

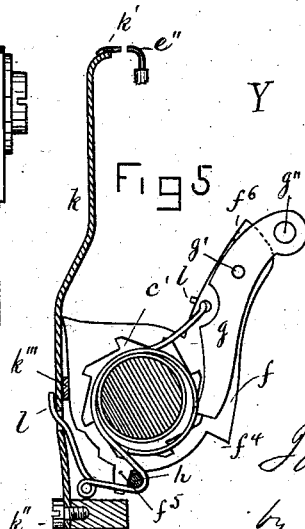
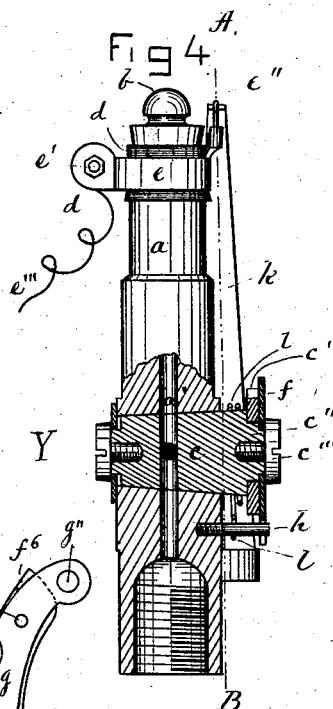
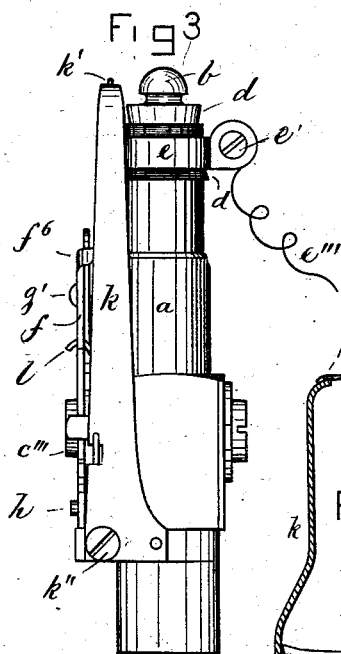
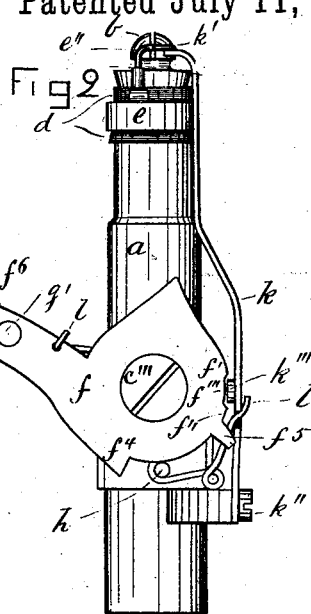
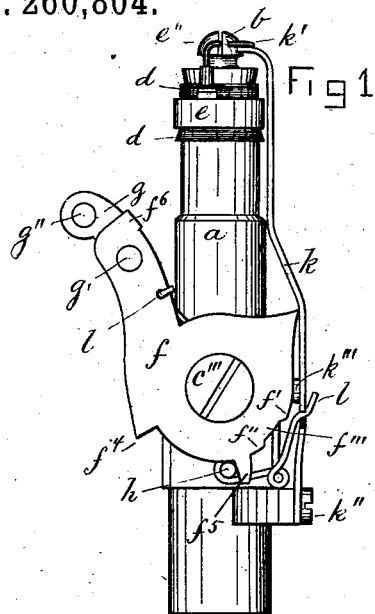
(No Model.)

J. P. TIRRELL.

ELECTRIC GAS LIGHTING APPARATUS.

No. 260,804.

Patented July 11, 1882.



Witnesses.

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UNITED STATES PATENT OFFICE.

JACOB P. TIRRELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE ELECTRIC GAS LIGHTING COMPANY, OF PORTLAND, MAINE.

ELECTRIC GAS-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 260,804, dated July 11, 1882.

Application filed January 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, JACOB P. TIRRELL, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Electric Gas-Lighting Apparatus; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention relates to improvements in electric gas-lighting apparatus, and it is carried out as follows, reference being had to the accompanying drawings, on which—

Figure 1 represents a front elevation of the invention. Fig. 2 represents a front elevation, showing the lever turned so as to bring the electrodes at the top of the burner in contact with each other. Fig. 3 represents an end elevation, seen from X in Fig. 1. Fig. 4 represents a longitudinal sectional elevation through the center of the gas-cock; and Fig. 5 represents a longitudinal section on the line A B, as seen from Y in Fig. 4.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a represents the burner, with its lava or other tip, *b*, at the top, as usual, and *c* represents the ordinary four-way stop-cock.

a' is the central perforation through the burner *a*.

d is a band of suitable insulating material placed around the top of the burner *a*, around which insulator is secured the metallic ring *e* by means of the screw *e'*.

e'' is a platinum point attached to and in metallic connection with the metal ring *e*, as shown.

e''' is a wire leading from a spark-coil and galvanic battery of any of the usual kinds.

To the forward end of the cock *c* is secured, or made in one piece with it, a ratchet-wheel or toothed wheel, *c'*, as shown.

