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LIQUID FUEL CONTROL MEANS

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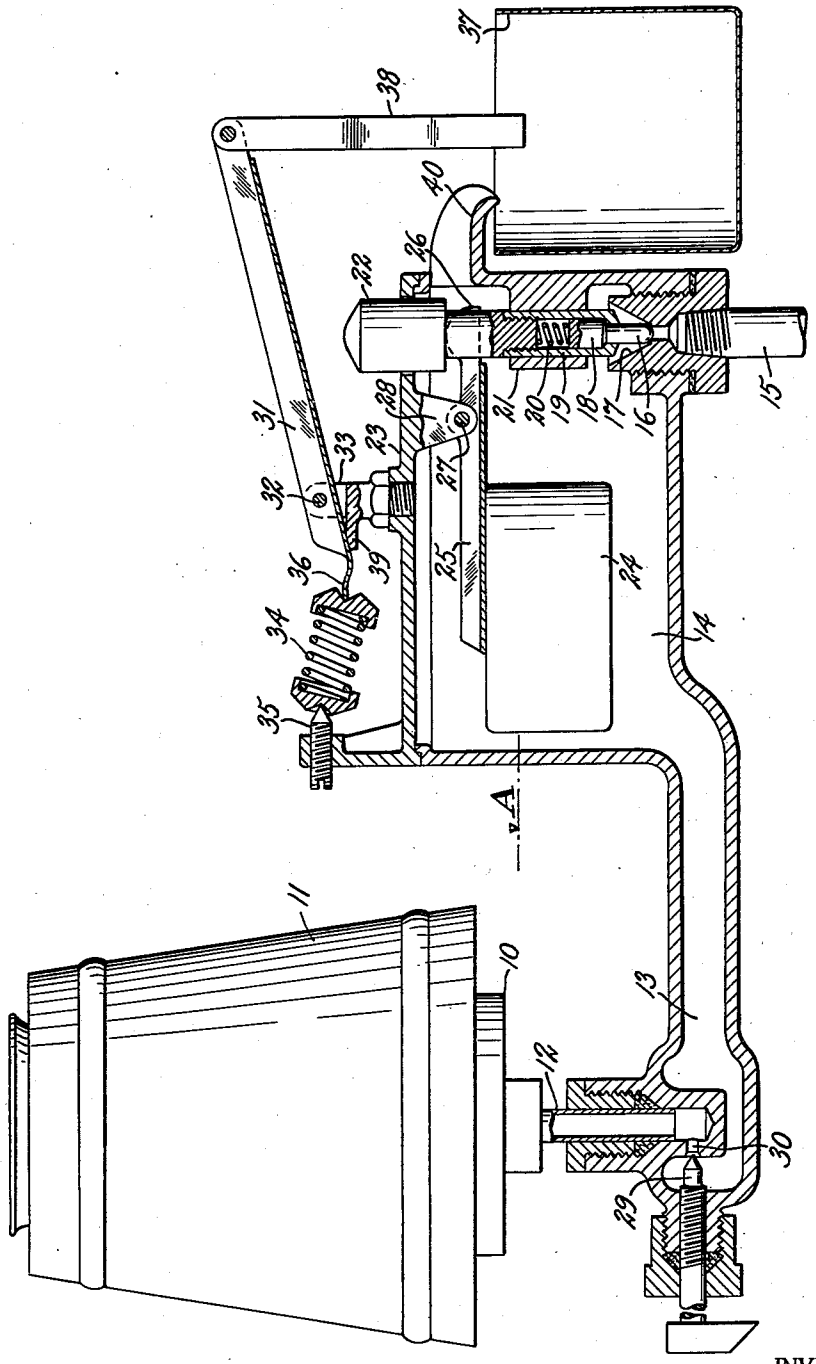


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## LIQUID FUEL CONTROL MEANS

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5 Claims. (Cl. 137—68)

My invention relates to liquid fuel burners and more particularly to safety control mechanism for such burners.

It is an object of my invention to provide an improved safety valve for liquid fuel burners and more particularly an improved overflow cutoff valve for a float valve controlled burner.

The single figure of the drawing shows more or less diagrammatically a liquid fuel burner embodying the invention.

A burner well 10 is provided with a combustion chimney 11. The burner well 10 is connected by a burner tube 12 and a passage 13 to a float chamber 14. Liquid fuel, such as kerosene, is supplied to the float chamber 14 from a supply conduit 15. Flow of kerosene from the supply conduit 15 into the float chamber 14 is controlled by a valve member 16.

