

D. H. ISEMINGER & M. FALLOON.
Automatic Lighting Device.

No. 208,099.

Patented Sept. 17, 1878.

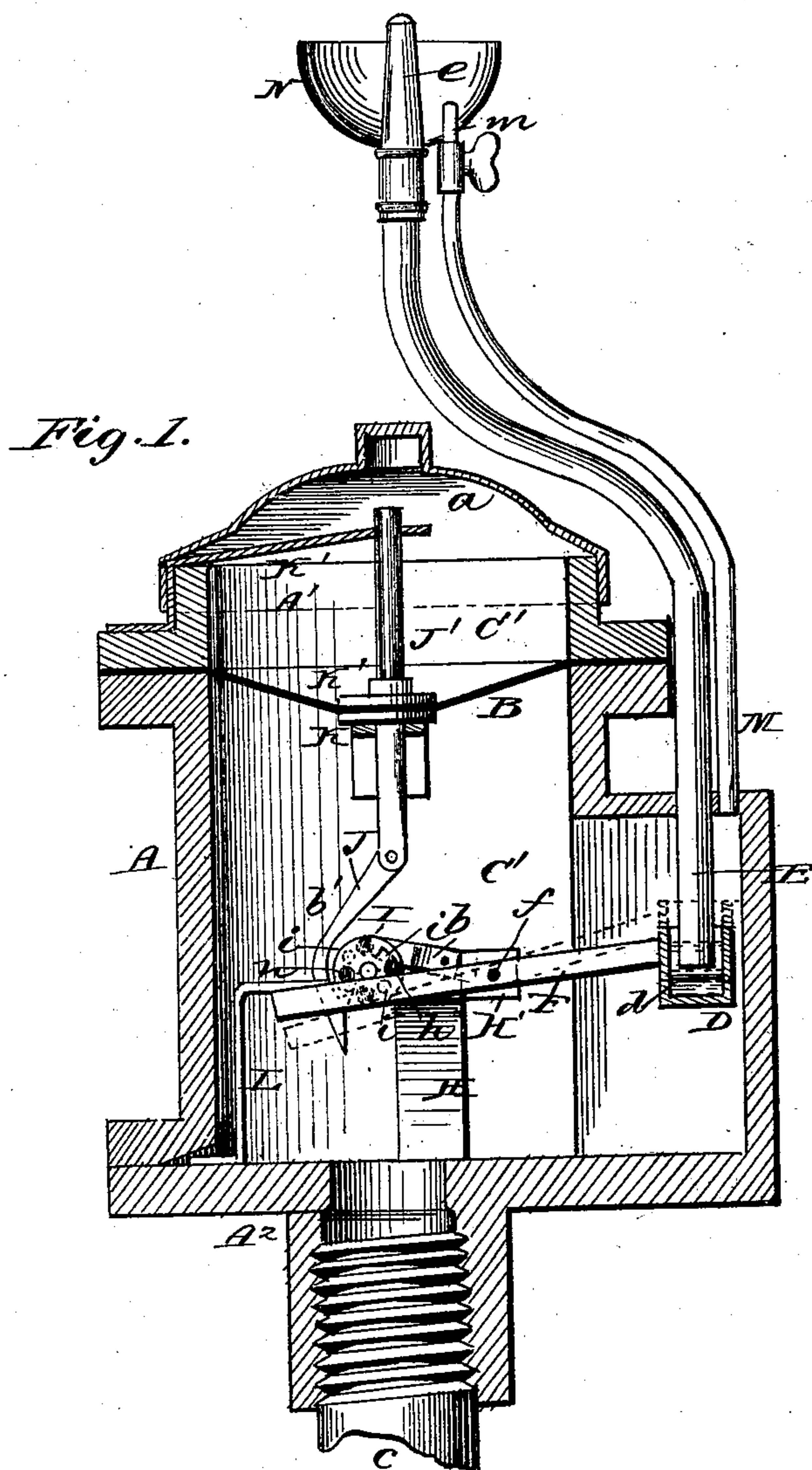
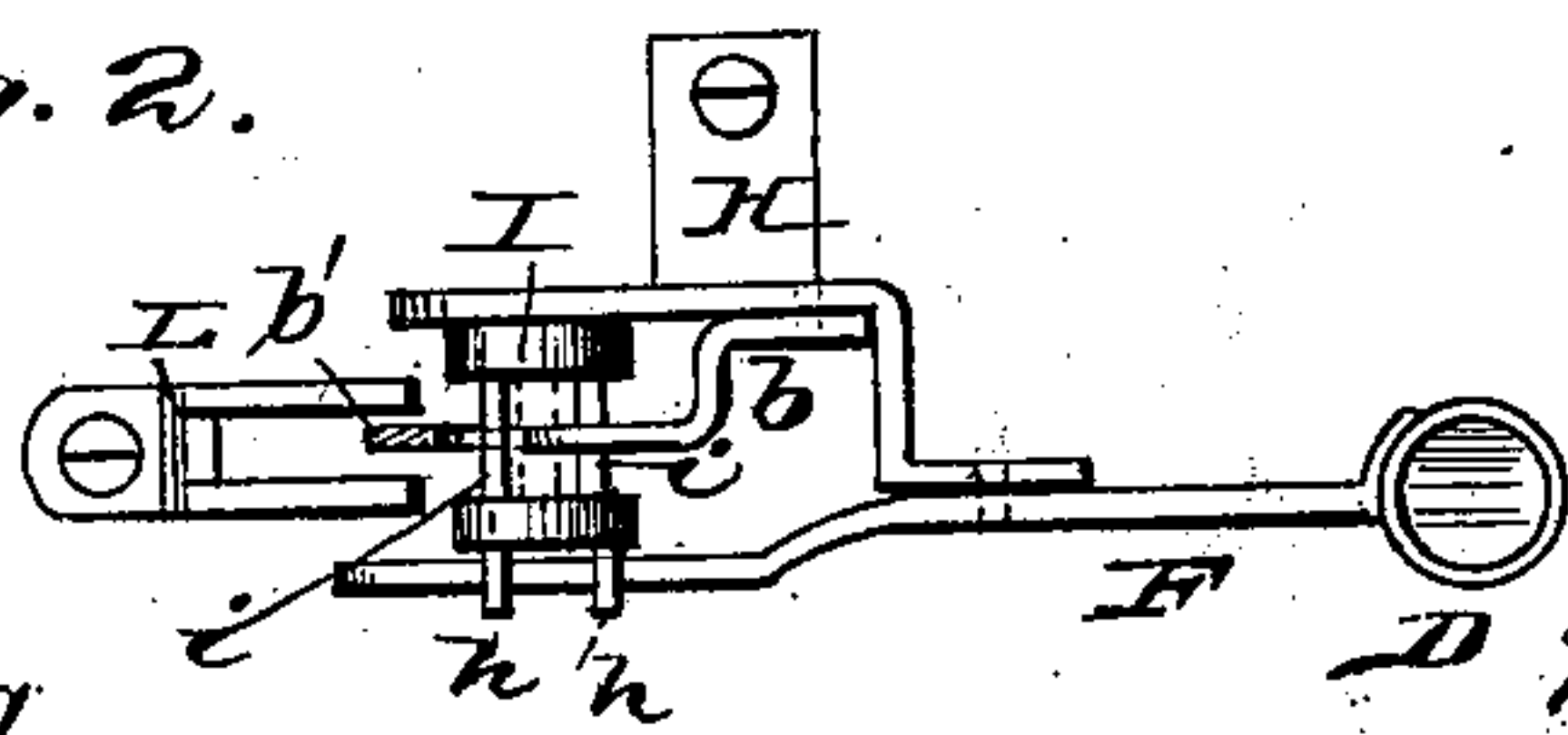


