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SAFETY SHUT-OFF COCK FOR BURNERS WITH PILOT LIGHTER

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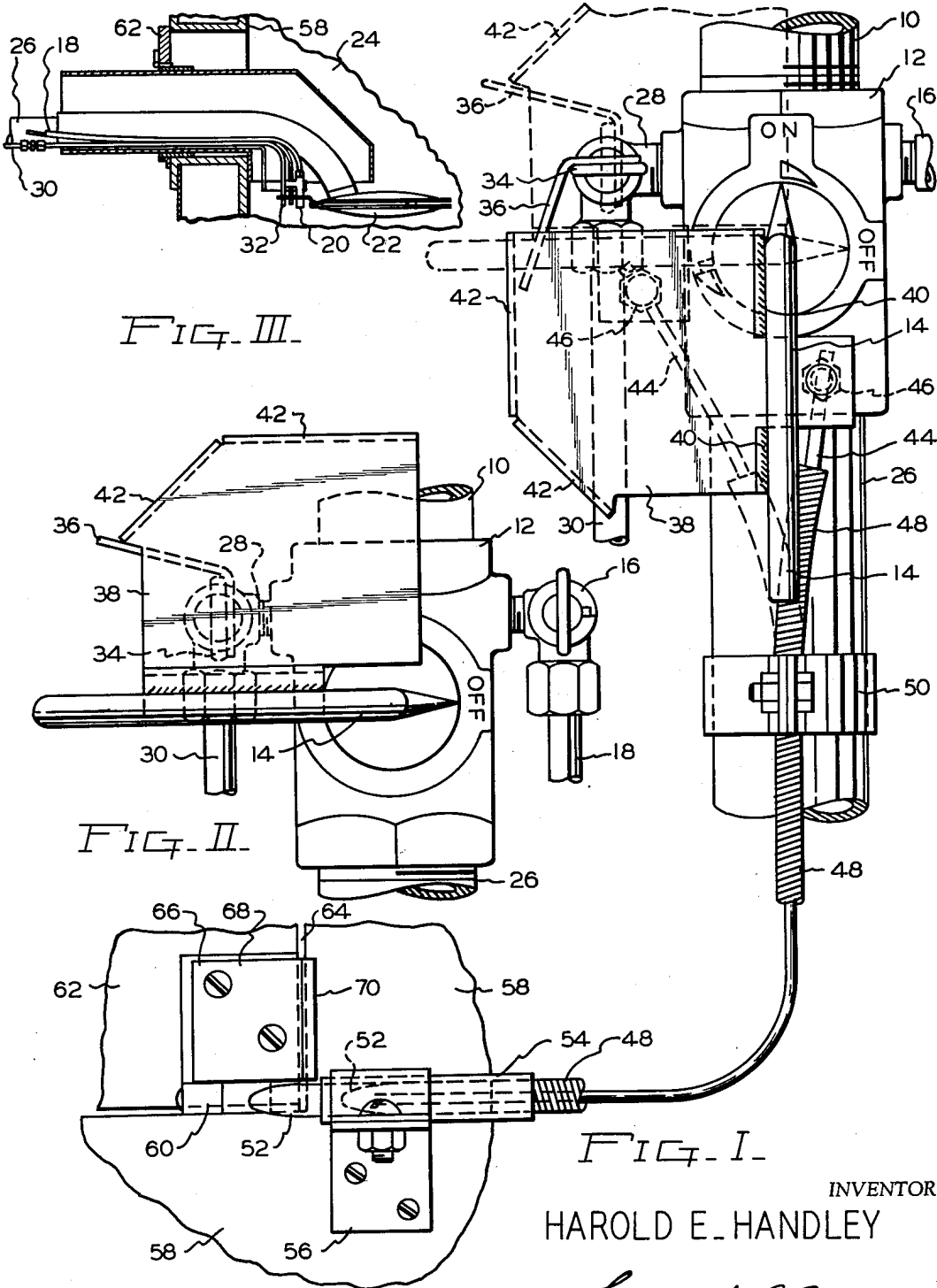


FIG. I.
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SAFETY SHUT-OFF COCK FOR BURNERS WITH PILOT LIGHTER

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3 Claims. (Cl. 137—637.1)

This invention relates to gas burning heating appliances, and more particularly to safety accessories which prevent the operation of valves except under the proper conditions.

