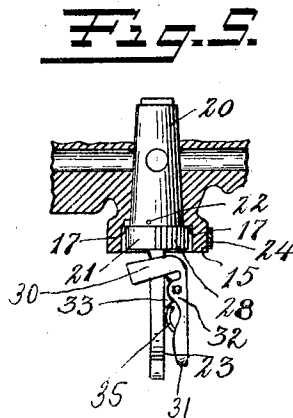
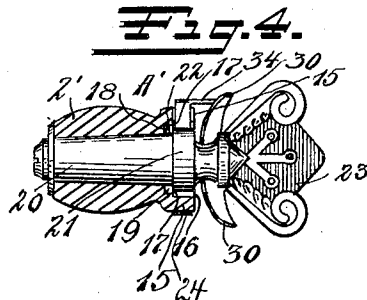
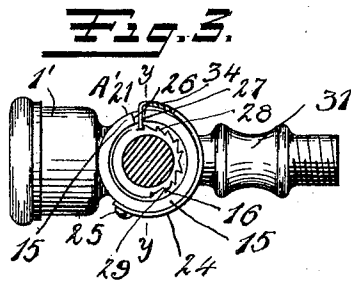
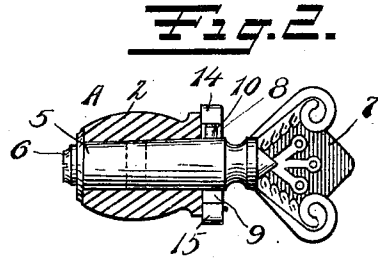
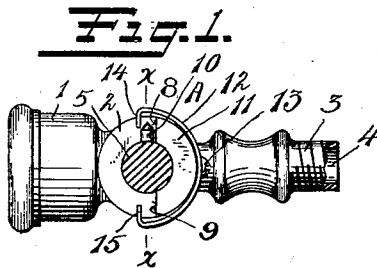


F. D. GREGORY.
SAFETY GAS VALVE.
APPLICATION FILED NOV. 24, 1908.

937,791.

Patented Oct. 26, 1909.



Witnesses:
Chas. Reed
Margaret E. Baxter

Inventor
Frank D. Gregory
By *Wm. A. Holden*

UNITED STATES PATENT OFFICE.

FRANK D. GREGORY, OF DERBY, CONNECTICUT.

SAFETY GAS-VALVE.

937,791.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed November 24, 1908. Serial No. 464,250.

To all whom it may concern:

Be it known that I, FRANK D. GREGORY, a citizen of the United States, residing at Derby, in the county of New Haven and State of Connecticut, have invented a certain new and useful Improvement in Safety Gas-Valves, of which the following is a specification.

My invention relates to gas valves of the class used on burners, and its object is to provide a device of this character with means for locking the cock or plug in its closed position or against an opening movement.

With this and other objects in view my invention consists in the details of construction and manner of operation more fully set forth in the following description and accompanying drawings in which like reference characters refer to corresponding parts.

In the drawings: Figure 1 is a side view of a gas burner having my invention embodied therein but showing the valve plug in section; Fig. 2, a transverse section taken on line $x-x$ in Fig. 1; Fig. 3, a side view of a gas burner having another form of my invention embodied therein; Fig. 4, a transverse section taken on line $y-y$ in Fig. 3, and Fig. 5, a horizontal section of a fragmentary portion of the burner shown in Fig. 3, the plug and attached parts being shown in full lines.

