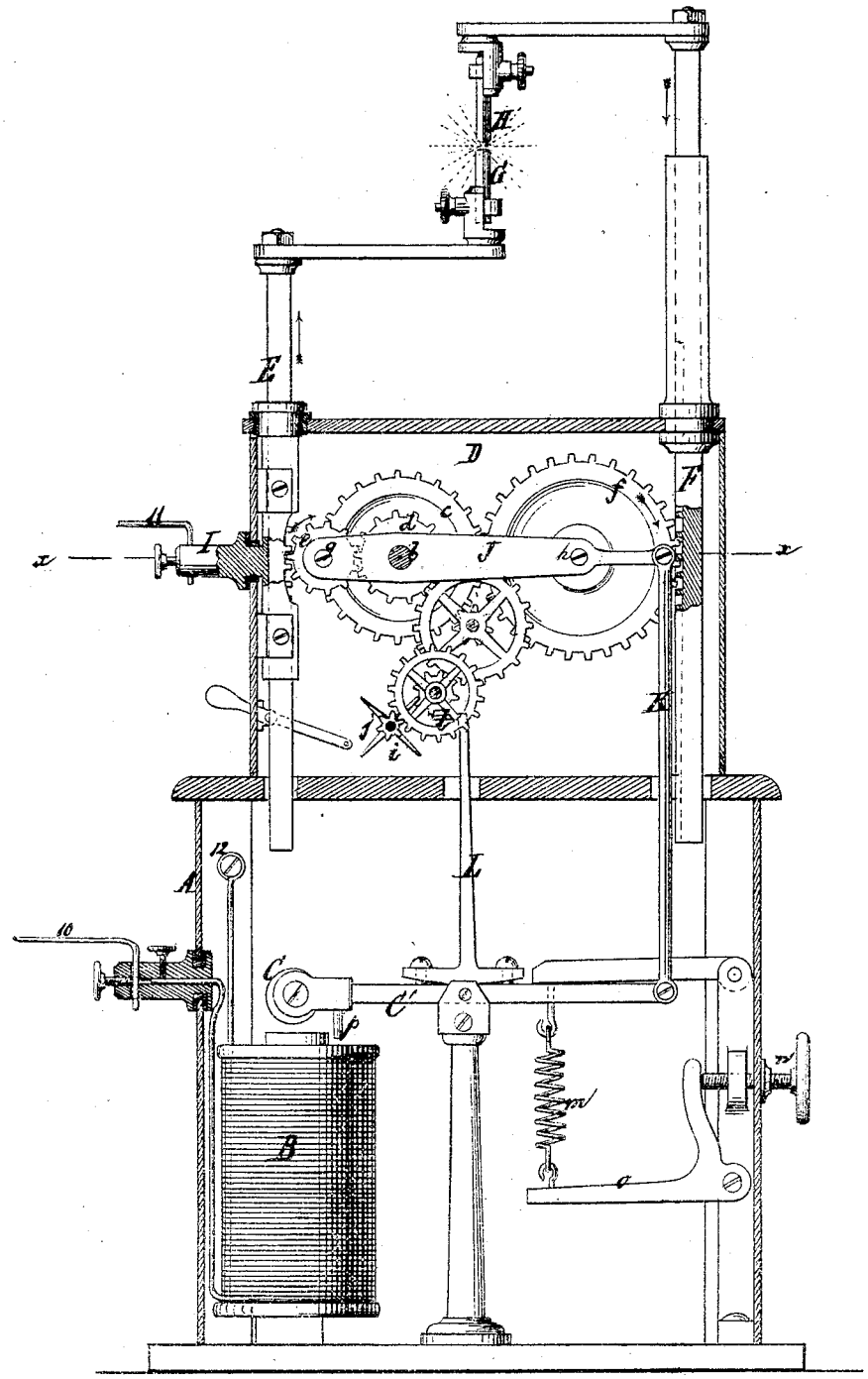
2 Sheets--Sheet 1.

A. A. MEYNIAL.

Improvement in Electrical Lights.

No. 123,923. Patented Feb. 20, 1872.

Fig. 1.



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2 Sheets--Sheet 2.

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Fig. 2.

