

O. A. ROSS.
ELECTRIC ARC LAMP.
APPLICATION FILED FEB. 9, 1903.

Patented June 6, 1911.
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994,427.

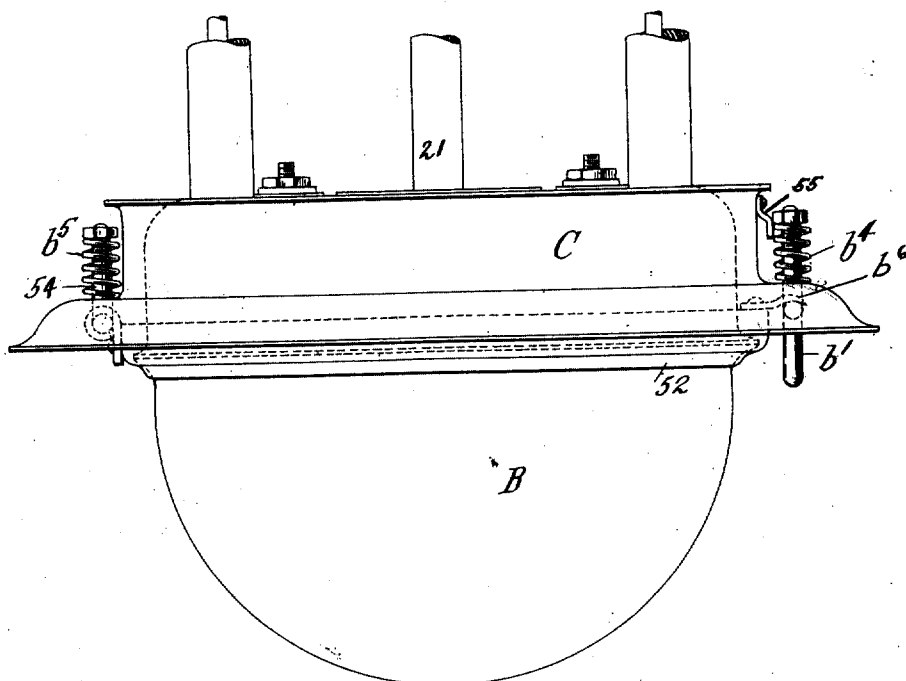


Fig 1.

Fig. 4.

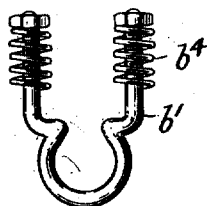
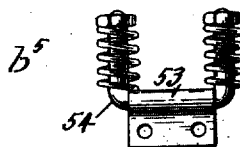


Fig. 3.



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[Signature]

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2 SHEETS-SHEET 2.

