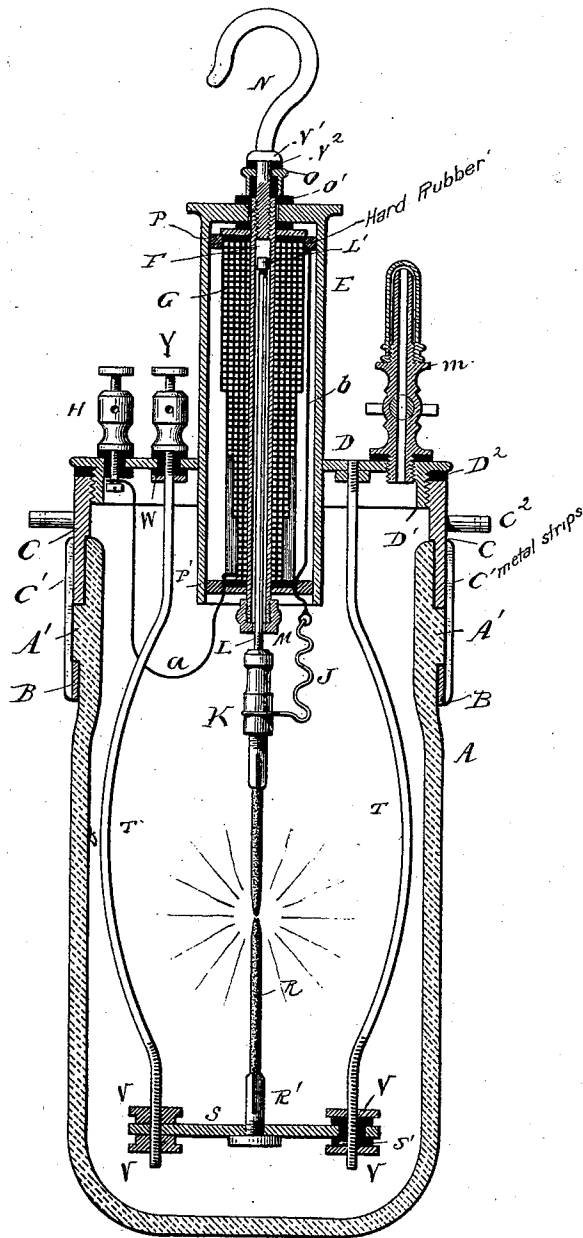


(No Model.)

C. A. HOMANS.
ELECTRIC ARC LAMP.

No. 373,934.

Patented Nov. 29, 1887.



WITNESSES:

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ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 373,934, dated November 29, 1887.

Application filed December 9, 1886. Serial No. 221,017. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HOMANS, of Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

This invention relates to that class of electric lights in which the flame is produced in a globe filled with nitrogen or other gas not affecting the carbons injuriously.

The object of my invention is to facilitate the adjustment of the carbons in relation to each other, to facilitate taking apart the parts of the lamp for the purpose of cleaning them, and also to simplify in all respects the construction of the lamp.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and finally pointed out in the claims.

In the accompanying drawing a cross-sectional view of my improved lamp is shown.

The glass globe A is provided near its top with an external collar, A', against the bottom edge of which a metal ring, B, is placed, a ring, C, being placed on the top of said collar. Metal strips C' are fastened to the rings C and B, and extend transversely over the outside of said collar. The ring C is screw-threaded internally at its top, and into the said ring the externally-screw-threaded part of an annular flange, D', of the top or cover D is screwed. The ring C has projecting pins C², to facilitate holding it in fixed position while screwing on the cover. Packing D², of suitable material, is inserted between the top edge of the ring C and the bottom of the cover D. A tube, E, is fastened in the center of the cover D and projects from the top of the same, the lower end of the tube being open and the upper end closed. Insulated wire is coiled around a tube, F, to form a solenoid, G, within the tube E, one end of the coil being connected by the wire a with the binding-post H, and the other end of the coil being connected by the wire b with the wire J, connected with the upper-carbon holder K, fastened in a suitable manner on the lower end of the rod L, mounted to move longitudinally in the tube F.