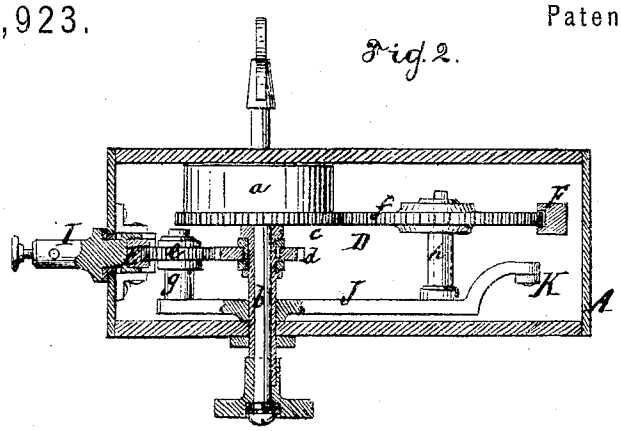
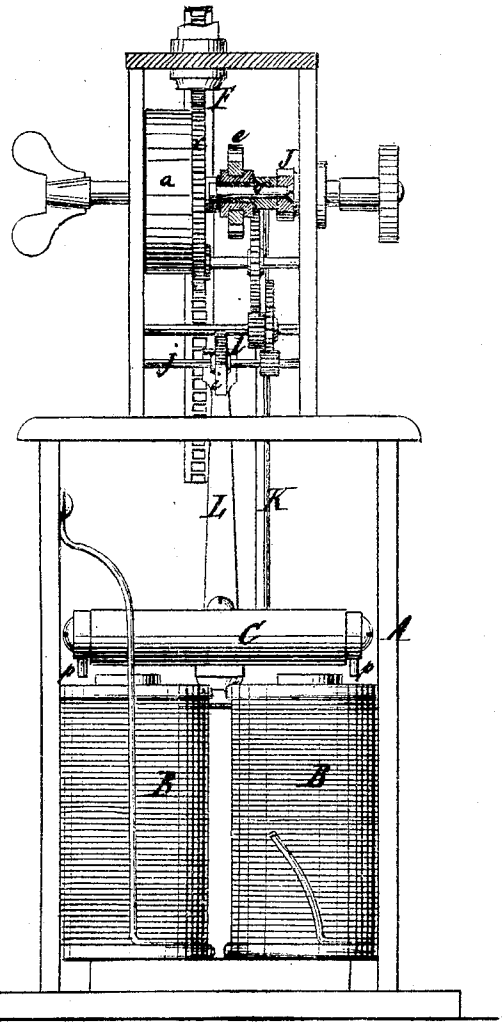


Fig. 3.



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UNITED STATES PATENT OFFICE.

AUGUSTE ANNET MEYNIAL, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRIC LIGHTS.

Specification forming part of Letters Patent No. 123,923, dated February 20, 1872.

To all whom it may concern:

Be it known that I, AUGUSTE ANNET MEYNIAL, of the city, county, and State of New York, have invented a new and useful Improvement in Electric Lights; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a sectional side view of this invention. Fig. 2 is a horizontal section of the same in the plane *x x*, Fig. 1. Fig. 3 is a sectional front view of the same.

Similar letters indicate corresponding parts.

This invention consists in the arrangement of a retrograde mechanism actuated by the armature of the electro-magnet, which also carries the stop-lever, in combination with the slides which carry the electrodes, in such a manner that whenever the electrodes approach too closely by the attraction of the armature, not only the feed-motion of the electrodes is stopped, but a retrograde movement is imparted to said electrodes, thus keeping their points always at the proper distance to produce a good and uniform light. The lever which forms the principal parts of the retrograde mechanism, and which carries the gear-wheels imparting motion to the electrode-slides, has two arms of unequal length, the long arm to act on the slide of the positive electrode, and the short arm to act on the slide of the negative electrode, in such a manner that the retrograde movement of the positive electrode exceeds that of the negative electrode in the proportion in which the consumption of the former is greater than that of the latter.

