A. L. BOGART.

Electric Apparatus for Gas-Burners.

No. 209,016. **Patented Oct. 15, 1878.**

Fig. 1.

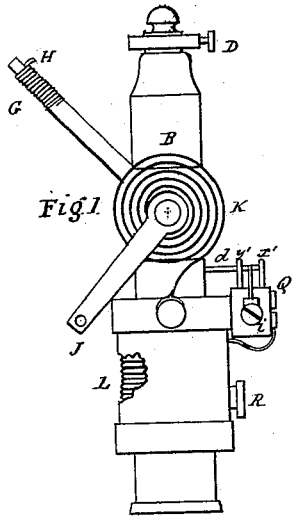


Fig. 2.

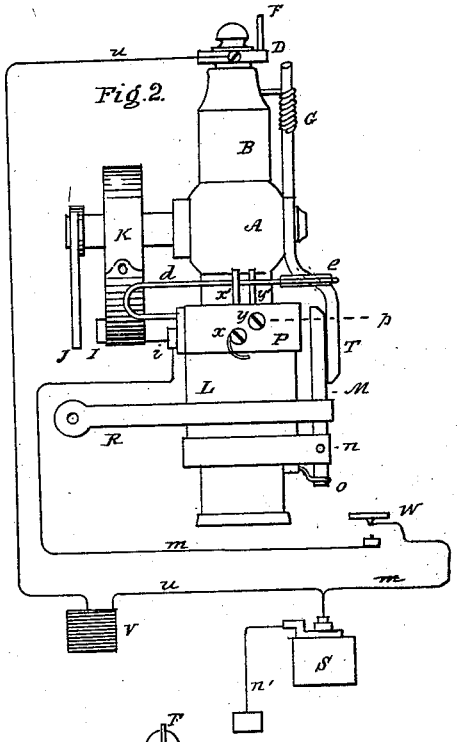


Fig. 4.

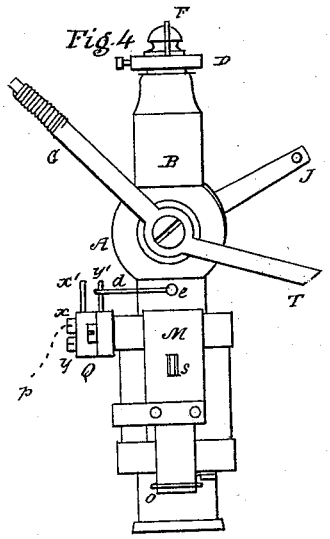
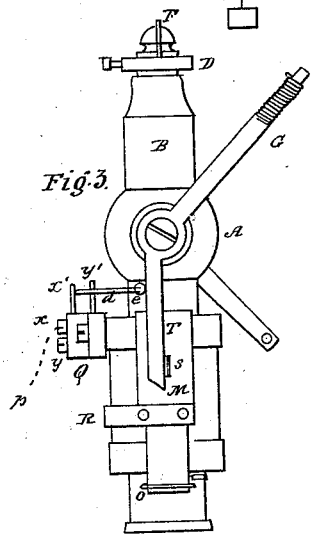


Fig. 3.



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UNITED STATES PATENT OFFICE.

A. LIVINGSTON BOGART, OF JAMAICA, NEW YORK, ASSIGNOR TO ABRAHAM L. BOGART, OF SAME PLACE.

IMPROVEMENT IN ELECTRIC APPARATUS FOR GAS-BURNERS.

Specification forming part of Letters Patent No. **209,016**, dated October 15, 1878; application filed January 14, 1878.

To all whom it may concern:

Be it known that I, A. LIVINGSTON BOGART, of Jamaica, in the county of Queens and State of New York, have invented an Improved Apparatus for Lighting and Turning On or Off Gas-Jets by Electricity; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification.

This invention relates to that class of gas-lighting apparatus in which any number of jets may be turned on and at the same time ignited by one movement of a switch, press-button, relay, or other circuit-closer, and, if desired, any one burner may be turned on and ignited singly by a lever upon that individual burner, the said burner, after such ignition, being automatically cut out of the circuit.

It consists in certain improved constructions and novel combinations of parts, hereinafter particularly described, by means of which the gas may be turned on and ignited or turned off simultaneously in any number of burners at a distance; or, if desired, any one of such burners may be lighted independently of the rest.

In the accompanying drawing, Figure 1 represents a front elevation of improved burner; Fig. 2, a side elevation of the same, showing one mode of connection with the battery and a circuit-closer; Fig. 3, a rear elevation; and Fig. 4, a rear elevation, the gas being turned on.

In Figs. 1, 2, and 3 the gas is turned off, and in Fig. 4 is turned on.

Similar letters of reference indicate the same parts in each of the figures.

A is an ordinary stop-cock, having a metallic pillar, B, provided with a lava gas-tip. Secured to this lava tip, and thereby insulated from the pillar B, is a metallic ring, D, provided with a metallic electrode, F.

G is an arm, rigidly secured upon the stem of the cock, and moving therewith, its movement being limited to an angle of about ninety degrees; and upon the upper end of this arm G is an elastic contact-point, H. Affixed to the stem of the cock and a stationary post, I, is a spiral ribbon-spring, K, coiled upon the said stem in such position that, the gas being turned off, the said spring on being brought into play will turn it on again, and at the same time carry the arm G forward, so that the two points make and break contact and produce a spark.

