

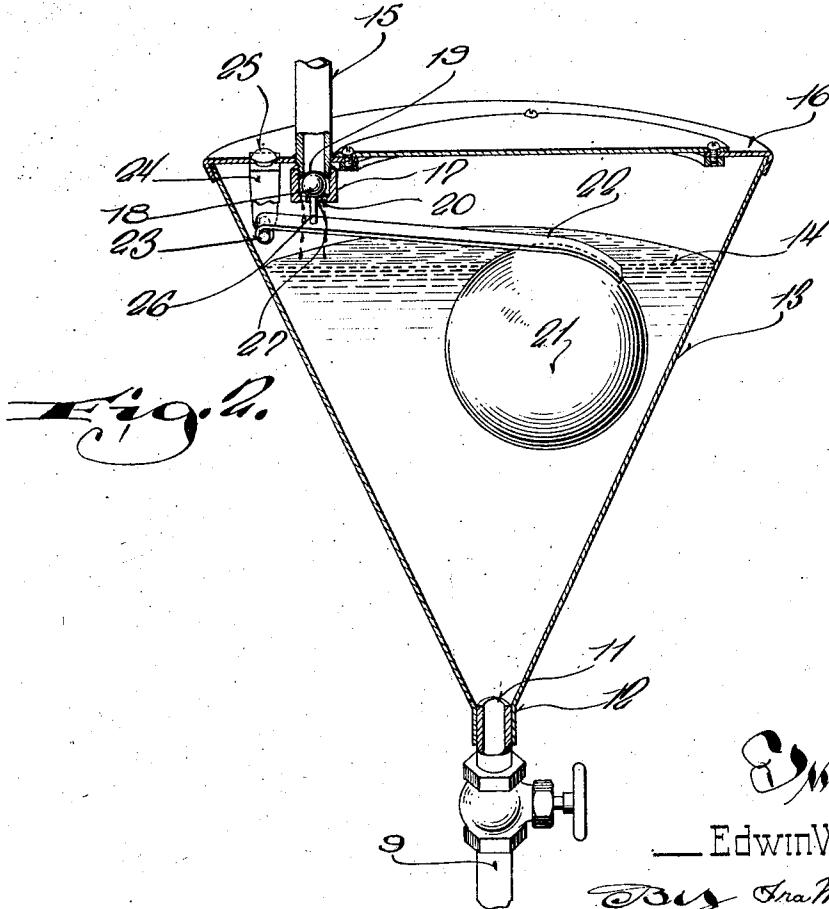
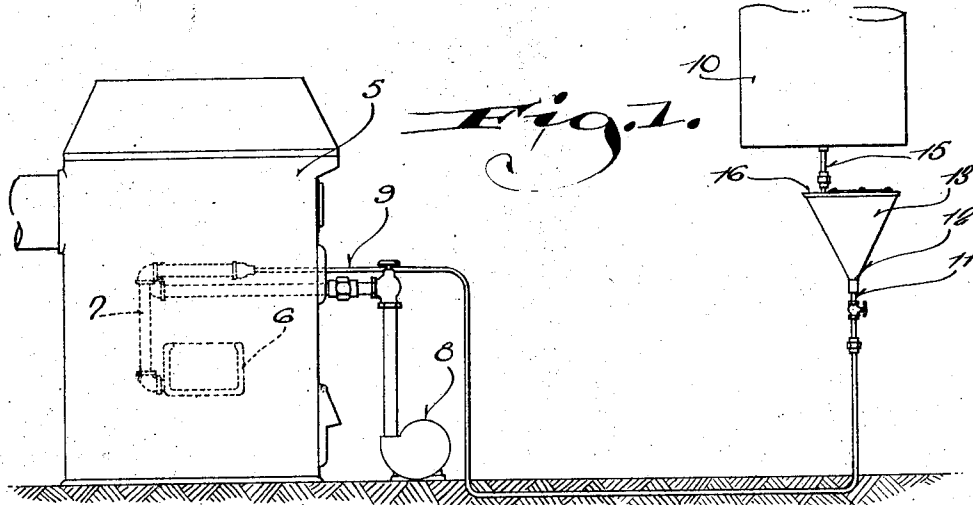
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OIL SUPPLY SYSTEM FOR OIL BURNERS

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OIL-SUPPLY SYSTEM FOR OIL BURNERS.

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This invention relates to certain new and useful improvements in oil supply systems for oil burners and has as a primary object the provision of means within the fuel system whereby the pressure in the fuel supply duct is maintained substantially constant.

Various devices have been devised for overcoming the objectionable feature of having a varying pressure in the fuel supply duct, the most notable of which is the provision of a smaller chamber or receptacle from which leads a fuel supply duct and over which is positioned a larger chamber or receptacle, the chambers being directly connected so that the smaller one is constantly filled and the larger one is replenished from the main source of fuel from time to time as its supply becomes exhausted. The objectionable feature of this type of system is that the columns of fuel in the two receptacles are directly connected and therefore the variance in the column of fuel within the larger one has a direct influence on the pressure within the fuel duct through the smaller receptacle and, as a result, the combustible mixture supplied the burner when the larger receptacle is filled is richer than when the larger receptacle has been partly or entirely exhausted.

