

H. FRIEDRICHSEN.

ARC LAMP.

APPLICATION FILED JULY 10, 1908.

991,495.

Patented May 9, 1911.

Fig. 2.

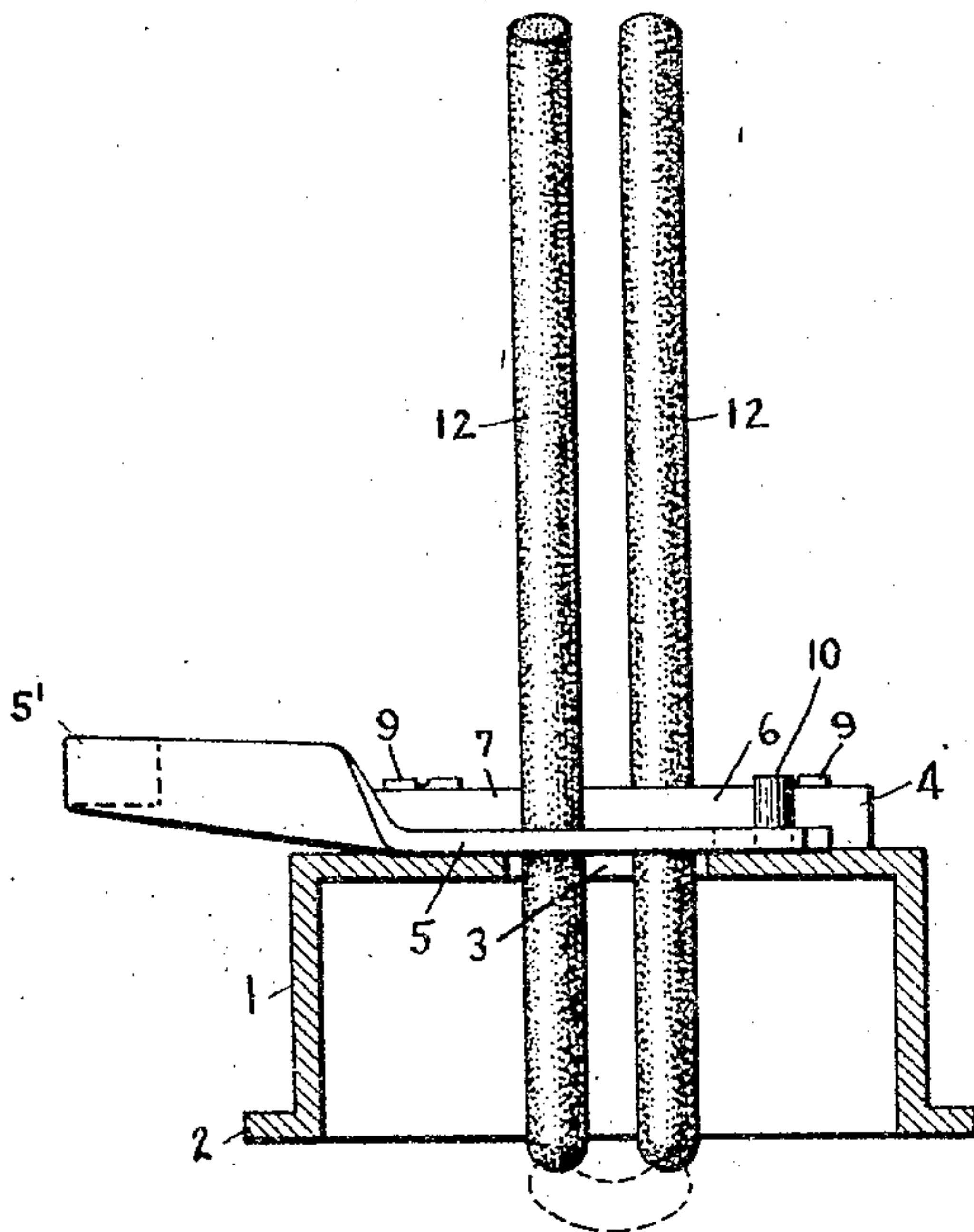


Fig. 4.

