

(No Model.)

R. F. JONES.
ELECTRIC ARC LAMP.

No. 326,123.

Patented Sept. 15, 1885.

Fig. 1.

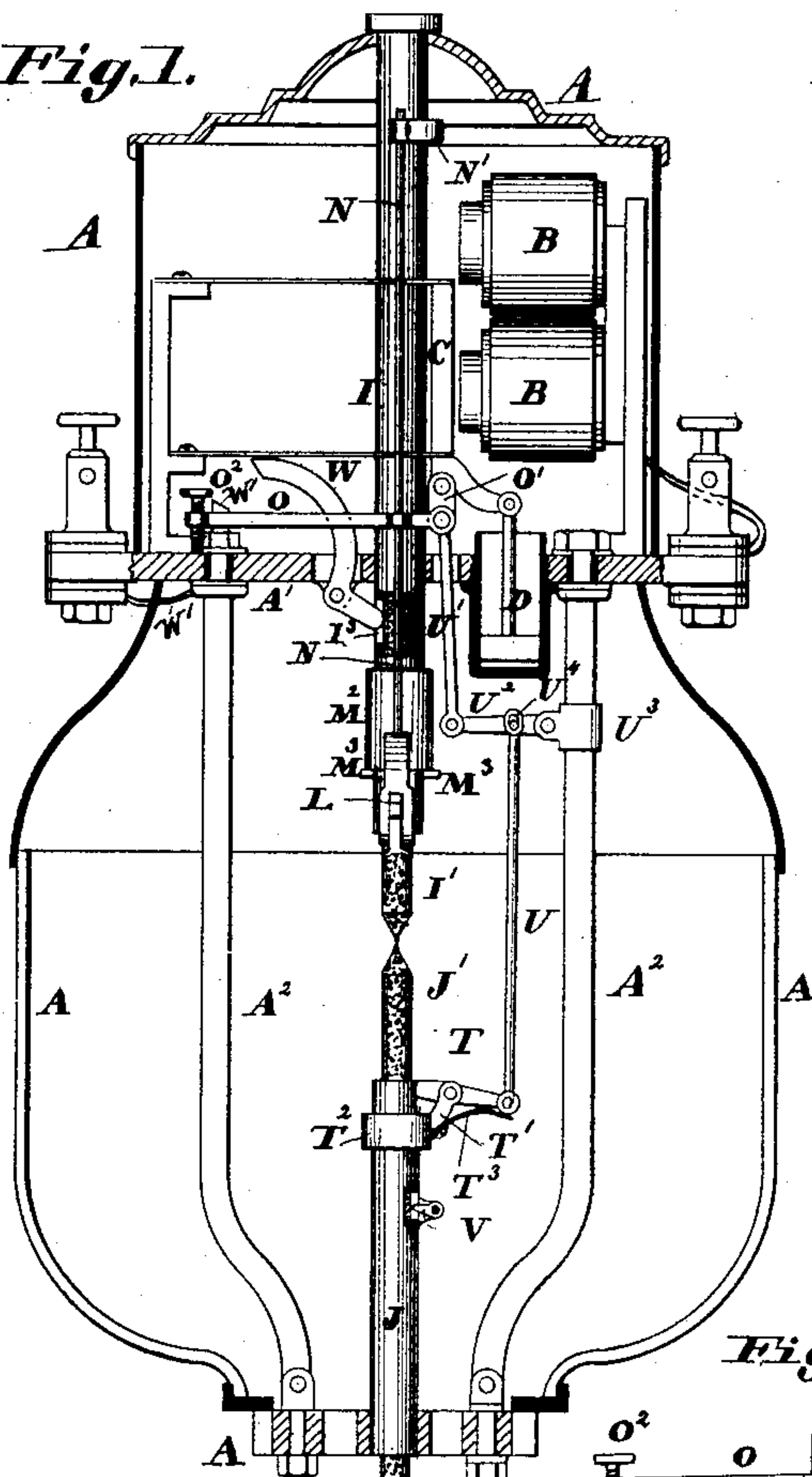


Fig. 2.