Outside of the ratchet-wheel *c'* is a lever, *f*, loosely hinged on the shank *e''* of the cock *c*.

e''' is a screw screwed into the forward end of the gas-cock, and provided with a head, so as to prevent the lever *f* from getting detached from the cock *c* when the apparatus is in use.

g is a pawl hinged to the lever *f* at *g'*, and having its lower end adapted to engage with the ratchet-wheel *c'* to turn the gas-cock *c*, and to open it to allow the gas to pass out at the tip by turning the lever *f* to the position as shown in Fig. 2, which may be done by the pulling downward of the eye *g''* of the pawl *g*.

f' and *f''* are cam faces or projections on the lever *f*, between which projections is a recess, *f'''*, as shown.

h is a stop-pin secured to the burner *a*, and *f⁴* *f⁵* are stop-projections on the lever *f* to limit its throw when turned in either direction on its fulcrum.

k is a ground-connected lever having platinum point *k'* in its upper end, opposite the insulated platinum point *e''* at the tip of the burner. The lever *k* is hung to the burner *a* in its lower end by means of the set-screw *k''*, which latter serves as a fulcrum on which the lever *k* may rock slightly. The lever *k* is provided with a side projection, *k'''*, which rests against the cam-face *f'* when the lever *f* is in its normal position, as shown in Fig. 1.

l is a wire spring attached to stop-pin *h*, and having one of its free ends pressing on the outside of lever *k* or its projection *k'''*, and after passing round the cock *c* its other end is attached in a suitable manner to the upper end of the lever *f*.

f⁶ is a lip in the upper end of the lever *f*, which serves as a stop for the upper end of the pawl *g*, so as to prevent the lower end of said pawl from moving too far from the teeth of the ratchet *c'*.

The operation is as follows: The normal portions of the various parts are represented in Fig. 1, and the wire *e'''* is supposed to be in electrical connection with a suitable spark-coil and its electric battery, the projection *k'''* of the lever *k* being held by the influence of the spring-wire *l* against the cam-face *f'* and the electrode *k'* held away from the insulated electrode *e''*, as shown, the lever *f* being held by the influence of the spring *l* in such a manner that the stop-pin *h* serves as a stop against the stop-projection *f⁵* on said lever *f*. To turn on the gas and to light it, it is only necessary to pull on the eye *g''* of the pawl *g*, when its lower end comes in contact with the ratchet-wheel *c'*, and thereby

causes the cock *c* to be sufficiently open to allow the gas to pass out at the tip *b* of the burner, and with it the lever *f* is turned on its fulcrum *e''*, and when it reaches the position as shown in Fig. 2 the spring *l* forces the lever *k* inward, so that its platinum point *k'* comes in contact with the insulated electrode *e''*, and thus closes the circuit from the battery, the lever *k* and burner *a* serving as ground-connections. If, now, the lever *f* is turned a little farther, its cam-projection *f''* will force the lever *k* outward by coming in contact with the projection *k'''*, and thereby disconnect the electrode *k'* from the insulated electrode *e''*, causing a spark to pass between them in breaking the circuit. By letting go the hold of the pawl-eye *g''* the electrodes *k' e''* are again brought in contact and again disconnected by the contact of projection *f'* with lever-projection *k'''*, causing the circuit a second time to be broken and a second spark to pass between the electrodes *e'' k'*, and this return to the normal position of the lever *f* is done by the influence of the wire spring *l*, during which return motion of the lever *f* its pawl *g* passes freely by the teeth of the ratchet-wheel *c'*, leaving the cock open and the gas burning. The gas is extinguished and the cock closed by pulling down the lever *f* in the same manner as by lighting it, when it remains closed until the lever *f* and pawl *g* are again operated, as above described.

Heretofore electric gas-lighting apparatus have been made with a lever on the gas-cock and a pawl jointed to said lever, which pawl, by the influence of a spring acting directly on it, is caused to engage in the teeth of a ratchet-wheel on the stop-cock when the lever is pulled down; but such is not my invention, as I em-

ploy instead a loosely-hinged pawl, *g*, hinged to the lever *f*, supported loosely on the gas-cock spindle *e''*, and the cock *c* is turned by manipulation of the said pawl *g*, causing its lower end to act on the ratchet-wheel *c'*, and thus to turn the gas-cock for the admission of gas to the top of the burner.

I am aware of the patents granted respectively to Sanford, September 14, 1880, No. 232,304, and to Tirrell, July 16, 1878, No. 206,057, and I desire to state that I do not claim combinations and arrangements as there shown and described; but

What I wish to secure by Letters Patent, and claim, is—

1. In a gas-lighting apparatus, the combination of burner *a* and insulated electrode *e''*, lever *f*, pawl *g*, ratchet-wheel *c'*, spring *l*, surrounding the stop-cock and acting in one end on lever *f* and in the other on lever *k*, the lever *k*, and its electrode *k'*, as described.

2. In a gas-lighting apparatus, the combination of lever *f*, pawl or lever *g*, and spring *l*, surrounding the stop-cock and acting in one end on lever *f* and in its other end on lever *k*, as described.

3. In a gas-lighting apparatus, the lever *f*, with its cam-faces *f' f'' f'''*, in combination with lever *k*, its projection *k''*, and the spring *l*, surrounding the stop-cock and acting in one end on lever *f* and in its other end on lever *k*, as set forth and described.

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

JACOB P. TIRRELL.

Witnesses:

ALBAN ANDRÉN,

HENRY CHADBOURN.