

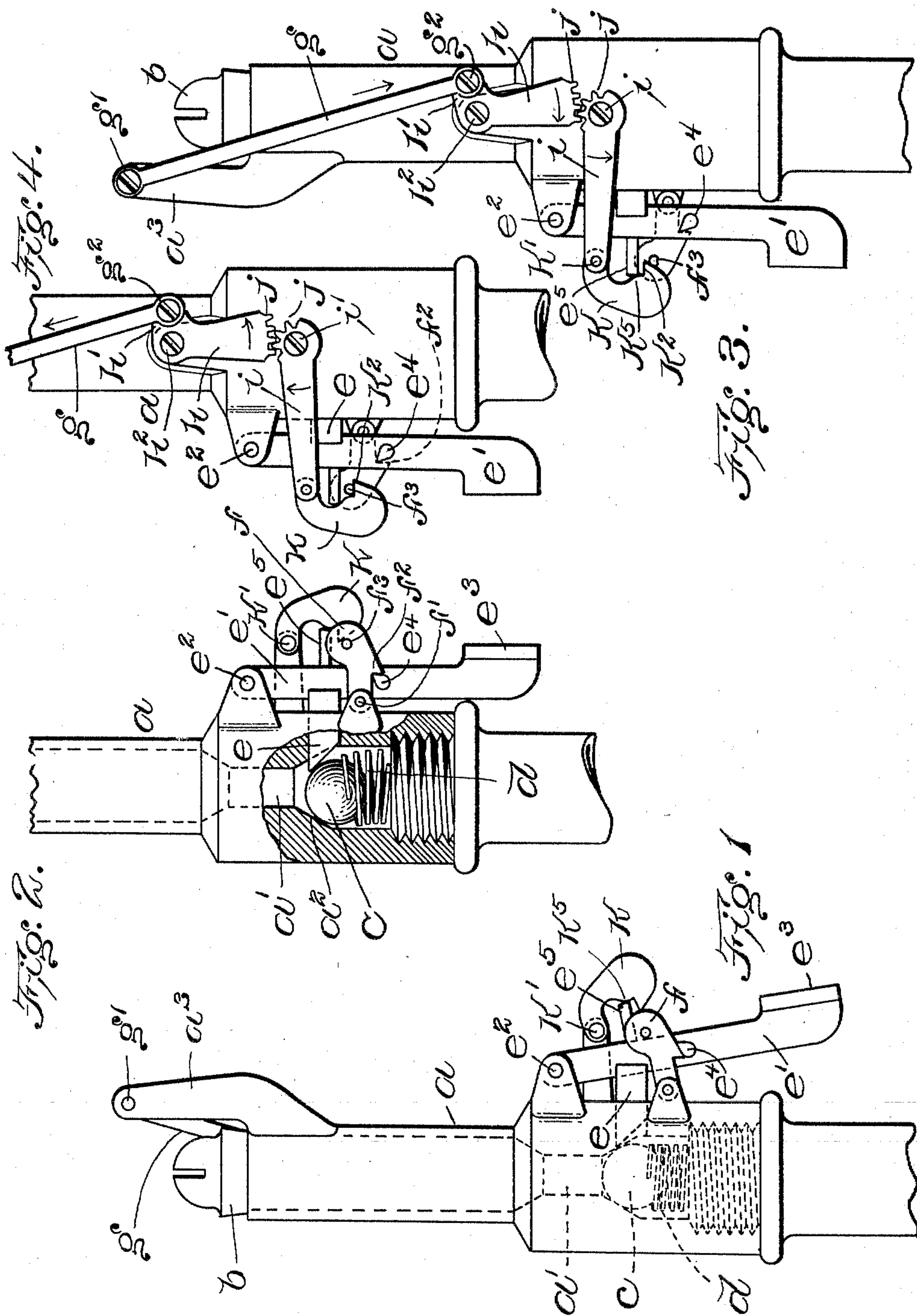
No. 767,077.

PATENTED AUG. 9, 1904.

I. C. MOULTON.
SAFETY ATTACHMENT FOR GAS BURNERS.

APPLICATION FILED DEC. 26, 1903.

NO MODEL.



Witnesses:
L. E. Kennedy
Walter P. Abell.

Inventor:
Ira C. Moulton
by Wright Brown & Quincy
Attys.

UNITED STATES PATENT OFFICE.

IRA C. MOULTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO JOSEPH CYR, OF BOSTON, MASSACHUSETTS.

SAFETY ATTACHMENT FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 767,077, dated August 9, 1904.

