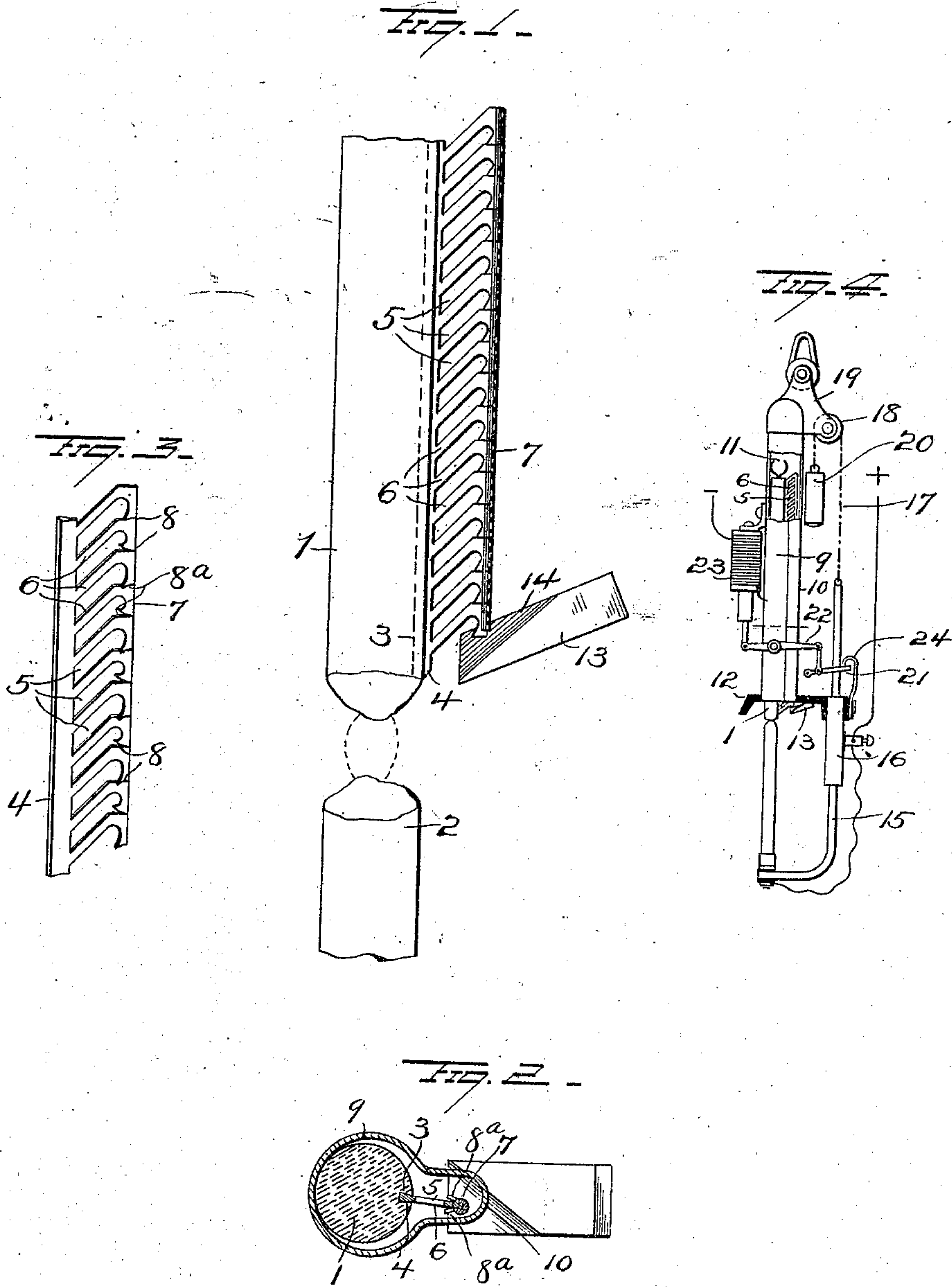


T. E. ADAMS.  
ELECTRIC ARC LAMP.  
APPLICATION FILED JULY 14, 1909.

963,736.

Patented July 12, 1910.



WITNESSES  
E. J. Nottingham  
G. J. Downing.

INVENTOR  
T. E. Adams  
By H. A. Seymour  
Attorney



# UNITED STATES PATENT OFFICE.

THOMAS EDGAR ADAMS, OF CLEVELAND, OHIO, ASSIGNOR TO THE ADAMS-BAGNALL  
ELECTRIC COMPANY, OF CLEVELAND, OHIO.

## ELECTRIC-ARC LAMP.

963,736.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed July 14, 1909. Serial No. 507,648.

*To all whom it may concern:*

Be it known that I, THOMAS EDGAR ADAMS, of Cleveland, in the county of Cuyahoga and State of Ohio, 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.

This invention relates to improvements in electric arc lamps and more particularly to that type in which one of the electrodes is provided with lateral projections removable successively by heat from the arc to accomplish the feeding of said electrode.

It has heretofore been proposed to provide an electrode with laterally projecting metal pins removable by heat from the arc but with prior constructions, the electrodes had to be handled with great care to avoid distortion of the lateral projections, such distortion being apt to render the lamp employing the electrode inoperative. To make the ribs or projections as heretofore constructed, sufficiently strong to withstand the usual treatment, would require more metal than would be conducive to a perfect arc when the electrode is in use in a lamp, and the large amount of molten metal would be likely to spot the globe or lodge, as cinder, between the electrode and prevent relighting.

