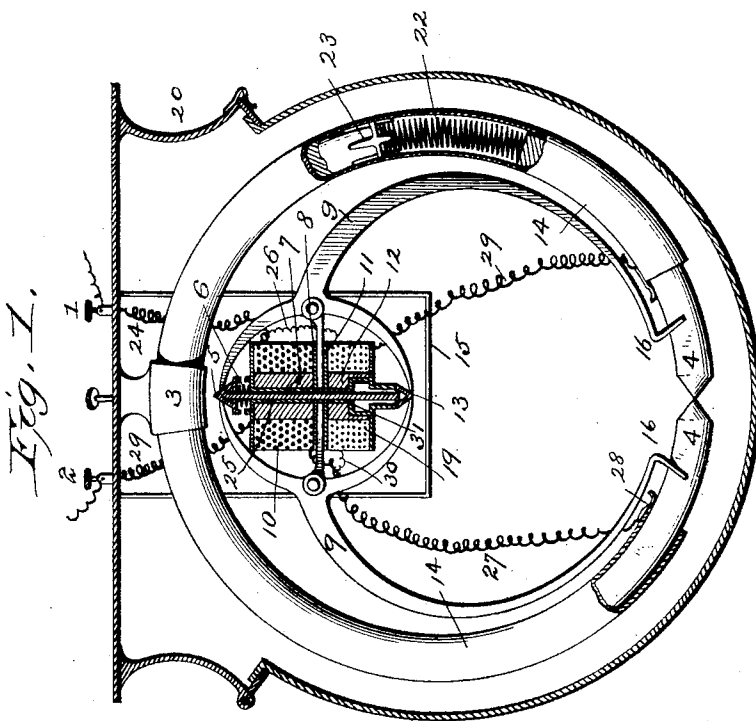
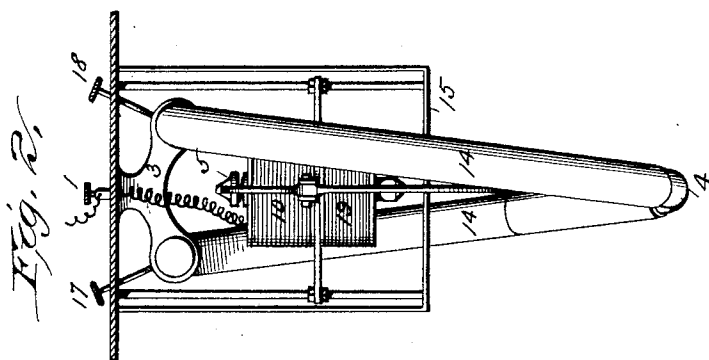


(No Model.)

A. SCHWEITZER.
ELECTRIC ARC LAMP.

No. 531,751.

Patented Jan. 1, 1895.



Witnesses,
James H. Keaden,
Geo. R. Hamlin

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UNITED STATES PATENT OFFICE.

ALBERT SCHWEITZER, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO FREDERICK GOELLNER, OF SAME PLACE, AND CONRAD WEBER, OF SHALER, PENNSYLVANIA.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 531,751, dated January 1, 1895.

Application filed June 22, 1894. Serial No. 515,413. (No model.)

To all whom it may concern:

Be it known that I, ALBERT SCHWEITZER, a citizen of France, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Arc Lamps; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention has reference to those arc lights, in which differential solenoids in connection with carbon actuating devices are employed to effect an automatic feed, my object being to greatly simplify, cheapen and condense the operating mechanism, in addition to creating a steady and prolonged light.

To these ends my invention consists in the peculiar features and combinations of parts more fully described hereinafter and pointed out in the claims.

In the accompanying drawings: Figure 1, represents a side view of my complete invention, parts being shown in section and cut away to better disclose the interior, and Fig. 2, an exterior end view thereof.