Application filed December 26, 1903. Serial No. 186,532. (No model.)

To all whom it may concern:

Be it known that I, IRA C. MOULTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Safety Attachments for Gas-Burners, of which the following is a specification.

This invention relates to safety gas-burners of the class in which provision is made for the automatic closing of the passage through the burner when the gas is blown out or the flame extinguished without shutting off the gas, the object being to prevent a long-continued escape of unconsumed gas from the burner.

The present invention consists in certain improvements in safety gas-burners looking to simplicity of construction, efficiency of operation, and durability and freedom from liability to derangement.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a burner embodying my invention, the automatic valve of the burner being shown as closed. Fig. 2 represents a partial elevation and partial section of the burner, showing the automatic valve open. Figs. 3 and 4 represent elevations from the side opposite that shown in Fig. 1.

The same reference characters indicate the same parts in all the figures.

In the drawings, *a* represents the pillar of a gas-burner, and *b* the burner-tip. The pillar has a gas duct or passage *a'* extending through it, the said passage being formed at *a''* with a valve-seat, preferably of tapering form.

c represents a valve adapted to automatically close the seat *a'* and stop the flow of gas through the burner. The said valve is preferably spherical, as shown in Figs. 1 and 2, and it is preferably closed or seated by means of a spring *d*. I employ a valve-opening device which is adapted to be operated from the outside of the burner, the said device comprising a slide or finger *e*, which is movable in an orifice in one side of the burner, its inner end being preferably inclined and arranged so that when the said finger is pressed

inwardly it will bear on the upper portion of the valve and force the same away from its seat, as shown in Fig. 2. Cooperating with the finger *e* as a part of the valve-opening device is a lever *e'*, which is pivoted at *e''* to an ear on the burner and is suitably engaged with the finger *e*, so that when the lever *e'* is swung inwardly toward the burner it will force the finger *e* into position to open the valve. The lever *e'* is preferably provided at its swinging end with a push-piece *e'''*. The valve-opening device is locked in its operative position (shown in Fig. 2) automatically and immediately when the lever *e'* is swung inwardly by means of a detent *f*, which is pivoted at *f''* to an ear on the burner and has a shoulder *f'''* formed to engage a tooth *e''''*, affixed to the lever *e'*, the arrangement being such that the detent engages said tooth by gravitation when the lever is pushed inwardly to the position shown in Fig. 2. Thermostatic means are employed for displacing the detent *f* and causing it to release the valve-opening device, thus permitting the spring *d* to act and force the valve to its seat, and at the same time force the valve-opening device outwardly, as indicated in Fig. 1. The said thermostatic device comprises a thermostat *g*, which is a metallic bar of any metal or alloy having a suitable coefficient of expansion and contraction, brass being preferred, although aluminium or other metals may be used. The thermostat *g* is attached at one end by a screw *g'* or otherwise to a fixed support, which is preferably an arm *a'''*, formed on or affixed to the burner-pillar *a*. The opposite end portion of the thermostat *g* is free to move endwise by expansion and contraction and is engaged at *g''* with an arm *h'*, formed on a lever *h*, which is pivoted at *h''* to the burner.

i represents another lever, which is pivoted at *i''* to the burner and is engaged with the lever *h* by means of gear-teeth *j j'*, formed on the levers *i* and *h*, as shown in Fig. 3. To the outer end of the lever *i* is pivoted at *i'* a dog *k*, having a hook or shoulder *k''*, which is adapted to engage a pin *f'''*, affixed to the detent *f*, the arrangement being such that the

dog k automatically engages the pin f^3 by gravitation when the lever i is swung downwardly from the position shown in Fig. 3, which is the position that said arm occupies when the thermostat g is cold and contracted.

When the burner is lighted, the thermostat g is heated and expands sufficiently to depress the arm i and dog k , causing the dog to engage the pin f^3 of the detent, as shown in Fig. 4, which shows the position of the several parts when the burner is lighted. In case the flame of the burner becomes extinguished by accident or by being blown out the thermostat will at once begin to contract and impart an upward movement to the arm i through the described connecting means, thus causing the dog k to raise the detent f out of engagement with the tooth e^4 of the valve-opening device. The said valve-opening device is thus released and the valve is closed and forces the valve-opening device outwardly, as indicated in Fig. 1. The gas is thus shut off before a sufficient quantity has escaped to do any material damage. Before the burner is again lighted the valve-opening device is pressed inwardly by hand and immediately locked by the detent to open the valve. When this operation is performed, the thermostat being cold, the dog k is out of engagement with the pin f^3 of the detent, as shown in Fig. 3. The dog is held in this position by the coöperation of a pin or stud e^5 on the lever e with an incline k^5 on the dog k , the relative arrangement of said pin and incline being such that when the arm i is swung downwardly by the expansion of the thermostat the dog k will be permitted to swing inwardly, so that its hook k^2 will swing under the pin k^3 and engage the latter, the device being thus set or prepared for its next automatic action.