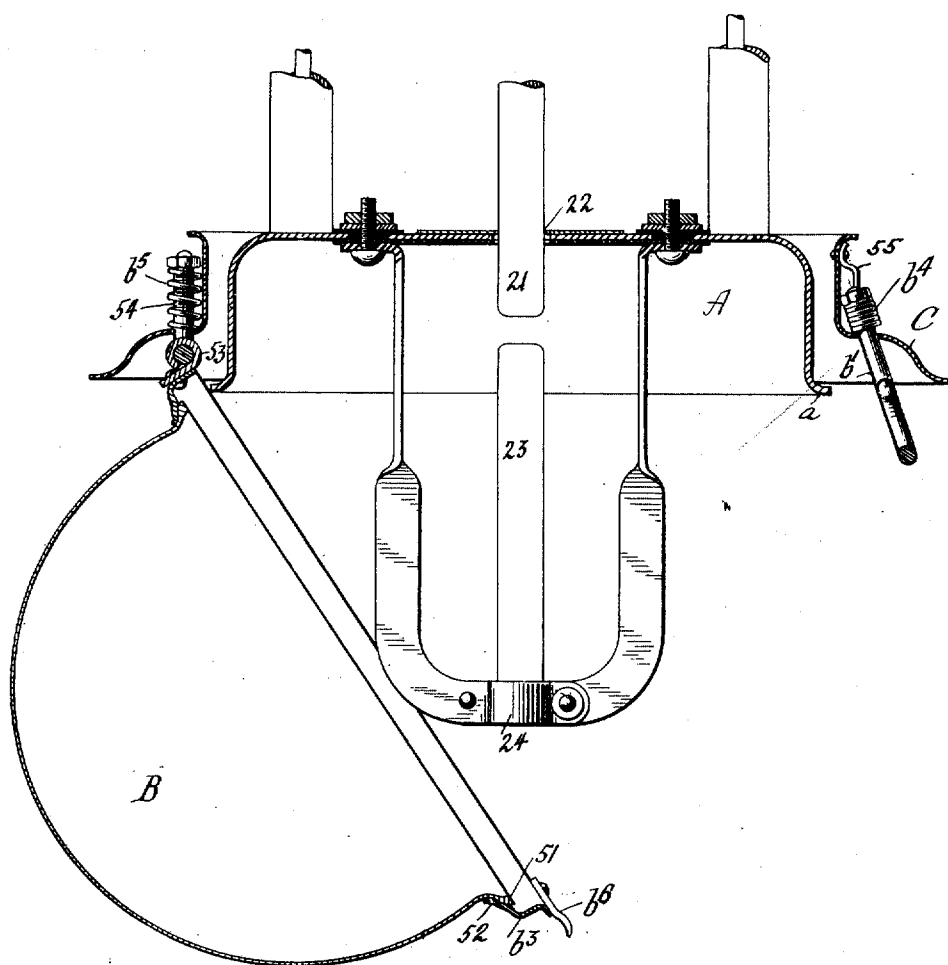


Fig. 2.

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UNITED STATES PATENT OFFICE.

OSCAR A. ROSS, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
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ELECTRIC-ARC LAMP.

994,427.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed February 9, 1903. Serial No. 142,459.

To all whom it may concern:

Be it known that I, OSCAR A. ROSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a full, clear, and exact description.

This invention relates to that class of electric devices commonly known as arc lamps, and more especially to the division designated as inclosed, or long-burning arcs; that is, those in which the arc is inclosed in a practically air-tight chamber, which inclosure serves to retard oxidization of the electrodes. Such arcs burn from twelve to twenty times as long as the open type, between trimmings, and their economy is therefore obvious. Inclosed arcs have other advantages of operation which need not be specified here, as they are well known and remain unchanged in the present case.

The principal object of my invention is to furnish new means for inclosing the electric arc in a comparatively air-tight chamber, while at the same time permitting free and ready access to the electrodes, so that they may be easily and quickly changed.

While many arc lamps are used without the external globe, it is customary to employ such a globe, and much of the light is lost in this manner, while in every case the inner globe requires frequent cleaning and is often broken in handling and by the intense heat of the arc. Furthermore, after even very limited use, the light from the arc is obscured by the soot thrown off by the carbons, deposited on the interior of the globe and quickly baked thereon by the heat, making the cleaning of the globe slow and difficult. The small size of the common arc-inclosing globe and the consequent close proximity of the arc to the glass, aggravate these difficulties.

A special object of my invention is to simplify the lamp by using but one inclosing glass, substantially hemispherical in shape and of such size that proper diffusion of the rays of the arc will be obtained, while all parts of the glass are so far removed from the arc that the objections common to other types will be eliminated.

The operating parts of the lamp herein referred to are preferably similar to those de-

scribed and claimed in my application for patent filed May 29, 1902, Serial No. 109,450, but my improved inclosing globe-chamber hereinafter described may be used in connection with almost any of the inclosed arc lamp operating mechanisms at present on the market.

My invention is illustrated in the accompanying drawing, in which:

Figure 1 represents an elevation of the lower part of the lamp in its operating position, with the inclosing chamber closed; Fig. 2 is a sectional elevation showing the chamber open; Fig. 3 represents the combined hinge and springs, and Fig. 4 the combined catch and springs.

A is a plate or cover forming the stationary top of the arc-inclosing chamber and provided with a downwardly extending flange having a horizontal portion *a* at its edge.

C is a suitable frame in the form of a flanged ring surrounding the stationary cover and adapted to carry the hinge and catches hereinafter referred to.

B is the inclosing glass or globe forming the body portion of the chamber; it is in the shape of an inverted dome, its upper edge having a ground flange 51 surrounded by a metal ring *b*³ having a flange 52 upon which the edge of the globe rests. The ring *b*³ is provided at one point with a loop 53 which embraces a U-shaped clip 54, the arms of which pass through openings in the frame C and are each embraced by springs *b*⁵ tending to draw the globe upward. At the opposite point of the ring *b*³ is a lip *b*⁶ adapted to be engaged by a spring catch *b*⁷ consisting also of a U-shaped clip passing through holes in the frame C and having springs *b*⁴ which tend to draw the globe upward when the catch is in engagement therewith. When the glass is closed, it will be seen that the right-hand side of the upper edge of its flange 51, is held firmly against the under side of the flange *a* of cover A by the action of springs *b*⁴, while the left side of the glass is similarly seated firmly on the corresponding side of the flange of cover A. It is thus evident that whenever the chamber is closed, provided the glass B has an even edge and is ground to its seat on cover A, the combined action of springs *b*⁴ and *b*⁵ will hold the glass

firmly against its seat on flange *a* forming an air-tight joint between the two parts and thus perfectly adapting the chamber to its purpose.

