

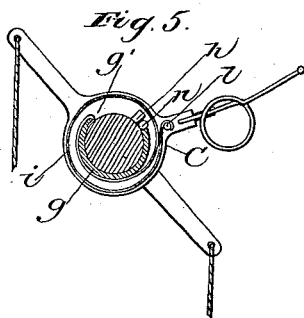
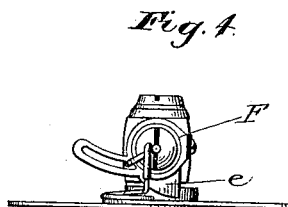
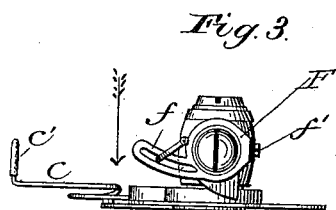
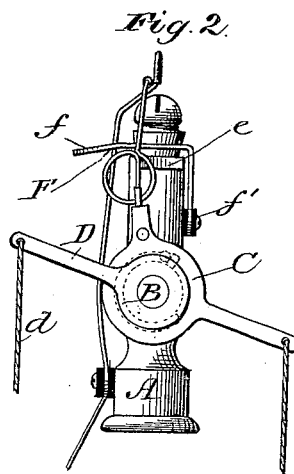
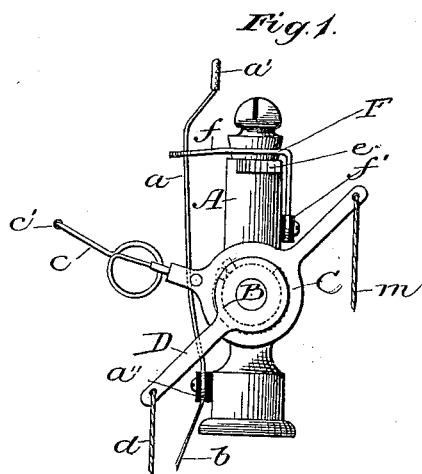
(Model.)

O. S. ARMSTRONG.

ELECTRIC GAS LIGHTING APPARATUS.

No. 263,457.

Patented Aug. 29, 1882.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC GAS-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 263,457, dated August 29, 1882.

Application filed July 2, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, OSMON S. ARMSTRONG, a citizen of the United States of America, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electric Gas-Lighting Apparatus; 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, and to letters or figures or reference marked thereon, which form a part of this specification.

The object of my invention is the improvement of the apparatus in such manner that the vibrating point may be thrown outward toward the end of its movement, thereby more certainly breaking the circuit; also, giving to the other point which is fixed to the burner a vibrating movement, so that it may be retracted out of the field of the flame after the lighting has taken place, and also making a guide for the vibrating arm which is fixed to the burner, thereby insuring accuracy in its movement.

In the drawings, Figure 1 is a side elevation of a gas-burner with my improvements applied thereto, showing position of parts when the gas is shut off. Fig. 2 is a like elevation, showing the parts in position when the gas is turned on and just before the breaking of the circuit. Fig. 3 is a plan of Fig. 1. Fig. 4 is a plan of Fig. 2; and Fig. 5 is a detail view, showing a section of the gas-cock and an elevation of the vibrating arm, looking in the direction of the arrow in Fig. 3.

In the drawings, A represents an ordinary gas-burner, and B its cock, having a single port or passage to permit the flow of gas.

C is the vibrating arm, fixed loosely upon the stem of the cock, so as to have a partial revolution thereon.

D is an arm rigidly fixed upon the stem of the cock by riveting or other common fastening, and has attached to its extremity a cord or chain, *d*, by which means the cock may be turned to shut off the gas whenever desired.

To the arm C is attached a flexible arm, *c*, having the platinum point or electrode *c'*.

A flexible or spring arm, *a*, having a platinum point or electrode, *a'*, is secured to the

burner by a screw or other fastening at *a''* and insulated therefrom. From this flexible arm *a* a wire or other conductor, *b*, leads to a battery or other source of electricity. Upon the upper end of the burner near the tip is formed a cam, *e*, which throws the flexible arm *c* outward, when the same is carried up in the position shown in Fig. 2, and insures the withdrawal of the point *c'* from the point *a'*, thereby breaking the circuit.

F is a guide secured upon the burner at *f'*, but insulated therefrom, having a slotted arm, *f*, in which the flexible arm *a* moves and is properly guided.

Upon the burner A is a curb, *g*, surrounding the stem of the cock B, which curb is partly cut away, leaving an opening, as shown at *g'*. In this opening a stud, *h*, fixed in the gas-cock, traverses, and the curb thus limits the movement of the cock. A coiled spring, *i*, is fixed at one end to the curb and at the other end to a pin, *l*, on the arm C. This spring tends to carry the arm C to its position, as shown in Fig. 1.

Upon the arm C is fixed a pin, *n*, which engages with the stud *h*, so that when the arm C is operated by the cord *m* to light the gas the cock is also carried round to its opened position to allow the gas to flow. When the cord is released the spring retracts the arm C until it is stopped by the pin *n* coming in contact with the edge of the curb, as shown in Fig. 5. The arm C does not affect the cock in its backward movement; but when it is desired to shut off the gas it is necessary to pull the cord *d*, which carries the arm D to the position shown in Fig. 1.

The operation is as follows: The parts being in the position shown in Fig. 1, pulling the cord *m* moves arm C; its pin *n*, engaging with stud *h* of the gas-cock, opens it and permits the flow of gas. By the same movement the flexible arm *c* is carried upward. Its point *c'*, striking point *a'*, closes the circuit, and both are carried into the flowing gas. When the arm reaches the limit of its movement and stops the point *c'* has wiped across the point *a'*, breaking the circuit and causing the spark to pass, thus lighting the gas.

I am aware that it is not new to employ two points which return to their normal positions

out of the flame after the operation of lighting. I therefore lay no claim thereto in this specification. By my construction the gas-cock B and the arms *c* and C are so connected that the  
5 movement of the arm C and the cock B causes the movement of the arm *c*, and by a single operation the gas is turned on and lighted, after which both points move away and remain out of the flame. The gas is turned out by pulling  
10 cord *d*, attached to arm D, which carries said arm down from the position shown in Fig. 2 to that shown in Fig. 1.

Having thus described my invention, what I claim is—

- 15 1. The burner A, provided with cam *e*, in combination with the vibrating arms *a* and *c*, having points *a'* and *c'*, the combination being and operating substantially as described.
2. The burner A, having the flexible spring-

actuated arm *a*, attached thereto, in combination with the arm C, having the flexible arm *c*, adapted to carry forward the arm *a* into the field of the flame, and a retracting-spring attached to the arm C, which returns the said arm, together with its attachments, to first position, substantially as described.

3. The burner A, having attached thereto the slotted guide F, in combination with the flexible vibrating arms *a* and *c*, the combination being and operating substantially as described.

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

OSMON S. ARMSTRONG.

Witnesses:

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