(No Model.)

C. LEECH.

AUTOMATIC GAS CUT-OFF.

No. 344,916. Patented July 6, 1886.

FIG. 1.

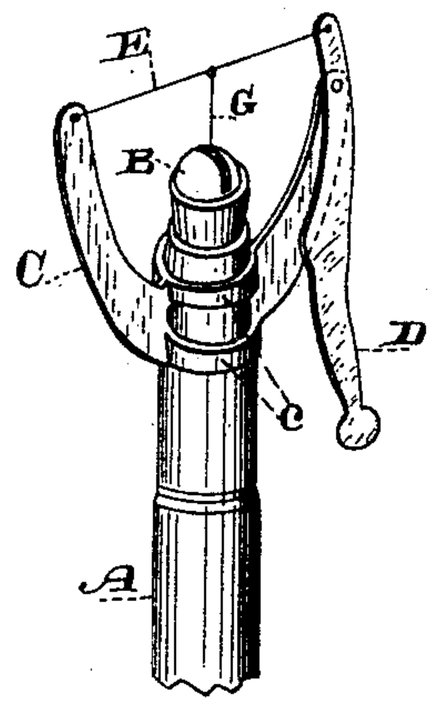


FIG. 4

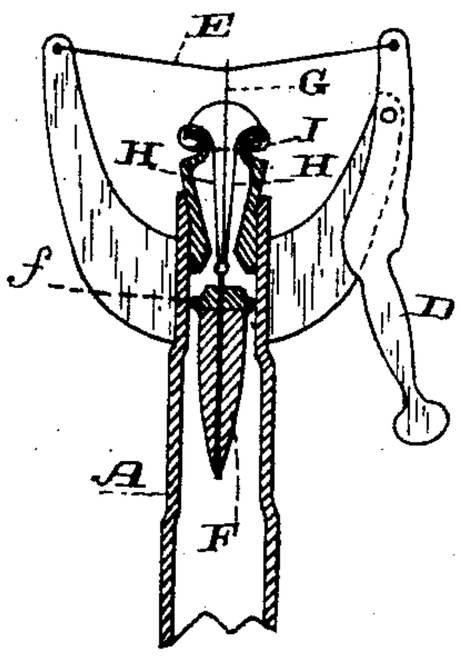


FIG. 3

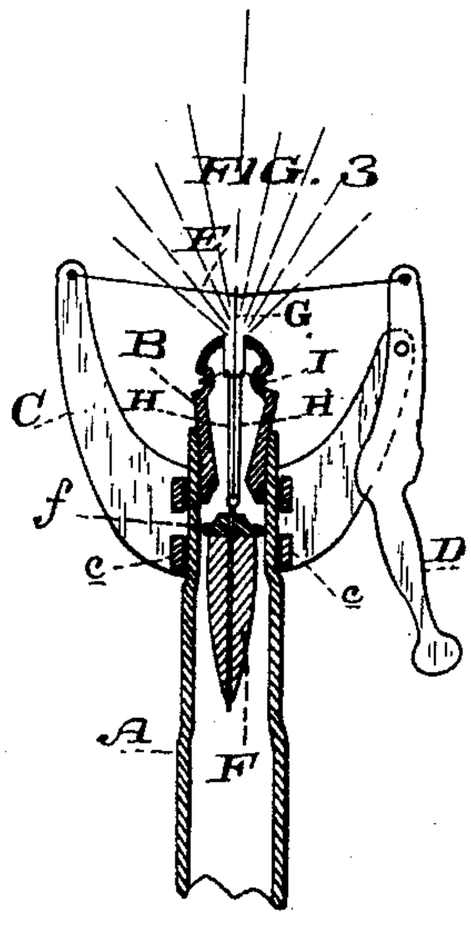
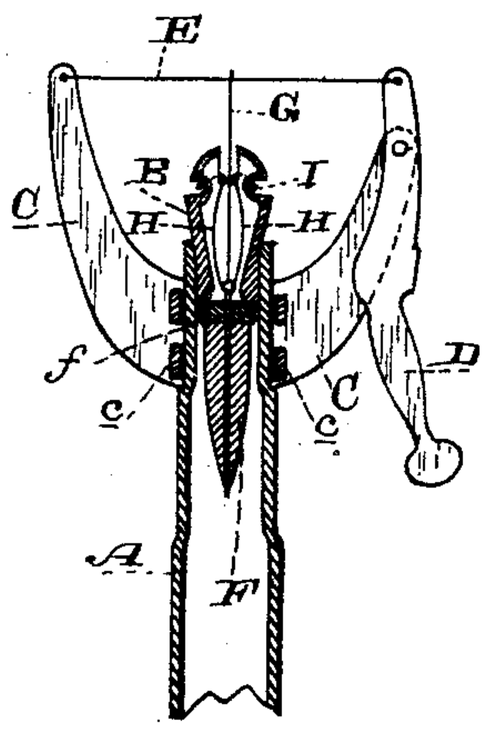


FIG. 2.



Witnesses,
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By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

CHARLES LEECH, OF OAKLAND, CALIFORNIA.

AUTOMATIC GAS CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 344,916, dated July 6, 1886.

Application filed November 17, 1885. Serial No. 183,139. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LEECH, of the city of Oakland, county of Alameda, and State of California, have invented an Improvement in Automatic Gas Cut-Offs; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to that class of devices employed to shut off the flow of gas when by any accident the flame is blown out and the key is not closed.

