

No Model.

C. RICHTER & R. T. ESCHLER.
ELECTRIC ARC LAMP.

No. 573,162.

Patented Dec. 15, 1896.

Fig. 1.

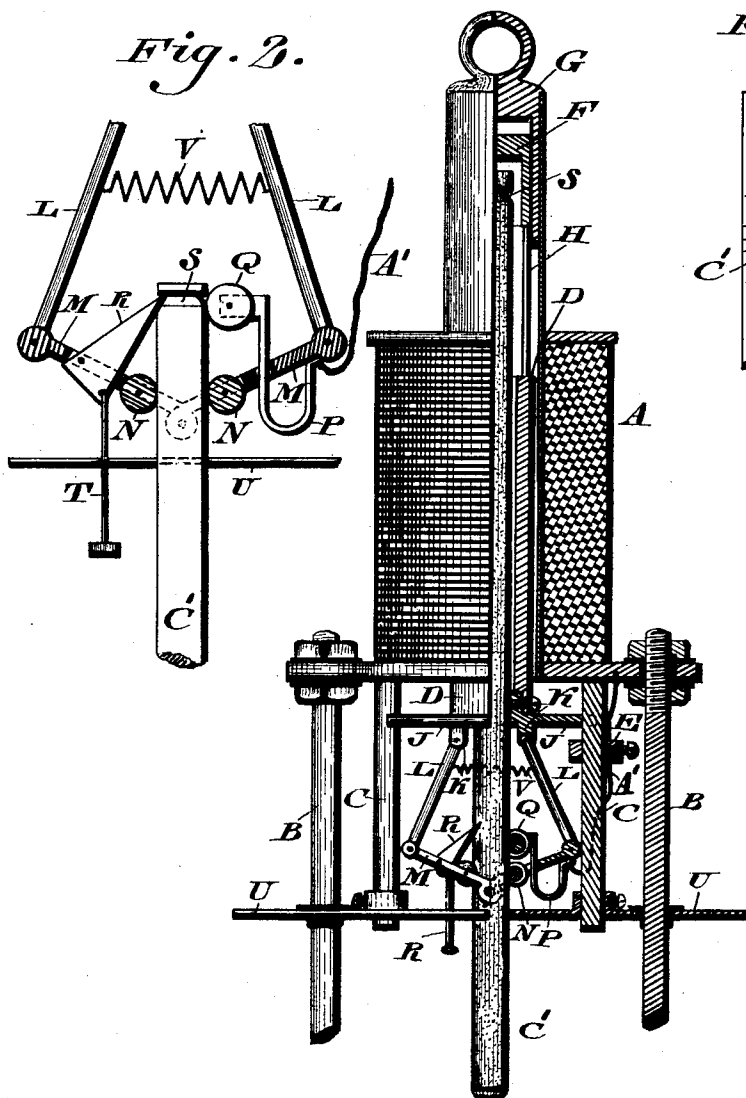


Fig. 2.

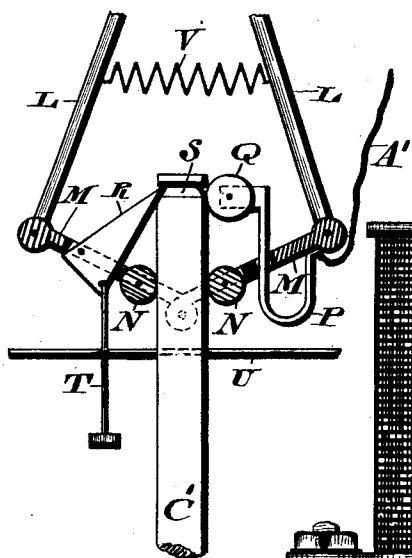
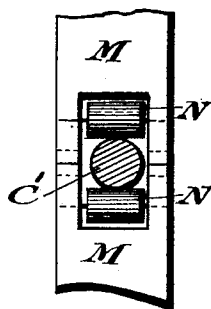


Fig. 3.



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CHARLES RICHTER AND RICHARD T. ESCHLER, OF CAMDEN, NEW JERSEY,
ASSIGNORS OF ONE-THIRD TO SAMUEL B. GOFF, OF SAME PLACE.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 573,162, dated December 15, 1896.

Application filed April 9, 1896. Serial No. 586,814. (No model.)

To all whom it may concern:

Be it known that we, CHARLES RICHTER, a citizen of the United States, and RICHARD T. ESCHLER, a subject of the Emperor of Germany, residing in the city and county of Camden, State of New Jersey, have invented a new and useful Improvement in Electric-Arc Lamps, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of an electric-arc lamp of the clutch type, in which the brass carbon-rod is dispensed with, the lamp is shortened, and the operation of the lamp is more effective. To this end we employ a novel clutch, constructed as hereinafter described and claimed, which will directly engage with the carbon and firmly hold the same and likewise allow it to slip easily when feeding.

Figure 1 represents a partial side elevation and partial vertical section of a portion of an electric-arc lamp embodying our invention. Fig. 2 represents a view of a detached portion on an enlarged scale. Fig. 3 represents a top view of portion of the clutch and horizontal section of the carbon.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a spool or solenoid, and B designates rods which hold the lower part of the lamp (not shown) and are properly insulated from said solenoid.

