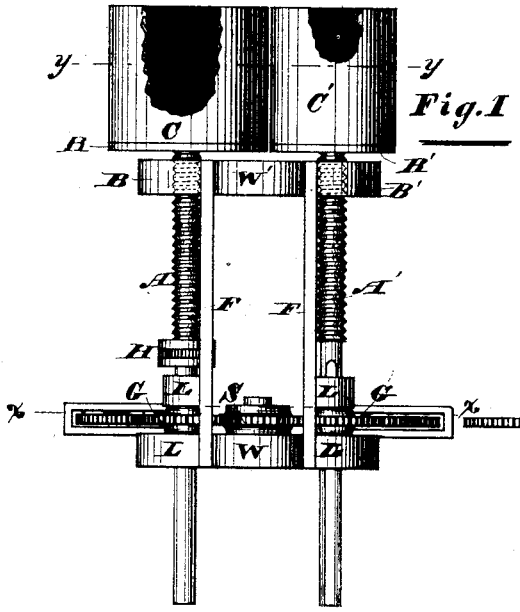
W. GILMAN.

Electric-Lamp.

No. 215,910. Patented May 27, 1879.



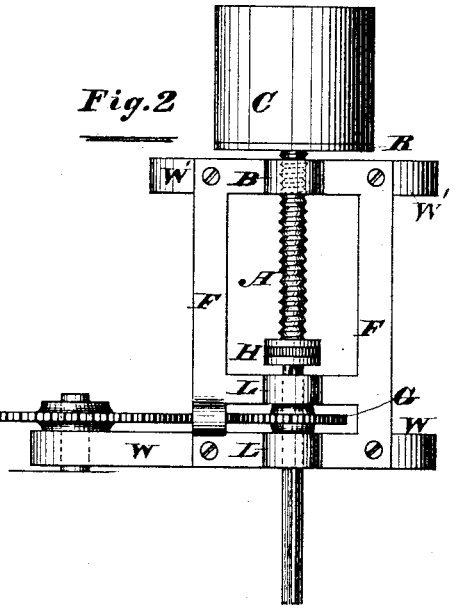


Fig.3

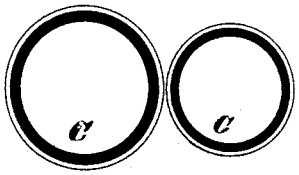
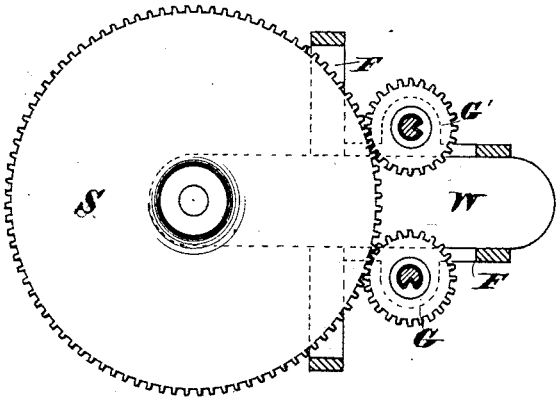


Fig.4



Attest:

W. L. Baker

R. W. Robinson

INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM GILMAN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ELECTRIC LAMPS.

Specification forming part of Letters Patent No. **215,910**, dated May 27, 1879; application filed February 24, 1879.

To all whom it may concern:

Be it known that I, WILLIAM GILMAN, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric Lamps, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is, first, to secure a light that will last a long time before it becomes necessary to renew the carbons; second, to secure the maintenance of the light at a given point, so as to use suitable reflectors to advantage; and, third, to secure the proper distance apart of the carbons and insure the regular maintenance of that distance until they are used up.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a front view of the lamp; Fig. 2, a side view; Fig. 3, a horizontal section on line *x x*, and Fig. 4 a section of the carbons on the line *y y*.