My invention consists in a metallic wire or strip above the burner-tip, a valve within the burner adapted to find a seat against the base of the tip, and a connection between the valve and the metallic strip above, whereby the expansion and contraction of the latter operates the former to cut off or to open the flow of gas.

My invention further consists in details of construction relating to the means for mounting the metallic wire or strip, the means for adjusting it, and the means for limiting the movement of the valve and relieving the metallic wire or strip of its weight when lowered, all of which I shall hereinafter fully explain.

The object of my invention is to provide simple and effective means for cutting off the supply or flow of gas without reference to the ordinary key, so that there shall be no danger in inadvertently or ignorantly blowing out the light.

Referring to the accompanying drawings, Figure 1 is a perspective view of my automatic gas cut-off. Fig. 2 is a vertical section of same, showing the wire E taut and the valve F up to its seat. Fig. 3 is a section showing the wire expanded and the valve dropped. Fig. 4 is a section taken at right angles to the section of Fig. 3, and showing the bracket C and means for suspending the valve.

A is the burner, having a tip, B. C is a small bracket having a base, *c*, encircling the top of the burner just below the tip. Pivoted to one arm of the bracket is a lever, D, to the upper end of which is secured one end of the metallic strip or wire E, the other end of which is secured to the opposite arm of the bracket. Within the burner is the valve F, which may be of any suitable character, though perhaps the simplest form is a piece of lead or other weighty material having on its top a packing, *f*, adapted when the valve is raised, to seat itself against the base of the tip B, which is properly beveled out to receive it. With the top of the valve is connected a fine wire, G, which extends upwardly through the tip and is connected with the metallic strip or wire E above. Secured also to the top of the valve is another wire, H, the two ends of which pass up through the tip, emerging at each side of its slit, and are fastened to the neck of the tip in some suitable manner, as by the encircling-wire I. The wire H is of such a length as to suspend the valve at the limit of its downward movement, so that its weight is removed from the wire E. The adjustment of wire E is such that when in a cooled or contracted condition it is taut enough to hold the valve up snugly to its seat, and when heated and consequently expanded it becomes slack enough to allow the valve to drop slightly from its seat.

The operation of my automatic cut-off is therefore as follows: In the normal or cool condition of the wire E the valve is held up to its seat, so that no gas can pass through. When the heat of a lighted match or taper is applied, the wire being very delicate expands almost immediately and slackens up so that the valve drops from its seat and the gas passes up and is ignited. The flame, as long as it remains, keeps the wire expanded and the valve open; but when the flame is blown out the wire, cooling as quickly as it became heated, contracts, and in assuming a taut condition draws up the valve to its seat and thus cuts off the supply of gas. It will be seen that it is immaterial, as far as the general operation of the cut-off is concerned, whether the wire E be secured at one end to the lever or directly to the bracket; but by having the lever I am enabled to provide for such adjustment of the wire as may be seen fit, either to tighten it up, when, after continued use, it may become too slack, or to do this at the start, in order to confine the movement of the valve to more narrow limits, and thus regulate the supply of gas. For all practical purposes, however, it will be found that the lever will not be much called for, as the adjustment of the wire at the start will be all that is necessary.

Though copper or any wire which resists

oxidation to some extent may be employed, I prefer to use platinum wire as having the greatest resisting and lasting powers for the purpose, being at the same time very delicate and strong.

The wire H, which serves as a rest for the valve when opened, is advantageous in removing the strain from the wire E when in a heated condition.

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

1. An automatic gas cut-off comprising a metallic strip or wire supported from the burner in the area or influence of the flame, a gravity-valve within the burner seated against the base of the burner-tip, and a connection inside the burner between said valve and the metallic strip or wire, whereby the expansion of the strip or wire under heat allows the valve to move down from its seat, and its contraction under cold raises the valve to its seat, substantially as described.

2. In combination with a gas-burner and its tip, the bracket C, supported by the burner, the metallic strip or wire E, supported by the bracket in the area or influence of the flame, the gravity-valve F, within the burner and seated under the burner-tip, and the wire G, connecting the valve with the strip or wire E, substantially as described.

3. An automatic and adjustable gas cut-off comprising the bracket C on the gas-burner, the lever D, pivoted to one arm of the bracket, and the metallic strip or wire E, secured to said lever and to the other arm of the bracket and located in the area or influence of the flame, the gravity-valve F, within the burner and seated under the burner-tip, and the wire G, connecting the valve with the strip or wire E, substantially as described.

4. The combination, with a gas burner and its tip, of the bracket C, the metallic strip or wire E, supported from the burner in the area or influence of the flame, the gravity-valve F, within the burner and connected with the strip or wire E, whereby it is caused to open and close the gas-passage by the expansion and contraction of said strip or wire, and a rest or stop, H, for said valve, defining its downward movement, substantially as described.

5. The combination, with a gas-burner and its tip, of the bracket C, metallic strip or wire E, connected therewith and supported from the burner in the area or influence of the flame, the gravity-valve F, within the burner and seated under its tip, the wire G, connecting the valve and the strip or wire E, and the wire H, secured to the valve and to the tip and forming a rest or stop for said valve, substantially as described.

In witness whereof I have hereunto set my hand.

CHARLES LEECH.

Witnesses:
C. D. COLE,
J. H. BLOOD.