Fig. 2.



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IMPROVEMENT IN AUTOMATIC LIGHTING DEVICES.

Specification forming part of Letters Patent No. **208,099**, dated September 17, 1878; application filed August 12, 1878.

To all whom it may concern:

Be it known that we, DANIEL H. ISEMINER and Dr. MATTHEW FALOON, of Bloomington, in the county of McLean, and in the State of Illinois, have invented certain new and useful Improvements in Automatic Gas - Lighters; and 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, and in which—

Figure 1 is a vertical sectional view of our improved gas-lighter; Fig. 2, a detail view of the same.

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

In the drawing, A represents a case having a removable top plate, A¹, provided with a cap or cover, *a*; also a removable bottom or base plate, A². This case is divided horizontally by an air-tight weighted flexible diaphragm, B, into two chambers, C C', the lower chamber, C, having connected and in constant communication therewith a pipe, *c*, for supplying gas thereto.

D represents a vertically-movable cup, arranged in the lower chamber, C, and which is partially filled with mercury, as shown at *d*, Fig. 1; and E represents the tube of the large burner *e* of the lamp, having its lower end inserted in said cup D, which is supported upon one end of a vibrating arm, F, pivoted at *f* to the standard H, upon which the mechanism for operating said arm is supported.

The standard H is secured to the removable base-plate A² of the case, and is formed with a right-angled horizontal portion, H', as clearly shown in Fig. 2, and to which is journaled a wheel, I, provided with four rods, *i*, with which the pivoted pawls or catches *b b'* engage, for purposes hereinafter described.

The pawl or catch *b* is pivoted to the portion H' of the standard, and engages with the rods *i* of the wheel I for holding said wheel in any position desired, while the pawl or catch *b'* engages with the rods *i* for turning said wheel

when desired, said pawl being operated through the medium of an arm or rod, J, to which it is pivoted, and the weighted flexible diaphragm to which said arm is connected.

J' represents a vertical guiding-rod, secured to the upper side of the diaphragm, both rods J J' being guided, respectively, through cross-piece K and arm K', as shown in Fig. 1.

L represents a slotted standard secured to the base-plate A² of the case, for guiding the pivoted pawl or catch *b'*.

M represents a small tube communicating with the lower chamber, C, of the case, and which extends upwardly and in close proximity to the large burner *f*, and is provided with a small burner, *m*, having constantly burning a minute flame for igniting the gas from burner *f* when desired. The burner *m* extends up through the globe N, or its equivalent, for protecting the minute flame of said burner from drafts or currents of air.

The wheel I is also provided with projecting pins *h h* for engaging with the opposite end of vibrating arm F, from which the cup D is supported, and by means of which, when said wheel is turned, the position of said arm is changed, whereby the mercury-cup is adapted to be raised or lowered, in order that the end of the large tube E can be inserted in the mercury when said cup is raised for stopping the flow of gas through said tube, or when said cup is lowered the end of the tube will be out of the mercury, thus permitting the gas to flow through said tube for the purpose of extinguishing or lighting the lamp.

The operation of our improved gas-lighter for lighting and extinguishing the lamp is as follows: One extraordinary pressure of gas from the works, sufficient to raise the weighted flexible diaphragm, will, through the mechanism before described, cause the mercury-cup to be raised or lowered, so as to bring the end of the tube of the large burner in or out of the mercury in said cup, by means of which the lamp can be extinguished or lighted, as desired. The dotted lines in Fig. 1 show the position of the cup when the light is extinguished, the cup being raised so as to bring the end of tube E in the mercury contained in said cup. In order to lower said cup, so as to allow the gas to flow through the large tube, an extra press-

ure of gas is put on at the gas-works, which raises the diaphragm B, and with it the arm and pawl or catch *b'* are also raised, the pawl or catch engaging with one of the rods *i* of the wheel I, thus turning said wheel one-fourth revolution, which brings the pins *h h* into a horizontal position, which releases the end of vibrating arm F sufficiently to allow the cup to fall by its own weight sufficiently to leave the end of the tube E out of the mercury in said cup, whereby the gas will flow through said tube and burner and be ignited by the minute flame from the small burner *m*. The gas can then be reduced to any pressure desired to allow the weighted diaphragm to resume its original position, the pawl or catch *b* holding the wheel in any desired position, so that the position of the cup remains the same.

When it is desired to extinguish the lamp an extra pressure of gas from the works will again raise the diaphragm, and, through the medium of the mechanism above described, turn the wheel one-fourth revolution, so that the pins *h h* will be turned in a perpendicular position, which will force down the end of the vibrating lever and raise the cup, so that the end of the tube will be immersed in the mercury in said cup, thus stopping the flow of gas through said tube and extinguishing the light.

It will therefore be observed that whether or not the gas-pressure is sufficient to keep up the weighted diaphragm, the mercury-cup will be retained in any desired position by the pawl or catch *b* holding the wheel stationary.

However, before the position of the mercury-cup can be changed in order to extinguish or light the lamp the gas-pressure must be reduced, so as to allow the diaphragm to fall to its original position, so that it can be again raised in order to extinguish or light the lamp, as the case may be.

We claim as our invention—

1. The combination, with the case A and tube E, provided with burner *e*, of the vertically-adjustable mercury-cup D, arranged within said case, substantially as and for the purpose herein shown and described.

2. The combination, with the case A and tube E, provided with burner *e*, of the adjustable mercury-cup, flexible diaphragm, and intermediate mechanism, all arranged within said case, substantially as and for the purpose herein shown and described.

3. The combination, with case A and stationary tube E, provided with burner *e*, of the mercury-cup E, vibrating arm F, wheel I, provided with rods *i* and pins *h h*, pivoted pawls or catches *b b'*, rod K, and weighted diaphragm B, substantially as and for the purpose herein shown and described.

In testimony that we jointly claim the foregoing we have hereunto set our hands this 3d day of July, 1878.

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Witnesses:

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