21 is the positive electrode, feeding through the hole 22, in a gas check plate of ordinary construction.

23 is the negative electrode, removably secured in its holder 24, which is suspended from plate A.

The solenoid and other parts of the lamp operating mechanism are not shown, as they form no essential feature of my present invention.

While the glass B is preferably bowl-shaped, as shown, for purposes of better diffusion of the light of the arc, I do not limit my invention to any special shape of glass, or to any special number of hinges or springs.

When it is desired to open chamber B for the purpose of changing the electrodes, the catch *b'* is pulled down and outward by its lower end (see Fig. 2) which serves as a loop handle, its upper end passing through and being held by springs *b⁴* against stops 55. This allows the ring *b³* and glass B to swing downward on hinge 53 to the position shown in Fig. 2, and access is thus had easily and quickly to the chamber. When the ring is forced upward until the glass B seats against flange *a*, it is evident from the foregoing description that the catch *b'* will, when snapped out of engagement with stops 55 and into place under the lip *b⁶*, lock the flange 51 against cover A and maintain chamber B in proper position for its intended purpose. It will be further seen that in raising the ring *b³* and glass B to the closed position, the flange 51 first seats on the left side of flange *a*, and then as the glass is gradually closed, the hinge 53 is forced downward against the resilience of spring *b⁵*, the left side of flange *a* acting in such movement as a fulcrum for the glass; and the tension thus produced in spring *b⁵* is of course maintained when and after the chamber is closed and catch *b'* snapped. When the catch *b'* is pulled down and outward to release the ring the upper ends thereof engage the stops 55 as heretofore described, and the catch is thus held in this position (see Fig. 2). When it is desired to close the inclosing chamber the catch is pulled downwardly and inwardly so as to be released from the engaging device, and is then hooked over the lip *b⁶* whereupon the springs associated with the hinge and the catch press the ring tightly against the cover A.

The frame C is supported in any desired manner so as to support the globe B in proper relation to the carbons.

Having described my invention, I claim:

1. An arc lamp comprising an arc-inclos-

ing casing having a stationary cover, a movable inclosing part adapted to engage said stationary cover and provided with a hinge, a support for said hinge and an elastic connection between said support and the hinge which permanently connects them together.

2. An arc lamp comprising an arc-inclosing casing, having a stationary cover, a movable inclosing part adapted to engage said stationary cover and provided with a hinge, a support for said hinge, an elastic connection between said support and the hinge, a catch attached to said support and adapted to engage and disengage said inclosing part, and an elastic connection between the catch and the support whereby the inclosing part is elastically forced into engagement with the stationary cover.

3. An arc lamp comprising a stationary cover, a ring cooperating therewith, a glass supported by said ring, a hinge connected with said ring, a support for said hinge, a spring interposed between the hinge and the support so that it may be moved toward or from the support, and a catch fastened to said support removably engaging said ring.

4. An arc lamp comprising a stationary cover, a ring cooperating therewith, a glass supported by said ring, a hinge connected with said ring, a support for said hinge, a spring interposed between the hinge and the support so that it may be moved toward or from the support, and a catch on said support adapted to engage said ring and elastically connected with the support whereby the ring is forced against the cover when the parts are in their closed position said catch adapted to be disengaged from said ring to permit the glass to move about said hinge.

5. An arc lamp comprising an arc-inclosing casing having a stationary cover, a ring associated therewith, a hinge attached to said ring, comprising a longitudinally movable part to which said ring is connected, a support therefor, and a spring interposed between said longitudinally movable part and said support whereby the ring may be moved to and from said support.

6. An arc lamp comprising an arc inclosing casing having a stationary cover, a ring, a glass supported by said ring, a hinge connected with said ring, comprising a U-shaped clip upon which said ring is mounted, a support for said U-shaped clip, and a spring interposed between said U-shaped clip and its support whereby it may be moved to vary the position of the ring.

7. An arc lamp comprising an arc inclosing casing having a stationary cover, a ring, a glass supported by said ring, a hinge connected with said ring, comprising a U-shaped clip upon which said ring is mounted, a support for said U-shaped clip, a spring interposed between said U-shaped

clip and its support whereby it may be
moved to vary the position of the ring, a
catch for engaging the opposite side of said
ring provided with a projecting part, and
5 a spring associated with said projecting
part and engaging said support whereby the
catch may be moved longitudinally.

In witness whereof, I subscribe my signature, in presence of two witnesses.

OSCAR A. ROSS.

Witnesses:

H. C. CLARK,
W. H. CLARKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
