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C. P. THOMAS ET AL
STOVE WITH VERTICALLY ADJUSTABLE LIQUID
FUEL BURNER AND FLOAT CONTROL UNIT

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2 Sheets-Sheet 1

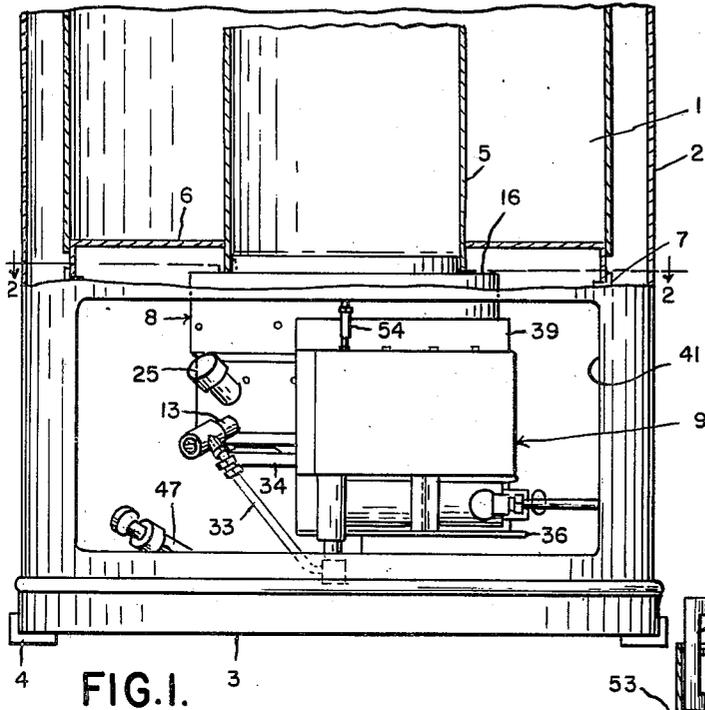


FIG. 1.

FIG. 5.

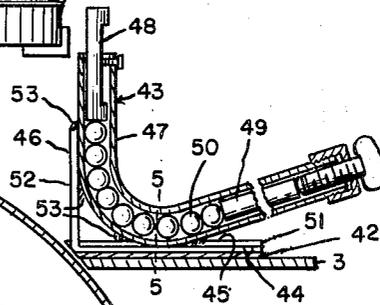
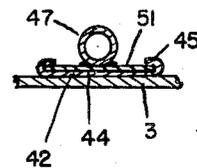


FIG. 4.

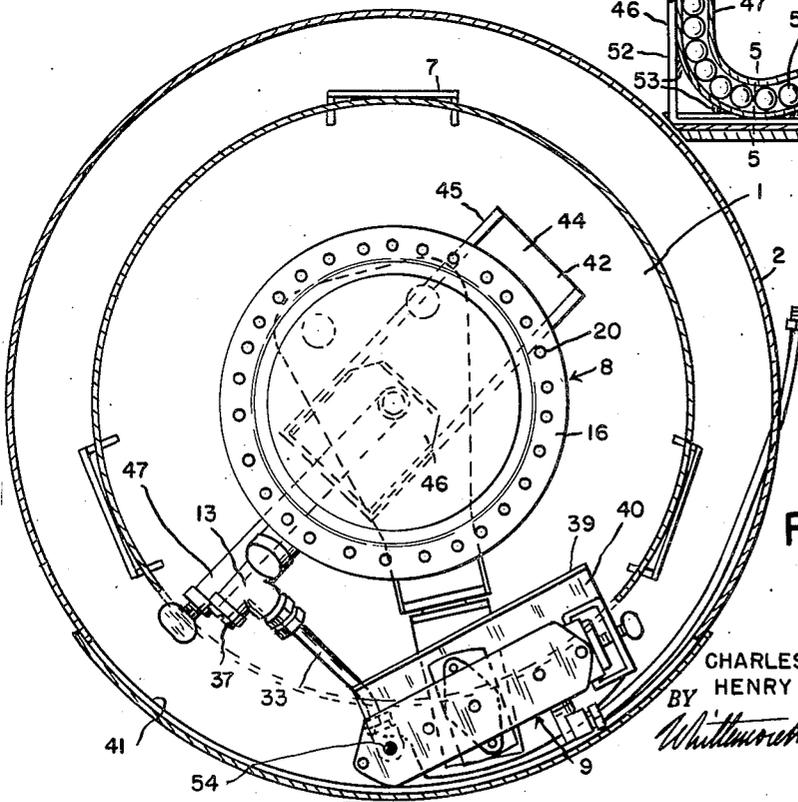


FIG. 2.