Referring to Figs. 1 and 2 A represents the usual form of gas bracket having the base 1, the middle transversely disposed hub or sleeve 2 and the screw threaded nipple 3. The base 1 is adapted to be secured on the extremity of a gas pipe and the nipple 3 attached to the burner proper after the well known manner of attaching gas brackets. The bracket A is cored longitudinally to form a passage 4 through which the gas may flow from the pipe to the burner. Incased to oscillate within the sleeve 2 is the tapered plug 5 cored transversely to form an opening as shown by the dotted lines in Fig. 2 which opening is arranged to register with the passage 4 in the bracket to permit the passage of the gas when the valve is open and to be turned out of alinement therewith to shut off the passage of the gas when the valve is closed. The plug 5 is held in place by a retaining flange secured to its smaller end by the screw 6, and is provided at its larger extremity with a key 7. The end of the sleeve 2 adjacent to the key 7 is recessed

to form the upper and lower shoulders 8 and 9 which act as a stop for the pin 10 mounted on the enlarged end of the plug 5. Thus it follows that the plug 5 is permitted a one-half revolution, and the pin is so arranged that when it abuts against either the upper shoulder 8 or the lower shoulder 9 the key 7 is vertically disposed or lies in a vertical plane, and the opening or vent in the valve plug is disposed at right angles to the passage 4 shutting off the flow of the gas, but when the key is turned one-quarter of a revolution upwardly or downwardly the vent will register with the passage 4, and the flow of the gas will be unobstructed. In this latter position the key 7 will be disposed horizontally or in a horizontal plane and thus indicate the open position of the valve.

The valve thus far described is of a construction well known in the art and may be varied in detail and design to suit the demands of the trade. Cutting away the left hand side of the end of the sleeve 2 to form the shoulders 8 and 9 causes the right hand side of the sleeve to project beyond the side of the bracket in the form of a semi-cylindrical rim 11 to the middle portion of which is attached a semi-circular blade spring 12 by means of the screw 13. The blade spring 12 closely embraces the rim 11 and the extremities overlap the shoulders 8 and 9, and are then bent inwardly at a sharp angle to form detents 14 and 15 respectively, leaving a slight clearance between the detents and the shoulders 8 and 9. The outer extremity of the pin 10 is tapered off so as to raise the detents 14 and 15 when passing under the same into and out of the clearance space behind the detents. The blade spring is of sufficient strength to resist the passage of the pin 10 beneath the detents 13 and 14 unless a positive turn is exerted on the key 7 under which circumstances it is sufficiently resilient to permit the pin 10 to pass in either direction. In this manner the valve is not only locked against any casual force tending to open the same, but also gives a positive action at the end of the closing movement so that the operator becomes aware of the closing of the valve by feeling the tripping of the pin in escaping behind the detent. The semi-cylindrical rim or curved shelf 11 forms a seat for the blade spring 12 and thereby determines the position of the detents 14 and 15 before they are

tripped by the stud 10. The presence of this seat, conforming as it does to the length and curvature of the spring, prevents the latter from yielding too far inwardly, as it has a tendency to do, in the absence of the seat so that it would be impossible for the stud to ride under the detent.

In Figs. 3, 4 and 5 I have shown a modification of my invention in which the valve is not only locked in its closed position but may also be locked against further opening movement when in a partially closed position. The bracket A¹, which may be substantially like that shown in the preceding figures, comprises the base 1', hub or sleeve 2' and screw threaded nipple 3'. The bracket A¹ is also cored longitudinally to form a gas passage and cored transversely to accommodate a valve plug in the same manner as described in Figs. 1 and 2. One end of the hub or sleeve 2' is provided with a projecting rim 15 the inside surface of which is cut away to form a circular casing 16 having an inner end wall or abutting flange 17, the left hand side of which flange is recessed to form a semi-circular passage having abutting shoulders 18 and 19 in the same relative position as the shoulders 8 and 9 in Figs. 1 and 2. Journaled to oscillate in the hub or sleeve 2' is the tapered plug 20 having its larger end provided with a disk 21 and a pin 22. Projecting outwardly from the end of the plug is the usual flat key 23 made integral therewith. The disk 21 fits snug within the casing 16 leaving a slight clearance between its periphery and the inner surface of the casing. The pin 22 sets in the semi-circular recess between the abutting shoulders 18 and 19, and is so arranged relative to the direction of the key 23 that it acts to limit the closing movement of the valve in the same manner as the pin 10 in Figs. 1 and 2, so that when the key is turned one-quarter of a revolution to the left the valve is opened and by a further turn of a quarter of a revolution the valve is closed.