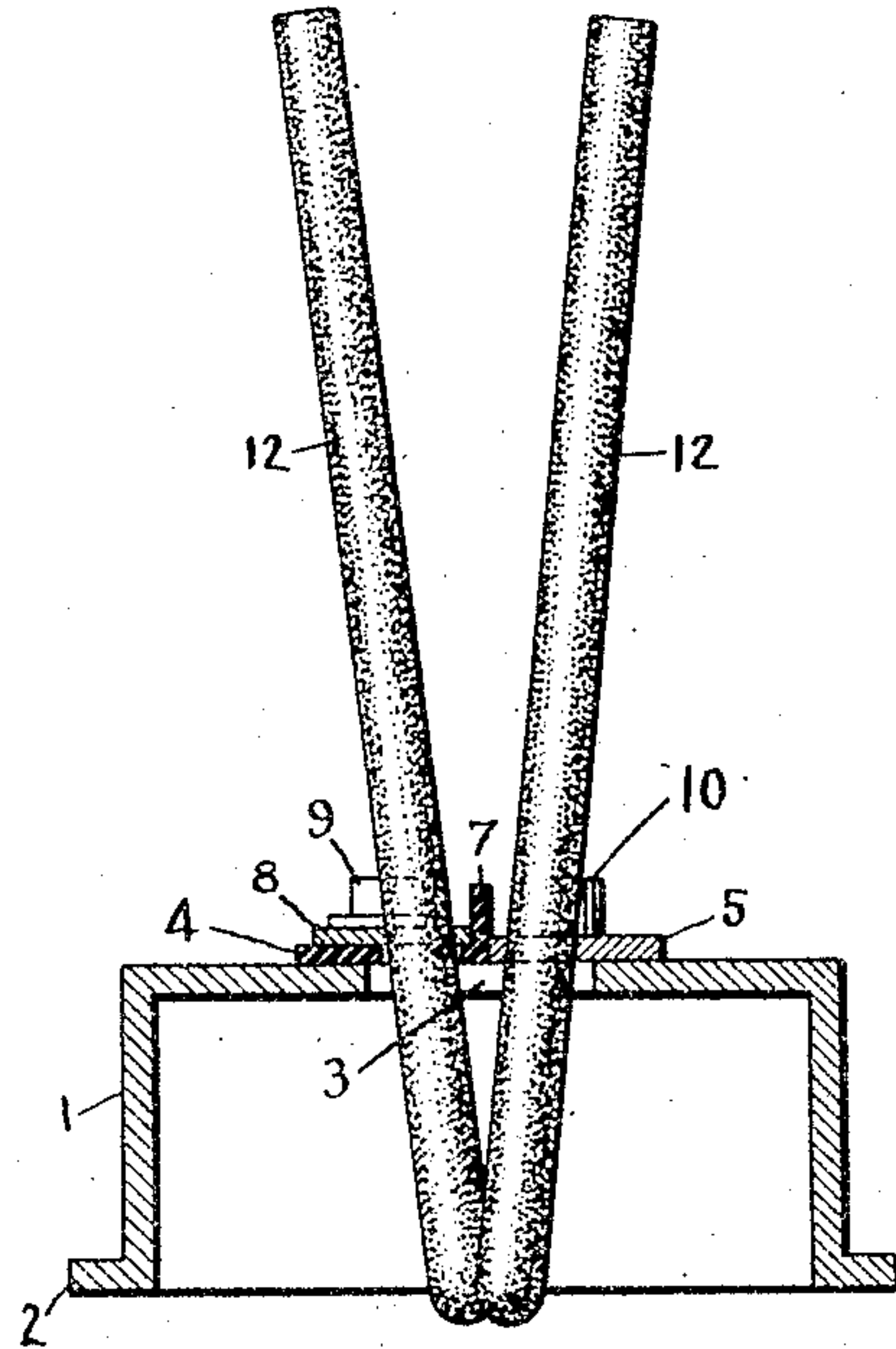


Fig. 1.

