M. FALOON & D. H. ISEMINGER.

Gas Lighters.

No. 201,918. Patented April 2, 1878.

Fig. 1.

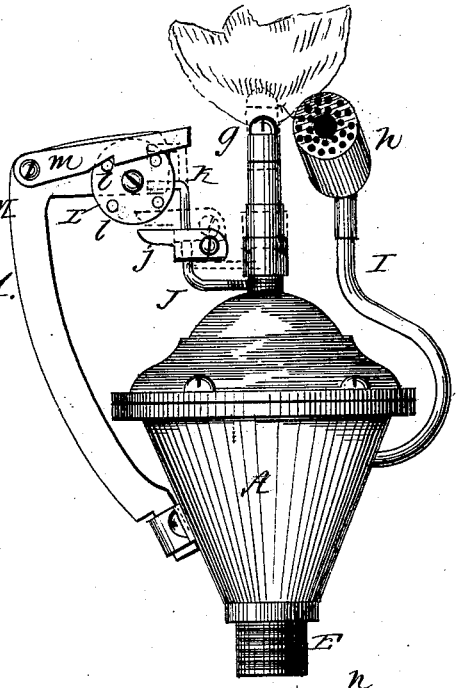


Fig. 2.

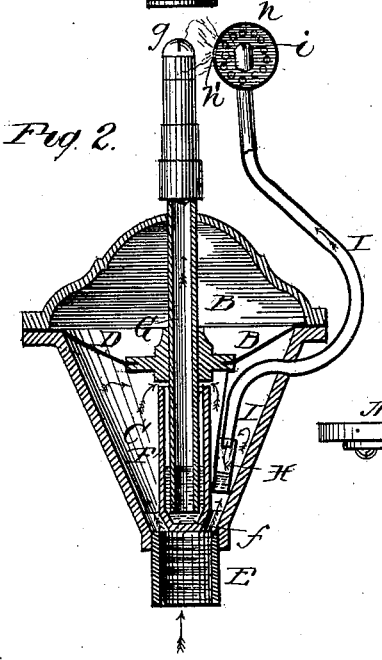


Fig. 4

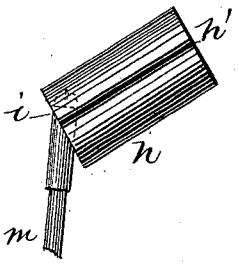
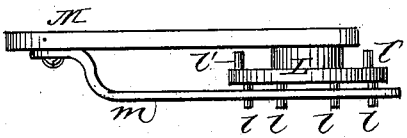


Fig. 3.



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UNITED STATES PATENT OFFICE.

MATTHEW FALOON AND DANIEL H. ISEMINGER, OF BLOOMINGTON, ILL.

IMPROVEMENT IN GAS-LIGHTERS.

Specification forming part of Letters Patent No. **201,918**, dated April 2, 1878; application filed September 12, 1877.

To all whom it may concern:

Be it known that we, MATTHEW FALOON and DANIEL H. ISEMINGER, both of Bloomington, in the county of McLean, and in the State of Illinois, have invented certain new and useful Improvements in Gas-Lighters; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

Figure 1 of the drawing represents a side view of our improved gas-lighter; Fig. 2, a vertical section of the same. Figs. 3 and 4 are detail views.

This invention relates to improvements in the class of automatic gas-lighters designed to be operated by a pressure of gas at the works; and the invention consists in the general construction and arrangement of parts, as will be hereinafter fully described.

In the drawing, A represents a suitable box or case, divided horizontally into two chambers, B and C, by an air-tight flexible diaphragm, D. The lower compartment C has connected and in constant communication with it a pipe, E, for supplying gas thereto.

F represents a vertical cup, arranged centrally within the lower compartment C, and which is partially filled with mercury, as shown at *f*, Fig. 2. G represents the tube of the large burner *g*, having its bottom end inserted in the cup F, and said tube G is centrally and permanently secured to the flexible diaphragm D, so as to be raised and lowered therewith. H represents another cup, partially filled with mercury, and arranged at the side of cup F. This cup H is secured to the tube G or the diaphragm, so as to be raised and lowered therewith.

I is a tube, having its lower end inserted in the cup H, said tube extending outside of the case and up to the burner *g*, or in close proximity thereto, as clearly shown in Fig. 2. This tube is provided at its upper end with a small burner, *i*, capable of burning about one foot of gas a day, and it is protected by a screen, *h*, and the hole in the top of the screen can be omitted, and the entire top can be covered by a perforated plate, or in any other desired manner, to protect the minute flame of burner *i* from drafts of air.

