed section, thereby holding the sections firmly together and preventing any accidental displacement of the globe.

A supporting-bracket constructed as above permits the ready removal of the globe, access to the carbons, and offers no obstruction to the light.

As it is evident that many slight changes

in the construction and arrangement of parts might be resorted to without departing from the spirit of my invention, I would have it understood that I do not restrict myself to the particular construction and arrangement of parts shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electric arc lamp the combination with an arc-inclosing globe of a cover seated directly upon the upper and open end of the globe and adapted to move laterally in any direction, said cover being provided with an opening in which the feeding carbon snugly fits and through which it feeds, substantially as set forth.

2. In an electric arc-lamp the combination with an arc-inclosing globe having a flat seat formed about its upper and open end, of a cover constructed with an annular flat portion which rests upon said seat, and is adapted to move laterally thereon, the cover being provided with an opening in which the feeding carbon snugly fits and through which it feeds, substantially as set forth.

3. In an electric arc-lamp the combination with an arc-inclosing globe and a cover seated directly upon the upper and open end of the globe and adapted to move laterally thereon, said seat and cover being constructed to form an annular gas check about the upper end of the globe, substantially as set forth.

4. In an electric arc lamp the combination with an arc-inclosing globe, of a glass or equivalent cover seated directly upon the upper and open end of the globe and adapted to move laterally thereon, said cover being provided with an opening in which the feeding carbon snugly fits and through which it feeds.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY A. SEYMOUR.

Witnesses:

C. S. DRURY,

GEO. F. DOWNING.