April 6, 1926. 1,579,951

S. POLEK

AUTOMATIC GAS CUT-OFF

Filed Jan. 12, 1924

Fig. 1.

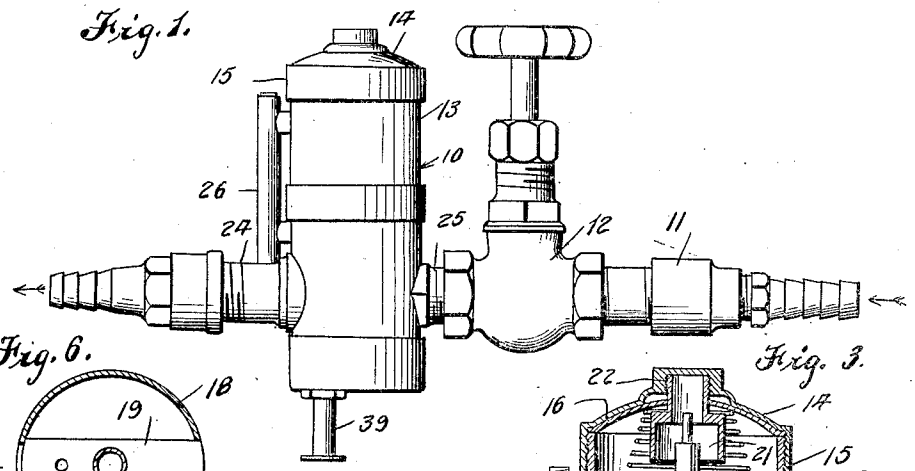


Fig. 6.

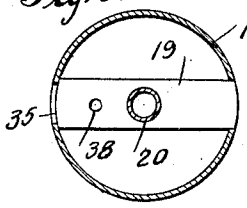


Fig. 2.

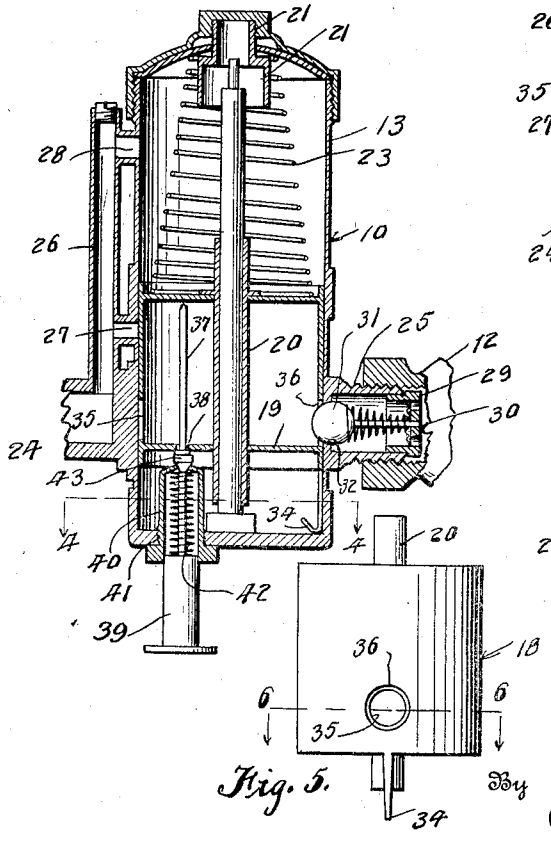


Fig. 3.

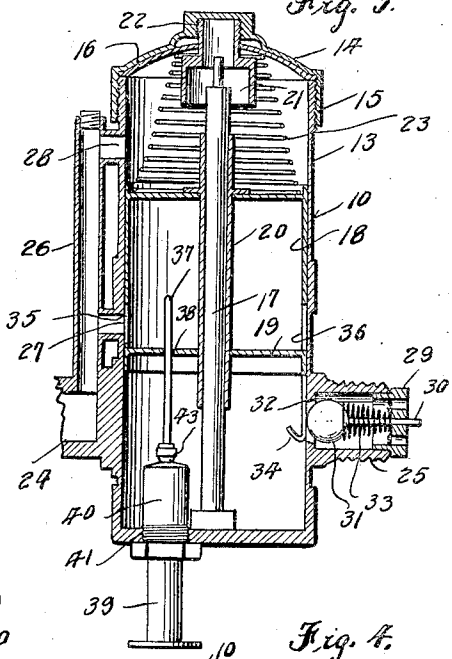


Fig. 4.