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FIG. 6.

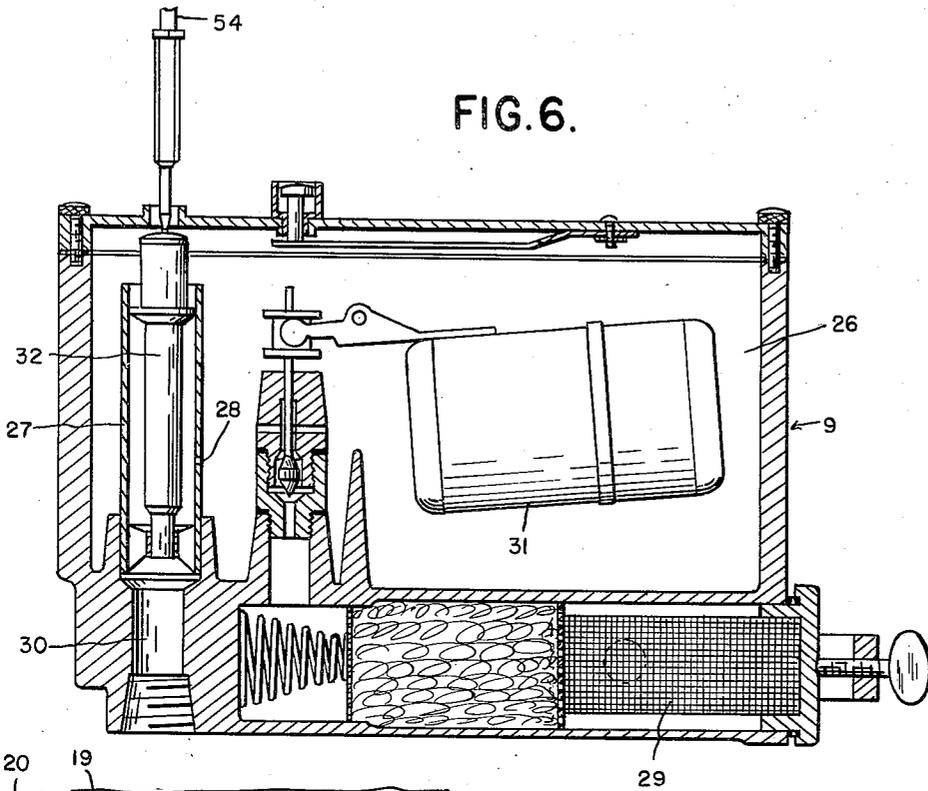
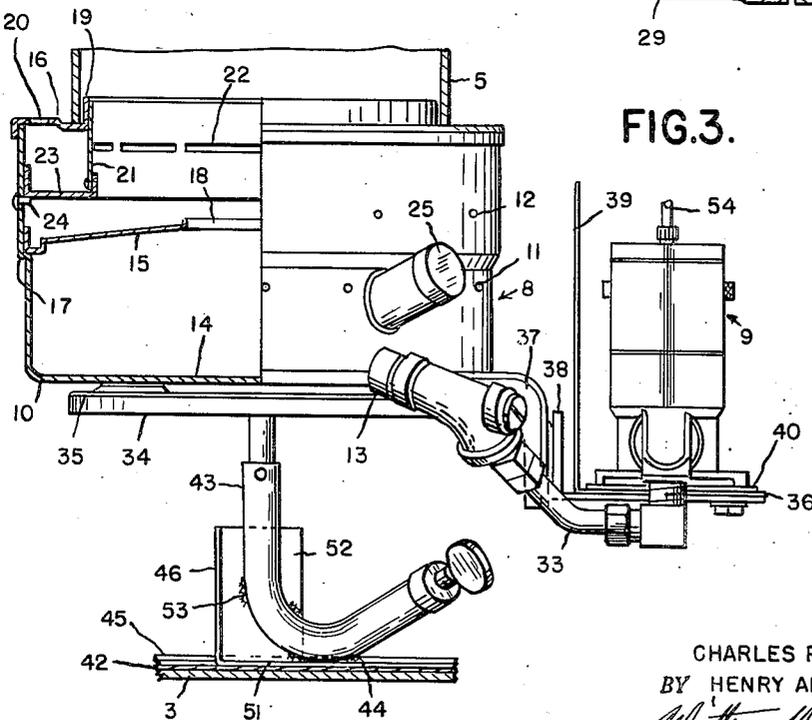


FIG. 3.



