

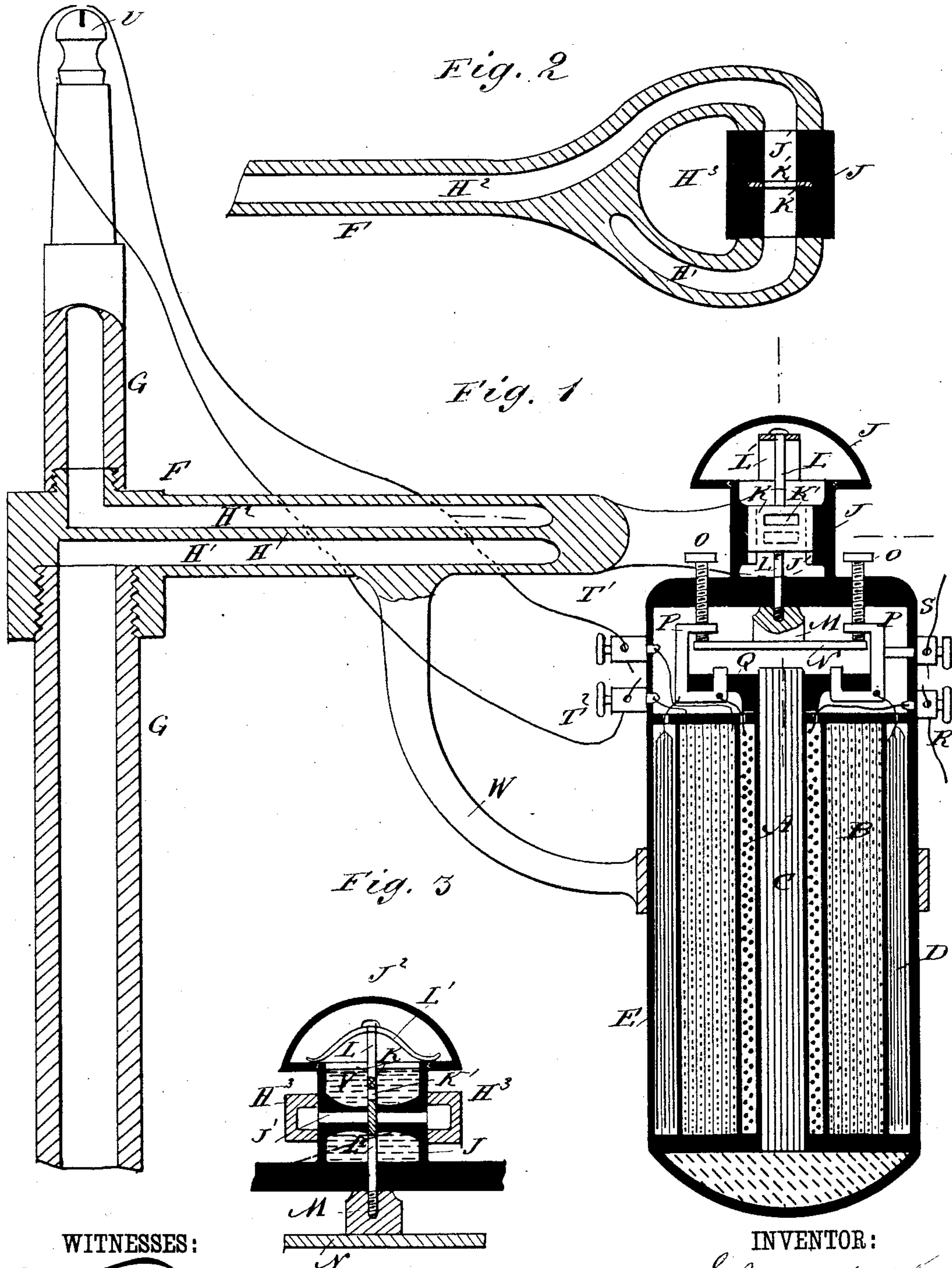
(No Model.)

G. J. MURDOCK.

ELECTRIC GAS LIGHTING DEVICE.

No. 245,545.

Patented Aug. 9, 1881.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE J. MURDOCK, OF BINGHAMTON, NEW YORK.

## ELECTRIC GAS-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 245,545, dated August 9, 1881.

Application filed June 24, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE J. MURDOCK, of Binghamton, in the county of Broome and State of New York, have invented a new and Improved Electric Gas-Lighting Device, of which the following is a full, clear, and exact description.

