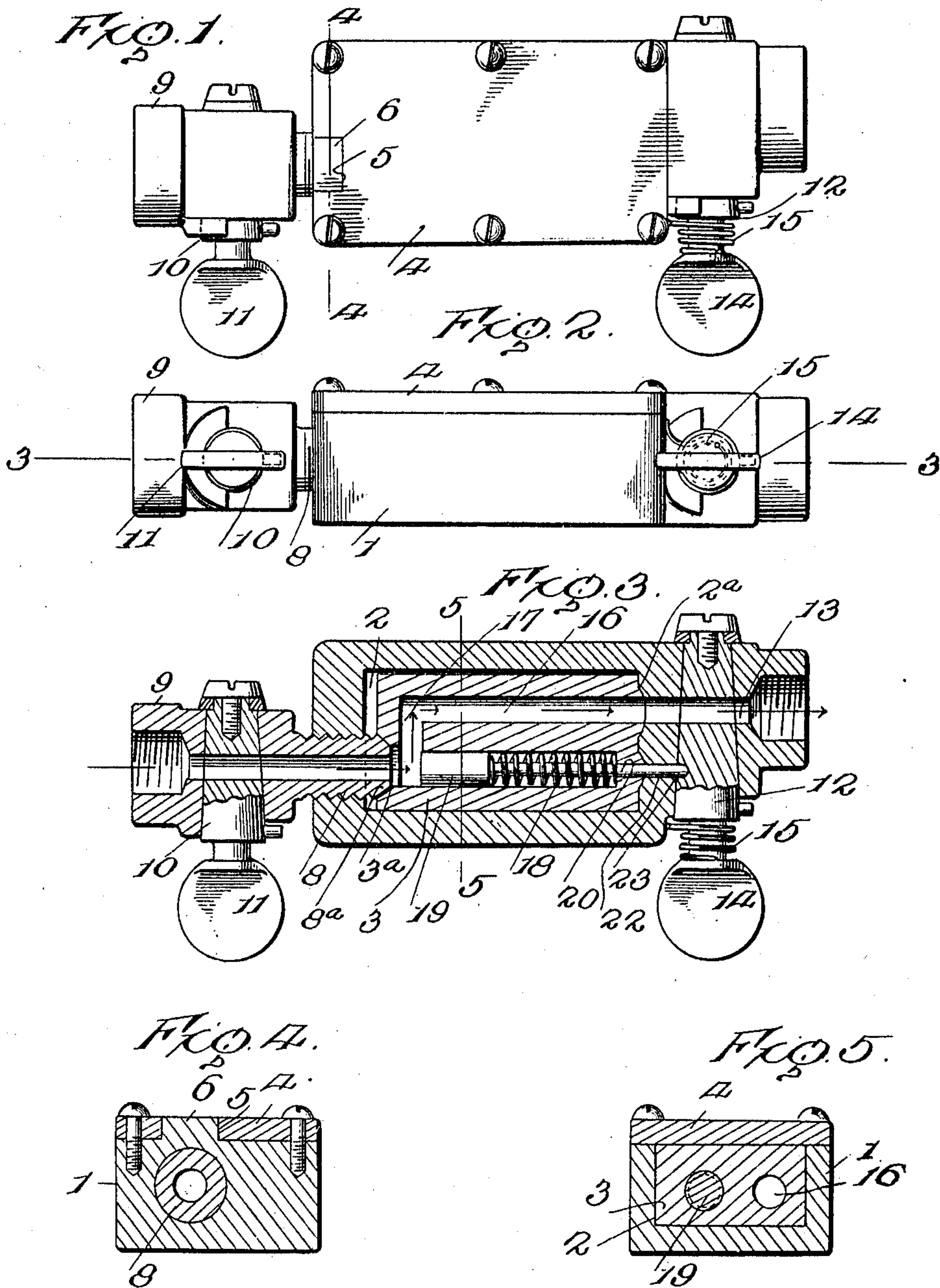


A. H. LAKE, JR.
 AUTOMATIC SAFETY GAS VALVE.
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UNITED STATES PATENT OFFICE.

