

(No Model.)

W. L. VOELKER.

AUTOMATIC INCANDESCENT ELECTRIC LAMP.

No. 261,503.

Patented July 18, 1882.

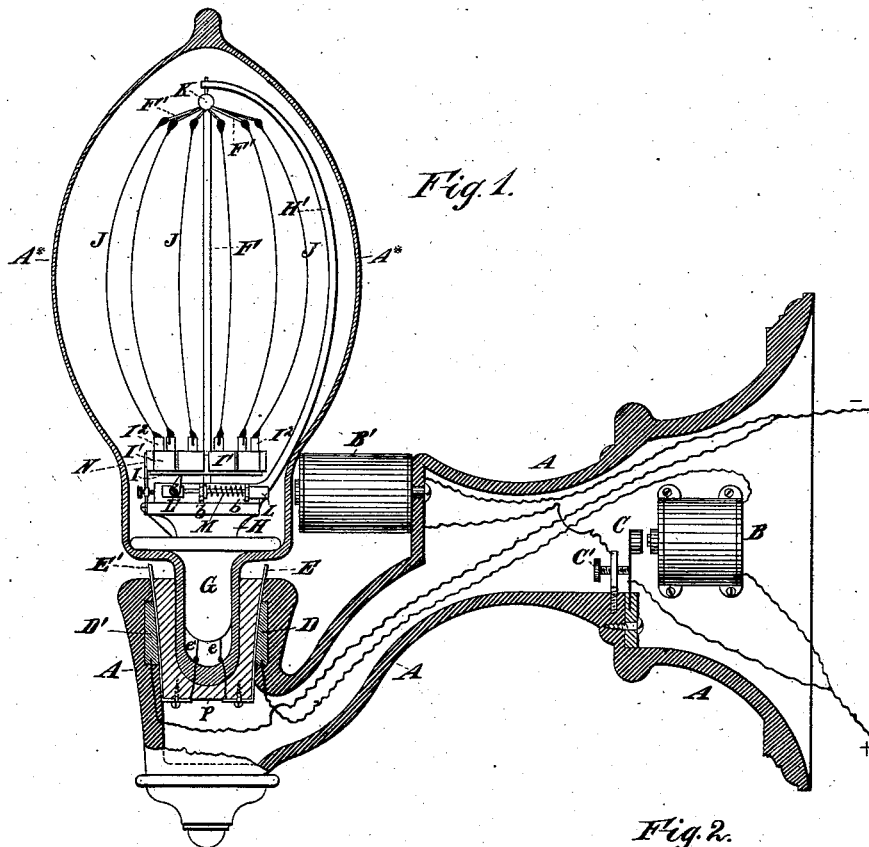
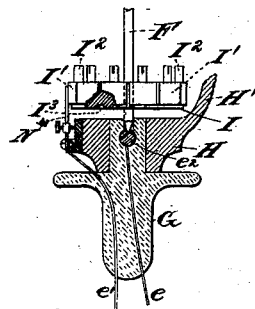
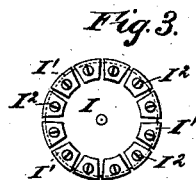


Fig. 2.



Witnesses—
Charles H. Searle
W. A. Lane

Inventor—
William L. Voelker,
By A. M. Pierce,
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM L. VOELKER, OF MORTON, PENNSYLVANIA, ASSIGNOR TO JOHN H. IRWIN, TRUSTEE, OF SAME PLACE.

AUTOMATIC INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 261,503, dated July 18, 1882.

Application filed January 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. VOELKER, of Morton, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Incandescent Electric Lamps, (Case 8,) of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates especially to incandescent electric lamps; and it consists essentially in arranging the incandescing filaments of carbon in a support within the lamp in such a manner that when one of said filaments becomes broken another will be automatically thrown into circuit; and my invention involves certain novel and useful combinations or arrangements of parts and peculiarities of construction and operation, all of which will be hereinafter fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a lamp constructed in accordance with my invention. Fig. 2 is a vertical sectional view of the interior of the base of the lamp. Fig. 3 is a plan view of the carbon supports and connections, and Fig. 4 is a like view of the bottom thereof. Fig. 5 is an enlarged view of a fragment of the support.

Like letters of reference, wherever they occur, indicate corresponding parts in all the figures.

Incandescent electric lamps employing one filament of carbon, as heretofore constructed, become useless when the incandescing filament breaks, and the lamp must be thrown aside; or when more than one filament was employed provision was made for turning the carbon-support by hand from the exterior of the lamp, in order to bring the carbons successively into circuit. A lamp constructed in accordance with the latter plan was liable to leak, and the vacuum soon became destroyed.

