

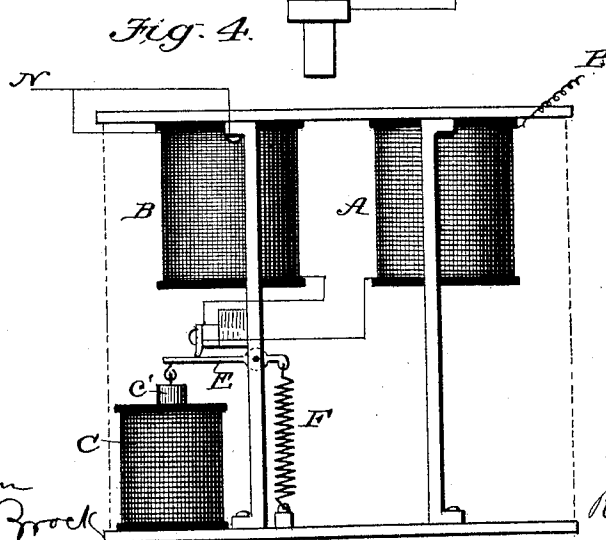
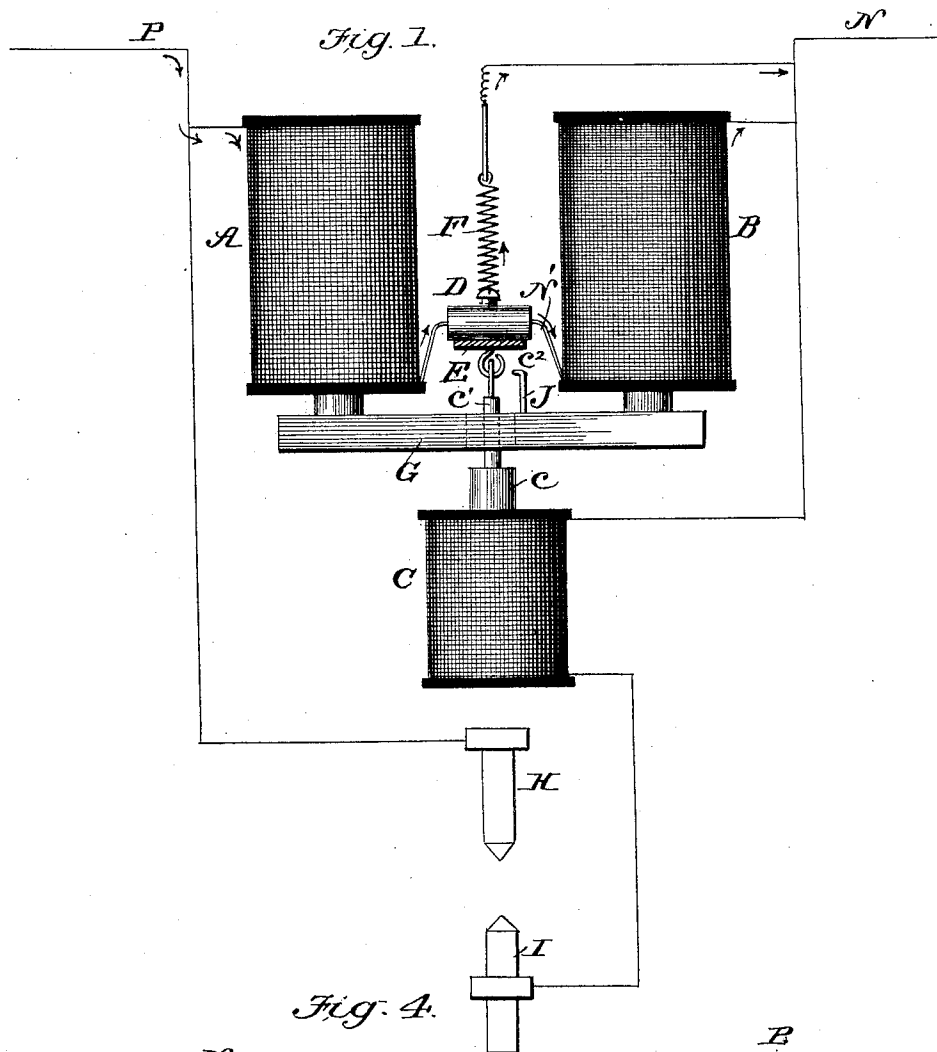
(No Model.)