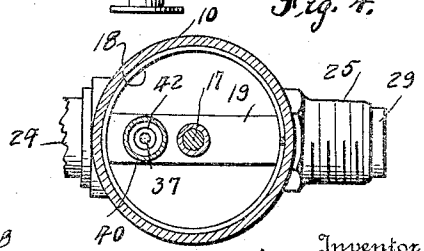


Fig. 5.

Inventor

S. Polek.

By

Attorney

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UNITED STATES PATENT OFFICE.

STANLEY POLEK, OF FARMINGTON, WEST VIRGINIA, ASSIGNOR OF ONE-FIFTH TO ANTONIO PASKO, OF FARMINGTON, WEST VIRGINIA.

AUTOMATIC GAS CUT-OFF.

Application filed January 12, 1924. Serial No. 685,914.

To all whom it may concern:

Be it known that I, STANLEY POLEK, a citizen of the Republic of Poland, residing at Farmington, in the county of Marion and State of West Virginia, have invented certain new and useful Improvements in Automatic Gas Cut-Offs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an automatic cut-off for use in connection with a source of gas supply to a burner or the like.

It is aimed to provide a novel means whereby incidental to extinction of the flame through lack of flow or supply of the gas or intermittent supply of the gas, the conduit will be closed so that the supply cannot thereafter be restored until manually operated, thus preventing the escape of gas into the atmosphere, which aside from the needless loss thereof may prove injurious or deadly to human life.

Another object is to provide a novel construction having a movable body, subject to the pressure of the gas, which is adapted to control the seating and unseating of a gas cut-off valve and which body is held in normal position and adapted to be elevated after a closing movement, by a common means.

Specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:

Figure 1 is a view showing the invention in side elevation as employed in a gas supply pipe line;

Figure 2 is a substantially vertical sectional view through the improved device on an enlarged scale, with the parts shown in closed position;

Figure 3 is a view similar to Figure 2, but showing the parts in open position;

Figure 4 is a cross sectional view on the line 4—4 of Figure 2;

Figure 5 is a side elevation of the slidable valve-control body, and

Figure 6 is a cross sectional view on the line 6—6 of Figure 5.

Like reference characters designate like or similar parts in the different views.

Referring specifically to the drawings, 10 generally designates my improved device which is operatively connected in a gas supply pipe line 11 through which the gas flows in the direction of the arrows in Figure 1 under control of a usual regulating or cut-off valve 12.

The device 10 consists of a substantially cylindrical casing 13 whose top is closed by a cap 14 threaded to the body or casing 13 at 15 and which clamps a gasket 16 in place to form a hermetic joint. Rising from the bottom wall of the casing 13 and disposed axially thereof is a post 17, round in cross section, along which a valve-control body 18, specifically shown in Figure 5, is slidable. This body 18 is substantially cylindrical, closed at its top, open at its bottom, bridged at its bottom by a diametric spider 19, and has a central guide tube 20 intimately engaging the post 17. A guide ferrule 21 is detachably threaded to the cap 14 at 22. The body 18 is engaged at its top and urged downwardly by a relatively weak expansive coil spring 23 which surrounds ferrule 21 and also engages the cap 14.

At opposite sides casing 13 has integral with it, exteriorly screw threaded nipples 24 and 25 by means of which the device is connected in the pipe line. Also formed integral with the casing is a by-pass pipe 26 in communication with the nipple 24 and in communication with the interior of the casing 13 through branches 27 and 28. Fastened to the nipple 25 is a perforated cage or disk 29 in which is slidably mounted the stem 30 of a ball valve 31 which is engageable with a seat 32 on the casing 13.

The ball 31 is urged towards its seat by an expansive coil spring 33 surrounding stem 30 and engaging the disk 29 and ball 31 at opposite ends. When the body 18 is elevated as in Figure 3, the valve 31 is held open through the medium of a detent finger 34 which depends below the bottom of body 18. With the parts in such relation, the gas will flow through the disk 29, past valve 31 into casing 13, into body 18 on oppposite sides of spider 19 and from the same through a port 35 in its side wall, through outlet 27, pipe 26 and nipple 24 to the point of use.

