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LIQUID FUEL CONTROL FOR BURNERS

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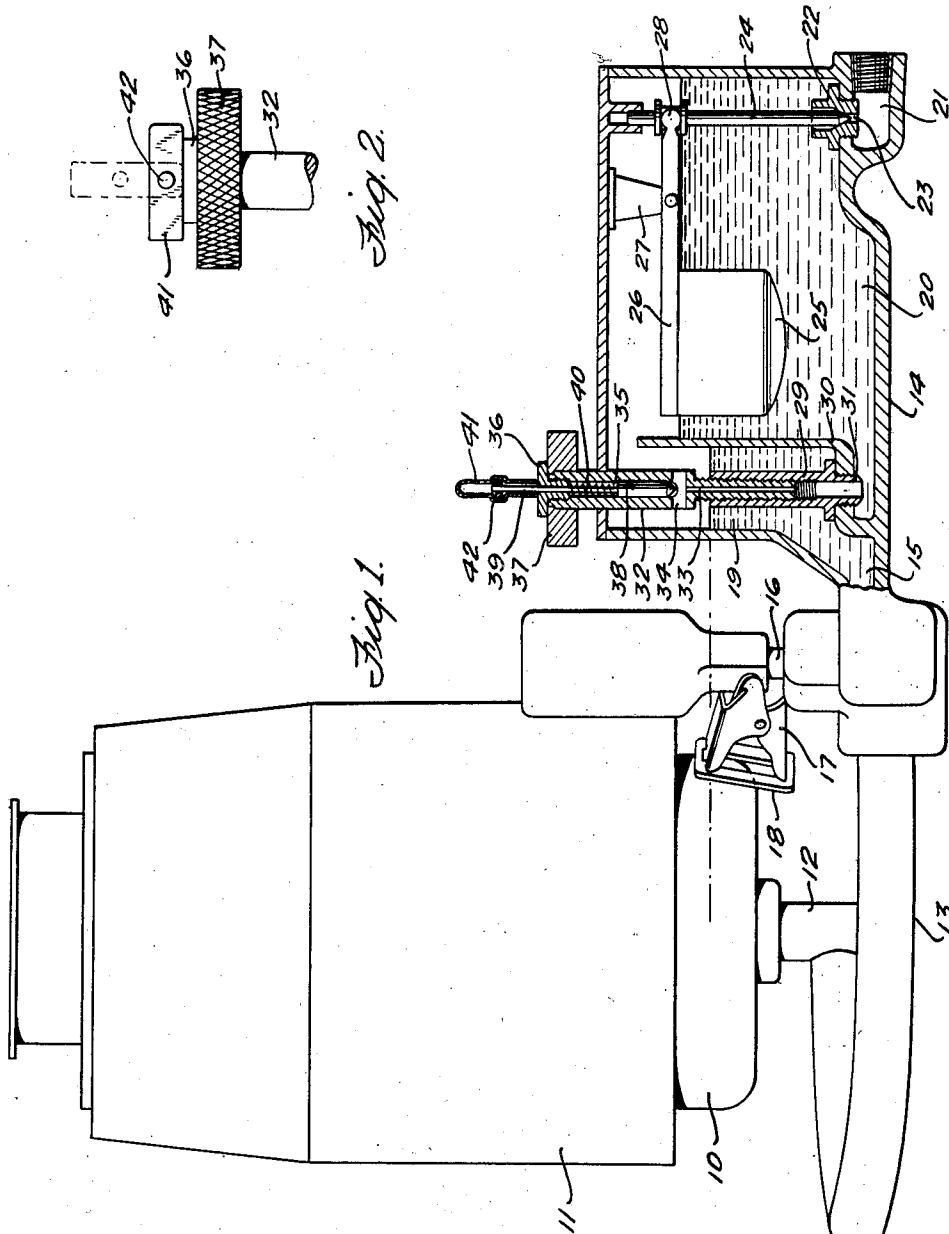


Fig. 2.

Fig. 1.

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LIQUID FUEL CONTROL FOR BURNERS

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1 Claim. (Cl. 137-68)

My invention relates to liquid fuel burners and it is an object of the invention to provide an improved control for a liquid fuel burner as will appear from the following description and accompanying drawing forming part of the specification, and of which:

Fig. 1 is a part elevation and part vertical sectional view of a liquid fuel burner embodying the invention; and

Fig. 2 is a fragmentary view of the device shown in Fig. 1.

An annular vaporizing well 10 is provided with a combustion chimney 11. The upper end of a burner tube 12 is connected to the vaporizing well 10. The lower end of the burner tube 12 is connected by a conduit 13 to a float vessel 14. The conduit 13 communicates with a passage 15 in the float vessel 14. The passage 15 is controlled by a weighted valve member 16 normally held in its open position by a catch 17 and a fusible link 18. The fusible link 18 is located just beneath the lower end of the combustion chimney 11 so that the fusible link will be melted upon backfire of the burner to release the valve 16 which descends and closes the fuel passage 15.