It will be seen that the spring d not only closes the valve, but furnishes the power which forces the valve-opening device outwardly. The outward movement of the valve-opening device causes the pin e^5 on the lever e to bear against the dog k and force the latter outwardly, so that when the lever i is moved downwardly the dog will move downwardly without engagement with the detent-pin f^3 until the dog reaches the position shown in Fig. 4, when it will swing inwardly and engage the detent-pin, as above described.

Owing to the automatic and immediate holding of the valve-displacing device in its operative position by means of the detent f , as soon as the lever e is swung inwardly, as hereinbefore described, the entire device is independent of the thermostat when the gas is to be lighted. In other words, the operator can leave the burner as soon as the gas has been ignited without waiting for any action of the thermostat.

I do not limit myself to the details of mechanism here described and shown, as the same

may be modified in various particulars without departing from the spirit of my invention.

I claim—

1. A gas-burner having a valve which automatically closes the gas-passage in the burner, a valve-displacing device, a detent adapted to hold said device in its operative position, a thermostat exposed to heat from the burner, and means operated by the contraction of the thermostat for displacing said detent and permitting the valve to close, the construction being such as to enable the detent to hold the valve-displacing device in its operative position, independently of the action of the thermostat.

2. A gas-burner having a valve adapted to automatically close the gas-passage in the burner, a valve displacing or opening device, a detent adapted to hold said device in its operative position, a thermostat exposed to heat from the burner, an oscillatory arm having a dog adapted to engage the detent, and connections between the said arm and the thermostat, for moving the arm in one direction to engage the dog with the detent when the thermostat is expanding, and for moving the arm in the opposite direction to cause the dog to displace the detent when the thermostat is contracting.

3. A gas-burner having a valve adapted to automatically close the gas-passage in the burner, a valve displacing or opening device comprising a lever pivoted outside the burner, and a valve-engaging finger engaged with said lever and movable in an orifice in the burner, said lever having a tooth or stud, a pivoted detent adapted to automatically engage said tooth and provided with a pin, an oscillatory arm having a dog adapted to engage the detent-pin, and thermostatic means for moving said arm in one direction to cause the dog to engage the detent-pin, and in the opposite direction to cause the dog to displace the detent, the said dog and lever having complementary means for disengaging the dog from the detent-pin after the displacement of the detent, whereby the detent is left free to again engage the tooth of the lever.

4. A gas-burner having a valve which automatically closes the gas-passage in the burner, a valve-displacing device, a detent adapted to hold said device in its operative position, a thermostat exposed to heat from the burner, and composed of a bar secured at one end to a fixed support, its other end being movable, and mechanism for communicating motion from the movable end of the thermostat to the detent, said mechanism comprising two pivoted levers, one having an arm engaged with the movable end of the thermostat, while the other has a dog adapted to engage the detent, said levers having intermeshing gear-teeth.

5. A gas-burner having a spring-closed

valve, a valve displacing or opening device comprising a sliding finger and a pivoted lever engaged therewith, and a detent adapted to automatically engage said lever and hold the valve open, as soon as the said lever is actuated by the operator.

6. A gas-burner having a spring-closed valve, a valve displacing or opening device comprising a sliding finger and a pivoted lever engaged therewith, a detent adapted to automatically engage said lever and hold the valve open, a thermostat exposed to heat from the burner, and operating connections between said thermostat and the detent, means being provided for enabling the detent to hold the valve-displacing device in its operative position independently of the action of the thermostat.

7. A gas-burner having a spring-closed

valve, a valve displacing or opening device comprising a sliding finger and a pivoted lever engaged therewith, a detent adapted to engage said lever and hold the valve open, a thermostat exposed to heat from the burner, and operating connections between said thermostat and the detent, said connections including a detent-engaging dog adapted to automatically engage and release the detent, the construction being such as to enable the detent to hold the valve-displacing device in its operative position, independently of the action of the thermostat.

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

IRA C. MOULTON.

Witnesses:

C. F. BROWN,
JOSEPH CYR.