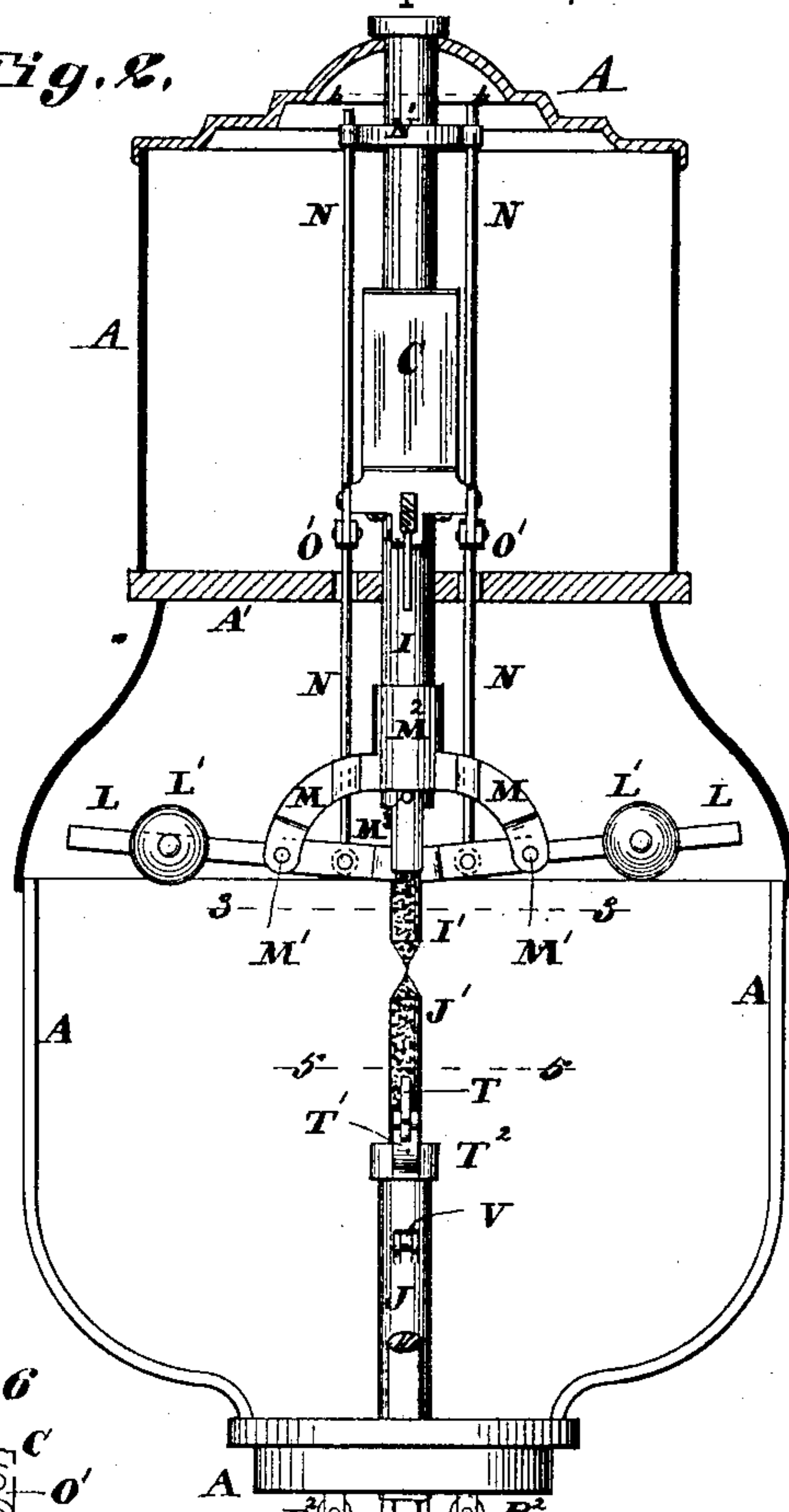


Fig. 6.

