

[54] **HEATER AND HOT WATER BOILER**
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 [52] U.S. Cl. **122/250 R, 122/33**
 [51] Int. Cl. **F22b 27/08**
 [58] Field of Search 122/33, 244, 246, 245, 250 R

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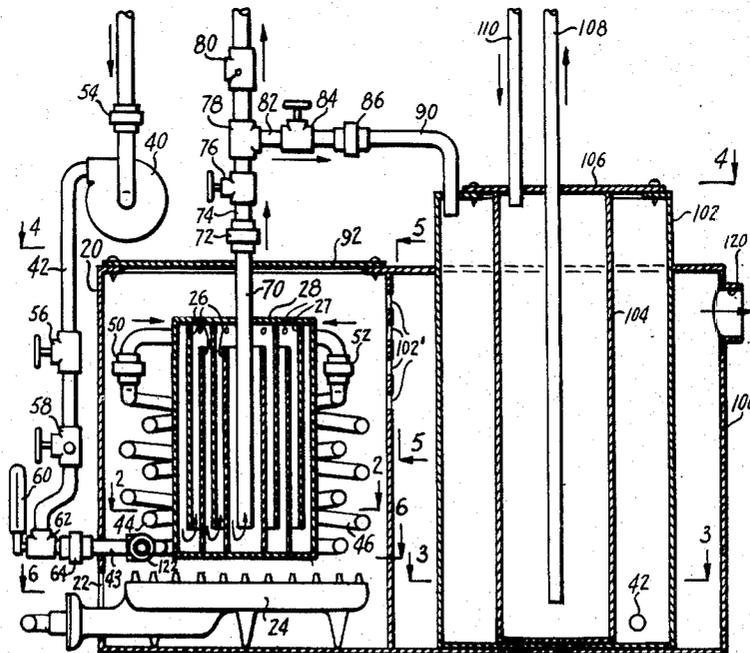
[57] **ABSTRACT**

A pump connected to a boiler with cylindrical baffles encircled by coils and a heater unit encircled by hot air from the boiler and also surrounded by water heated from the boiler.