The object of my present invention is to avoid the difficulties incident to prior constructions and to provide an electrode with laterally projecting devices adapted to be removed by heat from the arc and to so construct such devices that they shall be mechanically strong with the use of a minimum amount of metal.

A further object is to so construct an arc lamp of the type referred to that the lateral projections and the stop with which they cooperate shall be so located relatively to each other and to the arc that said stop will not be unduly affected by heat from the arc and thus permit the accurate feeding of the electrodes as the lateral projections become successively detached from the electrode.

With these objects in view the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is an enlarged view showing portions of two electrodes and the relation of my improvements to the upper electrode. Fig. 2 is a transverse sectional view. Fig. 3 is a face view of the blade which forms the lateral projections for the electrode, and Fig. 4 is a view of an arc lamp showing the application of my improvements thereto.

1, 2, represent the upper and lower electrodes respectively, and in the present instance, the upper electrode is provided with a longitudinal groove 3 for the reception of a member 4 at one edge of a blade such as shown in Fig. 3. This blade is made of suitable sheet metal and provided with a series of diagonal slots 5,—the portions of the metal separating said slots constituting projections 6 which are disposed diagonally or upwardly inclined with relation to the axis of the blade and the electrode. At their inner ends, the projections 6 are integral with the member 4 which is disposed in the groove of the electrode.

The metal of the blade which forms the outer ends of the slots 5 constitutes a member 7 but this member is slit or cut between each two projections 6 as shown at 8, the slots extending from the outer edge of the member 7 horizontally and intersecting the slots somewhat below the upper ends thereof and the metal above each slit is bent laterally to form a tooth 8<sup>a</sup> whereby a substantial bearing for the blade upon a stop block, is formed as hereinafter explained. The cut portions of the member 7 are connected by solder so as to render the blade easy to handle without danger of distorting the same, but in the operation of the lamp these solder connections will be melted before the adjacent lower projection shall have been melted to cause the severance of the latter from the electrode.

The upper electrode 1 having the lateral projections above described secured thereto, may be inserted into a tube 9 which forms a portion of the framework of a lamp,—said tube having a lateral longitudinal enlargement 10 for the accommodation of the lateral projections on the electrode. The upper end of the electrode 1 is provided with a contact device 11 to engage the tube 9 and the lower end of the electrode is adapted to pass through a suitable opening in the floor plate 12 of insulating material,



secured to the lower portion of the lamp frame or tube 9. The floor plate supports a stop-block 13 having a beveled face 14 upon which the lower end of the member 7 having a lateral tooth 8<sup>a</sup> below the lowermost projection 6 rests. By providing the stop block 13 with the beveled face 14, the member 7 at the outer ends of the projections 6 is caused to bear against the wall of the enlarged portion 10 of tube 8 so as to cause the latter to absorb a portion of the heat from the outer ends of the projections 6 and thus facilitate the steady feeding of the electrodes as the projections 6 melt away. By making the projections 6 extend upwardly and outwardly obliquely to the axis of the electrode, the stop block can be located an appreciable distance from the arc, thus enabling the durability of said stop block.

The lower electrode 2 is supported by a suitable holder at the lower end of a rod 15 which is vertically movable through a tube or sleeve 16 supported by the base of the lamp frame. To the upper end of this rod the lower end of a chain 17 is attached and this chain, after passing over a pulley 18 supported by the top bracket 19 of the lamp, is provided with a weight 20. A clutch 21 engages the rod 15 and is connected with one end of a lever 22 pivotally supported between its ends by the lamp frame. The other arm of this lever is connected with the core of a solenoid 23,—the latter being included in series with the electrodes. A stop 24 is provided for the clutch 21.

Assuming that the electrodes are in contact when the lamp is not in circuit,—it will be seen that when the lamp circuit is closed the solenoid 23 will be energized and, raising its core, will cause the descent of the clutch 21 and with the latter the descent of the rod 15 and the lower electrode 2, thus establishing the arc. As the upper electrode becomes consumed and the arc lengthens, the projections 6 will be melted by heat

from the arc and thus permit the upper electrode to feed down by gravity step by step. It will be apparent that the regulation of the arc between the periods at which the projections 6 become removed, can be effected by the movements of the lower electrode under the control of the solenoid 23.

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

1. The combination with an electrode, of a blade secured thereto and comprising members parallel with the axis of the electrode, and projections spaced apart and connecting said members.
2. The combination with an electrode, of a blade secured thereto, said blade comprising parallel members, one of which is secured to the electrode, and projections connecting said members and spaced apart, the outer member being cut between the projections and united with solder.
3. The combination with an electrode, of a blade secured thereto, said blade comprising a strip of metal having diagonal slots forming parallel members parallel with the axis of the electrode and oblique projections, and a stop to cooperate with said blade.
4. The combination with an electrode, of a blade secured thereto, said blade comprising two members and diagonal projections connecting the same and spaced apart, the outer member having slits intersecting the slots between the projections below the upper ends of said slots and bent to form lateral teeth, the slit portions of the outer member connected by solder.

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

THOMAS EDGAR ADAMS.

Witnesses:

J. H. WORBS,

J. R. ORPUTT.