

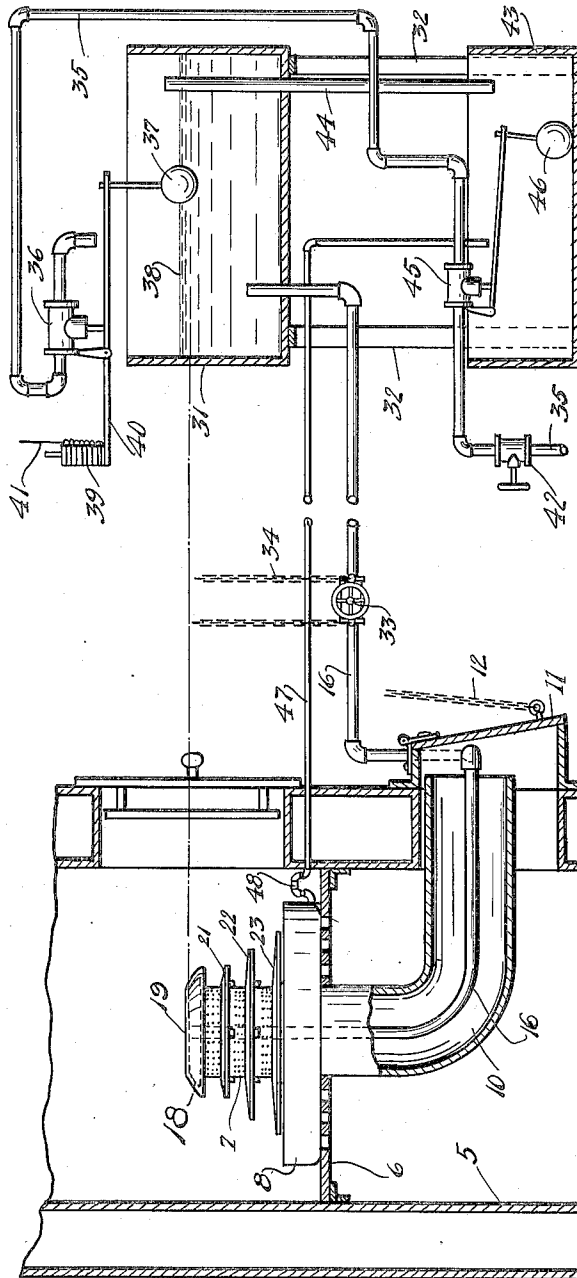
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FLUID FUEL BURNER AND SUPPLY APPARATUS

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Witnesses:

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UNITED STATES PATENT OFFICE.

ROSCOE V. JEFFERSON, OF CHICAGO, ILLINOIS.

FLUID-FUEL BURNER AND SUPPLY APPARATUS.

Application filed October 25, 1922. Serial No. 596,783.

To all whom it may concern:

Be it known that I, ROSCOE V. JEFFERSON, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in a Fluid-Fuel Burner and Supply Apparatus, of which the following is a specification.

My invention relates to a fluid fuel burner and supply apparatus, and has for its object to provide an apparatus for burning liquid fuel and also gas and to provide said apparatus with means for automatically feeding said fuel to the burner with the utmost degree of safety and efficiency.

A further object is to provide such an apparatus with means for fully distributing the fuel and for supplying an ample and properly distributed amount of air to the fuel and insure complete combustion thereof.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

The figure is a vertical sectional view showing the apparatus in connection with an ordinary type of furnace.

In the drawings I have shown my invention in connection with a furnace 5, the burner being mounted in position upon the usual fire grate 6 thereof. Said burner may be readily adapted for use with any type of furnace or boiler.

My improved burner, which is of the gravity supply type, comprises an air distributing member 7 in the form of a vertical cylinder provided at its lower end with an integral catch pan 8 and a seat 9 for reception of an air pipe or conduit 10 which extends to a suitable draft door, as the ash door 11, to which is preferably attached a chain 12 leading to a room above or which may be connected with an automatic control apparatus, said pipe may also be extended through the furnace wall and provided with suitable draft control means if preferred. A fuel supply pipe 16 extends from the fuel supply mechanism, through air pipe 10, to a top plate or distributing plate 18 provided at the upper end of distributing member 7 of the burner. Said

burner preferably also includes a deflecting cap 19 mounted over distributing plate 18, and baffle plates 21, 22 and 23, suitable air outlets being provided around the air distributing member 7 of the burner, as shown.