The very nature of a gas burning apparatus makes it inherently dangerous unless operated according to the manner in which it is designed to be operated. For instance, in those gas heating appliances having a lighter tube, a pilot light, and a main burner, the lighter tube should not be supplied with gas unless the main fuel cock is in its off position. Likewise, the access door to the burner itself should not be opened when the burner is operating, nor should the main burner be turned on with the access door open. To fail to observe these fundamental rules is to court disaster. However, since some people insist on operating these devices contrary to instructions, safety devices must be added for their own protection.

It is, therefore, an object of this invention to provide, in combination, a fluid fuel burner and a lighter tube therefor, each being supplied with fuel by a separate valve, and an interlock controlling the sequence of operation of said valves.

A further object is to provide an actuator interlock, which will move in cooperation with the operating handle of the main gas cock to act as a safety plate for the lighter tube supply cock, and as an actuator for a member coacting with the main access door of the apparatus.

A further object is to provide a safety accessory which will function as a shutoff plate between the main gas supply cock and the lighter tube supply cock.

A further object is to provide an actuator plate to be used in combination with a door engaging member whereby to retain the access door in its closed condition except when the main gas cock is in its off position, and which will prevent the opening of the main gas cock when the access door is open.

These and further objects of my invention will be apparent from a consideration of the following specification in connection with the appended claims and accompanying drawings, in which

Fig. I is a plan and diagrammatic broken view wherein the parts are shown in full line with the main gas cock in the "on" position, and in dotted line with it in the "off" position,

Fig. II is a plan view of the interlock used without the door safety device, and

Fig. III is an elevational view of a conversion burner installed in a heating plant with certain parts omitted.

Referring to the drawings, the main gas supply pipe 10 supplies fluid fuel to a control cock 12 actuated by the lever handle 14. The control cock 12 is fitted with an angle shutoff cock 16 which supplies fuel through the tube 18 to the pilot 20 of the main burner 22, mounted in the combustion chamber 24. The pipe 26 supplies fuel to the main burner 22, and the angle shutoff cock

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28 supplies fuel through the pipe 30 to the pilot lighter tube 32, which may be of any well known construction. The angle shutoff cock 28 is fitted with an operating handle 34 to which an extension 36 is added, substantially in the shape as shown, projecting in a direction away from the valve 12.

The shut off plate or shield 38 is attached as at 40 to the lever handle 14, in any suitable manner, and projects in the direction of the angle shutoff cock 28. The edge of the plate 38 remote from the lever handle 14 is shown as being formed with the flange 42 subtending therefrom, and overlying the operating handle extension 36.

The shield 38 also carries one end of an operating cable 44, attached thereto by a swivel nut 46, or other similar connection. The cable 44 is preferably sheathed in a casing 48 which is in turn held in position adjacent the operating lever 14 by the cable clamp 50. Attached to the other end of the cable 44 is a plunger tip 52 encased within a cylindrical guide 54 and held in position by a clamp member 56. It will be appreciated that with the lever 14 in the "on" position, as shown in full line in Fig. I, the plunger tip 52 will be projected out from the end of the cylindrical guide 54, whereas with the operating lever 14 positioned in its "off" position, as shown in dotted line in Fig. I, the plunger tip 52 will be retracted, as shown there in dotted line.

