

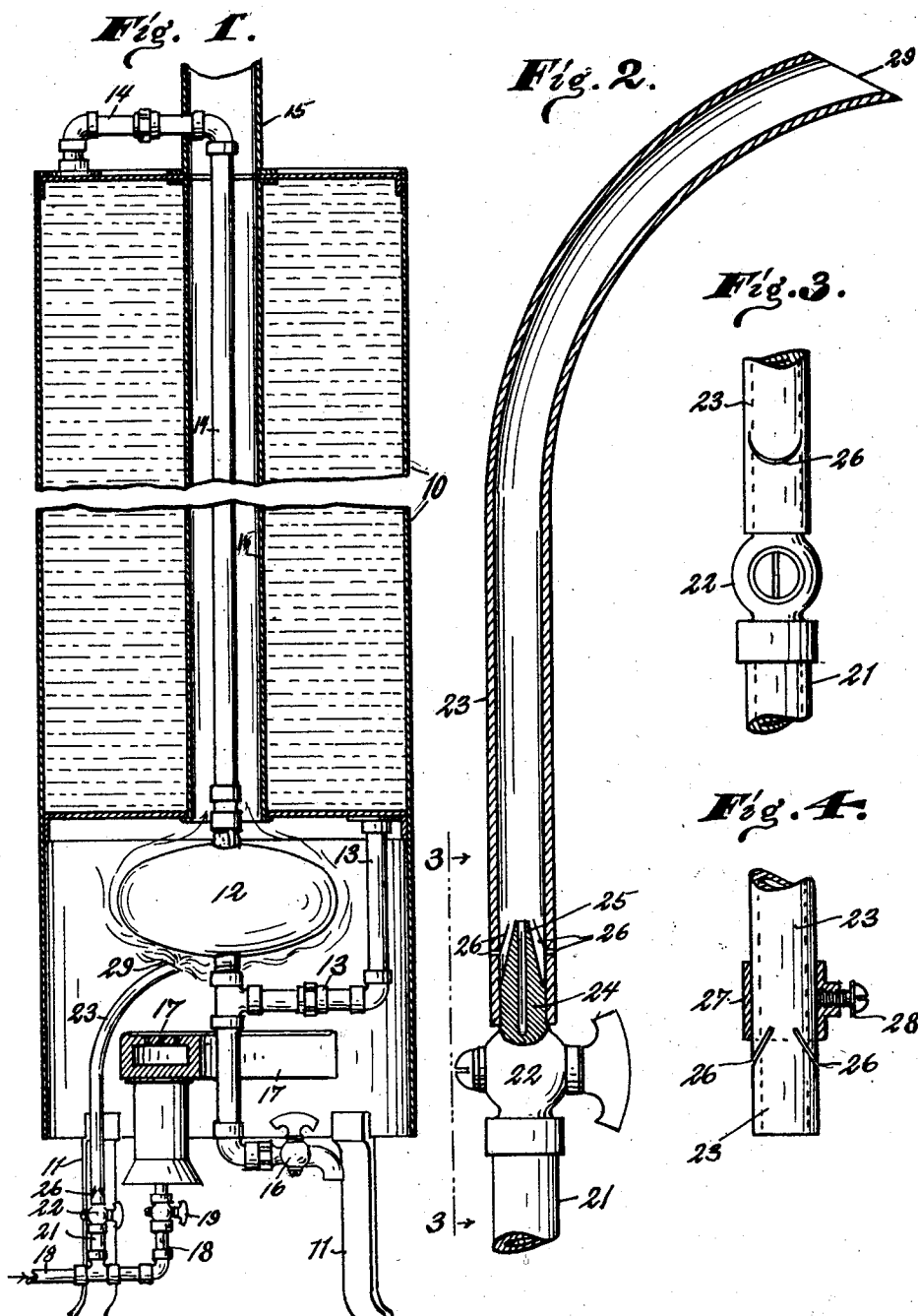
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COMBINED PILOT AND HEATER

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UNITED STATES PATENT OFFICE

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COMBINED PILOT AND HEATER

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This invention relates to a combined pilot and heater for a water tank, and an object of the invention is to improve the construction of the gas pilot so that in addition to being more effective in lighting the gas burner when necessary it also functions as a constant heater for the water. In other words the pilot is improved so that its heating facility is greatly increased without an additional consumption of gas. To that end I provide means for introducing air adjacent the discharge outlet of the pilot gas in a proportion that will form a mixture adapted to burn in a blue heating flame that is highly efficient to light the gas burner when necessary and which furnishes a high degree of heat to maintain the water at a high temperature at relatively low cost.