C designates guide-rods which are in metallic contact with the body of the solenoid and depend therefrom. Within the solenoid is the annular core or armature D thereof.

Connected with one of the rods C is the adjustable stop E for limiting the movement of the armature. Within a portion of the solenoid is the air-pump G, the same containing the plunger F, which by means of the link H is connected with the core or armature. Attached to the lower end of the core is the cross-head J, which is guided on the rods C, thus steadying the core and keeping it true in the center of the solenoid. Ears K are formed on the cross-head J and have fulcrumed thereon the links L, whose lower ends are pivoted to the clutch proper, M, the latter consisting of two

plates or leaves hinged together and having at each side of their joints an opening to receive the rollers N and the carbon C, the latter being adapted to be embraced at opposite places by the rollers.

P designates a spring or elastic arm which is secured to one of the leaves of the clutch M and carrying the roller Q, which is in contact with the carbon, said spring or arm being connected with the metal body of the solenoid by means of the flexible cable A'.

R designates a gravitating tooth or dog which is mounted on one of the leaves of the clutch and having its point or nose adapted to engage the groove S in the upper end of the carbon when the latter has lowered to about its full extent, said dog having connected with it the lever or rod T for raising and releasing it from engagement with the carbon.

U designates a plate through which the carbon freely passes and which is adjustably secured to the rods C and freely fitted on the rods B, so as to be raised and lowered thereon, said plate being of such width or diameter as to cover the globe of the lamp and act as a guard for preventing the heat from reaching the works of the lamp above said plate.

The operation is as follows: When no current is flowing, the armature or core D will strike the stop E and the clutch M rest on the guard or plate U as a stop and thus open, allowing the carbon to pass freely between the rollers N. When the current is turned on, the solenoid will raise the armature and with it the clutch attached thereto. The upper end of the leaves of the clutch thus approach, whereby the rollers are pressed against the carbon, so that the latter also descends, and the arc is accordingly formed, the length of the same being regulated by the stop E and plate or guard U. Owing to the air-pump G, whose plunger is connected with the core, a cushion is provided above said plunger, which causes the core to rise slowly and not violently, the former being quite desirable. As the carbon is consumed the core gradually descends, endeavoring to keep the arc constant. When the clutch again contacts with the plate or guard V and the core

continues to descend, the clutch will open, that is to say, the angle of the leaves will become greater, whereby the rollers will release their grip on the carbon and allow the latter to lower. When the arc has attained its proper length, the core will again ascend, thereby gripping the rollers against the carbon and stopping the further descent of the latter. The dog R rests against the side of the carbon until the groove S reaches the nose thereof, when it drops into the same, whereby the carbon is controlled by said dog and the farther descent of the carbon prevented, when the lamp will be extinguished. Owing to the rollers the feed of the carbon will be even and so be very satisfactory, even where a rough carbon is employed.

When a new carbon is required, the lever T is raised, when the fragment of the old carbon may drop out, after which a fresh carbon may be fitted in place.

In order to prevent the slipping of the clutch-rollers on the carbon, especially in the movement of striking of the arc, we employ the spring V, which is attached to the limbs L or, if desired, to the leaves of the clutch for closing said leaves and bringing them together.

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

1. An electric-arc lamp having a solenoid with an armature, guide-rods for said armature connected with the body of said solenoid, a stop on said rod for said armature, an air-pump on said solenoid having a plunger connected by links with said armature, said parts being combined substantially as described.

2. In an electric-arc lamp, a solenoid with an armature having a cross-head guided on rods depending from the metallic body of said solenoid, links pivoted to ears on said cross-head, and plates pivotally connected with said links, and having rollers mounted thereon adapted to contact with a carbon said parts being combined substantially as described.

3. A clutch formed with a leaf, a roller mounted on said leaf, an elastic arm on said leaf and a roller on said arm substantially as described.

4. In an electric-arc lamp, a clutch formed of leaves, links pivotally connected with said leaves, a core attached to said links, and a roller mounted on either of said leaves, adapted to engage the carbon of the lamp, substantially as described.

5. In an electric-arc lamp, a solenoid with an armature having a cross-head with links connected therewith, plates pivotally attached to said links and having rollers mounted thereon, and a weighted dog mounted on one of said plates, said parts being combined substantially as described.

6. In an electric-arc lamp a solenoid with an armature having a cross-head, clutch-plates pivotally connected by links with said cross-head and carrying rollers in recesses therein and an elastic arm connected with one of said plates, and carrying a roller adapted to bear against a carbon which is between said plate-rollers, and a flexible cable connecting said arm and the body of the solenoid, said parts being combined substantially as described.

7. In an electric-arc lamp, a solenoid with an armature having a cross-head, links pivoted to said cross-head, clutch-leaves pivoted to said links and carrying rollers mounted in recesses therein, an arm connected with one of said leaves, a roller on said arm, a flexible cable connecting said arm with the metallic body of the solenoid, and a spring connected with said links, said parts being combined substantially as described.

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