The means by which the proper spacing of the carbon points is effected consist of differential coils 10 and 19 provided with soft iron hollow cores 7 and 12 respectively, through which extends an armature consisting of a bar 25 insulated from the cores by a brass or other non-magnetic tube 31. The coil 10 is composed of coarse insulated wire of low resistance and the coil 19 of smaller wire having higher resistance. The latter coil is shunted into the circuit, formed by wires 24 and 27, by wires 26 and 30. The upper end of the armature 25 is provided with an iron cone 5. Interposed between this cone and the end of the coil 19 is a spring 6, which holds the cone between and separates a pair of curved branching arms 32 forming part of duplicate carbon actuating levers 9 fulcrumed on opposite sides of the coil. The lower end of the armature 25 is also provided with a cone 13

to spread a like pair of curved branching arms 33 constituting part of the levers 9.

The coils 10 and 19 are perfectly insulated from each other by the insulators 8 and 11 and are inclosed within a casing 15. The carbons 4 are by preference made curved, and are held within curved tubes 14 by means of a clasp 23 urged forward by a coil spring 22. These tubes are suspended from a bracket 3 the arms of which are provided with adjusting screws 17 and 18, which enable the tubes to be adjusted laterally and maintained in their proper relative positions. The levers 9 are curved so as to branch outwardly and thence inwardly terminating at their lower ends in clamps 16 which pass astride and grasp the lower ends of the carbons. The current is supplied to the lamp through wire 24 forming a connection between the binding post 1 and the coil 10, whence it is conveyed by wire 27 and brush 28 to the left hand carbon. The lower end of the wire and the brush are attached to and insulated from the lower end of the carbon tube 14.

29 represents the return wire which is likewise attached to the opposite tube, and conveys the current from the right hand carbon out of the lamp by way of the binding screw 2.

Having thus set forth the preferred construction of my invention I will now briefly describe its operation.

Assuming that the lamp is trimmed and the carbon points are touching, the current will pass to the carbon through the wire 24, coil 10, wire 27 and brush 28. In so doing it magnetizes the core 7 which in turn attracts and draws downward the armature 25 thereby withdrawing the upper cone and causing the lower cone 13 to spread apart the lower arms 33 of the levers 9 and drawing apart the carbons to form the arc. Should the carbons spread too far apart the resistance in the circuit will be increased and thereby compel the current to traverse the lower coil 19, energize core 12 and draw the bar 25 upward. This action causes the cone 5 to spread apart the arms 32 of the levers 9, and allows the springs to bring the carbon points closer together.

It is evident that the details of my invention could be varied in many slight ways

which might suggest themselves to a skillful mechanic. Therefore I do not limit myself to the precise construction herein shown, but consider myself entitled to all such variations
5 as come within the spirit and scope of my invention.

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

10 1. An arc lamp having coils of different resistances, in combination with a pair of carbon actuating levers fulcrumed upon opposite sides of the coils, and having branching arms extending above and below the coils, and an
15 armature common to both coils arranged to alternately spread apart and draw nearer together the arms of the said lever, as and for the purpose set forth,

2. In an arc lamp a pair of curved carbon
20 holding tubes suspended in a bracket or support provided with set-screws, whereby the holders and hence the carbons can be adjusted laterally in relation to each other, substantially as described.

25 3. In combination with an electro-magnet, an armature extending through the core there-

of and having its opposite ends connected with levers which actuate and space the carbons, substantially as described.

4. The combination in an arc lamp, of differential coils having hollow cores, an armature located within and common to both cores, and a pair of carbon actuating levers provided with branching arms adapted to be alternately engaged by the opposite ends of the
35 armature when energized by the coils, whereby the spacing of the carbons is effected, substantially as described.

5. An arc lamp provided with curved carbon holders, in combination with differential coils
40 surrounded by the holders and having an armature common to both coils, and levers connected with the carbons and actuated by the armature to space the carbons, substantially as described.

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

ALBERT SCHWEITZER.

Witnesses:

GEO. R. HAMLIN,
RHESA G. DUBOIS.