

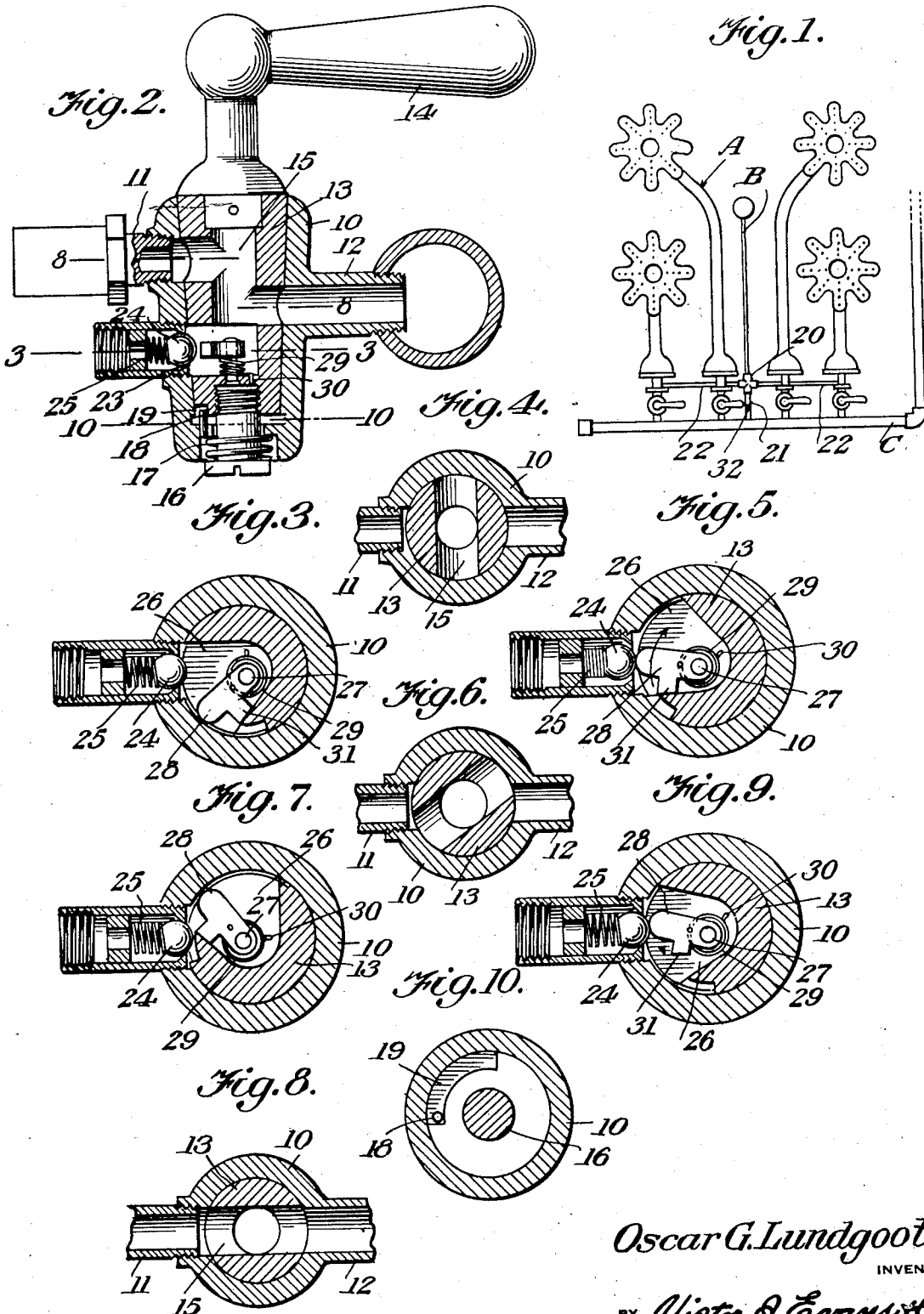
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PILOT LIGHT AND GAS BURNER VALVE

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PILOT LIGHT AND GAS BURNER VALVE

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6 Claims. (Cl. 158—115)

The invention relates to a pilot light and burner control valve and more particularly to an automatic pilot light valve for artificial or natural gas stoves and ranges.

5 The primary object of the invention is the provision of a valve of this character wherein the flow of gas to the pilot light will be automatically regulated when actuating the valve to the gas burner so that on the turning on of the burner
10 valve an increased supply of gas will be delivered to the pilot light for the lighting of the burner when the same has been fully opened yet upon the closing of said burner in the operation of its valve the pilot light flow will not increase but such
15 pilot will remain lighted during the time that the burner is shut off or closed.