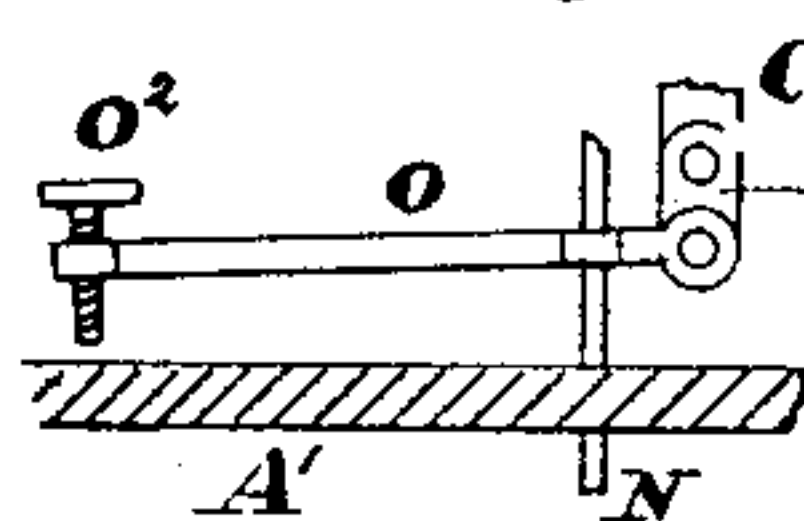


Fig. 7.



Fig. 3.

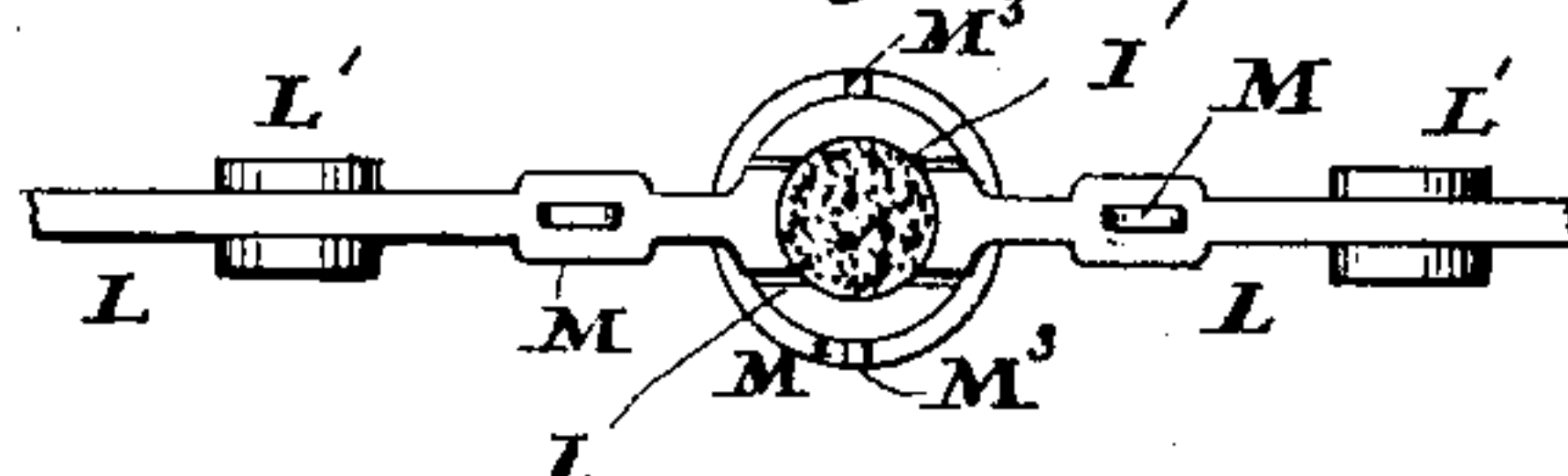


Fig. 4.

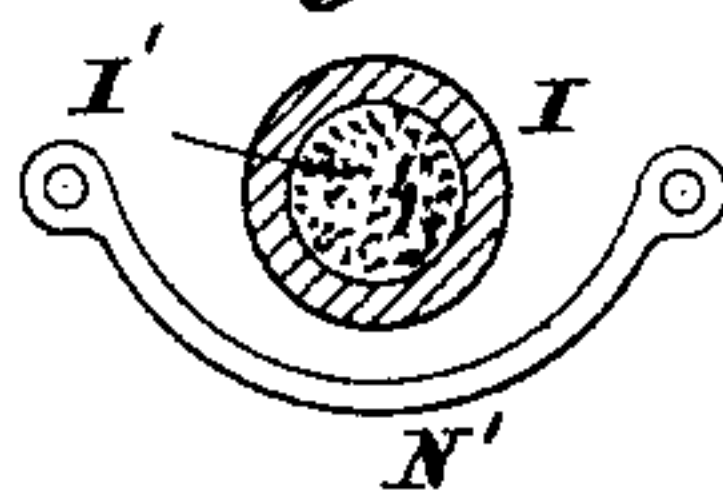


Fig. 5.