A cap, M, is screwed on the lower end of the tube F, and has an aperture through which the rod L can pass, said rod being provided with a head, L', at the upper end, of such size that it cannot pass through the aperture in the cap M. The upper end of the tube F is screw-threaded internally and passed through an aperture in the closed end of the tube E, and into said screw-threaded upper end of the tube F the lower screw-threaded end of the stem of a hook, N, is screwed, said hook having a collar, N', resting on a packing, N², on the cap O, through which the stem of the hook passes, said cap resting on packing O' on the closed end of the tube E.

In the upper end of the tube E, I place a hard-rubber ring, P, which surrounds the upper end of the coil G, and a like ring, P', is placed in the lower part of the tube E, and surrounds the lower end of the coil G, said rings serving to hold the coil in place and prevent any movement of the coil. Said rings are turned off and finished in such a manner as to hold the longitudinal axis of the coil precisely at right angles to the top or cover D.

The lower carbon, R, is held in a clamp, R', in a cross-piece, S, supported at its ends by two bow-shaped spring rods or wires, T, having their upper ends fastened in the cover D. The ends of the bow-springs T are screw-threaded, and one of them passed through an aperture in an insulating-piece, S', in said cross-piece. Nuts V V are provided above and below the cross-piece in the screw-threaded ends of the rod T, for the purpose of adjusting the cross-piece. That rod T which is not insulated from the cross-piece S is held at its upper end in an insulating-piece, W, in the cover D, and is connected with the binding-post Y, adjacent to the binding-post H, to which binding-posts H Y the two line-wires are fastened.

The current first passes from the binding-post W through the wire a into the coil, through the coil, through the wires b and J, and to the upper-carbon holder K, and through the upper carbon, at the lower end of which it forms an arc, passing out through the lower carbon R, the cross-piece S, and the rod or wire T, connected with the binding-post Y.

The inclination of the lower carbon, R, can easily be adjusted, so that the said lower carbon, R, is precisely in line with the upper carbon. For example, when the carbon R is inclined too much to the right, the nuts V on the right-hand bow-shaped rod T are turned, so as to move the right-hand end of the cross-piece upward. The cross-piece S can be adjusted in a direction at right angles to the length of said cross-piece by bending the rods or wires T. The cross-piece S can also be adjusted more or less by changing the curvature of the pieces of spring-wire T. In case the inclination of the lower carbon must be changed considerably, the two wires or rods are pressed toward or from each other more or less, and the final adjusting thereof is accomplished by means of screws on the lower ends of said rods.

The lamp can be cleaned very easily, as by unscrewing the cover the carbons and regulating mechanism can be removed. The exhausting of the air in the globe and charging the same with nitrogen or other gas is accomplished by providing a cock, *m*, on the cover.

In case there is any jumping of the upper carbon, the same is remedied by introducing a resistance of some kind in the circuit. For example, in any low-tension currents, the current is first conducted through a greater or less number of incandescent lamps before being conducted into any improved lamp, or the helix may be wound within greater or less length of wire, to suit a certain current.

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

1. In an electric-arc lamp, the combination, with a globe and a cover on the same, of a car-

bon-regulating coil held in the cover, two bow-shaped spring-rods projecting from the under side of the cover and having their ends screw-threaded, a cross-piece on the lower screw-threaded ends of said spring-rods, and nuts screwed on the lower ends of said rods, substantially as shown and described.

2. In an electric-arc lamp, the combination, with a globe and cover, of the tube E in the cover, a coil, G, wound on the tube F, which tube F is passed through the upper closed end of the tube E, and a hook, N, screwed in the upper end of the tube F, substantially as shown and described.

3. In an electric-arc lamp, the combination, with a globe and cover, of the tube E on the cover, the coil G, wound on the tube F, having its upper end passed through an opening in the closed upper end of the tube E, the packing N² and O', and the hook N, passed through said packing and screwed into the upper end of the tube F, substantially as shown and described.

4. In an electric arc lamp, the combination, with a globe and cover, of a tube on the cover, a wire coil in said tube, and hard-rubber rings interposed between the outer side of the coil and the inner side of the tube at the top and bottom of said coil, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CHARLES A. HOMANS.

Witnesses:

GEORGE S. LITTLEFIELD,
GEORGIANA S. LITTLEFIELD.