Diametrically opposite the port 35, body 18 has an opening 36 designed to provide clearance, as shown in Figure 2, for reception of the ball 31 so that it may completely close its seat, when body 18 is in lowermost position.

A lifting pin 37 passes through an opening 38 of the spider and serves to prevent turning of the body 18 with respect to the casing in order to maintain the port 35 and opening 36 in proper relation to the opening 27 and valve 31, respectively. Lifting pin 37 is carried by a manually operable plunger 39 which is slidably mounted in a sleeve 40 screw threaded at 41 to the casing 13. The plunger 39 and pin 37 are urged downwardly by an expansive coil spring 42 engaging the same and the upper end of the sleeve 40. Displacement of the pin and plunger are prevented as by the provision of an enlargement 43 on the pin located exteriorly of the thimble and being engageable by the upper end of the sleeve.

In use, say the body 18 is elevated as in Figure 3, and the gas flows to the burner as previously traced, the inflowing gas will maintain the element 18 in such raised position with the relatively weak spring 23 compressed. Should the pressure of the gas diminish, the spring 23 will spend its energy so as to urge the body 18 to lowermost position. The spring is aided by the gas also, since a quantity of it will by-pass through the pipe 26 and branch 28 into the casing 10 above the body 18 which moves to its lowermost position. The ball 31 under urgency of spring 33, will engage its seat 32 due to the clearance provided by the opening 36. The body 18 will thus be maintained in this closed position until it is manually released therefrom, since with the closing of such valve the flame at the burner will have been extinguished and the gas should not be permitted to escape into the atmosphere, which aside from the loss thereof, would be injurious to surroundings and life. When the pressure or flow of the gas is restored, the plunger 39 is pressed upwardly so that the pin 37 will engage the top wall of element 18 and thus raise it to the position of Figure 3, where the pressure of the gas will so maintain it raised and the burner may again be lighted.

Changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. A device of the class described having a casing, a body movable in the casing to control its outlet, said body being closed at one end, means providing a passage for gas through the casing in communication therewith both above and below said closed end, the gas serving to normally maintain said body out of closing relation to said outlet, and a valve controlling the supply of gas subject to the movement of said body.

2. A device of the class described having a casing, a body movable in the casing to control its outlet, said body being closed at one end, means providing a passage for gas through the casing in communication therewith both above and below said closed end, the gas serving to normally maintain said body out of closing relation to said outlet, a valve controlling the supply of gas subject to the movement of said body, and a lifting means for said body serving to prevent rotation thereof out of cooperative relation with said valve.

3. A device of the class described having a casing, a movable body therein operable subject to the flow of gas therethrough, a lifting member for said body consisting of a rod extending into the body, a plunger carrying said rod, a sleeve attached to and extending into the casing, said plunger being guided by said sleeve, an enlargement on the rod within the casing exteriorly of and normally engaging said sleeve, and an expansive spring surrounding the rod engaging the plunger and said sleeve.

4. A device of the class described having a casing, a cap for the casing, a guide tube carried by said cap, a body within the casing movable subject to the flow of gas therethrough, said body including a tube, a guide post within said casing for the tube, an expansive spring surrounding said guide tube and engaging the body and the casing, and valve means controlled through movement of said body.

5. A device of the class described having a casing, a post within the casing, a movable body within the casing closed at its top, having a spider adjacent its bottom and having a central tube slidable on said post, said body having through its side wall a port and an opening diametrically opposite said port, said casing having a by-pass pipe provided with a branch adapted to register with said port and a branch adapted to communicate with the casing above the top of said body.

6. A device of the class described having a casing, a post within the casing, a mov-

able body within the casing closed at its top, having a spider adjacent its bottom and having a central tube slidable on said post, said body having through its side wall a port and an opening diametrically opposite said port, said casing having a by-pass pipe provided with a branch adapted to register with said port and a branch adapted to communicate with the casing above the top of said body, a lifting device carried by the casing having a rod extending through said spider, a detent finger depending from the body, a closure valve normally maintained open by said detent finger, means to urge said valve to its seat, and said valve being movable into said opening as clearance when seated.

In testimony whereof I affix my signature.

STANLEY POLEK.