2 Sheets—Sheet 1.

G. M. LANE.
ELECTRIC ARC LAMP.

No. 577,760.

Patented Feb. 23, 1897.



Witnesses

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Fig. 2.

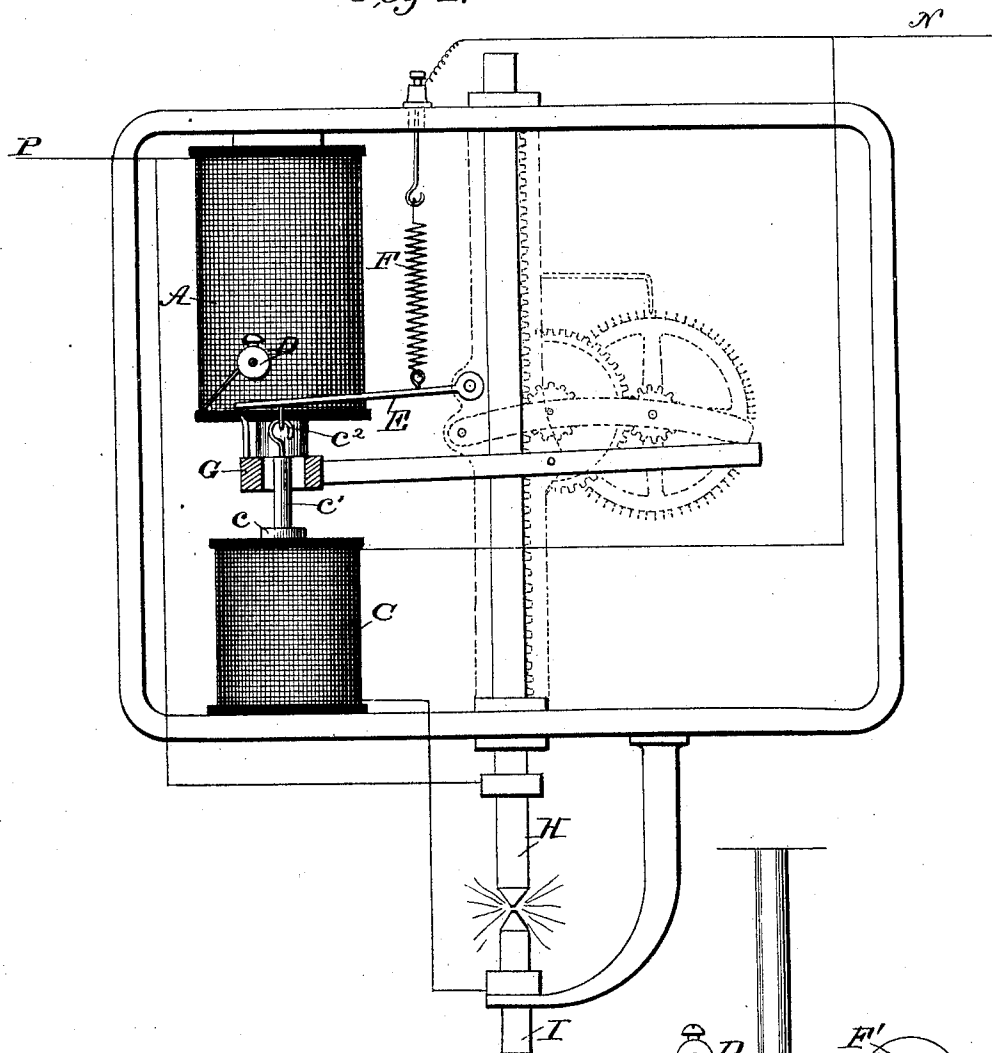
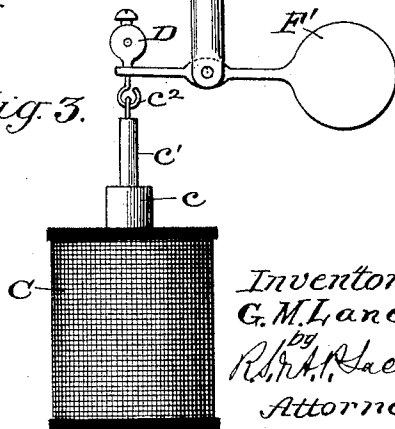


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE M. LANE, OF ASBURY PARK, NEW JERSEY.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 577,760, dated February 23, 1897.

