

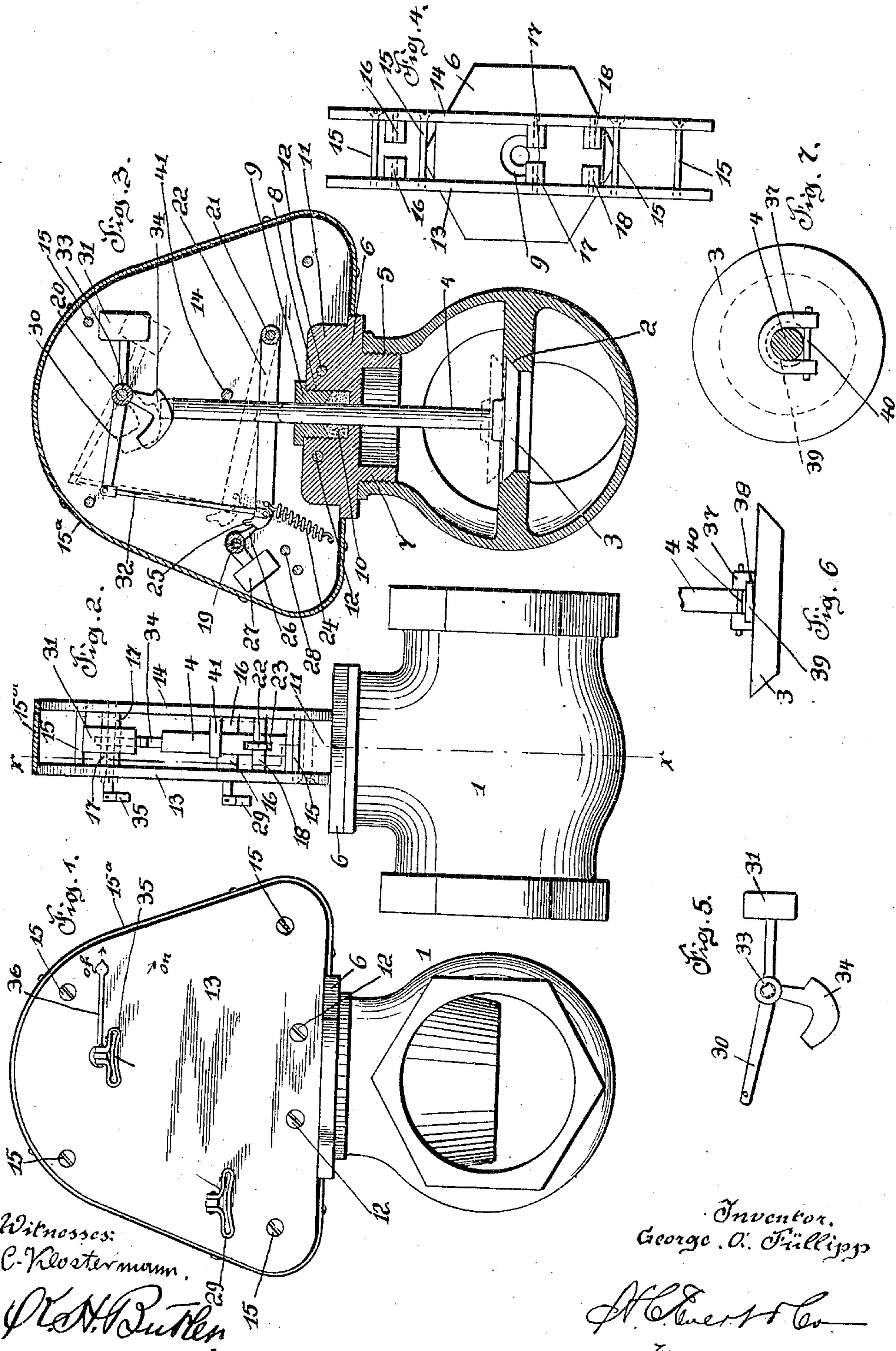
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G. A. FÜLLIPP.

AUTOMATIC SHUT-OFF VALVE.

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UNITED STATES PATENT OFFICE.

GEORGE A. FÜLLIPP, OF EAST McKEESPORT, PENNSYLVANIA.

AUTOMATIC SHUT-OFF VALVE.

No. 852,174.