J is a lever, rigidly secured to the stem of the cock, for turning on or off the gas by hand. Upon the lower part of the burner, which is composed of cast or malleable iron, is wound a helix of insulated wire, L. An armature, M, is pivoted at *n*, and provided with a spring, *o*, which keeps it a short distance from P, and is provided also with a lever, R, and a catch, *s*, so that when the gas is fully turned off the prolongation T of the arm G will engage with the catch *s*, and prevent the spring K from turning on the gas until the armature M is moved to P, either by the attraction of the magnet L or pressure upon the lever R, and the said spring is thereby released.

Q is a block of hard rubber or other suitable insulating material secured to the base of the burner; and attached to it by the screw *i* is a metallic spring wire, *d*, provided with an insulating sleeve or covering, *e*, at its farther end. *x* and *y* are two insulated pins, connected, respectively, with the screws *x'* and *y'*.

When the gas is turned on, as in Fig. 4, the spring *d* rests against the pin *y*; but on turning off the gas the arm T encounters *e*, and presses the spring *d* against the pin *x*. One end of the wire forming the magnet L is connected internally with cast-iron core, and its other end is connected to the screw *x'*.

S may represent a battery, one terminal, *n'*, of which is connected to the ground or the gas-pipe, and the other divided into two circuits, one of which, *u*, first passing through a small resistance-coil, V, is thence carried along and attached to the screw in the ring D of each of the burners in circuit. The other circuit, *m*, is provided with a circuit-closer, W, of any suitable description, and thence runs to the screw or post I of the nearest burner, and is attached thereto.

In the normal condition of the apparatus the circuit-closer W is open and the burners turned off, as shown in Figs. 1, 2, and 3.

The operation of the apparatus is as follows: If the circuit at W be closed, the current will

travel along the wire *m* to the screw *i* through the spring-wire *d*, and, as it is prevented from reaching the ground by the insulation at *e*, will be conducted by the pin *x* into the magnet L and its connections to the gas-pipe, thus causing the magnet L to attract the armature M and withdrawing the catch *s* from the arm T; and the said arm being thus released, the spring K will rotate the stem of the cock A. As soon as the arm T is thus set in motion, the spring-wire *d* is released and moves away from the pin *x*, thus entirely breaking the circuit in the magnet L. By the rotation of the stem through the action of the spring K, as above described, the elastic contact-point on the arm G next makes contact with the fixed electrode F, and the current then passes from the battery S through the coil V, the wire *u*, the ring D, and fixed electrode F, and the elastic point and arm G to the gas-fixture and ground; and by the continued forward movement of the arm G the connection at F is broken and a spark produced, which ignites the issuing gas. Just before the arm G has reached its point of rest, as seen in Fig. 4, the spring *d* is arrested in its movement by the pin *y* making contact therewith; and from the screw *y'*, which is connected with the pin *y*, a connection, *p*, is made to the next burner in circuit, in which latter the same operations are repeated, and so on through the series of burners.

When the burners are all turned off any one of them may be lighted singly by pressing down the lever R and thus releasing the arm T, the spring *d* thereby breaking contact with the pin *x*, and thus cutting such burner out of circuit; but as the current can then pass from *i* through *d* and out at *y'*, the other burners in circuit are still in condition to be operated.

It is obvious that if the winds of the spring K were reversed the burners would then be in condition to be shut off by the circuit-closer W, instead of being turned on, as above described, having been previously turned on and lighted by means of the lever J.

This invention is more especially designed to be used in connection with burglar-alarms, and with city fire-alarm telegraphs. When used in connection with the former, connections are made to an electric burglar-alarm in such manner that upon the first tap of the bell which indicates the opening of a door or window the burner-circuit will be closed, thus turning on and igniting one or more burners in such parts of the building as have been prearranged to be lighted; and when used in connection with the latter, any predetermined number of burners at a fire-station will be turned on and ignited at the first stroke of the gong indicating the locality of the fire, thus avoiding delay in turning up lights and saving expense. It is also applicable for lighting signals on railroads, draw-bridges, &c.

A small battery only is required, as the power of the electricity is not employed for rotating the plug of the cock, as in previous devices of a similar character.

I do not claim as my invention the ring D, nor the elastic contact-point H on the arm G; nor do I claim, broadly, the spring K for operating the plug.

What I claim as my invention is—

1. The spring K, in combination with the catch *s*, the lever R, and the arms T and G, rigidly secured upon the stem of the cock, as and for the purpose set forth.

2. The combination of the magnet L, armature M, provided with the catch *s*, arm T, spring K, arm G, carrying the elastic contact-point, and the fixed electrode F, as and for the purpose set forth.

3. The combination of the insulating-block Q, the spring-wire *d*, insulated at its outer end, *e*, the stationary pins *x* and *y* and screws *x'* and *y'*, the spring K, the arm T, fixed upon the stem of the cock, and the magnet L, all arranged as described, to operate in the manner and for the purpose set forth.

4. In combination with the battery S, connecting-wires *m* and *u* and circuit-closer W, the spring K, arm G, carrying the elastic contact-point, arm T, magnet L, armature M, provided with the catch *s*, pins *x* and *y*, spring *d*, connecting-wire *p*, and fixed electrode F, all constructed and arranged substantially as described, to operate conjointly in the manner set forth.

5. The combination of the battery S, wire *u*, provided with a resistance-coil, V, and attached to the insulated ring D of each burner, wire *m*, provided with a circuit-closer, W, insulating-block Q, wire *d*, pins *x* and *y*, screws *x'* and *y'*, and magnet L, as shown and described, for the purpose of turning on and lighting the burners either singly or collectively, substantially as herein set forth.

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