T. A. EDISON.

Electric-Lighting Apparatus.

No. 224,329. Patented Feb. 10, 1880.

Fig. 1.

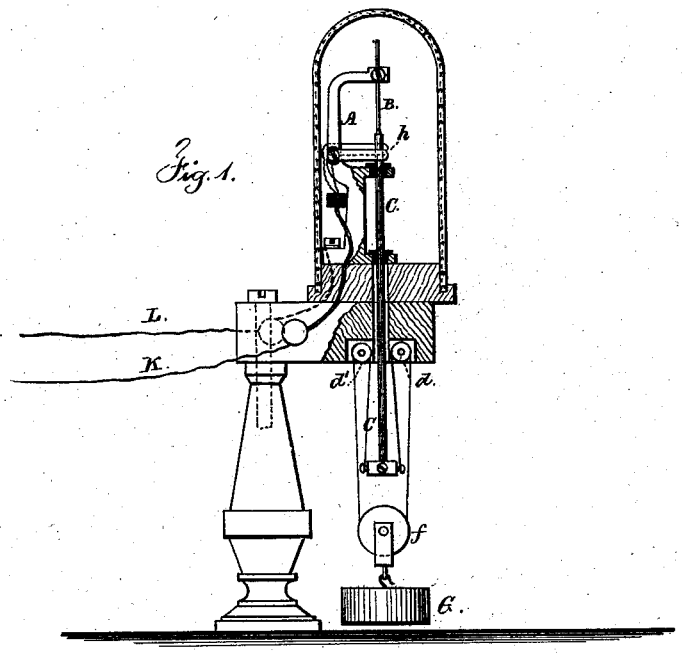


Fig. 3.

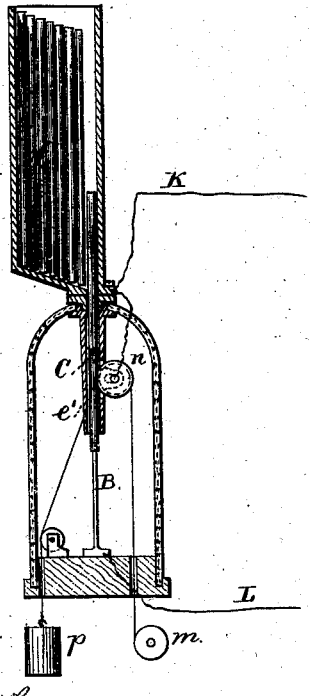
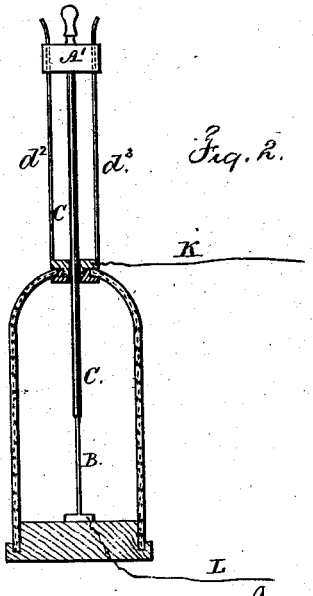


Fig. 2.



Witnesses

Chas. H. Smith

Geo. T. Pinckney

Inventor

Thomas A. Edison

per Samuel W. Serrell Atty

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

ELECTRIC-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 224,329, dated February 10, 1880.

Application filed February 3, 1879.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented an Improvement in Electric-Lighting Apparatus, (Case No. 170;) and the following is declared to be a description of the same.

The object of this invention is to produce electric illumination by the incandescence of carbon.

The invention consists in making the two poles dissimilar, one being of the carbon in the form of a slender rod, and which serves to give light, while the other is of platinum or platinum-iridium alloy, against which the rod presses.

The inferiority of contact which takes place between the metal and the carbon creates a considerable resistance, which, heating the carbon, increases the inferiority of the contact, causing the carbon to become highly incandescent; but no effect is produced upon the platinum or iridium alloy.

In Figure 1, A is the frame-work; B, the platina pole; C, the carbon rod. *h h* are springs, which rub upon the carbon rod, and are the medium of conveying a current to it by the wires K from the binding-post, the platina rod B and frame A being connected to the other binding-post by the wire L.

d' and *d* are wheels, over which cords or strings run. These strings are connected to the extreme end of the carbon C, and to the pulley *f* and weight G. The effect of the weight is to cause the carbon rod C to press at all times against the platina or iridium rod B.

The carbon rod is insulated from the frame A in any suitable manner, and it will be apparent that as the carbon rod is consumed the weight G moves the carbon upwardly to maintain contact with metallic rod B.

In Fig. 2 is shown a method whereby the carbon rod C is fed downward by means of a weight, A', resting upon the upper end of the carbon and guided by the springs or rods d^2 d^3. Electrical contact is maintained with the weight and carbon by the springs d^2 d^3, or in any other suitable manner.

In Fig. 3 a magazine-lamp is shown. C C C are rods of carbon contained in the case H, which rods rest at their lower end upon the inclosed bottom of the case H and slide toward the tube *e'*, into which the rods pass one at a time by their own weight. *n* is a feed-wheel, that acts through an opening at one side of the tube *e'* upon the carbon rod; *p*, a weight, and *m* a spool or coil of thread or fine wire, with a slight friction from a spring or otherwise, to prevent the thread unwinding too easily. This thread passes around the wheel *n*, or a drum on its shaft, and is constantly drawn upon by the weight *p*, so as to move the carbon rod downwardly and keep it in contact with the metal rod B.

It is obvious that a clock-work movement which will run for several days, or an electric engine included in the same circuit, may give motion to the feed-wheel *n*.

I am aware that in some instances the carbon rod has been forced into contact with a large bar tipped with platina. I make use of a rod of platina or iridium that is smaller than the carbon, so as to produce a resistance at the point of contact between the carbon and platina in consequence of the inferior contact, and thereby develop incandesence at this point.

I am also aware that rods of carbon have been supplied automatically from a holder. Therefore I do not claim the same.

I claim as my invention—

1. The combination, with the carbon rod, in an electric lamp, of a metal rod that is difficult of fusion and smaller than the carbon rod, so as to produce a resistance at the point of contact between the carbon and the metal, and a weight to maintain the necessary pressure at the point of contact, substantially as set forth.

2. The case H, having an inclined bottom and adapted to receive several carbon rods, in combination with the metallic rod B and means for guiding the carbon and maintaining the pressure thereof at the point of contact, substantially as set forth.

Signed by me this 23d day of January, A. D. 1879.

THOMAS A. EDISON.

Witnesses:

S. L. GRIFFIN,

WM. CARMAN.