Another object of the invention is the provision of a valve of this character wherein the same operates automatically on the opening and closing
20 of the burner of a gas stove or range so that the pilot flame can be increased by greater flow of gas thereto on the initial turning on of the burner for the lighting of the latter and when such burner is fully open or turned on the pilot light
25 will become neutral and the increased supply of gas thereto shut off, thus eliminating excess consumption of gas and also assuring safety as the possibility of danger of escaping gas from the burner or the pilot light is eliminated and especially at the burner.
30

A further object of the invention is the provision of a valve of this character wherein the construction thereof is novel in form and likewise the operation for the automatic action is
35 novel, the valve for the control of the gas to the pilot light being a part of the valve for controlling the burner or is interfitted and associated therewith.

A still further object of the invention is the provision of a valve of this character which is extremely simple in construction, thoroughly reliable and efficient in its operation, compact, possessing but few parts, durable, automatic of action, and inexpensive to manufacture and install.
40

45 With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described in detail, illustrated in the accompanying drawing, which
50 discloses the preferred embodiment of the invention, and pointed out in the claims hereunto appended.

In the accompanying drawing:—

55 Figure 1 is a top plan view of a group of gas

burners and a pilot light showing the valve mounting in accordance with the invention.

Figure 2 is an enlarged vertical sectional view showing the burner valve in open position with the pilot light valve in association therewith. 80

Figure 3 is a sectional view on the line 3—3 of Figure 2.

Figure 4 is a horizontal sectional view through the valve when it is in position for closing the burner related therewith. 85

Figure 5 is a view similar to Figure 3 showing the position of the pilot light valve when the burner valve has been turned about thirty-five degrees.

Figure 6 is a view similar to Figure 4 with the valve of the burner in position corresponding to that shown in Figure 5. 90

Figure 7 is a view similar to Figure 5 with the valve of the burner fully open.

Figure 8 is a view similar to Figure 6 with the valve to the burner fully open. 95

Figure 9 is a view similar to Figure 5 showing the burner valve partially moved to closed position without affecting the pilot light valve.

Figure 10 is a sectional view on the line 10—10 of Figure 2. 100

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, A designates generally a plurality of gas burners commonly employed in artificial and natural gas stoves and ranges, B the pilot light and C the gas supply pipe to said burners and pilot light A and B respectively. 90

The burners A each has its communication with the gas supply pipe C through a valve casing 10, the latter having the nipple connections 11 and 12 to the burner A and supply pipe C respectively, while rotatably fitted within the casing 10 is the plug valve 13 carrying a handle 14, the plug valve 13 being formed with a substantially Z-shaped passage 15 for establishing communication between the nipples 11 and 12 when the valve 13 is moved to opening position for the turning on of the burner A. The plug valve is preferably of tapered formation and has engaged in its smaller end a retaining bolt 16 active upon a spring 17 seated in the casing 10 and this spring 17 functions to effect a tight fitting between the valve 13 and the casing 10. 105

The casing 10 interiorly thereof carries a stop pin 18 which works within a groove or channel 19 in the plug valve 13 to limit the turning movement 110

of the latter to stop the turning valve when reaching open and closed positions or vice versa.

The pilot light B through the medium of a four-way union 20 has a direct communication with the gas supply pipe C through the branch 21 and also by the branches 22 communication with the valve casing 10 for the respective burners A and at the point of communication of each branch 22 with each casing 10 is a valve seat 23 for a ball valve 24 moved to the seat 23 by the spring 25, the ball valve 24 being adapted to unseat outwardly from the casing 10 and when unseated permits an additional flow of gas from the pipe C through the branch 22 to the pilot light and this ball valve 24 is automatically controlled in a manner presently described.

Formed within the plug valve 13 is a by-pass 26 which leads from the passage 15 to the branch 22. Within the by-pass 26 is eccentrically pivoted at 27 a tripping trigger 28 which is adapted to automatically unseat the ball valve 24 from the seat 23 when the plug valve 13 is shifted or turned from closing position to the burner A to opening position of the latter as is clearly shown in Figure 5 of the drawing so that increased gas supply at a determined interval can be delivered to the pilot light B for increasing its flame at the desired point of opening movement of the plug valve 13 for the lighting of the burner A controlled thereby.

