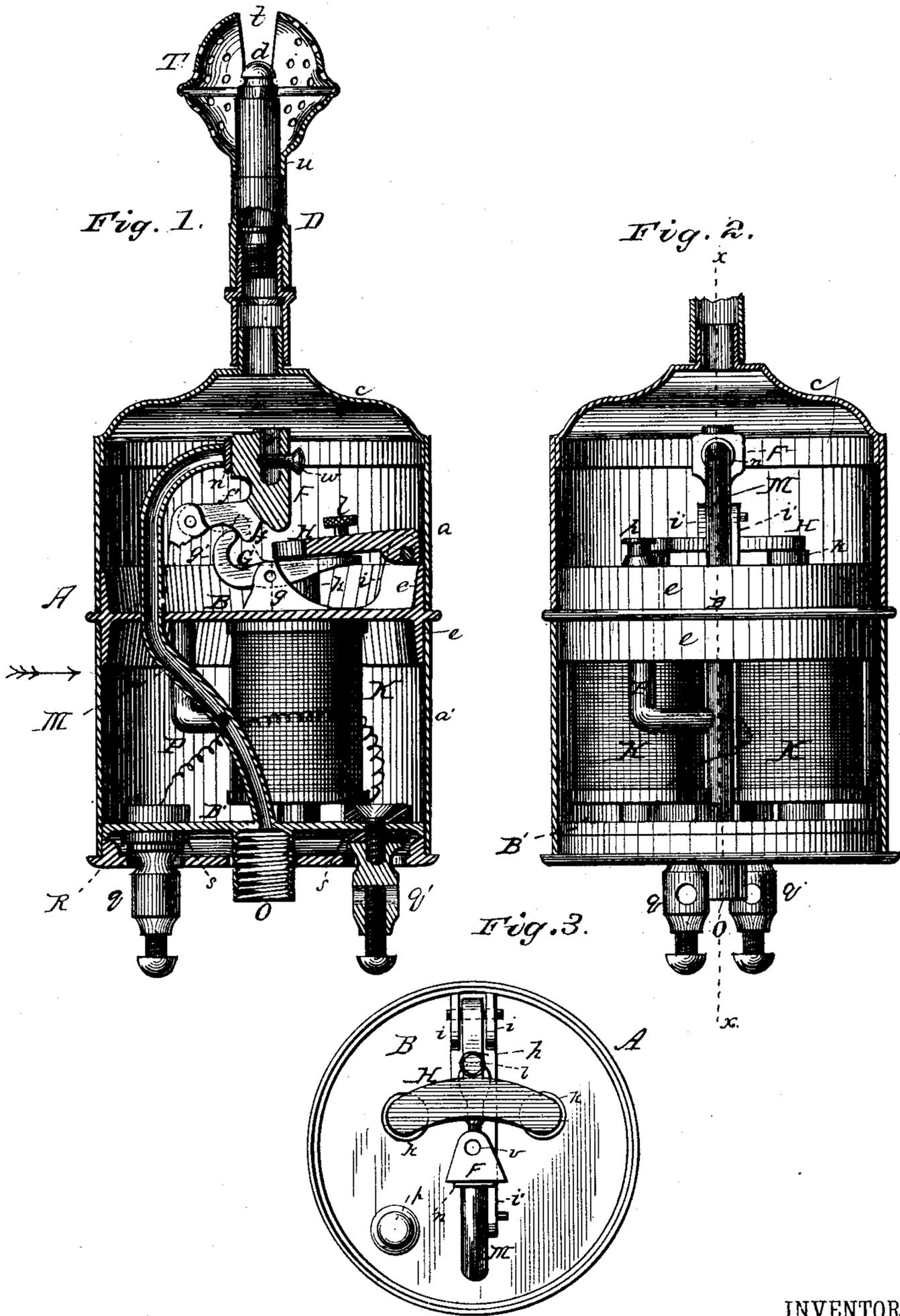


(No Model.)

W. D. SCHOOLEY.
ELECTRIC GAS LIGHTER.

No. 258,136.

Patented May 16, 1882.



WITNESSES:

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WILSON D. SCHOOLEY, OF RICHMOND, INDIANA.

ELECTRIC GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 258,136, dated May 16, 1882.

Application filed April 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILSON D. SCHOOLEY, a citizen of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Electric Gas-Lighters, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to simplify and render reliable in operation that class of electro-magnetic apparatus constructed for turning on and off the supply of gas for gas-burners; and it consists in certain novel combinations of devices, which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of an apparatus constructed according to my invention, taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a side elevation of the interior mechanism of the apparatus viewed in the direction of the arrow in Fig. 1, the casing being shown mainly in section. Fig. 3 is a plan view of the apparatus with the upper section of the casing and the burner removed.

The letter A designates the casing, which is divided by a horizontal partition, B, into two compartments, which are inclosed by upper and lower sections, *a* and *a'*, of the casing, respectively, the upper section being provided with a removable top, *c*, which carries the burner D. The two sections of the casing are coupled by being fitted around flanges *e e*, which project in opposite directions from the partition B. The upper compartment of the casing is a gas-chamber, and contains the gas-valve F, its operating-lever G, and the armature H, which is carried by an arm, *h*, pivoted to short standards *i i*, projecting from the partition B. This armature is arranged to be attracted by the cores *k k* of an electro-magnet, K, which is arranged in the lower compartment of the casing, these cores projecting through apertures in the partition B. Through the arm *h* is arranged an adjustable screw, *l*, the tip of which bears upon the adjacent arm of the lever G, and said screw may be adjusted to regulate the throw of said lever by the downward movement of the armature. The lever G is fulcrumed upon a standard, *g*, fixed upon the partition B, and is provided with an upwardly-

curved arm, *g'*, the tip of which impinges upon a cam, *f*, which projects downwardly from an arm, *f'*, which carries the gas-valve F, this arm *f'* being pivoted between standards *i' i'*, secured to the partition B.