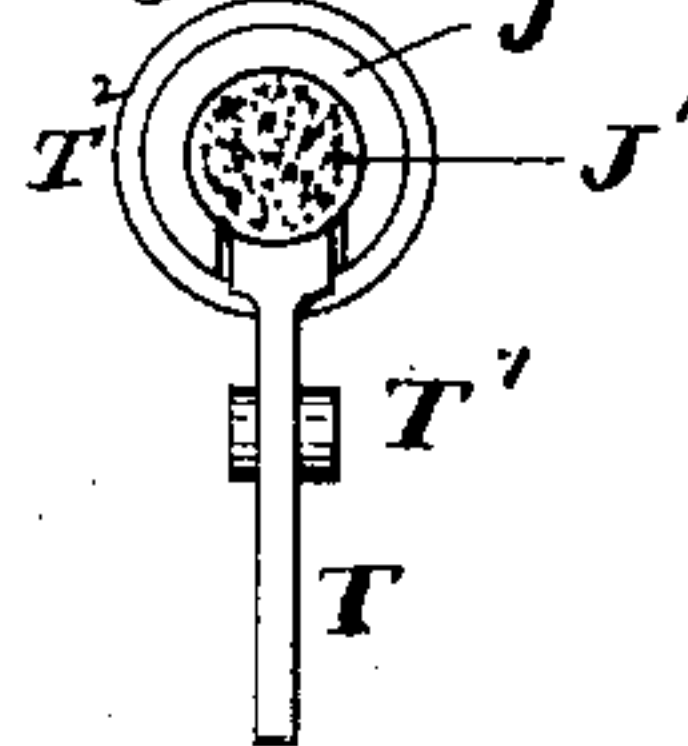
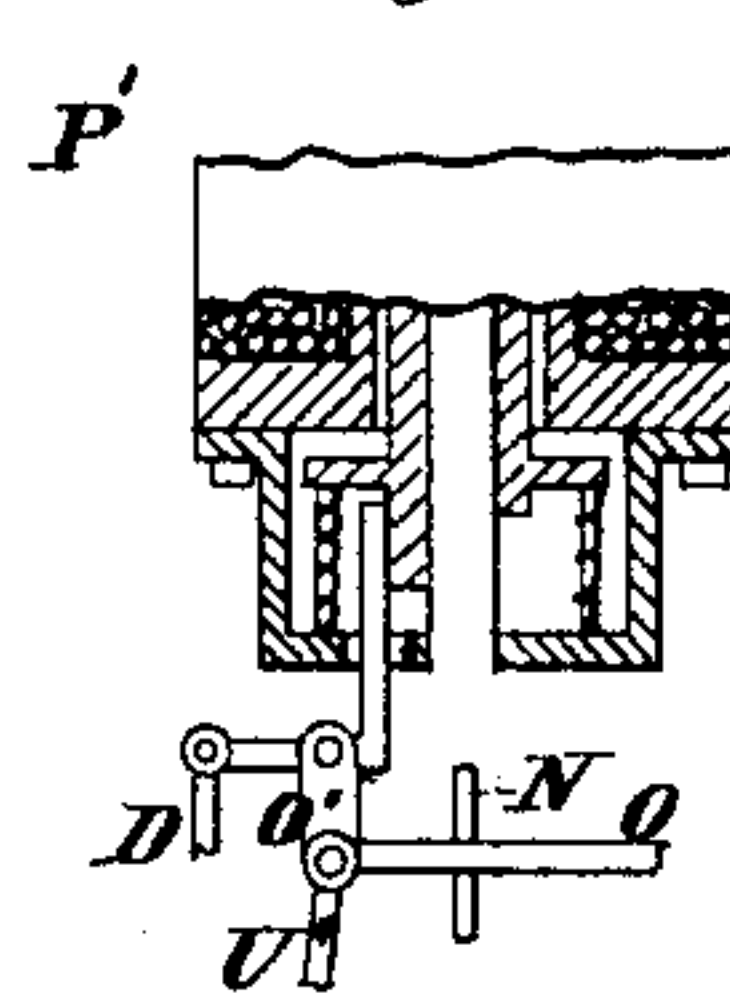


Fig. 8.