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STOVE WITH VERTICALLY ADJUSTABLE LIQUID FUEL BURNER AND FLOAT CONTROL UNIT

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4 Claims. (Cl. 126-93)

1 The invention relates to combustion apparatus and refers more particularly to heating apparatus having burners for liquid fuel of the vaporizing pot type.

The invention has for one of its objects to provide an improved construction of combustion apparatus in which the burner and control are located within the confines of the casing of the apparatus.

The invention has for another object to provide an improved construction of combustion apparatus having a burner and a control for the fuel supplied to the burner which together form a unit with the control correctly positioned relative to the burner.

The invention has for further objects to provide a burner and control unit readily insertable into the casing of the apparatus; to provide an adjustable device for carrying the burner and control unit; to provide the base of the combustion apparatus with a guide for receiving the carrying device; and to provide an improved construction of carrying device located within the casing of the combustion apparatus and readily accessible for adjustment.

With these and other objects in view, the invention resides in the novel features of construction and combination and arrangement of parts as more fully hereinafter set forth.

In the drawings:

Figure 1 is a side elevation partly broken away and in section of a combustion apparatus embodying the invention;

Figure 2 is a cross-section on the line 2-2 of Figure 1;

Figure 3 is a side elevation of the burner and control unit;

Figure 4 is a sectional view of the adjustable device for carrying the burner and control unit;

Figure 5 is a cross-section on the line 5-5 of Figure 4; and

Figure 6 is a sectional view of the control.

The combustion apparatus is a heater and, as illustrated, is a water heater having the vertical water tank 1, the concentric casing 2 spaced from the outer wall of the water tank and the base 3, supporting the casing and mounted on the legs 4. The inner wall of the tank is formed by the concentric tube 5 which extends below the bottom wall 6 of the tank. The space within the tubular inner wall is the combustion chamber of the apparatus. The water tank is supported above the base 3 by means of the supports 7 in the nature of channel-shaped legs, as shown particularly in Fig-

2 ure 2. The legs engage the downturned peripheral flange of the bottom wall 6 and rest on the base 3. The combustion apparatus also comprises the burner 8 and the control 9 for the fuel supplied to the burner.

The burner is of the vaporizing pot type and comprises the shell 10 provided with the annular series of primary air inlet holes 11 and 12 in its side wall and with the inlet 13 for the liquid fuel opening into the interior of the shell above its bottom wall 14. The burner also comprises the baffle 15 and the top wall or cover 16. The baffle is located between the primary air inlet holes 11 and 12 and rests upon the annular shoulder 17 formed in the side wall of the shell and has the central hole 18. The top wall or cover rests upon the upper edge of the side wall of the shell and has the upwardly extending annular flange 19 at its inner edge concentric with the side wall of the shell and extending upwardly within the tube 5. The top wall or cover is provided with the annular series of secondary air inlet holes 20. 21 is a cylindrical ring telescoped within the annular flange 19 and depending therebelow and provided with the annular series of secondary air inlet holes 22. 23 is a channel shaped ring having its inner flange encircling the lower portion of the ring 21 and its outer flange adjacent the side wall of the shell. This latter ring is suitably supported upon the shell above the primary air inlet holes 12 by suitable means such as the studs 24. The burner is also provided with the lighter tube 25 which is secured to the side wall of its shell above the fuel inlet 13.

The control 9 has the float chamber 26 and the adjacent liquid fuel outlet chamber 27 which communicates with the float chamber through the port 28. 29 is the liquid fuel inlet to the float chamber and 30 is the liquid fuel outlet from the outlet chamber. The float 31 controls the level of the liquid fuel within the float chamber while the valve 32 controls the rate of flow of the liquid fuel through the outlet to the pipe 33 leading to the burner inlet 13.

The burner and control form a unit with the control vertically positioned relative to the burner so that the surface of the liquid fuel in the float chamber as controlled by the float is at a predetermined height relative to the burner and more particularly the space within the burner shell below its lower baffle and above its bottom wall. Both the burner and the control are mounted on the support 34 which comprises

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the plates 35 and 36 to which the burner and control are respectively secured. These plates have the downturned and upturned portions 37 and 38 fixedly secured to each other.