Another object of the invention is to provide a combined pilot and heater that can be operated continually and economically without waste of gas. To that end I provide a pilot and heater with means for mixing air with the gas so that a relatively smaller amount of fuel is required to maintain a constant blue flame of superior lighting and heating quality. And in connection with this improved pilot and heater construction I provide means for regulating the flow of both the air and gas so that by proper manipulation the constant flow of gas to the combined pilot and heater can be reduced to a minimum.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claim.

The accompanying drawings illustrate the invention.

Figure 1 is a fragmental sectional view of a hot water tank showing in side elevation a combined pilot and heater that is constructed in accordance with this invention. Fig. 2 is an enlarged fragmental sectional view through the pilot and heater. Fig. 3 is a fragmental view of the lower end of the pilot and heater as viewed from the line 3—3 of Fig. 2; and Fig. 4 is a fragmental side view of the lower end of the pilot and heater pipe detached from the gas nozzle and showing the means for mixing air with the gas, and

also showing a sleeve for regulating the intake of air.

For the purpose of illustration I show a water tank 10 supported on legs 11, having a water circulating system including a metal ball 12 having a water chamber therein that is connected by a pipe 13 to the bottom of the tank 10 and also by a pipe 14 with the top of the tank so that as the water is heated in the ball it will circulate upward through the pipe 14, and water from the bottom of the tank will enter the ball from the pipe 13.

The pipe 14 is extended upward through the flue 15 arranged centrally through the tank; and the circulating system is provided with the usual drain cock 16.

The ball 12 is heated by a main heater 17 supplied with gas through the feed pipe 18 in which there is a control valve 19.

All of the foregoing parts are old and well understood in the art; and also it is understood that on the other half of the tank (not shown) there are the usual connections for the intake of water and the distributing system.

A T is interposed in the feed pipe 18 to which a branch gas pipe 21 is connected that has a control valve 22 secured to its upper end that is adapted to regulate the discharge of gas into the combined pilot and heater pipe 23 that in addition to serving as a pilot for the main heater also functions as an auxiliary heater.

The pipe 23 is preferably seated on the stem 24, as shown best in Fig. 2, but can have its lower end internally threaded so that it can be attached to the threaded stem 24 of the valve 22. The stem 24 is extended to form a tapered nozzle 25 arranged centrally in the lower end of the pipe 23, and narrow upwardly and inwardly extending slotted air inlets 26 are arranged in the pipe 23 on opposite sides of and adjacent the nozzle 25.

Preferably the air inlets 26 are formed by means of a hack saw cutting part way through the pipe 23 on opposite sides and at upwardly inclined angles so that the intake of air is well distributed around the nozzles, and also so that these inlet openings can be made very cheaply.

A sleeve 27 is slidably mounted on the lower end of the pipe 23 and is adjustably secured in a position by a set screw 28 so that it can be moved up or down to cover or uncover more or less of the air inlets to thereby regulate the intake of air to the fuel discharging from the nozzle 25.

The pipe 23 is of considerable length and has its upper end curved over the main heater 17 with its discharge or burner end 29 adjacent the central underside of the ball 12 so that the blue flame emitted therefrom will envelope the ball and thereby maintain the heated water at a high temperature, and also be in position to light the main heater 17 when necessary.

By means of this construction, combination and arrangement of parts the water in the tank 10 can be maintained indefinitely at a high temperature with a slightly less consumption of fuel than is generally used by the heaters now in use.

In operation the valve 22 is opened to supply a small quantity of fuel to the pipe 23, which mixes with the air taken through the inlets 26 to thereby form a mixture that will burn in a blue blaze adequate to maintain heated water at a relatively high temperature.

I claim as my invention:

In an apparatus of the class described the combination with a main heater for a water tank including a metal ball arranged above said heater having a chamber in communication with the water tank, said heater adapted to initially heat the water in said ball and tank to a higher temperature, of a combined pilot and heater adapted to ignite the mixture discharging from said main heater and also to maintain the high temperature of the heated water after the use of said main heater is discontinued, said pilot and heater including a nozzle, an elongated pipe seated on said nozzle and having inwardly and upwardly extending curved slots adjacent the discharge end of said nozzle, a sliding sleeve for regulating the flow of air through said slots, said pipe having its upper end curved inward to a position above said main heater and under said metal ball so its flame envelopes said ball for the purpose specified.

In witness whereof, I have hereunto affixed my signature.

ALFRED F. COONY.

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