C C′ represent the two carbons. In the figures the negative carbon is shown smaller in size than the positive, while the thickness of the shells is the same in both. The unequal consumption of the carbons which occurs in use is compensated for by causing the larger or positive carbon to make a revolution on its axis at the same time that the smaller or negative does. The even downward consumption of the two carbons is secured by the proper relative sizes of the carbons.

It is possible that equally good results may come from making the cylinders the same size and the surfaces revolving at the same speed, while the even consumption is secured by making the positive shell thicker than that of the negative.

The outer surface of the cylinders is covered by a thin shell of plaster-of-paris or other insulating material; or the carbons may be made to rotate at the proper distance apart, the space between being occupied by a plate of more refractory insulating material than the plaster covering.

The upper ends of the arbors A A′ are provided with a disk or face-plate, R, of suitable size to receive its respective carbon, which are firmly secured to the plates.

The portion of the arbors A A′ just beneath the plates is threaded. The length of this threaded portion is equal to the height of the carbons plus the thickness of the plates R R′ and the length of the upper journal-boxes, B B′.

The lower parts of the arbors are plain and are a little smaller than the threaded parts and somewhat longer. Throughout the length of these plain parts of the arbors there is a key-seat cut, the purpose of which will appear hereinafter.

The journal-boxes in which these arbors work form a part of a metal frame, F F′. The upper journal-boxes, B B′, are threaded to match the screw-threads on the upper parts of the arbors. The lower box, L L, is double, and made to receive the lower or plain part of the arbor. The space between the two parts of this double box is occupied by a gear-wheel, G G′. In the eye of this gear-wheel a key is secured, which passes freely through the key-seat cut in the lower part of the arbors A A′.

The metal frames are secured to the wooden blocks W W′, which blocks, while they unite the two parts of the machine firmly together, serve, in connection with the hard-rubber boss H, to insulate one side of the machine from the other.

The two gear-wheels G G′, through which the lower ends of the arbors pass, are in contact with and actuated by the principal wheel S of a spring-barrel.

I have not deemed it necessary to show this spring-barrel or other parts of the clock-work that serve to rotate the carbons. It may be said, however, that no other gearing than that shown will be necessary, except that which may be needed to operate the pulsating mechanism of the clock-work.

The binding-posts can be formed in the upper journal-boxes, B B′, or in any convenient way attached thereto.

In order to instantly start the light it may be necessary to introduce a small pencil of some good conducting material at the proper point to start the arc, which pencil can be

drawn in contact with the carbons by a small cord, and removed by the tensile strength of a spring when the arc is established.

The operation is as follows: The carbons having been adjusted evenly at the top and parallel and almost in contact, a slow rotating motion is communicated to the carbons by means of the spring through the gearing to the arbors A A′, and as the motion to the carbons is uniform the tops are evenly consumed.

The tendency of the light to descend as the carbons are consumed is counteracted by the upward movements of the arbors. The pitch of the screw on the arbors and their speed are fixed to correspond with the consumption of the carbons. For convenience of description I have assumed that the lamp is used as shown in Figs. 1 and 2—that is, with the light above the machinery. It can be used, if desired, as well in an inverted position.

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

1. Constructing the electrodes of an electric lamp of carbons of a cylindrical shell shape, having them placed parallel, or nearly so, and made to rotate on their axes, substantially as described.

2. The combination of the cylindrical shell-shaped carbons with their axes so constructed that while they rotate they advance in the direction of their length toward the light at or near the same speed at which the consumption of the carbon is occurring, substantially as and for the purposes herein set forth.

3. The cylindrical shells of carbon rotating together, or nearly so, with their top edges even at the point where the arc is formed, insulated from each other either by a shell of insulating material on their exterior surfaces, or by a plate of some refractory insulating material of suitable thickness placed between, substantially as and for the purposes herein set forth.

WILLIAM GILMAN.

Witnesses:
R. W. ROBINSON,
EDWARD O. BROWN.