For the purpose of shielding the control 9 from the heat generated in the burner, the guard 39, which is preferably formed of heat resistant sheet metal, is mounted on the support to extend between the burner and control. As illustrated, this guard has the foot flange 40 clamped to the plate 36 by the control.

The burner and control unit are of a size to be inserted through the opening 41 in the lower portion of the casing 2 and between the supports 7 and, furthermore, to be located within the confines of the casing when in place with the annular flange 19 of the top wall or cover of the burner extending upwardly within the inner side wall 5 of the water tank.

To locate the burner and control unit in operative position, the guide 42 is provided on the base 3 and the adjustable device 43 is provided between the support 34 of the burner and control unit and the guide. The guide is channel shaped and has its bottom 44 fixedly secured to the base and further has the terminal portions 45 of its sides intumed towards each other. The adjustable device comprises the angle plate 46, the tubular housing 47 secured to the angle plate, the vertical plunger 48 extending upwardly from the housing, the adjustable plunger 49 within the housing near its other end and the balls 50 within the housing between the two plungers. The angle plate 46 has the foot flange 51 which is longitudinally slidable within the guide 42 and the upright flange 52 extending upwardly between the terminal portions 45 of the guide. The housing 47 is secured preferably to both the foot flange and upright flange by suitable means such as the brazing material 53 and is so positioned that the portion of the housing from which the plunger 48 extends is vertical and the portion of the housing in which the plunger 49 is readily accessible through the openings in the casing and inner supporting wall for adjustment to raise or lower the burner and control unit. As shown the plunger 48 is engageable with or abuts the plate 35 to which the burner is secured in alignment with the axis of the burner. With this construction, the burner and control unit may be readily rotated relative to the tube 5 forming the flue to align the valve 32 with the thermostatically operable rod 54.

What we claim as our invention is:

1. In combustion apparatus having a vertical casing provided with a lateral opening, a base supporting the casing and a tube extending upwardly within the casing, a horizontal guide mounted on the base below said tube, a burner for liquid fuel having an upwardly extending annular flange telescopically engaging said tube, a float control for the liquid fuel supplied to said burner, a support for said burner and float control predeterminedly vertically positioning said float control relative to said burner; said burner, float control, and support forming a unit insertable through the casing opening, and

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means movably mounted on said guide for carrying said unit, said means being vertically adjustable to position said annular flange of said burner in telescopic relation to said tube.

2. In combustion apparatus having a tube forming a combustion chamber, a concentric casing surrounding and spaced from the tube and provided with a lateral opening below the tube and a base supporting the casing, a horizontal guide mounted on the base below said tube, a burner for liquid fuel having an upwardly extending annular flange extending within the tube, a float control for the liquid fuel supplied to said burner, a support for said burner and float control predeterminedly vertically positioning said float control relative to said burner; said support, burner and float control forming a unit insertable through the casing, and a device movable on said guide and accessible through the casing opening for vertically adjustably supporting said unit on said base and vertically positioning said annular flange of said burner within the tube.

3. In combustion apparatus having a casing provided with a lateral opening and a base supporting the casing, a horizontal guide mounted on the base, a burner for liquid fuel, a float control for the liquid fuel supplied to said burner, a support for said burner and float control predeterminedly vertically positioning said float control relative to said burner; said support, burner and float control forming a unit laterally insertable through the casing opening and means comprising a vertically adjustable member movably mounted on said guide for carrying and vertically positioning said unit.

4. In combustion apparatus having a casing provided with a lateral opening and a base supporting the casing, a burner for liquid fuel, a float control for the liquid fuel supplied to said burner, a support for said burner and float control predeterminedly vertically positioning said float control relative to said burner; said support, burner and float control forming a unit laterally insertable through the casing opening, and means mounted on said base for horizontal movement and comprising a vertically adjustable upright plunger abutting the lower face of said support for carrying and vertically positioning said unit.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
292,315	Hopkins	Jan. 22, 1884
1,832,938	Leach	Nov. 24, 1931
2,208,323	Chadwick	July 16, 1940
2,215,767	Richardson	Sept. 24, 1940
2,233,750	Schullstrom	Mar. 4, 1941
2,247,859	Purtell	July 1, 1941
2,301,183	Martin	Nov. 10, 1942
2,367,038	Martin	Jan. 9, 1945