I will now describe the manner the valve is locked against its opening movement.

The rim 15 has its right hand portion embraced by the flat, resilient blade spring 24, having its lower extremity fastened by a screw 25 to the underside of the rim 15 and its upper extremity bent inwardly at a sharp angle so as to pass through an opening 26 in the rim to form a detent 27. If desired a slight clearance may be left between the spring and the rim to enable the detent to move back and forth within the opening 26. The face of the disk 21 is provided with teeth for a distance of one-half or more around its circumference. These teeth are of the ratchet type being cut so that they will be resisted by the detent 27 for a one-quarter revolution of the disk and will ride under the detent for the

next quarter of a revolution, that is the upper half 28 of the teeth will resist the rotation of the disk 21 to the right, and the lower half 29 of the teeth will resist the rotation of the disk 21 to the left. The detent 27 may be lifted out of engagement with the teeth by the semicircular lever 30 which is provided with a finger piece or handle 31 pivoted near its inner extremity by means of a pin passing through the lugs 32 which latter embrace the ear 33 projecting from the side of the key 23. The surface of the lever 30 is inclined inwardly as shown in Figs. 4 and 5 so that when the finger piece 31 is pressed against the side of the key 23 the inclined surface of the lever 30 is tilted into a plane substantially parallel with that of the circular spring 24 thereby causing the lug 34 projecting from the outside edge of the spring 24 to ride over the inclined surface of the lever 30 and lift the detent beyond the teeth. When the finger piece 31 is released it is returned to its normal position by the spring 35.

In Fig. 3 the valve is shown in its closed position but by lifting the detent in the manner above described and turning the key one-quarter of a revolution to the left and then releasing the key the valve will be open and the detent will rest between the two sets of teeth. The valve may be closed again by turning the key either to the left or right without raising the detent since the latter will ride over the teeth. It will be observed, however, that when the valve is either partially or entirely closed that the detent will lock the teeth against any opening movement of the valve it being necessary to raise the detent to permit any opening movement. By this arrangement the opening of the valve can be effected only by a positive manipulation of lifting the lever, thus eliminating the danger of accidentally turning on the gas or turning the same further on when once set to a predetermined position.

Having now described my invention what I claim and desire to protect by Letters Patent is:

1. A gas valve casing having a shut off plug journaled therein and provided with a curved shelf embracing one end of said plug, a blade spring secured to and encircling said shelf, a detent carried by said spring and overhanging one end of said shelf, and means carried by said plug for tripping said detent.
2. A gas valve bracket having a shut off plug journaled therein provided with a turning key, a blade spring mounted on said bracket carrying a detent for engaging said plug and a lever carried by said key for raising said detent.
3. A gas valve having a shut off plug journaled therein provided with a turning key, a curved shelf embracing said plug mounted

on said bracket, a blade spring secured to and encircling said shelf, a detent carried by said blade spring and means mounted on the key for raising said detent.

5 4. A gas valve bracket having a shut off plug journaled therein, a curved shelf embracing said plug mounted thereon, a blade spring carrying a detent secured to and encircling said shelf, the said plug being provided with a row of ratchet teeth arranged
10 to resist the detent for one quarter of a revolution in one direction and another row of ratchet teeth arranged to ride over the de-

tent for the next quarter of a revolution in the same direction.

15 5. A gas valve bracket having a shut off plug journaled therein and a ratchet pawl carried thereby, the said plug being provided with a set of ratchet teeth arranged to resist said pawl in one direction and another set of ratchet teeth arranged to resist
20 said pawl in the opposite direction.

FRANK D. GREGORY.

Witnesses:

ADA M. GESNER,
WALTER A. HOLDEN.