During the day-time, and with the ordinary pressure of the gas, the parts of the apparatus occupy the position shown in Fig. 2. The tube G being lowered into the mercury in cup F, so that no gas can enter said tube, and the cup H being lowered so that the tube I is above the mercury contained therein, the gas will flow through pipe I to burner *i*, which presents a very minute flame. When it is desired to light the lamps of an entire city simultaneously, (each lamp being provided with one of the above-described apparatus,) greater pressure is required to raise the tube G abov the mercury in cup F, in order to allow the gas to flow through said tube, and this extra pressure is supplied at the gas-works, and in consequence of which the flexible diaphragm is raised, which raises the tube and burner G *g*, and also the cup H. As the tube and burner G *g* is raised it passes out of the mercury in the cup F, which allows the gas to flow through said tube and burner, and as the gas issues out of said burner, and on the side toward the screen *h*, the gas passes through the slit or elongated opening *h'* in said screen, and, coming in contact, is ignited by the minute flame of burner *i*. As the tube and burner G *g* rises higher it raises the cup H, so that the mercury contained therein comes up around the lower end of tube I, which prevents the flow of gas through the same, and the minute flame from burner *i* is extinguished, leaving the gas through large burner *g* burning brightly.

The following mechanism is used to prevent the tube G from falling or dropping down by its own weight into the mercury in cup F upon a careless relaxation of gas-pressure or the bursting of a gas-main, and thereby extinguishing the light before the desired time: J is a bent rod secured to the tube G, and this rod is provided with a pivoted catch, *j*, which engages with the pins *l* on one side of the disk L, journaled to the bent arm M. The pivoted catch *j*, as the tube is raised, turns the disk L, so that one of the two pins *l'* on the opposite side of said disk will catch the arm *k* upon relaxation of gas-pressure, and hold the tube G in a raised position. The disk is prevented

from turning backward by a pivoted catch, *m*, engaging with one of the pins *l* of the disk.

The pins *l* and *l'* are relatively arranged upon the disk L so that upon the extra pressure of the gas being restored it will again throw up the tube G, so that the second time the tube is allowed to fall it will fall entirely down, and thereby extinguish the light, as above described. When said tube G is lowered, it also lowers the cup H and releases the tube I from the mercury contained therein, so as to allow the gas to again flow through the tube I, whereby the gas from burner *i* is again ignited. It will therefore be observed the parts are so arranged that the gas from both burners is for an instant burning at the same time.

When the above-described mechanism is used it will be observed that, in order to extinguish the light the extra gas-pressure is released and again restored, and upon being released the second time the light will be extinguished. Therefore, to light the lamp, the extra gas-pressure is applied, and to extinguish the lamp the extra gas-pressure is released, again applied, and a second time released, which puts the lamp out, leaving the minute jet from burner *i* burning, as before described.

We do not desire to be limited to the additional mechanism above described for preventing the tube G from falling down and extinguishing the light upon relaxation of the extra gas-pressure, as the difference between the ordinary and extra gas-pressure is sufficient to operate the apparatus.

We claim as our invention—

1. The combination, with the case A and stationary cup F, of the automatically vertical adjustable tube and burner G *g* and flexible diaphragm D, substantially as and for the purpose specified.

2. The combination, with the tube and burner G *g* and flexible diaphragm D, of the cup H and tube and burner I *i*, substantially as herein shown and described.

3. The combination, with the case A, of the flexible diaphragm D, mercury-cups F H, gas-tubes G I, and burners *g i*, the several parts constructed and arranged to operate substantially as specified.

4. The combination, with the vertically-adjustable tube and burner G *g*, of mechanism, substantially as described, whereby the tube and burner are held in a raised position, substantially as and for the purpose specified.

5. The combination, with the adjustable tube and burner G *g*, of the rod J, having pivoted catch *j* and arm *k*, and bent arm M, provided with pivoted catch *m*, and disk L, having pins *l l'*, substantially as and for the purpose specified.

6. The combination, with the burner *i*, of the screen *h*, having a slit or elongated opening, *h'*, substantially as and for the purpose specified.

In testimony that we jointly claim the foregoing we have hereunto set our hands this 3d day of September, 1877.

MATTHEW FALOON.
DANIEL H. ISEMINGER.

Witnesses:
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