

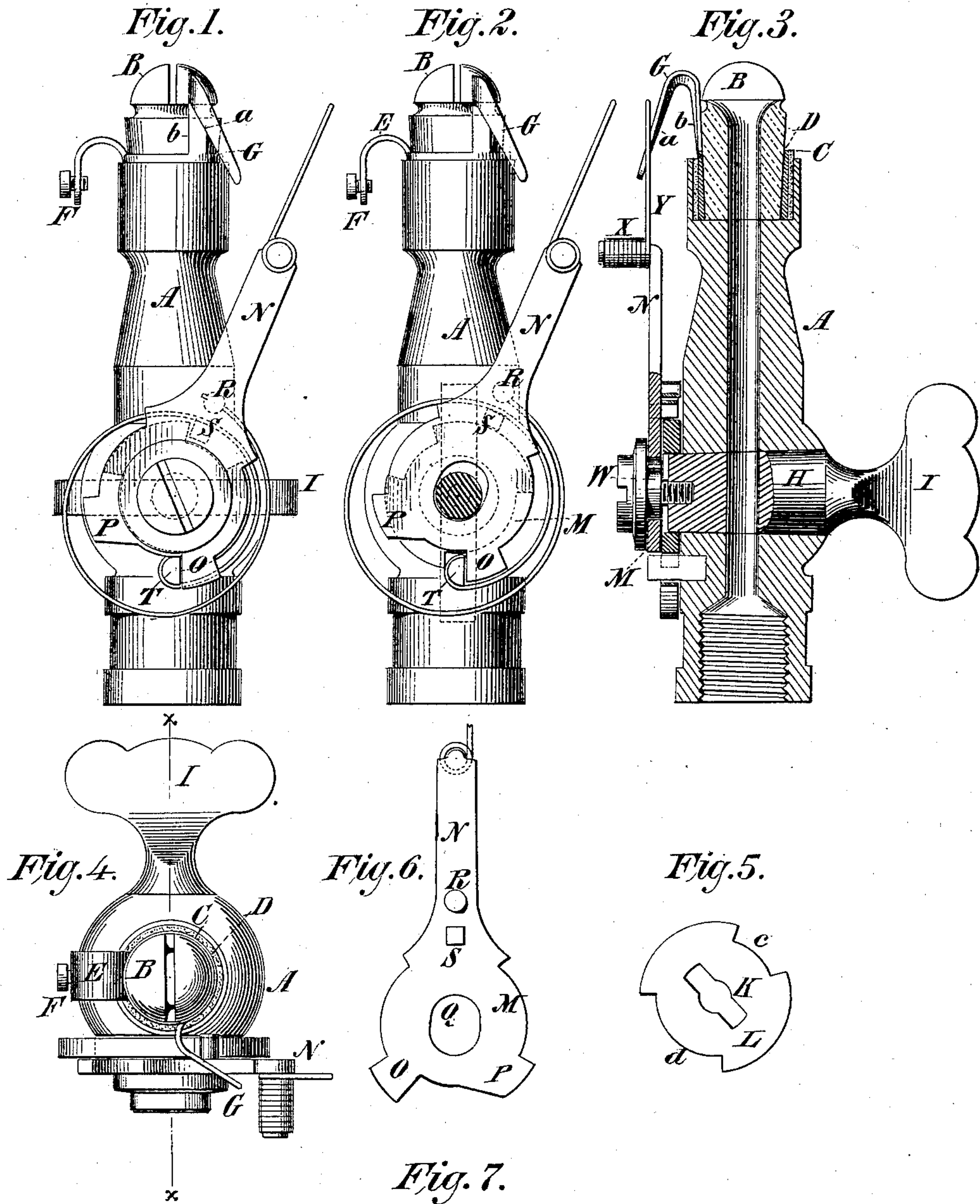
(No Model.)

J. A. NORTON.

ELECTRIC GAS LIGHTING APPARATUS.

No. 315,056.

Patented Apr. 7, 1885.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## ELECTRIC GAS-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 315,056, dated April 7, 1885.

Application filed March 18, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. NORTON, of Brookline, Norfolk county, Massachusetts, have invented a new and useful Improvement in Electric Gas-Lighting Apparatus, of which the following is a specification.

The invention relates to a thumb-cock gas-burner in which the turning of the cock by the key admits the flow of gas to the escape-orifice, and simultaneously causes the making and breaking of contact between electrodes located near said orifice, thereby producing sparks which ignite the gas.

The invention consists in the mechanism for actuating the movable electrode and in the construction of the fixed electrode, as more particularly hereinafter set forth.

In the accompanying drawings, Figure 1 is a front elevation. Fig. 2 is the same with the head of the fastening-screw removed. In Fig. 1 the parts are shown in their relative positions with the gas turned off. In Fig. 2 the positions of the parts are those which they assume when the gas is turned on. Fig. 3 is a longitudinal section on the line *xx* of Fig. 4. Fig. 4 is a plan view. Figs. 5, 6, and 7 are details.

Similar letters of reference indicate like parts.

A is the burner-pipe; B, the burner-tip, preferably of insulating material. The pipe A is recessed at its upper end to receive the tip B, and is lined interiorly with a layer, C, of asbestos or other non-conducting substance. D is a band or ring, of metal or other conducting material, inserted in the end of the pipe A and receiving the tip B. To this ring D is attached or upon it is formed a projection, E, which is bent over and provided with a set-screw, F, for the attachment of a terminal of the circuit-wire. Also attached to or formed upon said ring or band D is the fixed electrode G, which is of the shape shown—that is, bent over, and when so bent having the adjacent edges *a b* of the standing and bent parts brought nearer together on one side than the corresponding edges of said parts on the other side. The purpose of this construction is hereinafter explained.

