

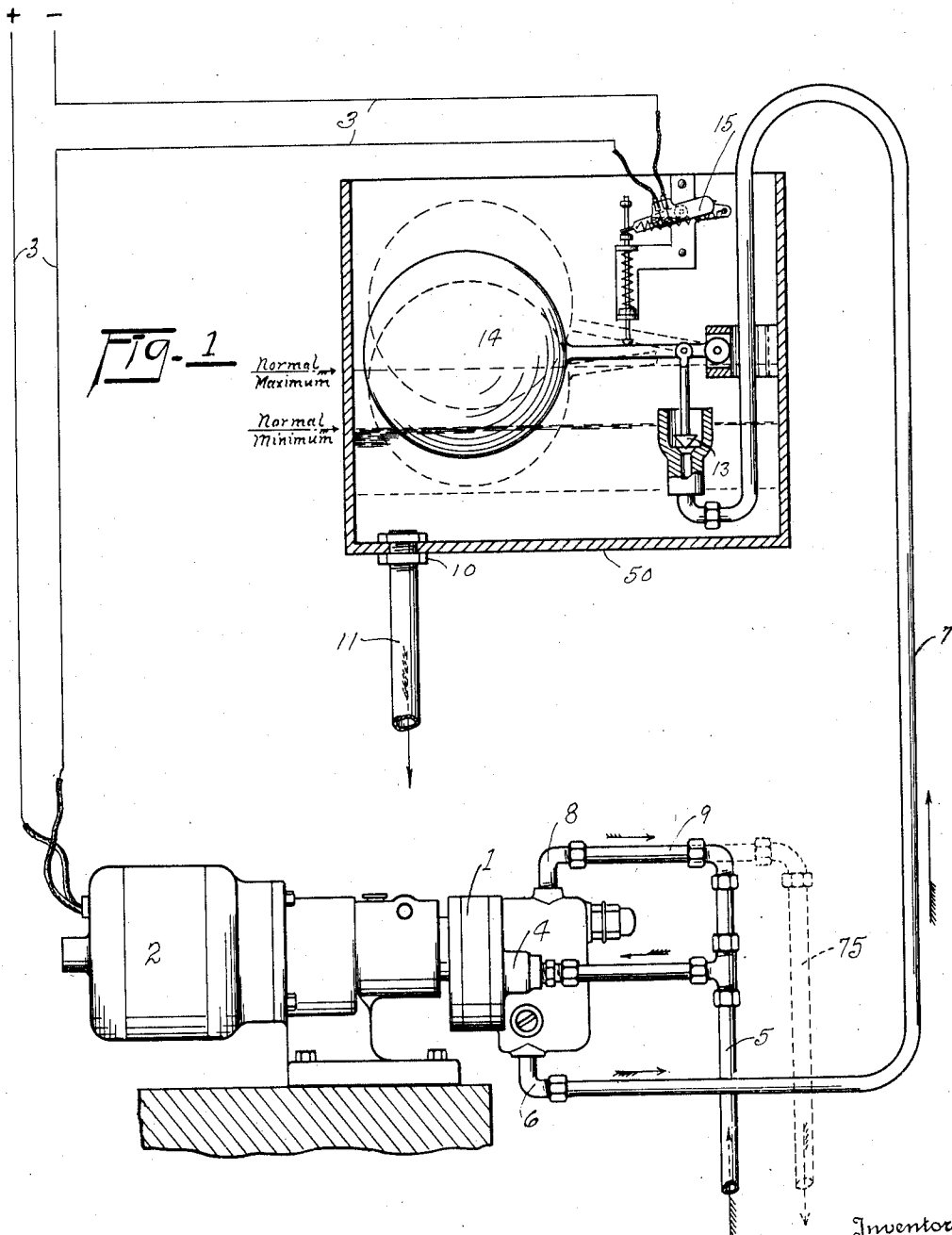
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C. H. TEESDALE

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FUEL FEED SYSTEM

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Witness:
Geo L. Chapes

Inventor
Clyde H Teesdale

B4 Rice and Rice

Attorneys

UNITED STATES PATENT OFFICE

CLYDE H. TEESDALE, OF GRAND RAPIDS, MICHIGAN

FUEL FEED SYSTEM

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The present invention relates to fuel feed systems and more particularly to oil burner fuel feed systems.

The main objects of the invention are to provide a fuel feed system for use in conjunction with oil burner installations in which the fire hazard is minimized; to provide such a system for automatically shunting the normal fuel supply to the fuel supply tank by circuitously by-passing the fuel from the pump back to the pump or to the fuel supply reservoir in instances wherein a leak develops in the feed line from the supply tank; and, to provide such a system which is simple in its construction, economical to manufacture and utilitarian in use.