Attest:

Geo. L. Wheelock
V. A. Lewis

Inventor:

R. F. Jones
By Knight Bros
Attys

UNITED STATES PATENT OFFICE.

RICHARD F. JONES, OF ST. LOUIS, MISSOURI.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 326,123, dated September 15, 1885.

Application filed November 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, RICHARD F. JONES, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Electric-Arc Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figures 1 and 2 are elevations, part in section, of an electric lamp embodying my improvements. Figs. 3, 4, and 5 are transverse sections taken, respectively, on lines 3 3, 4 4, and 5 5, Fig. 2. Figs. 6 and 7 are detailed views, Fig. 6 showing one of the clamps for connecting the armature to the clutch-rods, and Fig. 7 being a section of one of the joints of the lower-carbon rod. Fig. 8, a detail view of a modification.

My invention relates to certain improvements in electric-arc lamps; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the frame, B the magnets, C the armature, (of the form shown in Fig. 1, or in the equivalent form of a movable core shown in Fig. 8,) and D the dash-pot, of an electric lamp, all of which may be of any ordinary form or construction.

I represents a tube secured to the upper part, and J a tube secured to the lower part, of the frame, the former receiving the upper carbon, I', and the latter the lower carbon, J'. The upper carbon is held in the tube by levers L, fulcrumed at M' to arms M, formed upon or secured to a sleeve or collar, M², surrounding the tube I, and held from downward movement by pins M³. The lower end of the tube is slotted or notched out to receive the inner ends of the levers, which are thus guided and allowed to clamp the carbons.

The outer ends of the levers are provided with adjustable counterbalance-weights L', and to their inner ends are secured rods N, that extend upward to near the top of the lamp, and are preferably connected at the upper ends by a cross head or bar, N'. They pass through clutch-plates or rods O, connected to the armature or core (see Figs. 1 and 8) by links O'. The other ends of the rods or

plates are free, but are provided with adjustable screws O².

When the current is turned on, the raising of the armature or core will lift the rods N, through means of the rods or plates O, which grip the rods N by their free ends hanging down and not being lifted with their short ends, as shown in Fig. 6, the two rods thus binding upon each other. The lifting of the rods N causes the inner ends of the levers L to grip the carbon, which is thus raised to form the arc, the sleeve M² sliding on the sleeve I. When the armature falls, the set-screws O² come against the cross-piece A' of the lamp and prevent the free ends of the plates or rods O from moving downward, which at once releases the rods N, and their weight causes the levers to loosen their grip on the carbon, which then feeds downward, and as soon as the armature or core rises they (the levers) grip the carbon again, as above described, holding it from moving too far, and thus a constant feed is kept up, the carbons being dropped into the upper end of the tube, and are thus supplied without stopping the burning of the lamp, and as the levers grip the carbons very near the burning ends short pieces of carbon can be utilized.

The lower carbon is fed upward automatically by a weight, P, a little heavier than the carbon, that is connected by a cord or chain, P', passing over pulleys P², secured to the bottom of the lamp, to a plate, P³, onto which the carbon is set, as shown. When the armature is in its upper position, the carbon is held from being raised by the weight by means of a dog, T, pivoted to a projection, T', of a collar, T², on the sleeve J, and pressed against the carbon by a spring, T³. (See Fig. 1.) The outer end of this dog is connected to the armature by rods U U', and a lever, U², hinged to one of the pieces, A², of the lamp, by means of a collar, U³. By means of this connection the falling of the armature causes the dog to release the carbon by forcing its outer end down against the power of the spring T³, and as soon as this is done the carbon will be fed up by the weight, as described, and as soon as the armature rises again the feed of the carbon will be stopped by the spring and dog, as

specified. The upper end of the rod U, where the pin that connects it to the lever U² passes through it, is slotted, as shown at U⁴, Fig. 1, to permit the armature to rise without lifting the rod U. The joint between the rod U' and lever U², or between the rod U and dog T, is insulated (see Fig. 7) to prevent electricity passing down through to the lower carbon. A small dog, V, may be pivoted to the tube J (see Fig. 1) to hold the carbon from falling out should the weight P and dog T be removed for any reason at the same time.

