

J. H. HALLBERG.
ELECTRIC ARC LAMP.
APPLICATION FILED MAY 1, 1909.

994,837.

Patented June 13, 1911.

Fig. 1.

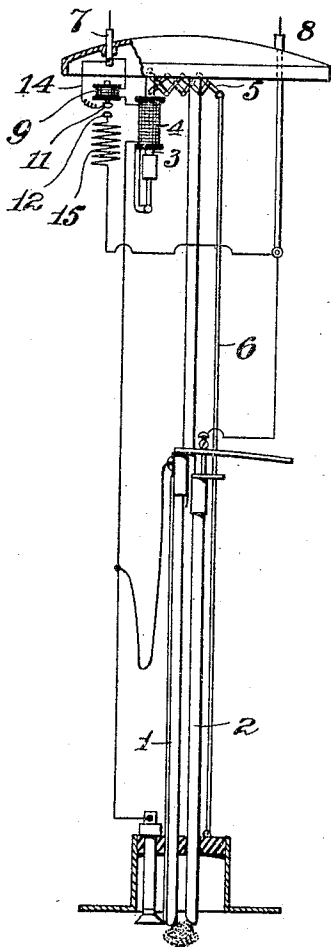
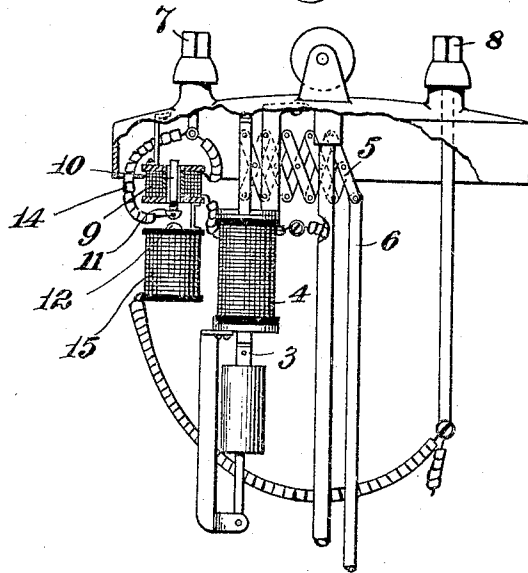


Fig. 2.



Attest:
Walter T. McGinnis
Edgeworth McGinnis

Josef H. Hallberg, Inventor:
by William R. Baird
his Att'y.

UNITED STATES PATENT OFFICE.

JOSEF H. HALLBERG, OF NEW YORK, N. Y., ASSIGNOR TO THE BECK FLAMING LAMP COMPANY, OF CANTON, NEW YORK, A CORPORATION OF NEW YORK.

ELECTRIC-ARC LAMP.

994,837.

Specification of Letters Patent. Patented June 13, 1911.

Application filed May 1, 1909. Serial No. 493,250.

To all whom it may concern:

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

My invention relates to an improvement in arc lamps. In such lamps when there occurs for any reason, a sudden abnormal increase of potential at the lamp terminal before the lamp mechanism has had time to feed the carbons or electrodes into contact, the tendency is for the insulation of the lamp to be broken down or the current may jump across an air gap, for example between the lamp terminals, with the result of more or less injury to the lamp.

It is the object of the present invention to prevent this.

My invention is shown in connection with a type of arc lamp, illustrated in my application, Serial Number 438,277 for United States Letters Patent, but it will be understood that the invention is applicable to other types of lamp.

In the drawings, Figure 1 is a side elevation partly in vertical section of the upper or barrel portion of a lamp equipped with the present invention, the actual barrel or cylindrical casing which incloses the parts being omitted; and Fig. 2 is an enlargement with immaterial changes in representation, of the upper portion of Fig. 1.

It is unnecessary to describe in detail the mechanism of the lamp, to which the invention is applied, as this is fully set forth in the above named application, but it may be stated that 1 and 2 are the carbons of the lamp, the latter being movable angularly, so that its upper end is carried away from carbon 1, to bring the lower ends of the carbons into contact; and that this movement is accomplished automatically when the lamp current has been cut off, by the plunger 3 of the deenergized solenoid 4 descending and thereby operating the lazy tongs 5 to carry the rod 6 and consequently the attached carbon 2 through an angular movement sufficient to bring the end of this carbon into

contact with carbon 1. The arc circuit is from terminal 7 through solenoid 4 to carbon 1 and thence by way of the arc to carbon 2 back to lamp terminal 8.

The present invention consists in providing a circuit across the carbons, *i. e.* a circuit in shunt with the arc, adapted to be open when the lamp current is on and adapted to almost instantly close when it is cut off, so that a continuous path is provided to receive any sudden increase of potential and thereby prevent breaking down of insulation or jumping of the current, in spite of the fact that the lamp mechanism may not have had time to feed the carbons into contact.

The specific form of the improvement shown consists of a solenoid 9, in series with the arc circuit. This solenoid has a vertical plunger core 10, having a contact 11 on its lower end which rests on a fixed contact 12, when the core drops upon the deenergization of the solenoid. These contacts are preferably of virgin silver. The plunger contact is connected with lamp terminal 7 by a lead 14, whereas the fixed contact is connected with the other lamp terminal through a resistance 15 which is located approximately in line with the solenoid and carries the fixed contact. When the lamp is energized the solenoid 9, holds its plunger in elevated position with the contacts 11 and 12 separated and therefore no current passes through the shunt circuit.

The instant the lamp current is cut off and considerably before the lamp mechanism has fed the carbons into contact, the core 10 drops closing the contacts and the shunt circuit so that any succeeding current has an uninterrupted circuit through the lamp. The resistance 15 is such that when the lamp current is again thrown on with the carbons touching, enough current passes in the arc circuit and through the solenoid 9 to attract its plunger and separate the contacts 11 and 12, after which all of the current passes through the arc circuit.

What I claim as new is:—

In an arc lamp, in combination with the arc circuit, a circuit across the electrodes including a solenoid which is in the arc cir-

cuit and a resistance disposed approximately in line with the solenoid, said solenoid having a plunger, a contact carried by said plunger and connected with one of the
5 lamp terminals, and a fixed contact carried by the resistance and connected through said resistance with the other lamp terminal.

Witness my hand this 30th day of April, 1909, at New York, N. Y.

JOSEF H. HALLBERG.

Witnesses:

M. A. FINN,

E. W. SCHERR, Jr.