In the drawing, the letter A designates a case, which is divided into two compartments, one above the other, the lower compartment to contain the electro-magnet B, with its armature C, and the upper compartment to contain the clock-movement D, which serves to impart the feed-motion to the slides E F carrying the electrodes G H. One end of the helix of the electro-magnet is connected by a wire, 10, with the positive pole of a battery, while the other end of said helix is held by a screw, 12, in metallic contact with the case A, which case is in metallic contact with the slide F of the positive electrode H. The slide E is insulated from the case A, and it is in metallic contact with a stud, I, (also insulated from the case A,) that connects by a wire, 11, with the negative pole of the battery, so that the electric current passes from the battery to the positive electrode H; thence, through the negative electrode G, slide E, stud I, and wire 11, back to the negative pole of the battery.

In order to produce a bright light, the points of the electrodes, which are of carbon or graphite, must be kept at a certain fixed distance apart, and as these electrodes are consumed by the heat they must be fed toward each other. This feed-motion is produced by the clock-movement, which consists principally of a spring contained in a barrel, *a*, Figs. 2 and 3, which is mounted on an arbor, *b*, carrying the cog-wheels *c d*. The large cog-wheels *c* gear into a similar cog-wheel, *f*, that meshes into a rack-bar attached to or formed on the positive electrode-slide F, while the small cog-wheel *d* gears in a cog-wheel, *e*, that imparts motion to the negative electrode-slide E, both the cog-wheels *d* and *e* being insulated from the arbors and from the case A, so as to prevent metallic contact between the negative slide and the case. The wheels *e* and *f* are so proportioned that the feed-motion of the positive slide is about twice as fast as that of the negative slide, since the positive electrode is consumed twice as fast as the negative, and said wheels are mounted on studs *g h* in the ends of a double-armed lever, J, which has its fulcrum on the arbor *b* of the barrel *a*, the stud *g* of the wheel *e* being secured in the end of the short, and the stud *h* of the wheel *f* in the long arm of said lever. From the wheel *c* motion is transmitted by a train of wheels to the fan-wheel *i*, which is mounted on an arbor, *j*, and the fans of which are, by preference, made of steel, since they act as parts of the stop mechanism.

The lever J, which I term the retrograde lever, connects by a rod, K, with the rear end of the armature-lever C′, and from this armature-lever rises an arm, L, which carries the stop *l*. A spring, *m*, which is hitched to the armature-lever C′, has a tendency to keep the armature away from the electro-magnet, and to retain the stop *l* in such a position that it just clears the points of the fan-wheel *i*. The tension of

the spring *m* is regulated by a set-screw, *n*, and elbow-lever *o*, or in any other desirable manner, so that when the electrodes are at the proper distance apart, the power of the electro-magnet is just sufficient to overcome the power of the spring *m*, and to move the stop *l* in the path of the fan-wheel *i*. The feed-motion is thereby momentarily stopped; but as the electrodes are consumed and the distance between their points is increased, the power of the electro-magnet is decreased, the spring *m* throws the stop *l* out of the path of the fan-wheel, and the feed-motion goes on. If the points of the electrodes should approach too closely, or if, from some cause, the power of the electro-magnet should momentarily increase to such an extent that it attracts the armature with its full force and to such a degree that the pins *p* in the armature-lever strike the heads of the electro-magnet, then the retrograde lever J is turned on its fulcrum and the positive slide is raised, while the negative slide is depressed. By this motion a slight retrograde movement is imparted to the electrodes, bringing their points at the proper distance apart; but as soon as the distance between the points of the electrodes is still further increased as these points are consumed, the armature falls back from the electro-magnet, and the feed-motion progresses, as before stated. The proportion between the arms of the retrograde lever J is such that the retrograde motion imparted to the positive electrode is about twice as much as that imparted to the negative electrode to preserve the proper relation between the electrodes and this motion imparted to them by the slides E F.

What I claim as new, and desire to secure by Letters Patent, is—

1. The retrograde mechanism, actuated by the armature of the electro-magnet, which carries the stop-lever, in combination with the slides which carry the electrodes, substantially as herein shown and described.

2. The retrograde-lever, having two arms of unequal length, the longer arm to produce the retrograde movement of the positive electrode and the shorter arm that of the negative electrode, so as to compensate for the increased consumption of the positive electrode, substantially as set forth.

This specification signed by me this 29th day of January, 1872.

A. A. MEYNIAL.

Witnesses:
W. HAUFF,
PIERRE COURVOZ.