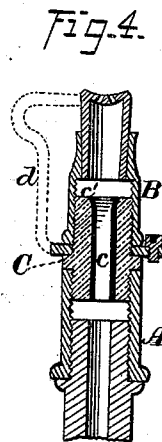
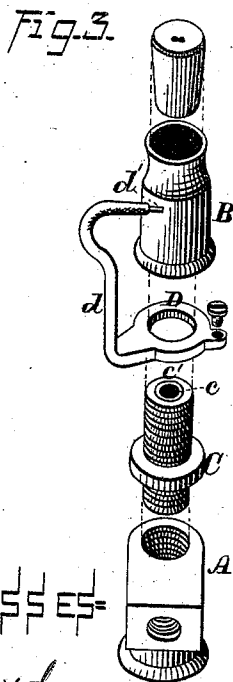
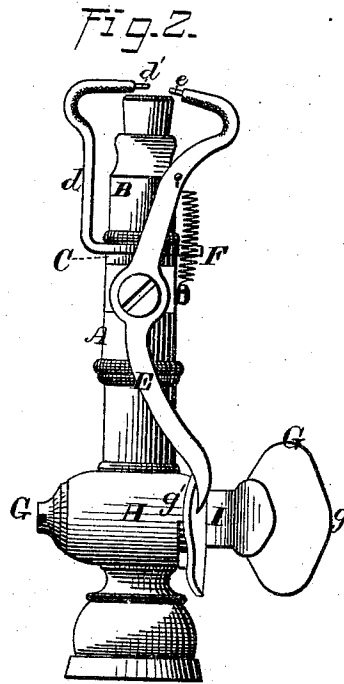
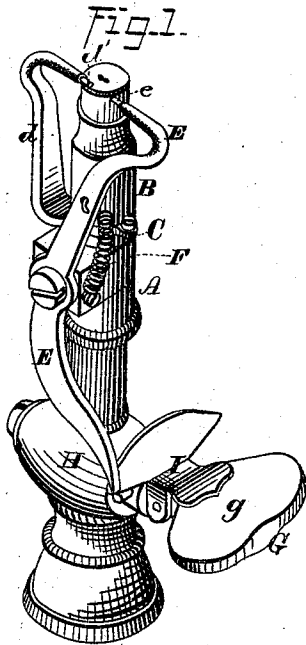


A. L. BOGART.

ELECTRIC GAS LIGHTING APPARATUS.

No. 177,459.

Patented May 16, 1876.



WITNESSES-

Jas. C. Hutchinson.
 John R. Young

INVENTOR-

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 Prindle & Co., his Attys

UNITED STATES PATENT OFFICE

ABRAHAM L. BOGART, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRIC GAS-LIGHTING APPARATUS.

Specification forming part of Letters Patent No. **177,459**, dated May 16, 1876; application filed March 20, 1876.

To all whom it may concern:

Be it known that I, ABRAHAM L. BOGART, of New York city, in the county of New York, and in the State of New York, have invented certain new and useful Improvements in Apparatus for Lighting Gas by Electricity; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved mechanism as applied to a gas-burner, the tap being closed. Fig. 2 is a side elevation of the same, with said tap open. Fig. 3 is a perspective of the parts of said burner and mechanism separated from each other; and Fig. 4 is a vertical central section of the tube, showing the means employed for insulating the burner from the tube.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the efficiency and durability of mechanism employed for igniting gas by means of electricity; and it consists, principally, in the peculiar construction of the mechanism employed for operating the vibrating arm, by means of which said arm may be brought into or released from contact with the fixed arm at will, so as to close or open the electric circuit, substantially as is hereinafter specified. It consists, further, in the means employed for strengthening the insulating-section, substantially as and for the purpose hereinafter shown. It consists, finally, in the construction of the fixed arm and its combination with the burner, substantially as and for the purpose hereinafter set forth.