W represents an arm pivoted to the cross-piece A', its short end fitting in a slot, I³, of the tube I and pressing against the carbon. If the lamp should ever be neglected and not be kept supplied with carbons, the outer end of the lever or arm W will drop as soon as the carbons get below its inner end, thus forming a connection with the wire W' and causing the electricity to pass directly across the lamp, which will then be extinguished.

Some other means than the plates O for connecting the rods N with the armature or core might be used. By means of the set-screws O² the plates O are made to release the rods N sooner or later. By the adjustable weights L' the pressure of the levers upon the carbon may be regulated. In electric lamps having movable core-armatures the plates O and rods U U' are made fast to the cores, as shown in Fig. 8, and the whole operates in the same manner as in the lamp having the armature.

I claim as my invention—

1. In an electric-arc lamp, the combination of the levers for grasping the upper carbon, armature-rods connected to and extending upward from the levers, plates connected to the armature, and through which the lever-rods pass, and set-screws in the free ends of the plates adapted to come against a fixed object as the armature falls, substantially as and for the purpose specified.

2. In an electric-arc lamp, the combination of the tube for receiving the upper carbon, collar on the tube provided with arms, levers pivoted to said arms and adapted to grasp the carbon, adjustable weights on the levers, rods connected to and extending upward from the levers, armature-plates connected to the armature, and through which the lever-rods pass, and set-screws in the outer ends of the plates, arranged and operating substantially as and for the purpose set forth.

3. In an electric-arc lamp, the combination of the tube for receiving the upper carbon, collar on the tube provided with arms, levers pivoted to said arms, and adapted to grasp the carbon, adjustable weights on the levers, rods connected to and extending upward from the levers, armature plates connected to the armature by links, and through which the lever-rods pass, set-screws in the free ends of the plates, and the yoke for connecting the upper ends of the lever-rods, substantially as and for the purpose set forth.

4. In an electric-arc lamp, the combination of the tube for holding the lower carbon, plate upon which the carbon is set, weight connected to the plate by a cord or chain passing over pulleys secured to the bottom of the lamp, dog adapted to be pressed against the carbon by a spring, armature and rods connecting the outer end of the lever with the armature to release the carbon when the armature falls, substantially as and for the purpose set forth.

5. In an electric-arc lamp, the combination of the tube for holding the lower carbon, plate upon which the carbon is set, weight connected to the plate by a cord or chain passing over pulleys secured to the bottom of the lamp, dog pivoted to an extension of a collar on the tube, spring for holding the dog against the carbon, armature, and rods, and lever U² for connecting the carbon-lever to the armature, substantially as and for the purpose shown and described.

6. In an electric-arc lamp, in combination with the tube for holding the lower carbon, weight for raising the carbon and armature, and connections for releasing the carbon, the pivoted dog V, adapted to rest against the lower carbon and prevent its falling out, substantially as set forth.

7. In an electric-arc lamp, in combination with the tube for receiving the upper carbon, sliding collar surrounding said tube provided with arms, levers pivoted to said arms and adapted to grasp the carbon, means for operating said levers electro-magnetically, and a pin or stop on said tube for limiting the downward movement of said collar, substantially as set forth.

RICHARD F. JONES.

In presence of—

GEO. H. KNIGHT,
SAML. KNIGHT.

It is hereby certified that in Letters Patent No. 326,123, granted September 15, 1885, upon the application of Richard F. Jones, of St. Louis, Missouri, for an improvement in "Electric Arc Lamps," an error appears in the printed specification requiring correction as follows: In line 37, page 2, the hyphen between the words "armature" and "rods" should be stricken out and a comma inserted instead; and that the said Letters Patent should be read with this correction therein to make the same conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 20th day of October, A. D. 1885.

[SEAL.]

H. L. MULDROW,

Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.