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2 Claims, 6 Drawing Figures



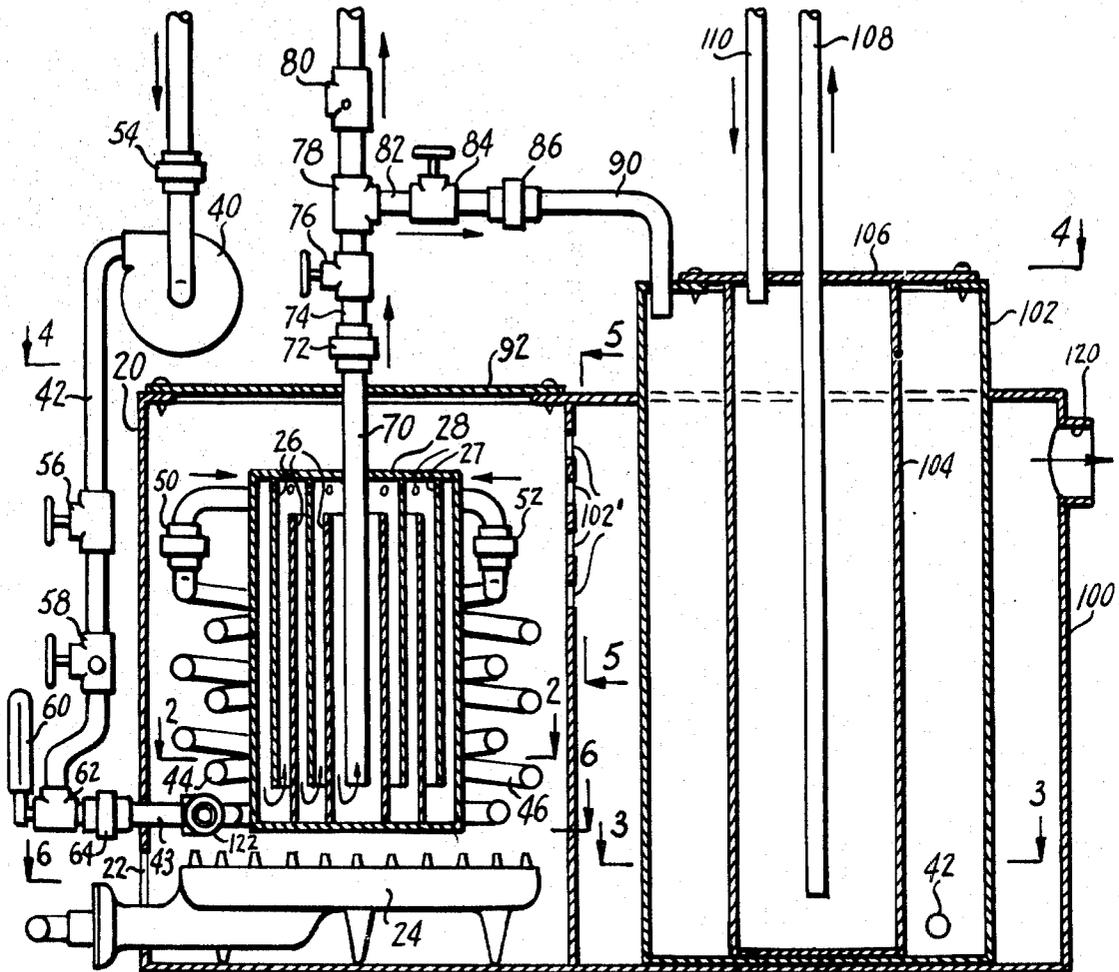


FIG. 1

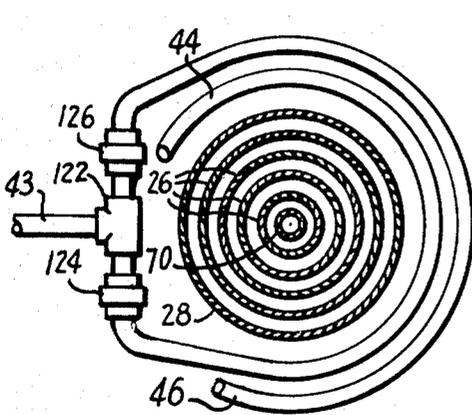


FIG. 2

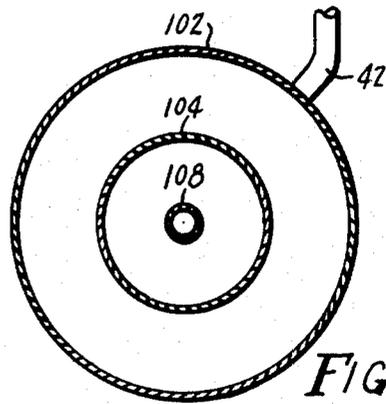


FIG. 3

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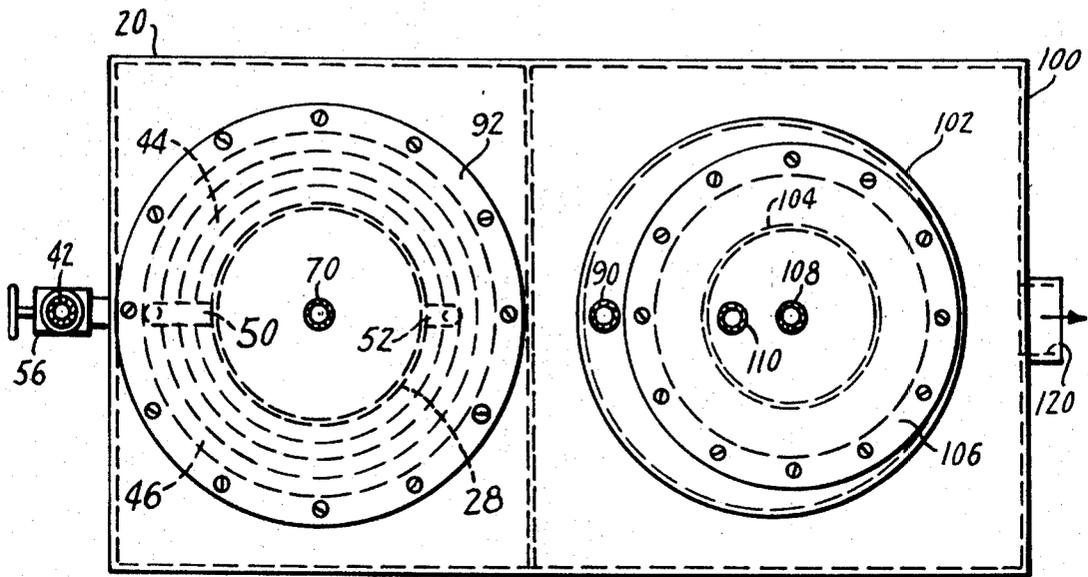