Application filed January 4, 1896. Serial No. 574,344. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. LANE, a citizen of the United States, residing at Asbury Park, in the county of Monmouth and State of New Jersey, have invented certain new and useful Improvements in Electric-Arc Lights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in arc-lights; and the object is to form a simple and efficient "cut-out" for the same; and to this end the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the drawings forming a part of this specification, Figure 1 is a front view showing the magnets and circuit connections when the lamp is at rest. Fig. 2 is a side view with high-resistance magnet removed, showing the working parts in position when the current is passing and the light burning or arc established. Fig. 3 shows a modified detail of construction; and Fig. 4, a further modification of the same detail, but illustrated with the other parts in connection.

In constructing my improved lamp I employ two derived circuit or shunt magnets A and B, the resistance of A being somewhat less than that of B, the purpose of which will appear farther on, and the auxiliary magnet C is placed directly in the main circuit, but is only in action when the current is passing through the carbons.

Referring now to Fig. 1, in which the lamp is shown in open circuit and the carbons separated, the current, as soon as turned on, will enter at P and pass through the magnet A into the contact-point D, which is connected to the end of the wire leading from this point. A contact-plate E is pivotally supported in the frame and is adapted to be brought into contact with the point D by means of a spring F, as shown in Figs. 1, 2, and 4, or by means of a weight F', as shown in Fig. 3. The current thus passes from the magnet A out

through the wire N, connected with the contact-plate E, and in so doing energizes the magnet A and draws the armature G upward, which action releases the feeding mechanism of the lamp and allows the upper carbon to descend until it touches the bottom carbon, the feeding mechanism being of the usual construction and operating in the usual manner. The moment the upper carbon H contacts with the lower carbon I the main circuit is closed and the current passes therethrough and through the magnet C, as the resistance to said circuit is less than through the magnet A. The magnet C, however, being in the circuit, draws its armature downward, separating the contacts D and E. This operation places the magnet B in circuit with the magnet A, inasmuch as these magnets are connected by means of a wire N', which leads from the contact-point D into the magnet B, and when the connection between D and E is broken and that between A and B established the complete shunt is formed, and as the current passes through the carbons and the magnet C the armature G loses its magnetism and drops downward, its weight overcoming the weight of the carbon-rod and upper carbon, thereby raising said upper carbon slightly and establishing the arc, which will now be maintained by the shunt in the well-known manner.

Should the carbon-rod fail to feed from any cause, the magnets A and B will continue to draw the armature upward, and the pin J carried by said armature will press the contact-plate E upward until it touches the point D. This of course short-circuits the current through the magnet A, cutting out the light, and likewise the magnet B, and as the wire of the magnet A is large enough to carry all of the current no injury will result to either the lamp or the circuit.

The armature c of the magnet C has an extension c', extending through an opening in the armature G, the end of said extension having a hook c² attached thereto, which hook engages an eye arranged upon the bottom of the contact-plate E, the purpose of said connection being to provide the necessary means for breaking the contact between the points D and E when the carbons come together and complete the circuit.

In Figs. 1 and 2 I have shown the spring F connected with the contact-plate E as being part of the circuit-wire, but in Fig. 4 I have shown the spring as an independent element, it being obvious that either plan could be adopted without departing from the spirit of the invention.

In Fig. 3 I have shown the end of the plate provided with the weight, which acts in exactly the same manner as the spring in Figs. 2 and 4 and has the same purpose.

It is obvious also that the minor details of construction of my device can be changed or modified somewhat without departing from the essential feature of my invention, which consists in the employment of two magnets in the shunt-circuit, the one through which the current first passes being of lower resistance than the other, the high-resistance mag-

net and auxiliary magnet being employed only when the arc is established.

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

In an arc-lamp, the combination with the high and low resistance magnets, the auxiliary magnet, the carbons and feeding mechanism of contacts D and E, operated as described, the armature G, carrying the pin J, and the armature of the auxiliary magnet connected with the contact-plate E, all arranged substantially as shown and described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE M. LANE.

Witnesses:

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