The cable clamp 56 is mounted on the casing 58 of the general appliance structure, adjacent a hinge 60 by means of which a door 62 is mounted in a suitable opening 64, which gives access to the combustion chamber 24. Mounted as shown on the hinge 60, or otherwise in juxtaposition to the clamp 56, is the angle plate 66 having its one face 68 parallel to one face of the hinge 60, and having its second plate 70 positioned substantially perpendicular thereto. The angle plate 66 is mounted barely above the extended plunger tip 52, as shown in full line, to coact therewith.

With the parts in position as shown in full line in Fig. I, it will be appreciated that the door 62 may not be opened because of the engagement of the lower edge of the stop plate 70 with the protruding plunger tip 52. In other words, with the operating lever 14 in the "on" position it is impossible, by reason of the presence of the protruding plunger tip 52, to open the door 62. This will prevent the dangerous practice of opening the access door 62 and lighting the main gas supply, resulting in an explosion.

Likewise, with the parts in the full line position shown in Fig. I, it is impossible to supply fuel through the line 30 to the pilot lighter tube 32, because it is not possible to rotate the operating handle 36 past the subtended flange 42 on the plate 38. This will prevent the supplying of fuel to the pilot lighter tube 32 with the main supply turned on.

With the parts in the position shown in dotted line in Fig. I, and in full line in Fig. II, the handle 36 may be freely moved to open the angle shut off cock 28, thereby supplying fuel through the line 30 to the pilot lighter tube 32. However, after this is done, it will be found that, if the door 62 is open, the lever handle 14 may not be turned from the "off" to the "on" position because of the engagement of the retracted plunger tip 52 with the stop plate 70. In other words, it is necessary to first close the door 62 before the main fuel supply may be turned on by means of the lever handle 14.

It will also be appreciated, that with the main fuel valve in the "off" position, as shown in dotted line in Fig. I, the pilot lighter fuel cock handle 36 may be turned off manually, or will be turned to its "off" position automatically by movement of the lever handle 14

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to its "on" position, by reason of the engagement of the subtended flange 42 with the extended handle 36.

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

1. An actuator providing an interlock in a fuel supply control having a main fuel supply valve, a control handle operatively connected with said main fuel supply valve, a subsidiary fuel supply valve, and a control handle operatively connected with said subsidiary fuel supply valve, said actuator comprising a plate mounted on said main fuel supply control handle for pivotal movement therewith, and a subtending flange formed adjacent one edge of said plate and remote from said main fuel supply control handle, said flange being positioned in the path of movement of said handle of said subsidiary fuel supply valve to prevent the opening of said subsidiary fuel supply valve when said main supply valve is open, said flange pivoting with said first control handle out of said path to permit the opening of said subsidiary fuel supply valve when said main fuel supply valve is closed, said flange coacting with said subsidiary fuel supply control handle as an abutment.

2. A fluid fuel supply control comprising in combination, a main fuel supply valve, a first operating handle associated with said valve, a subsidiary fuel supply valve mounted in juxtaposition to said main valve, a second operating handle associated with said subsidiary supply valve and mounted for pivotal movement, a member attached to said first operating handle for pivotal movement therewith, said member having an operating abutment portion remote from said first operating handle in a position to cooperate with said second operating handle whereby the actuation of said first operating handle in one direction will actuate said second operat-

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ing handle, said member also having a restricting abutment portion for preventing the actuation of said second operating handle with said first operating handle in one of its operating positions.

3. In combination, a main fuel valve exposed for independent opening and closing actuation, a lighter tube valve mounted adjacent thereto, a shield member operatively associated with said main fuel valve and positioned to expose said pilot lighter valve for independent actuation when said main fuel valve is closed, to close said pilot lighter valve upon opening said main fuel valve, and to shield said pilot lighter valve from actuation when said main fuel valve is open, said member including a restricting abutment locatable in the path of movement of said lighter tube valve in one position of said main fuel valve, and an actuating abutment on said member for actuating said lighter tube valve when said main fuel valve is moved to its open position.

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