My improved automatic lamp has many advantages over old forms. Any number of filaments of carbon may be placed therein, and, by means of electro-magnets through which the current is thrown when a filament breaks, the carbon-support will be automatically turned

a part of a revolution, throwing another filament into circuit, thereby rendering one of the magnets inactive until another carbon breaks.

A is a bracket or support formed of any suitable material. B is an electro-magnet located upon or in the support. C is the armature of said magnet. C' is a contact-screw with which armature C has electric connection. The + line-wire divides as indicated, running both to magnet B and its armature. From contact C' + wire runs to a second electro-magnet, B', wound with much coarser wire than B. The other division of + wire runs from electro-magnet B to a conducting-strip of metal, D, at the base of the lamp.

P is a non-conducting thimble or base affixed to and forming a part of the removable lamp.

E is a spring of conducting material affixed to said base, having connection with conductor e to the interior of the lamp. Conductor e passes up into the lamp-bulb A* and terminates in a solid ball or mass, e², in the glass support G, located in the neck of the lamp-bulb.

F is a rod of conducting material resting upon e² and passing upward nearly to the top of the lamp-bulb.

H is a base of suitable material affixed to support G, and having an arm, H', extending upward within the bulb, as shown.

I is a disk of non-conducting material affixed to rod F, just above base H.

I' are small pieces of brass corresponding in number to the filaments of carbon to be employed, said pieces being secured to disk I by means of screws I², the heads of said screws being provided with a deep slot. I' projects over the edge of disk I, as shown. J are the incandescing filaments of carbon, secured at their lower extremities in the slots in screws I², passing upward and being affixed at their upper extremities to arms F' upon rod F. A swivel, K, or its equivalent is affixed to the top of F and held by arm H'. Disk I is provided at bottom with a number of indentations, I³, corresponding to the number of filaments of carbon.

L is the armature of electro-magnet B', supported and held in place within the lamp upon support H by eyes b, spring M being coiled

around said armature between the eyes. The extremity of armature L terminates in a pawl, L', working in depressions I³ in disk I.

N is a spring affixed to the base H. Said spring finds a bearing upon one of the pieces I', affixed to disk I, and is connected with a spring, E', upon P by means of conductor e'.

D' is a strip of conducting material affixed in the bracket A, opposite to D. D' is connected with the — conducting-wire leading to the exterior of the device, a branch of said — wire running to electro-magnet B'.

When constructed and arranged in accordance with the foregoing description, the operation of my lamp is as follows: The + current passes through electro-magnet B and to the metallic piece D, said piece being in electric connection with the spring E and rod F. From thence it passes through the filament of carbon which is in connection with spring N, down through conductor e' and spring E', and out by the — wire. Armature C is attracted by the electro-magnet B, and connection at C' is broken, cutting out electro-magnet B'. Should the filament of carbon through which the current is passing break, electro-magnet B becomes inactive, contact is made at C', and the current is thrown through electro-magnet B', armature L in the lamp is drawn forward, and by its movement disk I is rotated a short distance by pawl L', and a fresh filament of carbon is thrown into circuit. Magnet B becomes active, and, being more powerful than B', breaks connection at C', cutting out the circuit to B' and releasing armature L. The spring M thereon throws the pawl back to another indentation in I. This operation will be repeated as long as there are unbroken filaments of carbon in the lamp.

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

1. In an automatic incandescent electric lamp held firmly in position, the combination of numerous carbon filaments pivoted between supports within the vacuous chamber, one of such supports being provided with an armature and arranged and adapted to be revolved by an electro-magnet on the outside of said vacuous chamber, substantially as described.

2. In an automatic incandescent electric lamp held firmly in position, the combination of numerous carbon filaments pivoted between supports within the vacuous chamber, one of such supports having an armature and electrical connections between said carbon filaments, and the electro-magnets B and B', and between said electro-magnets, substantially as described.

3. In combination with an automatic electric lamp held firmly in position, and having numerous carbon filaments adapted and arranged to rotate within the vacuous chamber between supports, one of which is provided with an armature, the electro-magnets B and B', of unequal strength, and electrical connections between said electro-magnets and the carbon filaments, substantially as and for the purposes described.

4. In an automatic incandescent electric lamp of the character herein specified, electro-magnets B and B', lamp-bulb A*, support H, bearing arm H', incandescing filaments of carbon J, rod F, disk I, pieces I', screws I², and armature L, actuating pawl L', the whole combined and arranged to operate substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

WILLIAM L. VOELKER.

Witnesses:

GARRETT E. SMEDLEY,
HORACE R. MANLEY.