An illustrative embodiment of the invention is diagrammatically illustrated in the drawing wherein the fuel feed system comprises a fuel pump 1 driven by an electric motor 2 within the electric circuit 3. The pump is provided with a fuel inlet 4 connected to a conduit 5 running to a fuel supply reservoir, not shown, and is likewise provided with a fuel outlet 6 connected to a conduit 7 leading to and discharging into a fuel supply tank 50. A fuel by-pass outlet 8 from the pump and connected to the inverted U-shaped conduit 9 connects with the fuel intake conduit 5 for by-passing pumped fuel thereto and back to the pump during its pumping operation in instances of failure to pump the fuel through the fuel outlet conduit 7 into the supply tank 50, as will be hereinafter explained. A return conduit 75 indicated in dotted lines may be connected to the fuel by-pass outlet 8 and substituted for the U-shaped conduit 9 for receiving and returning pumped fuel to the fuel supply reservoir instead of by-passing the pumped fuel back to the pump in instances of failure to pump the fuel through the fuel outlet conduit 7 into the fuel supply tank.

This fuel supply tank is provided with a fuel outlet 10 connected to a conduit 11 which supplies fuel to the burner, not shown. The conduit 7 which discharges the fuel oil carried therethrough into the fuel supply tank is provided with a valve 13 which is normally

open, both when the burner is operating and when it is normally not in use.

A liquid-operated ball float 14 pivotally mounted within the fuel supply tank is operatively connected with the electric switch 15 within the electric motor circuit 3 and here shown as of the mercury type, to open the switch and thus break the electric circuit when the fuel supply within the supply tank rises to a predetermined or given normal maximum high level and for closing the switch when the fuel within the tank falls to a given normal minimum level. The float 14 is likewise operatively connected with the valve for closing the valve when the fuel within the tank falls below said given normal minimum level.

In operation and for the purpose of explanation of the operation of the system, it is assumed that the pump is pumping fuel oil into the supply tank as indicated by the float as it is shown in full lines. When the fuel level within the supply tank rises to the normal maximum level as indicated by the float as it is shown in dotted lines, the mercury switch breaks the electric circuit and the pump ceases to pump fuel oil into the supply tank until the fuel level therein drops as the fuel is used by the burner when the mercury switch is again closed and the pump again begins to pump fuel oil into the tank.

To minimize fire hazard in instances where the conduit from the supply tank to the burner breaks or leaks, permitting the continuous flow of oil from the tank at a rate equal to or faster than it is being pumped into the supply tank, the by-pass conduit is provided. Thus and in such event the float falls below the normal minimum level closing the valve and although the pump remains in operation the pumped fuel oil is circuitously by-passed from the pump back to the pump and the supply tank thereby soon becomes emptied.

It will thus be seen that a fuel feed system has been herein shown and described in which fire hazard is minimized by automatically shunting the fuel flow from the supply tank by circuitously by-passing it from the pump back to the pump, or back to the fuel supply reservoir through the conduit 75, in

instances wherein a leak develops in the fuel conduit from the supply tank to the burner.

While but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

10 I claim:

1. In a fuel feed system, a fuel supply tank having an intake and an outlet, a valve within said intake, an electric motor-driven fuel pump having a fuel intake and a fuel outlet
15 connected with the intake to the fuel supply tank, a float-operated electric switch within the electric motor circuit, a float within said tank operatively connected with said switch to open the switch when the fuel within the
20 tank rises to a given normal maximum level and for closing the switch when the fuel within the tank falls to a given normal minimum level, said float being likewise operatively connected with said valve for closing the
25 valve when the fuel within the tank falls below said given normal minimum level, and a fuel by-pass outlet from the pump returning to the pump for returning pumped fuel thereto when said valve is closed.

2. In a fuel feed system, a fuel supply tank having an intake and an outlet, a valve within said intake, an electric motor-driven fuel pump having a fuel intake and a fuel outlet
30 connected with the intake to the fuel supply tank, a float-operated electric switch within the electric motor circuit, a float within said tank operatively connected with said switch to open the switch when the fuel within the
35 tank rises to a given normal maximum level and for closing the switch when the fuel within the tank falls to a given normal minimum level, said float being likewise operatively connected with said valve for closing the
40 valve when the fuel within the tank falls below said given normal minimum level, and a
45 fuel by-pass outlet from the pump for receiving pumped fuel when said valve is closed.

In testimony whereof I have hereunto set
50 my hand at Grand Rapids, Michigan, this 21st day of November, 1932.

CLYDE H. TEESDALE.

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