It is, therefore, another object of this invention to provide an improved fuel system for an oil burner in which a receptacle or chamber is directly connected with the fuel duct and a source of supply is arranged to discharge therein in proportion to the withdrawal of fuel therefrom, the column of fuel in the receptacle or chamber being entirely disconnected from the column of fuel of the source of supply so that the pressure of the fuel in the duct remains constant.

A more specific object of this invention resides in the provision of an improved oil supply system for oil burners in which a substantially funnel shaped float chamber is connected with the burner fuel duct and has a connection with a source of fuel supply, said connection entering the chamber above the column of fuel therein and having a float controlled valve whereby the column of fuel in the chamber is maintained substantially constant.

And a still further object of this invention resides in the provision of an improved fuel supply system for oil burners which is capable of being applied to burners at the time of their manufacture or to burners now in use and which will reduce the fuel consumption

and increase the efficiency of oil burners equipped therewith.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawing, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a diagrammatic view of a furnace oil burner equipped with my improved system, and

Figure 2 is an enlarged, sectional perspective view taken vertically through my improved float chamber.

Referring now more particularly to the accompanying drawing, the numeral 5 designates any type of heating plant equipped with an oil burner consisting of a fire pot 6 to which a combustible mixture is supplied through a duct 7 with which a blower fan 8 and a fuel supply duct 9 are connected. The oil burner may be of the blower type as illustrated or may be of the strictly gravity type.

The main source of fuel for a furnace oil burner is generally located in a large storage tank buried in the ground and the fuel therefrom is pumped either by hand or automatic machinery to a receptacle 10 mounted within the basement of the house equipped with the system. The tank 10 is connected with the burner through the duct 9 and receives fuel from time to time as it is consumed by the burner. In this invention, the receiving end 11 of the oil duct 9 is connected with the reduced or discharge end 12 of a funnel shaped float chamber 13 and the container 10 is connected with the float chamber at a point above the level of the column of fuel 14 therein by a pipe 15.

The upper larger end of the float chamber is closed over, as at 16, and the pipe 15 enters the chamber through the top and has a cap 17 threaded on its end within the chamber. The interior diameter of the cap is greater than the bore of pipe 15 and has a

floating ball valve member 18 mounted therein which cooperates with a seat 19 formed at the inner discharge end of the pipe 15 to control the flow of fuel from the pipe through ports or openings 20 in the cap.

The ball 18 is normally held out of engagement with the seat 19 by gravity to permit the fuel to flow from the receptacle or tank 10 to the float chamber and is actuated to stop the flow of fuel to the float chamber in the event the column of fuel therein exceeds a predetermined height by a float 21 fixed to the outer end of a lever 22 having its other end pivoted, as at 23, to a bracket 24 secured to the top 16, as at 25, adjacent the inlet 15. The float lever carries an actuating pin 26 which is slidable in an opening 27 in the bottom of the cap 17 to engage the ball valve with the seat 19 upon the float 21 rising a predetermined degree.

The rate of discharge from the pipe 15 into the float chamber when the valve member 18 is in full open position, is preferably slightly greater than the maximum fuel consumption of the oil burner so that the speed with which the column of fuel 14 within the float chamber builds up to its normal height is comparatively slow so that the variance in the height of the column is negligible. The column of fuel 14 being constant and uninfluenced by the changes in the column of fuel within the receptacle 10, by reason of the fact that the pipe 15 enters the float chamber at a point above the column of fuel therein, insures a constant pressure within the fuel supply duct 9 so that the volume of fuel supplied the burner is substantially constant and consequently the ratio of fuel to air of the

combustible mixture remains constant after once being set to thus greatly increase the efficiency of the burner and aid materially in effecting an economy in oil consumption.

What I claim as my invention is:

1. A device of the class described comprising a funnel shaped fluid container having an inlet and an outlet, the outlet being at the reduced end of the container, the inlet being formed to provide a valve seat, a floating valve member engageable with the seat, means retaining the valve member normally adjacent to but out of engagement with the seat and float controlled means for actuating the valve member to its closed position upon the rise of the fluid level beyond a predetermined degree.

2. A device of the class described including a fluid container having an inlet and an outlet, the inlet comprising a tube having its lower end formed to provide a valve seat, a cap member threaded on the lower end of the tube having a plurality of apertures in its bottom and having its bottom spaced from the end of the tube, a freely floating spherical valve member positioned within the cap member, a fulcrum, a float, a lever connected to the float at one end and pivoted to the fulcrum at its other end whereby the lever has an up and down motion incident to the movement of the float with the rise and fall of the fluid level, and a member carried by the lever and extended through the bottom of the cap member to engage the valve member and actuate the same to its closing position upon the rise of the fluid level beyond a predetermined degree.

In testimony whereof I affix my signature.

EDWIN W. LUEDERS.