In the annexed drawings, A represents the lower section of my burner, which has a general cylindrical form, and at its upper and lower ends is threaded interiorly, as seen in Fig. 4. The upper section B has any usual form at its upper end, while its lower end is threaded interiorly, to correspond with the upper end of the section A, and said sections are connected together by means of a plug, C, that is constructed from ivory, rubber, or other substance which is a non-conductor of electricity, and has its ends reduced in diameter, and threaded exteriorly, to enable them to fit into the ends of said sections. A cen-

tral longitudinal opening, *c*, is provided in and through the plug or insulator C for the passage of gas, which opening is, preferably, lined with metal *c'*, as seen in Fig. 4. Between the lower end of the upper section B and the insulator C is placed a collar, D, from one edge of which extends upward an arm, *d*, that, near its upper end, curves outward, upward, and then horizontally inward, and terminates in a point, *d'*, (preferably platinum,) which occupies near the orifice *b* of said section B, and in exact range with the gas when the latter is permitted to escape therefrom. Pivoted upon one side, at the upper end of the section A, is a bar, E, which has the form shown in Fig. 2, and at its upper end is the counterpart of the arm *d*, and terminates in a platinum point, *e*, that, by the vibration of said bar, may be brought into or removed from contact with the point *d'*. A spiral or other spring, F, secured at one end to or upon the side of the section A in rear of the pivotal bearing of the bar E, and at its opposite end to said bar between said bearing and its upper end, causes said bar to maintain the position shown in Fig. 2—out of contact with the arm *d*—except when moved therefrom by the following-described means: The lower end of the bar or vibrating arm E extends downward upon one side of the plug G of the stop-cock H, and terminates at a point upon a line with the upper side of said plug. Pivoted or hinged upon the upper side of the plug G (when closed) is a lever, I, which, in side elevation, has the form of a right angle, as shown in Fig. 2. The horizontal portion of the lever I has such dimensions as to enable it to be pressed by the thumb of the operator as he grasps the end *g* of the plug G, while the vertical portion of said lever has the form, in front elevation, of a section of a circle, of which the axis of said plug is the center.

The lever I is capable of oscillation upon its pivotal bearing; but such motion is limited in one direction by the contact of its horizontal portion with the end of the plug G, and in an opposite direction by the contact of its vertical portion with an inclined shoulder, *g'*, formed upon said plug in rear of said lever. The lower end of the vibrating arm E bears against the outer face of the vertical portion

of the lever I, and, while occupying its normal position, presses said lever to the limit of its rearward movement; but if the latter be moved in an opposite or outward direction, said vibrating arm will be moved upon its pivotal bearing until its point *e* will impinge upon the point *d'* of the fixed arm *d*. Circumferentially the vertical or cam portion of the lever I has such shape as to prevent it from moving the vibrating arm sufficiently to cause its point to impinge upon the point of the fixed arm when the plug is closed; but as the latter is turned to permit gas to flow, the shape of said cam portion changes, so that at any time thereafter said points may be brought into contact by the depression of the outer horizontal portion of said lever. Upon releasing the lever from pressure the spring F will cause the same and the arm E to return to their normal positions. If, now, one wire of an electric battery is connected to or with the fixed arm D, the effect of contact between the points *d'* and *e* will be to close the circuit and cause a flow of electricity, while by the separation of said points the circuit will be broken and a spark produced. This result may be produced by causing the operator to grasp the lever and plug at the same instant, and release the former when said plug is fully turned; or the latter may first be adjusted and said lever afterward manipulated, so as to produce a spark. If, from any cause, the first spark fails to ignite the gas, any desired number of sparks may be produced without change of adjustment of the plug; but while such is true, it is impossible that the circuit should remain closed, so as to waste

the electric fluid, except when the operating-lever is held in a depressed position by the operative.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the vibrating arm E, the means employed for moving the same so as to cause its point *e* to impinge upon the point *d'* of the stationary insulated arm *d*, consisting of the pivoted cam-lever I, arranged with its vertical portion in engagement with the lower end of said arm, substantially as and for the purpose specified.

2. In combination with the opening *c* of the insulator C, constructed of or from ivory, rubber, or other like material, the metal pipe or tube *c'*, fitted into and forming a lining for said opening, substantially as and for the purpose shown and described.

3. In combination with the burner described, the fixed arm *d*, provided with an annular collar, D, which collar is contained between the contiguous ends of the burner-section B and the insulator-section C, and operates to secure said arm in position with relation to said burner, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 11th day of March, 1876.

ABRAHAM L. BOGART.

Witnesses:

MORTIMER I. ENNIS,
WM. H. RIBLET.