The trigger 28 has acting upon the same a tensioning spring 29 which is coiled about its pivot 27 with one end 30 fixed to the valve 13 and the other end engaged with the trigger, while formed at one side of the latter is an abutment nose or projection 31 which contacts with the wall of the by-pass 26 and maintains the trigger 28 normally under tension by the spring 29 yet permits the said trigger to trip over the valve 24 without liability of unseating the same from its seat 23 when the plug valve 13 is turned to a position for shutting off the gas from the burner A in association therewith as will be apparent in Figure 9 of the drawing.

It will be apparent that when turning on the valve 13 for the supply of gas to its burner A from the pipe C, this being at about thirty-five degree turn, the trigger 28 will engage the ball valve 24 unseating it from the seat 23, it being understood of course that the valve 13 has a thirty degree turn of safety, allowing gas to pass from the pipe C to the pilot light B and said valve 24 will remain unseated between thirty-five and fifty-five degrees of the turn of the valve 13 when the trigger 28 rides past the valve 24 allowing it to become seated against the seat 23 under the action of the spring 25 and thus closing gas supply from pipe C through the valve 13 to the lighter B. Now when the valve 13 is reversely turned for the shutting off of the gas supply to the burner A the trigger 28 will ride over the valve 24 without causing the unseating thereof from the seat 23 and the spring 29 by reason of its tension will bring the trigger 28 to natural or normal position with the abutment nose or projection 31 against the wall of the by-pass 26 as is clearly shown in Figure 9 of the drawing.

It will be apparent that as a safety factor on the opening of the valve 13 for the opening of the gas burner A the burner will become lighted from the pilot B thereby eliminating dangers incident to escaping gas, it being understood of course that the pilot light B is at all times lighted and the supply of gas for this purpose is had through the branch 21 from the pipe C. Upon opening the burner A an increased supply of gas

from pipe C is delivered to the pilot light B for increasing its flame to light the open burner yet on the closing of such burner A an increase of gas supply to the pilot light B will not be repeated or occur and this is due to the arrangement of the trigger 28 by the eccentric mounting thereof in the valve 13 as has been hereinbefore set forth. The branch 21 has fitted therein a manually adjustable regulator valve 32 which serves to decrease the flow of gas to the pilot light or burner and in this manner such initial flow can be controlled to regulate the flame at the pilot when the gas burner or burners are closed.

What is claimed is:—

1. In combination, a burner, a pilot light, fuel supply means therefor, a control valve for the burner, a valved by-pass between the control valve and the pilot light, and cam means entirely within, and carried by, the control valve for actuating the valve of the by-pass to open the latter on the opening of the control valve to the burner.

2. In combination, a burner, a pilot light, fuel supply means therefor, a control valve for the burner, a valved by-pass between the control valve and the pilot light, cam means entirely within, and carried by, the control valve for actuating the valve of the by-pass to open the latter on the opening of the control valve to the burner, and means coacting with the last named means to permit reverse movement of the control valve for closing the burner valve without reopening the valve of the by-pass.

3. In combination, a burner, a pilot light, fuel supply means therefor, a control valve for the burner, a valved by-pass between the control valve and the pilot light, cam means entirely within, and carried by, the control valve for actuating the valve of the by-pass to open the latter on the opening of the control valve to the burner, means coacting with the last named means to permit reverse movement of the control valve for closing the burner valve without reopening the valve of the by-pass, and means for limiting the throw of the control valve to opening and closing positions.

4. In combination, a burner, a pilot light, fuel supply means therefor, a control valve for the burner, a valved by-pass between the control valve and the pilot light, cam means entirely within, and carried by, the control valve for actuating the valve of the by-pass to open the latter on the opening of the control valve to the burner, means coacting with the last named means to permit reverse movement of the control valve for closing the burner valve without reopening the valve of the by-pass, means for limiting the throw of the control valve to opening and closing positions, and means for limiting the movement of the second named means.

5. In combination, a burner, a pilot light, a fuel supply line having leads to the burner and pilot light, respectively, a control valve for the burner, and cam means within, carried by and operable with the control valve to actuate a part outside of the latter for increasing fuel supply to the pilot light on the opening of the control valve and the admission of gas to the burner.

6. In combination, a burner, a pilot light, fuel supply means for each, a control for admission of fuel to the burner, and cooperative means comprising two members, one wholly within the control and the other outside said control, to increase fuel supply to the pilot on actuating the control.

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