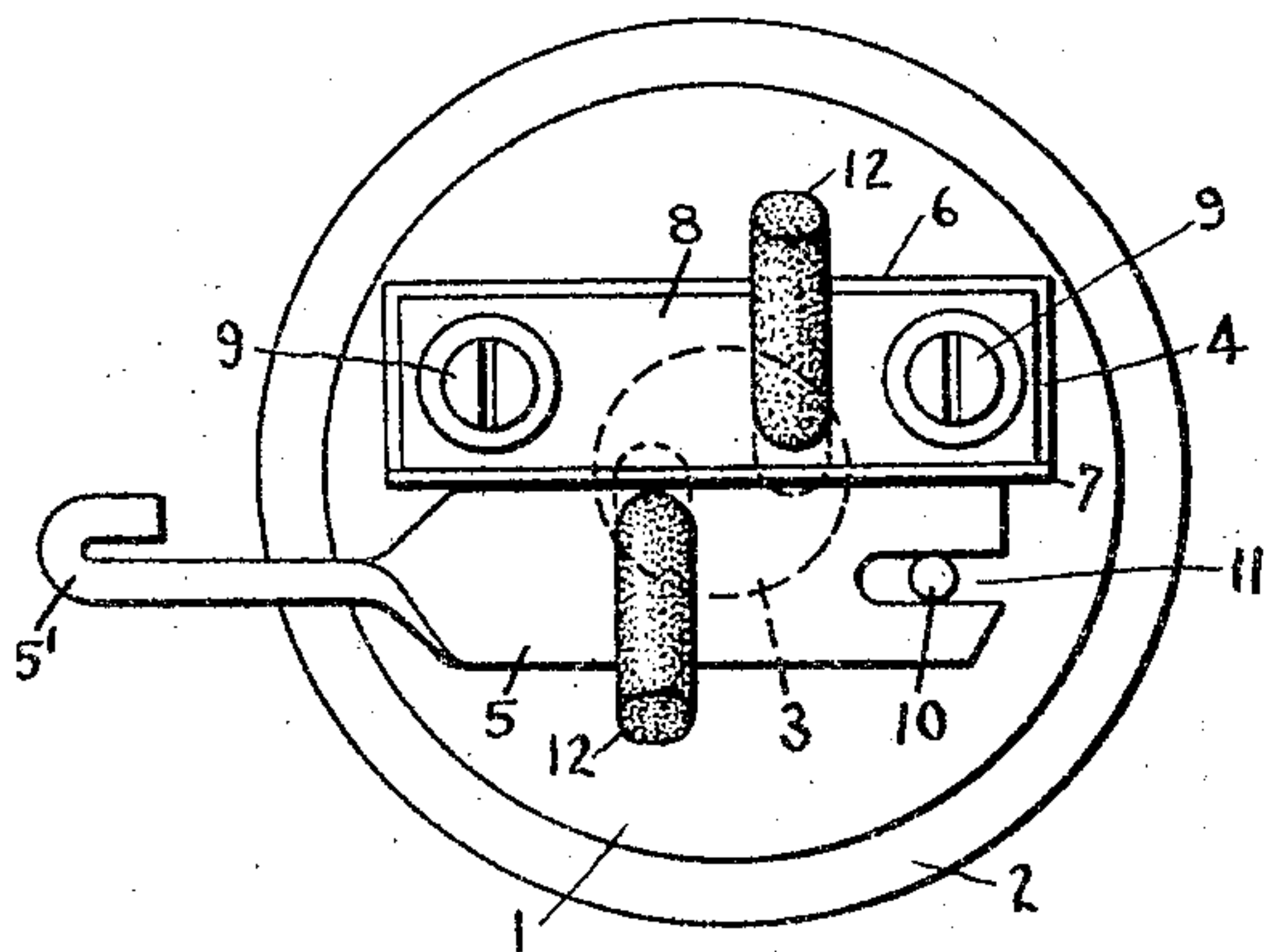
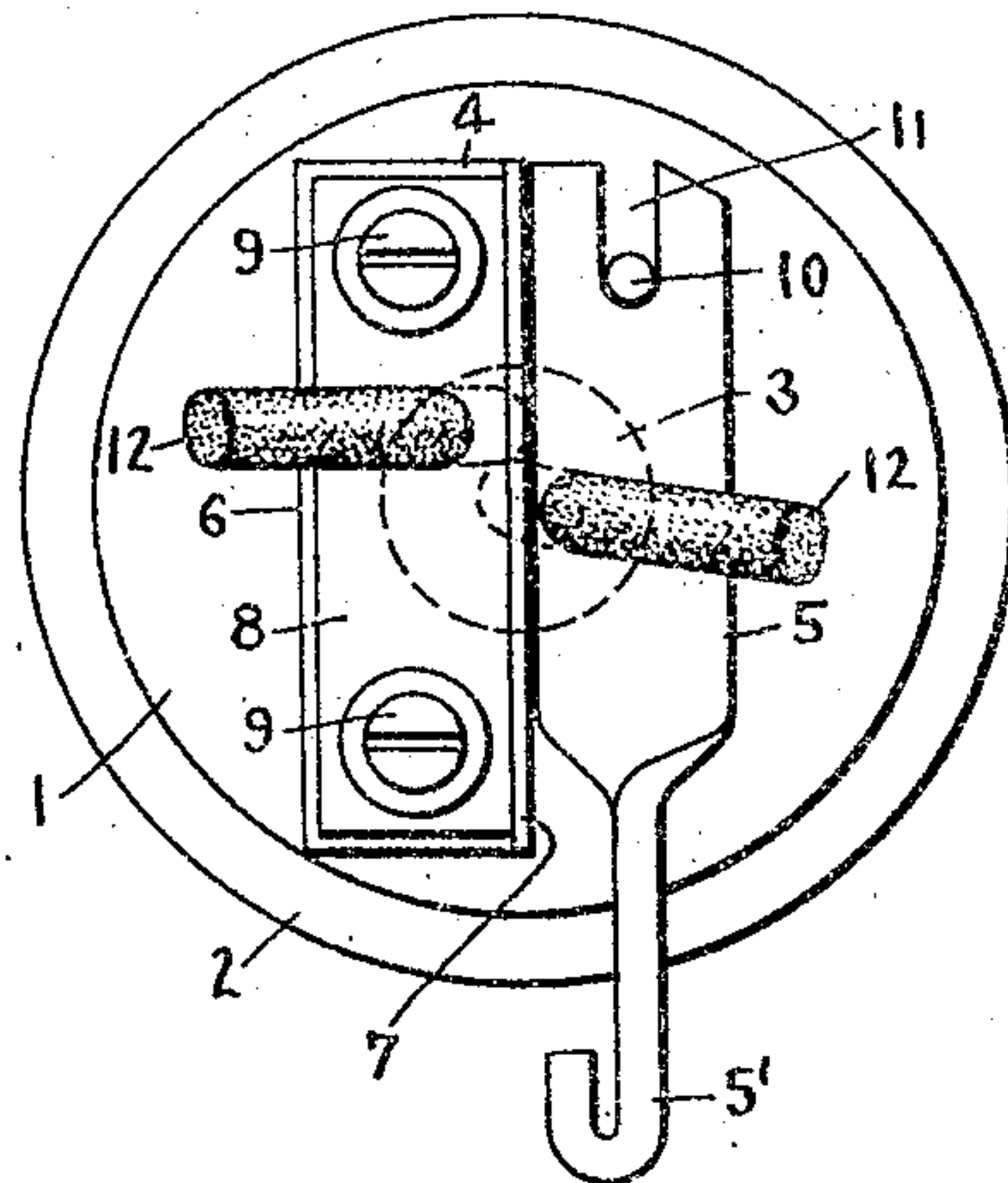