The passage 15 communicates with the lower part of a chamber 19 in the float vessel 14. The upper part of chamber 19 communicates with the upper part of the float chamber 20 so that chambers 19 and 20 are at the same pressure.

A passage 21 provides for inlet of liquid fuel to the float vessel 14. A liquid fuel supply pipe, not shown, may be threaded into the outer end of the passage 21. A bushing 22 forms a valve passage 23 from the inlet passage 21 into the float chamber 20. A valve member 24 is operable to open and close the valve passage 23. A float 25 in the float chamber 20 is connected to one end of a lever 26. The lever 26 is pivoted on bracket 27 and the other end 28 of this lever operatively engages the valve member 24.

A bushing 29 threaded through an opening in the bottom of a partition 30 forms a passage 31 from the lower part of the float chamber 20 into the overflow chamber 19. The upper end of the bushing 29 is internally threaded to receive an external thread on the lower end of a member 32. The lower end of the member 32 is provided with a small flow restricting passage 33. The upper end of the passage 33 communicates with a cross passage 34 through the member 32. The lower end of passage 33 is open at the bottom end of the member 32.

The upper end of member 32 is provided with a central passage 35 which is directly in line with

the lower flow restricting passage 33. The lower end of passage 35 opens into the cross passage 34 and the upper end of passage 35 is threaded to receive a bushing 36 which holds a knob 37 in place on the upper end of the member 32. The upper end of the member 32 extends through an opening in the top of the float vessel 14 so that the knob 37 is outside of the float vessel.

A needle valve member 38 is located in the lower end of the passage 35 just above the cross passage 34. The valve member 38 is provided with a stem 39 which extends upward in the passage 35 and through the central opening in the bushing 36. A spiral spring 40 is placed around the valve stem 39 in the passage 35 between the lower end of the bushing 36 and the top of the valve member 38. The spring 40 urges the valve member 38 downward so that if the valve member 38 is not restrained it moves downward through the cross passage 34 and seats on the upper edge of the flow restricting passage 33 to close this passage. A U-shaped piece 41 is pivoted at 42 to the upper end of the valve stem 39. The pivot point is intermediate the head and leg ends of the U-shaped member 41. When the member 41 is upright with its legs on the head of the bushing 36, as shown in Fig. 1, and in dotted outline in Fig. 2, the shut-off valve member 38 is held upward against the action of spring 40 so that the passage 33 is entirely open. The member 41 may be termed a catch. By turning the upper end of the catch 41 so that the legs are displaced out of line with the upper end of the valve stem 39, the spring 40 moves the valve member 38 downward to shut the passage 33 and the catch 41 is moved to a horizontal position on the head of the bushing 36 as shown in solid outline in Fig. 2.

Assuming now that the burner and float chamber are empty, the float 25 will be downward and the valve 24 lifted. Liquid fuel from the supply passage 21 flows through valve passage 23 into the float chamber 20. As the float chamber 20 fills, liquid flows through passage 31, the small passage 33, and, when the level in float chamber 20 is high enough, the liquid then flows from the upper end of passage 33 into the cross passage 34 and thence into the overflow chamber 19. Liquid flows from the chamber 19 through passage 15 and conduit 13 into the burner tube 12. Liquid rises in the float chamber 20 until it reaches a level at which the float 25 closes the valve member 24.

When the burner is placed in operation and liquid fuel, such as kerosene, is consumed from

the burner tube 12, the level of liquid in the burner tube 12 and the overflow chamber 19 recedes. This causes further flow of liquid fuel from the float chamber 20 into the overflow chamber 19, the upper end of the flow restricting passage 33 being located sufficiently below the level of liquid maintained in the float chamber 20. The rate of flow of liquid fuel from the float chamber 20 through the passage 33 may be varied by changing the distance of the upper end of the passage 33 below the level of liquid in the float chamber 20. This is done by screwing the member 32 up or down in the bushing 29 by manipulation of the knob 37 outside of the float vessel. As the member 32 is lowered, the head of liquid in the float chamber 20 acting to cause flow of liquid through the small passage 33 is increased, whereby the overflow feed of liquid fuel into chamber 19 is increased.

Tripping the catch 41, as previously explained, cuts off the drip feed into the chamber 19 and thus to the burner well. This is a convenient way to prevent kerosene from flowing into the burner well before cleaning of the well. Quick tripping of the valve to its shut-off position is also useful

to shut off fuel flow to the burner in case of an emergency.

Various changes and modifications may be made within the scope of the invention which is not limited as shown in the drawing and described in the foregoing part of the specification, but only as indicated in the following claim.

What is claimed is:

In a liquid fuel burner having a burner well and a constant level chamber, a conduit for conducting liquid fuel from said chamber to the well, means for regulating the flow of liquid between said chamber and said well, said means including a vertically adjustable conduit structure, a valve member carried by and incorporated in said structure in adjustably movable relation thereto, means for operating said valve member, said valve member being vertically movable with said structure whereby the relation between the valve and the conduit structure will be kept the same when the conduit structure is adjusted from one position to another.

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