FIG. 4

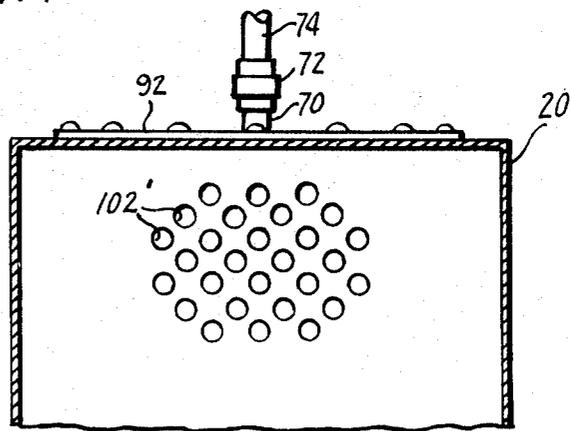


FIG. 5

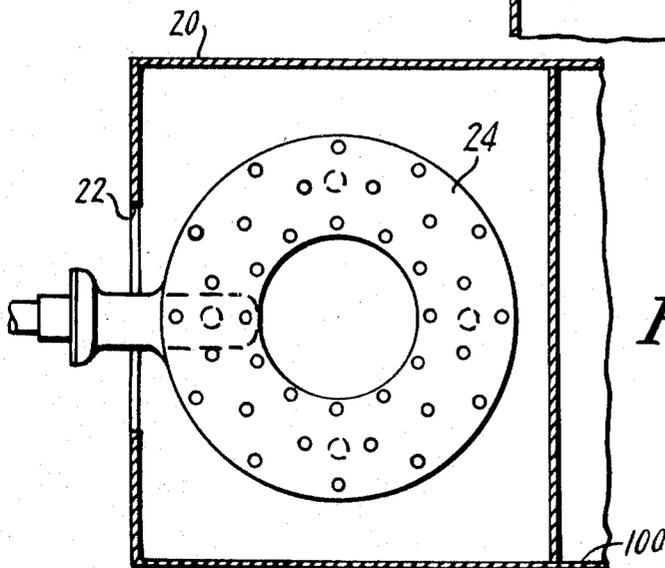


FIG. 6

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HEATER AND HOT WATER BOILER

This invention relates to a heater and hot water boiler, each being capable of independent operation without the other.

A primary object of this invention is the efficient heating for domestic purposes.

Another object of this invention is the simplicity of installation and repair with a minimum of interference to the maintenance of heat in the household.

The above and other objects of this invention will become apparent to those skilled in the art after a consideration of a description of a preferred embodiment of this invention takes together with the accompanying drawings wherein:

FIG. 1 is a cross section of the apparatus;

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken on line 3—3 of FIG. 1;

FIG. 4 is a sectional view taken on line 4—4 of FIG. 1;

FIG. 5 is a sectional view taken on line 5—5 of FIG. 1; and

FIG. 6 is a sectional view taken on line 6—6 of FIG. 1.