Fig. 3.



Witnesses:

Benjamin B. Hall
Green O. Ford

Inventor

Heinrich Friedrichsen,
by *Alfred Davis*
Att'y.

UNITED STATES PATENT OFFICE.

HEINRICH FRIEDRICHSEN, OF BERLIN, GERMANY, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ARC-LAMP.

991,495.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed July 10, 1908. Serial No. 443,000.

To all whom it may concern:

Be it known that I, HEINRICH FRIEDRICHSEN, a subject of the King of Prussia, residing at Berlin, Germany, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

My invention has reference to improvements in arc lamps of the class in which the electrodes are converging downwardly and in which the arc is established by separating the contacting lower ends of the electrodes. In arc lamps of this character the lower ends of the electrodes ordinarily pass through a comparatively wide opening in a shield which is designed to protect the regulating mechanism of the lamp from access thereto of the vapors produced at the arc. This shield is also sometimes made of highly refractory material, and it is usually cup-shaped, so as to prevent admission of air to the arc. If the shield is formed of refractory material it is ordinarily spoken of as an economizer. In these lamps the converging electrodes, or at least one of them, is moved in the plane defined by the axes of the two electrodes in order to establish the arc, and in order to permit of this arc-establishing movement of either one or both electrodes, it is necessary to make the opening in the shield or economizer rather wide, and the consequence of this is that the fumes or vapors arising from the arc pass upwardly through this opening and deposit in a flocculent form upon the regulating mechanism.