H is the gas-cock, which is seated in the body of the burner-pipe, and is provided at one end with a key, I. On the opposite extremity of said cock is formed a central screw-threaded aperture, and on each side thereof a lug, J. The lugs J enter the end portions of a slot, K, formed in a recessed disk, L. (Shown separately in Fig. 5.) Said disk L is thus supported on the end of the gas-cock, and when said cock is turned by means of its key I the disk L is turned with it.

M is a cam-plate. (Represented separately in Fig. 6, which is a rear view.) It is provided with an upwardly-extending arm, N, a projection, O, on its lower side, and an inclined or cam-shaped projection, P. It also has a central elongated slot, Q, a pin, R, and a square-shouldered stop or projection, S, all of these parts and their several positions being clearly shown in Fig. 6.

T is a pin projecting from the side of the burner-pipe. This pin forms one abutment or point of attachment of the coiled spring U, the other end of which is connected to the pin R on the arm N.

V is a screw having a broad head, and just inside the head, and rigidly attached thereto or combined therewith, a disk, W.

The parts now described are assembled in the following manner: The gas-cock H is inserted in its seat. To the end of said cock is applied the recessed plate L, Fig. 5, the lugs J on the end of the cock entering the slot K, as already noted. Outside the plate L is applied the cam-plate M. The square pin or projection S on said plate then enters a recess, *c*, formed on the edge of the plate L, and the pin T on the burner-pipe comes in another recess, *d*, also formed on the edge of said plate. The screw V is inserted so that it passes through the slot Q in the cam-plate M, through the central portion of the slot K in the plate L, and into the tapped hole in the end of the gas-cock H. The disk W on the screw then falls in the slot Q of the plate M, and serves as the pivot on which said plate oscillates.

The operation of the device is as follows: The position of parts being as shown in Fig. 1—that is, with the gas turned off and the key I



standing crosswise the pipe—the key is turned toward a vertical position. By the turning the cock the plate L is also turned, and the shoulder of the recess *c* in said plate meets the square pin S on the plate M, and the plate M is thus rotated. The arm S is thus carried toward the fixed electrode G. On the end of the cam S is a coiled spring, X, having a contact-point, Y. This point then moves between the straight and bent-over portion of the electrode E, wipes across the inner side of said bent-over portion, and finally breaks contact therewith. The rotating of the gas-cock, as described, admits the flow of gas to the escape-orifice, and the contact and separation of the point Y and electrode F produce sparks, the electric circuit passing from the electrode E to the point Y, and thence to the burner-pipe and ground. The sparks ignite the gas. The rotary movement of the cock and cam-plate M continuing in the same direction, the cam-shoulder P meets the fixed pin T on the gas-burner, and is forced upon said pin. By reason of the inclination of the shoulder P the plate M is lifted bodily. This is permitted by the elongated slot G in its central portion, which allows the plate M to slide on its pivot W. The rising of the plate M causes the catch-pin S thereon to be moved over the shoulder of the recess *c* on the plate L, and to rest upon the circumference of said plate, as shown in Fig. 2. The spring U is then free to act upon the plate M and to draw it back to its normal position. On the return movement of said plate M the contact-point Y meets the outer portion of the bent part of the electrode E, and is thus pushed outwardly and clear of the frame.

To turn off the gas the key I is returned to its horizontal position, when the action of the spring moves the plate M downward, so that the pin S falls once more into the recess *c* of the plate L, and the apparatus is in the same condition as at the beginning of the operation.

It will be apparent that there are three steps in the operation of the apparatus: first, turning the gas-cock to admit the flow, and thereby moving the movable electrode into and out of contact with the fixed electrode between the parts thereof; second, carrying the movable

electrode backward independently of the gas-cock and outside the fixed electrode, which pushes it clear of the flame, this being done by the spring; third, turning off the gas by moving the cock backward independently of the movable electrode, and thus disposing the parts so that the spring can draw the electrode-carrying arm and its plate downward and back to their original position.

In other applications for Letters Patent filed simultaneously herewith, and serially numbered 124,603 and 124,606, I have set forth electric gas-lighting devices of analogous description to the foregoing. The inventions claimed in the aforesaid applications are hereby disclaimed.

I claim as my invention—

1. In an electric gas-burner containing a fixed and a movable electrode, the fixed electrode G, supported near the gas-escape orifice, and bent over and formed so that the adjacent edges of the standing and bent parts shall be nearer together on one side than the corresponding edges of the said parts on the other side, substantially as described.

2. In an electric gas-burner, the combination of a movable electrode having a yielding elastic contact-point, and mechanism for actuating said electrode receiving motion from the gas-cock, and a fixed electrode, G, supported near the gas-escape orifice, and bent over and formed so that the adjacent edges of the standing and bent parts shall be nearer together on one side than the corresponding edges of the said parts on the other side, substantially as described.

3. In an electric gas-burner, the combination of the burner-pipe A, cock H, a means of turning said cock, recessed plate L, secured to the end of said cock, cam-plate M, having elongated slot Q, projection O, cam-shoulder P, pins R S, and arm N, a contact-piece connected to the upper end of said arm, screw V W, pin T, spring U, and a fixed electrode supported on the burner near the gas-escape orifice, substantially as described.

JOHN A. NORTON.

Witnesses:

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