Referring in detail to the drawing, there is shown a boiler housing 20, an aperture 22 at the bottom thereof through which air may flow and for the insertion of a gas burner 24 which is mounted on the bottom of boiler housing 20. Mounted above burner 24 is a plurality of concentric baffles 26 within a fluid cylindrical tank 28. A pump 40 outside boiler housing 20 pumps water through a line 42 leading to coils 44 and 46 which surround tank 28 and fluidly communicate with the inside of tank 28 by means of connections 50 and 52 respectively. It should be noted that a manual valve 54 is above pump 40, a manual valve 56 to lock the water in the system is located between pump 40 and boiler housing 20, a drain cock 58 is located on line 42 between valve 56 and boiler housing 20, a thermostat 60 is connected to a junction 62 in line 42, and a union 64 is connected outside of boiler housing 20 between line 42 and coils 44 and 46 allowing separation and removal of the boiler unit from boiler housing 20 from line 42 for repair or any other purpose.

The water flowing in tank 28 from coils 44 and 46 flows through baffles 26 in the direction shown by the arrows until the water finally reaches the central baffle at which point it flows up a line 70 after being heated by burner 24. A union 72 connects line 70 with a line 74 having a manual valve 76, a T joint 78, and a flow control valve 80 on the other side of T joint 78 for circulating purposes. Heated water may be taken from line 74 by means of a line 82 connected to T 78 and having a manual valve 84 and a union 86 at the end thereof for connection to a line 90. It should be noted that a cover plate 92 is secured to the top of boiler housing 20. There are also air holes 27 near the top of the topmost baffles 26 to prevent air locks.

Adjacent boiler housing 20 is an enclosure 100. Heated air from inside boiler housing 20 flows into enclosure 100 by means of apertures 102. Mounted on the bottom of the closure 100 and extending out of the top of enclosure 100 is a tank 102 into which line 90 is inserted for bringing heated water from tank 28. The heated water surrounds a cylindrical heater 104 mounted within tank 102 and is recirculated back through pump 40 by means of line 42 communicating with the base of tank 102. A screw cap 106 is secured over the top of tank 102 and heater 104. The water heated within heater 104 flows out through a line 108 for domestic household purposes, and line 110 supplies heater 104 with water for household use such as cooking, bathing, etc., by means of line 108. Pump 40 is actuated by a thermostat 60 to keep the water at a fixed temperature for controlling house temperature. When pump 40 is not in motion, water is still circulated through the pipe line by convection due to burner 24 which causes the water in tank 28 to rise through line 70 and eventually into tank 102. It should be noted that water in tank 102 is recirculated (not shown in drawing) back to tank 28 to be reheated. A vent 120 is located near the top of enclosure 100 for the heated air and gases circulating around the wall of tank 102.

FIG. 2 shows in detail how line 42 is connected to coils 44 and 46. A T 122 is connected by unions 124 and 126 to coils 46 and 44 respectively. T 122 is also connected to a line 43 connected to union 64 for fluid communication with line 42.

While a preferred embodiment of this invention has been illustrated and described, it should be understood by those skilled in the art that many changes and modifications may be resorted to without departing from the spirit and scope of the invention. It should be noted that manual valves 56 and 76 are placed at both ends of the boiler to back water into the system so that the heating unit can be removed. Likewise, manual valves 54 and 58 back water into the hot water system so that when necessary they can be locked at any time in order to remove the hot water tanks.

I claim:

1. A heater, comprising a source of water, first means connected to said source, second means encircled by said first means and being in fluid communication with said first means, a heat source located below said first means and said second means, an outlet extending from said second means for supplying water heated by said burner, a chamber in which said burner, said first means, and said second means are enclosed causing hot air to congregate about said first means heating the water therein, third means in fluid communication with said chamber for receiving heated air therefrom, fourth means surrounded by said third means and in controlled fluid communication with said outlet, and a cylindrical tank within said fourth means for the recirculation of water to be heated.

2. The heater of claim 1, wherein said second means includes a plurality of cylindrical vertical baffles concentric with said first means and said outlet.

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