The valve member 16 engages or seats, when closed, on the lower part of a conical valve seat 17. The valve member 16 is provided with a head 18 slidable in a sleeve member 19. A spring 20 exerts a force between the upper closed end of the sleeve 19 and the valve head 18 so that the valve member 16 is normally held with respect to the sleeve 19 in the position shown. The sleeve member 19 is vertically slidable in a guide 21. The upper end of the sleeve 19 is provided with an enlargement 22 which projects through an opening in the cover plate 23 of the float chamber 14.

A float 24 is connected to one end of a lever 25. The other end of the lever 25 is bifurcated, the prongs 26 engaging beneath the enlarged portion 22 of the valve sleeve 19. The lever 25 is pivoted at 27 on a lug 28 projecting downward from the float chamber cover plate 23.

When the level of kerosene in the float chamber 14 is below a determined level such as that indicated by the line A, the float 24 is downward from the position shown in the drawing causing lever 25 to raise the sleeve 19 and valve 16. This permits kerosene to flow from the supply conduit 15 into the float chamber 24, passage 13, and burner tube 12. When kerosene reaches the level A, the float has been raised to the position shown, permitting the valve 16 to shut under the force of gravity to cut off flow of kerosene into the valve chamber. This operation of valve 16 by float 24 regulates the flow of kerosene so that the liquid level in float chamber 14 is maintained at the desired level A. The rate of flow of liquid from the float chamber to the burner may be adjusted by a valve member 29 controlling a valve passage 30 between passage 13 and the lower end of the burner tube 12.

On the top of the float chamber cover plate 23 is provided a snap action spring toggle comprising a lever 31 pivoted at 32 on a projection 33 screwed into the cover plate. A spring 34 is held under compression between an adjustable pivot 35 and one end 36 of the lever 31. On the other end of the lever 31 there is suspended a bucket 37. The bucket 37 is provided with a handle 38 which is pivotally connected to the lever 31. The lever 31 overlies the projecting portion 22 of the valve sleeve 19. A projection 39 on the post 33 provides a stop for the lever 31 in the position shown. The bucket 37 hangs under a spout 40 provided in the upper part of the casing of the float chamber 14. The opening in the float chamber 14 provided by the spout 40 is at a level above the normal level of liquid A in the float chamber.

If for any reason, such as faulty operation of valve 16, the level of liquid in the float chamber 14 rises to the level of the spout 40, kerosene overflows and is directed by the spout into the bucket 37. As the bucket 37 fills with kerosene its weight increases until it exceeds the force necessary to operate the toggle mechanism which thereupon snaps across dead center so that the lever 31 descends upon the projection 22. As lever 31 descends upon the projection 22, the valve sleeve 19 and valve member 16 are forced downward. The valve member 16 is stopped by the lower part of the valve seat 17, but, under the force of the toggle, the valve sleeve 19 moves downward, compressing spring 20, until the lower end of the sleeve 19 comes into contact with the upper part of the valve seat 17. The lower end of the sleeve 19 is formed as a valve member which seats securely on the seat 17 to cut off flow of kerosene into the valve chamber 14 until the bucket 37 is empty and the toggle mechanism reset to the position shown.

Various modifications and changes will occur to those skilled in the art wherefore the invention is not limited as set forth in the specification and drawing but only as indicated in the following claims.

I claim:

1. Control mechanism for liquid fuel burner including a valve having two members one of which telescopes into the other, a float connected to operate said members to cause only one of them to open and close, and means other than said float operable to cause telescoping of said mem-

bers and movement of both said members to their closed positions.

2. In a liquid fuel burner having a float and a valve operated thereby for regulating supply of fuel to the burner, that improvement which consists in a second valve including a member telescopically arranged with respect to said float operated valve, and means other than said float for moving said second valve member to its closed position to cut off flow of fuel to the burner.

3. Liquid control mechanism including two valves each being adapted by itself to shut off flow of liquid, means responsive to liquid level for normally operating one of said valves, and means independent of said liquid level responsive means for operating both of said valves.

4. Control mechanism for liquid fuel burner including two valve members for controlling flow of fuel to the burner, a float connected to move one of said valve members on and off its seat to normally control flow of fuel to the burner, and safety mechanism operative to move both of said valve members onto their seats to shut off flow of fuel to the burner irrespective of said float operation.

5. Control mechanism for liquid fuel burner including two valve members, a liquid level responsive device such as a float for opening and closing one of said valve members, and a safety device such as a liquid overflow trip for closing both of said valve members irrespective of the relative positions of said valve members.

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