The object of my invention is to facilitate lighting the street gas-lamps from a central station or from the gas-works.

The invention consists in a sliding valve or cut-off controlling the supply of gas to the burner, which valve is attached to the armature of an induction-coil contained in a casing and supported on the end of a hollow arm, through which the gas passes before reaching the burner. Wires lead from the poles of the coil to the opposite sides of the slot of the burner, and when the circuit is closed the gas-valve or cut-off is opened, permitting the gas to pass to the burner, when it is ignited by the spark caused by the interruption of the circuit.

The invention further consists in an air-tight seal formed of mercury contained in a neck above one end of the coil, and in which the valve or cut-off is contained.

In the accompanying drawings, Figure 1 is a longitudinal section of my improved gas-lighting device. Fig. 2 is a horizontal sectional view of the arm carrying the induction-coil. Fig. 3 is a cross-sectional elevation of the cup on the top of the coil.

An induction-coil composed of the primary coil A, the secondary coil B, and having a core, C, and a condenser, D, is contained in a casing, E, suspended from the end of a hollow arm, F, projecting from the gas-pipe G. This arm is provided with a partition, H, dividing this arm into two channels, H' and H<sup>2</sup>, which are united to one in the outer forked end, H<sup>3</sup>, of the arm F. The inner end of the channel H' is in communication with that part of the gas-pipe G below the arm F, and the inner end of the channel H<sup>2</sup> is in communication with that part of the pipe G above the arm F. The casing E is provided with a neck, J, with a transverse aperture, J', which establishes a connection between the outer ends of the channels H' and H<sup>2</sup>, this neck fitting in between the forked end H<sup>3</sup> of the arm F. A plate, K, with an aperture or slot, K', of the same cross-

section as the aperture J', slides vertically in the neck J and extends across the aperture J', as shown. This valve or slotted plate K is attached to a rod, L, provided at its upper end with a spring, L', resting on the neck J and drawing the valve K upward. The neck J is surmounted by a cap, J<sup>2</sup>. The lower end of a rod, L<sup>2</sup>, attached to the lower edge of the valve K, is attached to the insulating-block M, fastened to the armature N of the core C of the coil. This armature can be adjusted by means of the screws O passing through the upper end of the braces P, attached to a vulcanite block, Q, surrounding the upper end of the core C. The positive wire from the battery or preceding apparatus is attached at R and the negative wire at S. T' and T<sup>2</sup> are the wires leading from the secondary coil B to the burner U. The neck J is filled with mercury V, which forms a close seal for the valve K and prevents loss of gas. The arm W of the arm F serves to brace and hold the casing E.

The operation is as follows: As shown, the supply of gas is cut off from the burner. If the gas is to be lighted, the electrical circuit is closed at the central station or at the gas-works. The current through the binding-screw at R passes through the primary coil A, thereby magnetizing the core C, which attracts the armature N, breaking the circuit at the ends of the screws O O, which pass through the braces P, and as the armature rests against the lower ends of these braces (when drawn down by the core C) the circuit is again completed; but by this movement of the armature N the valve K has been drawn downward, thus permitting the gas to pass to the burner U. A spark is produced at the burner every time the circuit is broken; but the first spark cannot ignite the gas, as the valve K has not yet been opened. Therefore the circuit is broken for an instant—that is, one or two seconds—after the circuit has been closed for the first time, so that the spark produced can ignite the gas. As long as the circuit is closed the gas can pass to the burner; but as soon as the circuit is opened the core C loses its magnetism and the spring L' draws the valve K upward.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an electric gas-lighting device, the combination, with the gas-pipe G, of the hollow arm F, divided into channels H' H<sup>2</sup> by the partition H of an induction-coil supported in casing E, the armature N, rod L, valve K, and spring L', and of wires leading to the gas-burner, substantially as herein shown and described, and for the purpose set forth.

2. In an electric gas-lighting device, the combination, with an induction-coil, of the core C, the insulating-block Q, the braces P, the armature N, and the adjusting-screws O O, substantially as herein shown and described, and for the purpose set forth.

3. In an electric gas-lighting device, the combination, with an induction-coil, of the casing

E, the neck J, provided with an aperture, J', the channels H' H<sup>2</sup> of the arm F, the valve K, the spring L', and the armature N, substantially as herein shown and described, and for the purpose set forth.

4. In an electric gas-lighting device, the neck J of the casing E, constructed substantially as herein shown and described, with a transverse channel, J, and a chamber for containing mercury above and below the channel, in combination with the sliding valve K, as set forth.

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Witnesses:

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