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AUTOMATIC SAFETY GAS-VALVE.

970,062.

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To all whom it may concern:

Be it known that I, ALBERT H. LAKE, JR., citizen of the United States, residing at Fentonville, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Automatic Safety Gas-Valves, of which the following is a specification.

This invention comprehends certain new and useful improvements in automatic safety gas cocks or valves, and the invention has for its primary object, a simple, durable and efficient construction of device of this character which will be sensitive in its action to automatically shut off the flow of gas should the pressure fail for any cause, thereby precluding the possibility of partial or complete asphyxiation which is frequently caused in the use of the ordinary gas cock or valve owing to the fact that there have been no means provided for automatically shutting off the flow, consequently when any diminution in the pressure takes place and the light goes out, a subsequent increase in pressure, or the continued flow of gas at the reduced pressure insufficient to support combustion, has been permitted, unknown to the occupants of the room.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a side elevation of a safety gas cock or valve constructed in accordance with my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2; Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 1; and, Fig. 5 is a similar view on the line 5—5 of Fig. 3.

Corresponding and like parts are referred to in the following description and accompanying drawings by the same reference characters.

My improved automatic safety gas valve comprises a casing 1 which is formed with a preferably side opening chamber 2 designed to contain a block 3, a cap plate 4

closing the chamber after the block has been inserted therein, said cap plate being secured in place by screws or similar fastening devices as clearly illustrated in the drawings. Preferably, the cap plate 4 is formed at one end with a recess 5 and the casing 1 formed with an enlargement 6 fitting in said recess and designed to set in securely and hold the cap plate in place while at the same time serving to strengthen the metal around an opening 7 which extends through one end wall of the casing. The opening 7 is preferably screw-threaded as shown and is designed to receive a correspondingly formed nipple 8 which is extended therethrough as best seen in Fig. 3, the inner end of the nipple being beveled as indicated at 8^a and adapted to seat within a correspondingly formed opening 3^a formed in the block 3. In the preferred manner of assembling the parts, the nipple 8 is screwed into place after the block 3 has been inserted in the casing 1 but prior to the attachment of the cap plate 4, the nipple thereby holding the block in place while the cap plate is being attached. To further assist in holding the parts securely together, the adjacent end walls of the block 3 and chamber 2 may be irregularly formed as indicated at 2^a.

The nipple 8 is formed on the body portion of a cock 9, said body portion being arranged for attachment to a gas supply pipe and containing an ordinary turn plug 10 provided with the usual finger piece 11. This cock is herein termed an auxiliary cock to distinguish it as will hereinafter more fully appear, from the main cock or turn plug 12 which is mounted in the opposite end of the casing 1 intersecting the longitudinally extending gas passage 13. The plug or valve 12 is provided at one end with the usual finger piece 14 and is encircled by a spring 15 which exerts thereon a tension to turn the valve toward closed position.

The block 3 is formed with a longitudinally extending gas passage 16 communicating at its forward end with the passage 13 and provided with a laterally disposed discharge end 17 which is offset as shown to communicate with the opening 3^a and the bore of the cock 9. The block 3 is further formed with a longitudinally extending opening 18 in line with the offset inlet end of the gas passage 16 and a valve 19 is

mounted for a longitudinal movement in the opening 18 and is adapted under certain conditions to seat itself against the inner end of the nipple 8 which thereby constitutes a valve seat so as to effectually shut off the flow of gas through the block and casing. The valve 19 is in the form of a rod provided with a reduced shank 20 which is in the form of pin encircled by a corresponding spring 21, the forward end of the pin 20 extending through an opening 22 formed in the forward end of the casing 1 and adapted to be seated in the socket 23 formed in the turn plug 12 when the latter has been brought to open position.

From the foregoing description in connection with the accompanying drawing the operation of my improved automatic safety gas valve will be apparent.