Specification of Letters Patent.

Patented April 30, 1907.

Application filed June 12, 1906. Serial No. 321,332.

To all whom it may concern:

Be it known that I, GEORGE A. FÜLLIPP, a citizen of the United States of America, residing at East McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Shut-Off Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to automatic gas regulating valves, the object being to provide a valve which will automatically close and lock when the gas pressure is reduced, so that the gas supply will be entirely cut off until the valve is released by hand.

It is well known that cases of asphyxiation frequently occur by the extinguishing of gas lights or fires caused by a reduction of the pressure, a subsequent increase of pressure permitting the gas to escape from the extinguished burner.

The present invention aims to avoid this danger, by providing a valve with means for automatically closing the valve, and locking it in closed position when the normal pressure of the gas is reduced.

A further object of the invention is to provide a regulating valve with an indicator, which will show whether the valve is in open or closed position.

The construction of the improvement will be fully described hereinafter, in connection with the accompanying drawing which forms a part of this specification, and its novel features will be defined in the appended claims.

In the drawing, Figure 1 is a front elevation of the valve casing with its indicator plate, Fig. 2 is a side elevation of the same, Fig. 3 is a vertical section taken on the line $x-x$ of Fig. 2, Fig. 4 is a top plan of the device with parts removed, Fig. 5 is a side elevation of the weighted lever and locking tumbler employed, Fig. 6 is a detail elevation of the valve and a part of its stem, showing the means for securing the valve to the stem, and Fig. 7 is a top plan of the valve, the stem being shown in horizontal section.

The reference numeral 1 designates the valve casing provided with a beveled valve seat 2 to receive a correspondingly beveled valve 3, secured to the lower end of a stem 4. The two ends of the casing 1 are internally threaded for the attachment of suitable inlet

and discharge pipes (not shown) and the top of said casing is provided with an internally threaded opening 5 to receive a closure cap 6 having a depending annular threaded flange 7 to fit the opening.

The cap 6 is formed with a central opening for the passage of the valve stem and the upper surface of said cap is formed with a circular recess 8 to receive a plug 9, centrally bored to permit the valve stem to extend through it, and having a packing 10 to prevent leakage of gas around the stem.

Projecting centrally from the cap 6 is an integral block 11 to the opposite sides of which are secured by screws 12 a front plate 13, and a back plate 14. Said plates are secured to each other by screws 15 and a casing 15^a and from the inner faces of said plates project oppositely disposed hollow studs 16, 17 and 18, arranged in pairs to serve as bearings for shafts 19, 20 and 21, said shafts being squared at their central portions as shown in Fig. 5.

Pivotaly mounted upon the shaft 21 is a lever 22 which extends through a slot 23 formed in the valve stem, and is provided near its free end with a retracting coil spring 24, one end of said spring being secured to the lever, and the opposite end thereof to the inner face of the front plate 13.

The free end of the lever 22 is formed with a notch 25 adapted to be engaged by a dog 26 pivotally supported upon the shaft 19, and carrying a weight 27, adapted to strike against a stop pin 28 when the dog is disengaged from the notched end of the lever. The shaft 19 upon which the gravity-dog is mounted extends through the front plate 13, and to this extended front end of said shaft is pivotally attached, a finger-piece 29, by means of which the dog is turned to release it from engagement with the lever 22.

Upon the upper shaft 20 is fulcrumed a bent lever 30 to one end of which is secured a weight 31. The other end of this weighted lever is connected by a link 32 to the notched end of the lever 22, the ends of said link being pivotally secured to said levers. Depending from the central bearing 33 of the lever 30 and preferably formed integral therewith, is a hook-shaped locking arm or tumbler 34, adapted to bear against the upper end of the valve stem to lock the latter and the valve against upward movement.

The shaft 20 extends through the plate 13, and carries at its front end, a finger-piece 35 for turning said shaft and a pointer 36. Suitable marks, such as the arrows shown in Fig. 1 are placed on the front plate to indicate the position of the valve. When the pointer is in the horizontal position shown in the Fig. 1, it indicates that the valve is closed and locked, but when the pointer is in a downwardly inclined position, pointing to the lower arrow it indicates that the valve is open.