The letter M designates a gas-delivery tube, which rises from the center of the bottom plate proper, B', of the lower compartment of the casing, passes upward through the partition B, and terminates thereabove at a proper point and in position to have its upper end opened and closed by the valve F, which is provided with a facing, *n*, of leather, rubber, or similar material, to form a close gas-tight joint when it is pressed against the end of the tube.

Surrounding the opening at the lower end of the pipe M is a screw-nipple, O, adapted for connection to a gas-pipe.

From the tube M a branch tube, P, leads into the upper chamber of the casing, and is provided with a screw-cap, *p*, which may be adjusted more or less closely upon the end of the tube P to allow a sufficient quantity of gas to pass to the burner to feed a small flame or taper at the burner when the tube M is closed by the valve F.

The bottom B' of the lower compartment of the casing forms also the connecting-yoke of the two cores *k k* of the magnet K, and to this bottom are secured, but insulated therefrom, the two binding-posts *q q'*, which are connected, in the usual manner, with the coils of the electro-magnet K, and serve to connect said coils with the line-wire. The coils of the magnet, it will be observed, are located entirely within the lower compartment of the casing, and the partition B is rendered gas-tight. By this means the gas is prevented from coming in contact with the insulation of the wire which forms said coils, and depositing upon it a moist condensed vapor, which would soon so impair the insulation that the magnet would become inoperative.

Below the bottom B', I provide the casing with a removable cap-plate, R, having openings for the passage of the binding-posts and the nipple O, this cap-plate being for the purpose of guarding the bottom of the casing from accumulations of ice and snow, which would injure the insulating-buttons *s s* of the binding-posts, and also form crosses between

the binding-posts. This plate, besides, forms a neat finish for the lower end of the casing.

Around the tip *d* of the burner D, I arrange a perforated shell or guard, T, having a flame-opening, *t*, and a collar, *u*, which fits snugly around the burner to hold the guard in place. This guard, while permitting free access of air to the flame, so breaks the force of the wind that the small taper or flame left burning to insure the ignition of the main gas-supply will not be blown out.

By making the top *c* of the casing removable I have ready access to the movable parts of the apparatus for the purpose of adjusting or repairing, and by making the two main walls of the casing separable I attain great convenience in arranging and securing the internal parts in proper position in their respective chambers.

I preferably provide the valve F with a small cavity, as shown at *v*, in its top, in which I may place small weights—such as gun-shot—to insure the prompt falling of the valve by gravity; or I may use the counterbalance-screw *w* alone for regulating the opening of the valve. Any or all the moving parts may be retracted by springs after being moved positively.

The operation of my invention is as follows: When the circuit is closed and an electric current is flowing over the line-circuit the cores of the magnet K will attract their armature, and the tip of the adjustable screw *l* will force downward the adjacent end of lever G, causing the curved end of said lever to rise and its tip to act upon the cam *f* in such manner as to raise the arm *f'* and cause the valve F to close the end of the tube M, so that no gas can escape therefrom, except through the branch tube P, for the purpose heretofore explained. When the main-line circuit is broken, the armature H will be released and the valve F allowed to fall, opening the end of the tube M, so that a full supply of gas will flow into the gas-chamber, and thence to the burner to be ignited by the taper.

I do not confine myself to the branch tube P for supplying the taper, as the adjustable screw *l* may be so arranged that when the circuit is closed the valve F will allow just sufficient gas to escape to supply the taper; or I may form a notch in the end of the tube.

Instead of using a taper, I may use any of the known electrical means for igniting the gas at the burner, and in such case will dispense with the branch tube and arrange the valve to be closed tightly when the circuit is closed.

I find it preferable to have the valve closed when the circuit is closed and to open automatically when the circuit is broken, for then there is no danger that accidents to the line-

wire or imperfect operation of a battery will cause the extinguishment of the lights.

The perforated guard which I have shown and described as surrounding the tip of the burner I intend to make the subject of a separate application for Letters Patent.

I of course do not confine myself to the precise details of construction shown and described; but

What I claim is—

1. The combination, with the gas-tube M, of the valve F, carried by the arm *f'*, having cam *f*, the lever G, arranged to act upon the cam of said arm, the armature arranged to actuate said lever, and the magnet arranged to control said armature, substantially as specified.

2. In an apparatus for turning on and off the supply of gas to a burner, the casing having two compartments, one of which is a gas-chamber connected with a burner and divided from the other chamber by a gas-tight partition, in combination with a gas-supply passage opening into said gas-chamber, a gas-valve located in said chamber and arranged to open and close said passage, an armature arranged also in said gas-chamber to operate said valve, and an electro-magnet arranged in the other chamber, and having its poles projecting into the gas-chamber through the partition for operating said armature, substantially as described.

3. The casing having two compartments, the upper of which is divided from the lower by a gas-tight partition, the upper compartment containing the gas-valve, and the lower compartment containing an electro-magnet for operating said valve, the bottom plate of said lower compartment having the core or cores of the electro-magnet secured directly thereto, substantially as described.

4. The casing having the two chambers inclosing the parts of the apparatus and composed of the separable sections, combined with a gas-tight partition, substantially as described.

5. The combination, with the casing having the bottom B' supporting the binding-posts, of the cap-plate R, having passages for said posts, substantially as described.

6. The combination, with the gas-tube M, of the valve F, carried by arm *f'*, the lever G, arranged to act upon said arm, the adjustable armature arranged to actuate said lever, and the magnet arranged to control said armature, substantially as described.

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

WILSON D. SCHOOLEY.

Witnesses:

W. B. HALE,
PHIL. W. HALE.