In the practical use of the device when the pressure of the gas is normal, it will exert such a pressure upon the valve 19 that it will move it to the forward or open position just as soon as the valve 12 has been turned to open position preparatory to lighting the gas. So long as the pressure of the gas remains normal, the pin 20 will be seated in the socket 23 of the valve 12 against the tension of the spring 21 thereby holding the valve 12 open against the tension of its spring 15. Should the pressure fail for an instant, the plunger or valve 19 will be kept open by the spring 21 and be forced thereby in a direction to carry its holding pin 20 out of the socket 23 whereupon the valve 12 will be instantly turned to the closed position by the spring 15. Hence it is manifest that when the pressure of the gas again rises, the gas will be effectually prevented from escaping into the room, for example, and all liability of waste and its consequent dangers will be avoided.

As above indicated, the cock 9 in one sense merely serves as an auxiliary device so that the gas may be shut off at that point and the automatic valve detached at any time. In addition to this function, the nipple of the auxiliary cock 9 serves to assist in securely holding the plug 3 in place preparatory to the attachment of the cap plate 4 and forms a portion of the supply passage leading to the burner and tends to prevent any leakage at the joints.

It will be seen that the device can be very cheaply manufactured and the parts readily assembled and disassembled whenever necessary for dusting, cleaning or for any other purpose.

Having thus described the invention, what is claimed as new is:

1. An automatic safety gas valve, embodying a casing formed with a supply passage and a turn plug, adapted to control said passage, a spring pressed plunger mounted in said casing in communication

with the supply passage and arranged to be held in one position against the tension of its spring, by the pressure of the gas flowing through said passage, the turn plug being formed with a socket, and the plunger being provided with a locking pin adapted to enter said socket whereby to automatically hold the plug in an open position.

2. An automatic safety gas valve, having a casing formed with a supply passage, a turn plug controlling said passage and spring pressed toward the closed position, a plunger mounted in the casing and spring pressed away from the plug, the plunger communicating at one end with the supply passage and arranged to be held by the pressure of the gas in locking engagement with the plug whereby to hold the latter open against the tension of its spring.

3. An automatic safety gas valve, comprising a casing formed with a supply passage, a turn plug controlling said passage and spring pressed toward the closed position, a plunger mounted in said casing and spring-pressed in a direction away from the plug, the plunger communicating at one end with the supply passage for the purpose specified and provided at its opposite end with a locking pin, the turnplug being formed with a socket which in the open position of the plug is adapted to receive the extremity of said pin.

4. An automatic safety gas valve comprising a casing, a plug mounted within the casing, the plug and casing being formed with a supply passage, a turn-plug controlling said passage and spring-pressed to closed position, the supply passage in the first-named plug being offset at its inner end, and said plug being formed with a longitudinal opening communicating with the offset end of said passage, and a spring pressed plunger mounted in said opening, the spring of the plunger tending to move it away from the turn-plug, and the plunger being provided with a pin adapted to engage the turn-plug in the open position of the latter whereby to hold the turn-plug open.

5. An automatic safety gas valve comprising a casing formed with a chamber, a plug mounted in said chamber, the plug and casing being formed with a supply passage for the gas, a turn plug mounted in said casing and controlling said passage and spring-pressed toward the closed position, the supply passage in the plug being offset at its inner end, the plug being further formed with an opening in its wall communicating with the offset inner end of said supply passage, an auxiliary cock provided with a nipple mounted in the adjoining end of the casing and seated in said last named opening, the plug being further formed with a longitudinal opening extending forwardly from the last named opening and in communica-

tion therewith, and a plunger mounted in
said forwardly extending opening, said
plunger being spring-pressed in a rearward
direction and provided at its forward end
5 with a locking pin, the turn plug being
formed with a socket adapted to receive said
pin.

In testimony whereof, I affix my signature
in presence of two witnesses.

ALBERT H. LAKE, JR. [L. S.]

Witnesses:

ROY E. LAKE,
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