Figs. 6 and 7 illustrate the manner of securing the valve 3 to the stem 4. The upper surface of the valve 3 is formed with a horizontally disposed U-shaped flange 37 having an undercut groove 38 to receive a collar 39 formed on the lower end of the stem 4. After this collar has been slipped into the groove 38, the stem is secured by a cross-pin 40 fitting aligned openings formed in the ends of the flange. A transverse pin 41 projecting from the plate 14 serves as a guide for the stem 4.

The utility and operation of the device constructed as thus described, will be readily understood. When the valve 3 is seated, the mechanism will be in the position shown in Fig. 3 with the locking dog 26 in engagement with the notched end of the lever 22, and the locking arm or tumbler resting upon the upper end of the valve stem. Thus the valve is locked, and will remain seated until the dog is released by means of the finger-piece 29. When the dog 26 is released from engagement with the notch 25 in the lever 22, the locking arm 34 is moved from its locking position on the upper end of valve stem 4, which is accomplished by turning the shaft 20 by means of the finger piece 35 connected to the outer end thereof. If the pressure of the gas on the lower face of the valve 3 exceeds the tension of the spring 24, the valve is free to be raised under the pressure of the gas, and is held elevated in the position shown by dotted lines, the levers 22 and 30 and locking arm 34 being also held in the position shown by dotted lines in Fig. 1, the parts remaining in said positions so long as the pressure of the gas remains normal or of a pressure sufficient to overcome the tension of the spring 24. When, however, the flow of gas ceases, or the pressure is reduced materially below the tension of the spring 24, the latter pulling down on the free end of the lever 22, engages same with the dog 26, and the valve having moved to closed position, is held in its position by dog 26 engaging with the lever 22, and locking arm or tumbler 34 engaging with the upper end of the valve stem 4.

While the construction herein shown and described is simple and effective, the invention is not restricted to all of the details

shown, but includes all such modifications and variations as may be resorted to without departing from the spirit of the invention as set forth in the claims.

What I claim and desire to secure by Letters Patent, is:—

1. In a regulating valve, the combination with a valve casing, valve seat, and valve, of a stem extending above the casing, a spring-controlled lever fulcrumed above the casing, and connected to said stem, a gravity-dog to engage said lever, and a pivoted locking arm, adapted to bear against the upper end of the valve stem, and a connection between said lever and locking arm.

2. In a regulating valve, the combination with a valve casing, valve seat, and valve, of a valve stem extending above the casing, a plate projecting upwardly from said casing, a spring-controlled lever fulcrumed on said plate, and extending through the valve stem, a gravity-dog to engage the free end of said lever, a weighted lever fulcrumed upon said plate, a locking arm or tumbler carried by said weighted lever, and a link connecting said levers.

3. In a regulating valve, the combination with a valve casing, valve seat, and valve, of a closure for said casing, a valve stem extending through said closure, a vertically disposed plate extending upward from said closure, a lever fulcrumed on said plate and extending through the valve stem, a retracting spring for said lever, a weighted dog adapted to engage the free end of said lever, a weighted lever fulcrumed on said plate, a locking arm, depending from said weighted lever, a link connecting said levers, and an indicator pointer carried by the pivotal support of said weighted lever.

4. In a regulating valve, the combination with a valve casing, valve seat, and valve, of a closure cap for said casing, a block projecting from said cap, a valve stem extending through said block, parallel plates secured to opposite sides of said block, a lever fulcrumed between said plates and extending through a slot in said stem, a weighted dog adapted to engage a notch in one end of said lever, a retracting spring for said lever, a weighted lever fulcrumed between said plates above the valve stem, a curved locking arm depending from said weighted lever, and a link connecting said levers.

5. In a regulating valve, the combination with a casing, a valve seat, and valve, of a closure cap for said casing, a block projecting upward from said cap, a valve stem extending through said block, parallel plates secured to opposite sides of said block, hollow studs projecting from the inner sides of said plates, shafts supported in said studs, a lever fulcrumed on one of said shafts and extending through said valve stem, a gravity-dog

mounted on another of said shafts and adapted to engage the free end of said lever, a retracting spring for said lever, a weighted lever fulcrumed on the remaining shaft, a
5 locking arm depending from said weighted lever, a link connecting said levers, and a finger-piece on the shaft of the gravity-dog.

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

GEORGE A. FÜLLIPP.

Witnesses:

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