My invention has for its object a construction by which the access of the arc vapors to the regulating mechanism through the opening of the shield or economizer is prevented. In accordance with my invention this result is secured by establishing the arc by a separating movement of one or both electrodes in a direction substantially at right angles to the normal plane of the electrodes, which is any plane defined by the point of contact and a separate point in each electrode, instead of by a separating movement within that plane. In one form of apparatus I provide a cover for the opening in the shield, which cover is formed in two parts, one movable with reference to the other and with their edges in contact; and this relation is maintained at all times, so that the opening in the shield is not uncovered when

the arc is established. All this will more fully appear from the following detailed description with reference to the accompanying drawing, in which one form which my invention may assume is represented as follows:

Figure 1 is a plan view of two converging electrodes guided in accordance with my invention, and showing the electrodes separated for the establishment of an arc; Fig. 2 is an elevation of the same parts, with the shield or economizer in vertical section; Fig. 3 is a plan view showing the electrodes viewed at right angles to the arrangement represented in Figs. 1 and 2, but with the electrodes in contact; and Fig. 4 is a sectional elevation similar to Fig. 2, with the electrodes viewed as in Fig. 3.

Like numerals of reference indicate like parts throughout the drawing.

The shield or economizer 1 is represented as formed with a flange 2 by which it may be secured in the lamp in any convenient manner, and this shield, which is here shown as a cylindrical cup, has formed in its top a wide circular opening 3, indicated in Figs. 1 and 3 in dotted lines. This opening is covered by two plates 4 and 5, one of which, 4, is formed of a flat rectangular piece 6 of insulating material, one edge of which has a flange 7, and on top of this plate 6 is a metal plate 8, and the two plates together are secured in position so as to cover half the circular opening 3; they are secured in position by screws 9, or in any other appropriate manner. The other half of the opening 3 is covered by the plate 5, which is or may be of metal, and from the top of the shield 1 rises a pin 10 which takes into a slot 11 in the plate 5, whereby this plate may be guided in longitudinal movements with its inner edge in contact with the flange 7 of the insulating plate 6. In order to effect such movement, one edge of the plate 5 is formed into a hook or loop 5', which may either serve as a hold for hand operation, or to which the arc-establishing mechanism of the lamp may be suitably connected. As indicated in the drawing, a hole is formed in the plate 5 and another in the composite plate 4, 8, and through these holes the electrodes 12 are passed, inclined toward each other, so as to come in contact at or near their lower ends. These ends slightly overlap, so that the axes of the two elec-

trodes are not strictly in one plane. This is indicated in Figs. 3 and 4, which show the relation of parts when the electrodes are in contact.

5 It will be seen from the foregoing description that with the construction shown the arc is established by sliding the plate 5 longitudinally, with its inner edge in contact with the flange 7, and this can be done
10 either by hand or by suitable mechanism applied to the hook or loop 5'. Figs. 1 and 2 represent the relation of parts when the electrodes have been thus separated, and it is evident that the movement of separation
15 is at right angles to the normal plane defined by the point of contact and any two separate points of the electrodes. It will also be seen that, no matter whether the electrodes are in contact or are separated for
20 the establishment of an arc, the central opening 3 in the shield or economizer 1 always remains covered by the two plates 4 and 5, so that no arc fumes can pass through that opening.

25 My invention is not limited to the use of the identical mechanism and arrangement of parts hereinbefore described and is not limited to the use of any particular kind of electrodes, although the invention is
30 more particularly intended for use in connection with electrodes which give a flaming or luminous arc, since these are the electrodes from which fumes arise, which are
35 liable to deteriorate the regulating mechanism.

Having now fully described my invention, I claim and desire to secure by Letters Patent:

1. In an arc lamp, the combination of a set of downwardly converging electrodes, a shield or economizer having an opening in the top through which the electrodes project, a cover for the opening, comprising two parts fitted edgewise against each other and extending longitudinally over the opening, each part having a perforation for the passage of one electrode and one of said parts being movable edgewise with reference to the other, and means for moving the movable electrode by the movable part of the cover at an angle to the normal plane of the electrodes to strike the arc, whereby the shield opening remains covered.

2. In an arc lamp, the combination of a set of downwardly converging electrodes, a shield or economizer having a top opening through which the electrodes project, two plates in edgewise contact covering the shield opening, each having a perforation for the passage of the electrode, and means for moving one of the plates longitudinally and thereby one of the electrodes laterally to strike the arc at an angle to the normal plane of the electrodes.

In witness whereof, I have hereunto set my hand this 19th day of June 1908.

HEINRICH FRIEDRICHSEN.

Witnesses:

ELISE FRIEDRICHSEN,
MAX ABEL.