The supply apparatus provided with my burner comprises a fuel supply tank or reservoir 31 which is mounted upon suitable standards 32 and communicates with the supply or feed pipe 16 extending from the burner 7. A feed valve 33 is interposed in said feed pipe 16 for regulating the flow of fuel therethrough, and means is provided in the form of a chain 34 for controlling said valve from the roof above or from an automatic heat regulator. A supply pipe 35 leads into said reservoir from a suitable source of supply and is provided with an automatic control valve 36 actuated by a float 37 positioned in said reservoir, to maintain a constant head of fuel 38 in said reservoir, just a trifle higher, about one inch, than the upper face of the top plate 18, as indicated by the dot and dash line in the drawing, and weights 39 or similar means are provided on the float beam 40 and have a cable 41 or similar means attached thereto for operating said weights from a distant point to regulate and determine the vertical position of the float. The pipe 35 is also provided with a positive cut-off valve 42.

An emergency tank 43 is provided and is preferably placed adjacent and below the reservoir 31, and an overflow pipe 44 leads from a distance (about one or two inches) above the usual head of fuel 38 in the reservoir to said tank, and an emergency or safety valve 45 is interposed in the supply conduit 35, being controlled by a float 46 in said tank to shut off the supply from said conduit to the reservoir in case the control valve 36 should stick or fail to function with an excess of fuel in the reservoir. An overflow pipe 47 with a goose-neck 48 leads from the catch pan 8 to said emergency tank to prevent any accidental overflow of said pan and to shut off the supply by means of the float 46 and valve 45, especially in case the burner is not consuming fuel while the valves 33 and 36 are open.

It will be apparent from above disclosure that the flow of fuel can be accurately regulated by adjusting the control means 39 and 41 and that the fuel will then be automatically controlled by the float 37 and valve 36 and can also be conveniently con-

trolled from a room above by means of a chain 34 and valve 33. It is also apparent that with the control valve 36, the emergency tank 43, and the safety valve 45, ample means is provided for automatically controlling the proper amount of fuel supply to the burner with the utmost degree of safety and efficiency.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. An apparatus of the kind described comprising a fluid fuel burner arranged to be mounted on the grate of a furnace, a fuel reservoir, a valve controlled conduit connecting said reservoir with said burner, a supply conduit leading into said reservoir, a valve in said supply conduit controlled by a float in said reservoir, an emergency tank connected by an overflow conduit with said reservoir, a safety valve in said supply conduit, a float in said emergency tank for controlling said safety valve, and an overflow conduit connecting said burner with said emergency tank.

2. An apparatus of the kind described comprising a fluid fuel burner adapted to be mounted in a furnace, an air supply pipe extending from said burner to an opening in said furnace, a fuel reservoir, a valve controlled conduit connecting said reservoir with said burner and extending through said air supply pipe, means for automatically controlling said valve by the level of fuel in said reservoir, an emergency tank adjacent said reservoir, an overflow pipe leading from said reservoir to said tank,

an emergency valve in said supply pipe, and a float in said tank for controlling said emergency valve.

3. An apparatus of the kind described comprising a liquid fuel burner adapted to be mounted on the grate of a furnace, an air pipe mounted on said burner extending to the draft door of said furnace, a reservoir connected with said burner by a feed pipe extending through said air pipe, a valve in said feed pipe for controlling the flow of fuel therethrough, a supply pipe connecting said reservoir with a source of supply, a valve in said supply pipe, and means on said reservoir for controlling said valve, an emergency tank, an overflow pipe leading from said reservoir to said tank, an overflow conduit leading from said burner to said tank, and an emergency valve in said supply pipe controlled by the fluid in said tank.

4. An apparatus of the kind described comprising a liquid fuel burner adapted to be mounted in the grate of a furnace, an air pipe on said burner extending to a draft door of said furnace, a reservoir connected with said burner by a feed pipe extending through said air pipe, a control valve in said feed pipe, a supply pipe leading into said reservoir, a valve in said supply pipe, float means in said reservoir for controlling said valve, means on said float means for regulating its effectiveness, an emergency tank, an overflow pipe leading from said reservoir to said emergency tank, an overflow pipe leading from said burner to said emergency tank, a valve in said supply pipe, and float means in said emergency tank for controlling the last said valve.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ROSCOE V. JEFFERSON.

Witnesses:

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