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WATER HEATER

Filed May 7, 1926

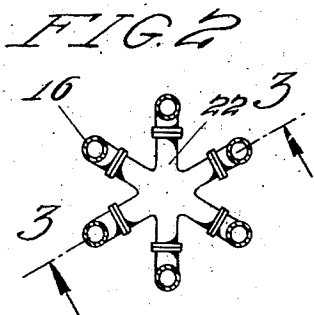
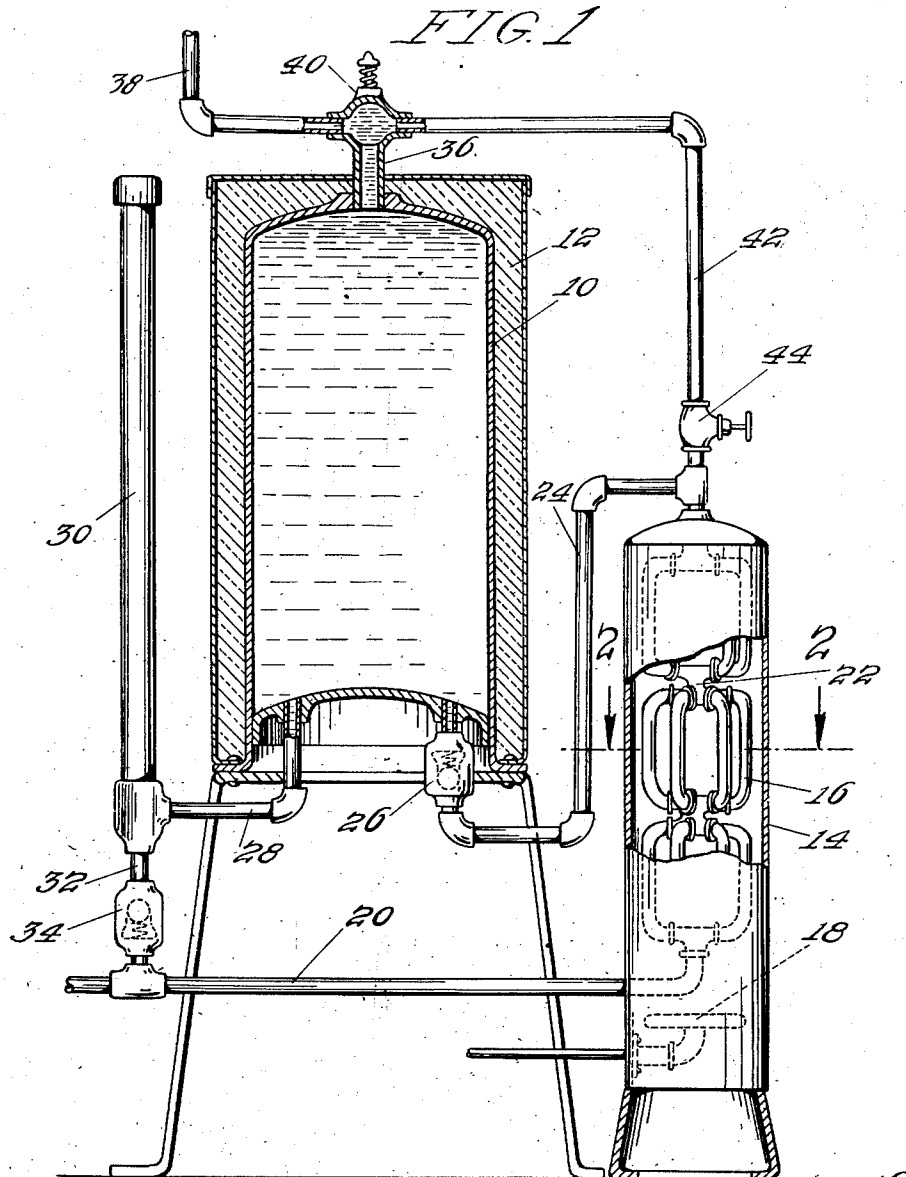
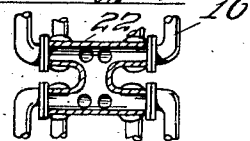


FIG. 3



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WATER HEATER

Application filed May 7, 1926. Serial No. 107,402.

This invention relates to improvements in water heaters, and has for one of its principal objects the provision of heating means for water which will be entirely self-contained in its operation, and which, moreover, can be used with equally good results in homes and also in factories or the like.

One of the important objects of this invention is to provide a water heater which will insure a supply of hot water at all times at a minimum of heating expense.

Still another important object of this invention is the provision, in a water heater, of means whereby hot water can be immediately obtained from a constantly maintained reserve, and further means for instantaneously delivering hot water, even in the absence of such reserve.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawing and following specification.

The invention, in a preferred form, is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a vertical elevation, partly in section, illustrating the construction and operation of the improved automatic water heater of this invention.

Figure 2 is a horizontal sectional view, taken on the line 2—2 of Figure 1.

Figure 3 is a partial sectional view, taken on the lines 3—3 of Figure 2.

As shown in the drawings:

The reference numeral 10 indicates generally a tank or container for hot water, the same being enclosed in a heat insulating cover 12. Adjacent the tank 10 is a heater element 14 having a plurality of coils 16 therein, adapted to be heated by means of a burner 18.

The coils 16 are supplied with cold water from an inlet pipe 20, and from an inspection of Figures 2 and 3 it will be evident that these coils are of a special construction adapted to more efficiently utilize the heat from the burner 18.

Each of the coils comprises a series of pipes attached to a central header or the like 22, having a plurality of arms, to the end of each

arm being fitted, by means of a coupling or the like, a U-shaped pipe for carrying the water. Each connecting header 22 is formed in one section, as best illustrated in Figure 3, and in this manner the entire heating unit can be readily assembled and disassembled.

A connecting pipe 24 leads from the top of the casing 14 and from the heating coils to the bottom of the container 10, a spring-controlled check valve 26 being provided in the pipe 24 adjacent the tank 10 for preventing any return flow of the heated water. A second pipe 28 leads out from the bottom of the tank 10 and is connected to a standpipe 30 to insure an equal pressure in the system at all times, the bottom of the standpipe 30 being connected to the intake pipe 20 by a connection 32 in which is positioned a spring-controlled check valve 34. The tension of this spring is such that water will not flow from the tank 10 into the intake pipe 20 until the pressure in the system is at least greater than that in the intake pipe 20, thereby effectively preventing accidents.

An outlet pipe 36 is positioned in the top of the tank 10, whereby the heated water may be drawn off by means of a delivery pipe 38, and a safety air or steam valve 40 is attached at this point. Also connected to the supply pipe 38 and joining the heating coils 16 in the casing 14 is a connecting pipe 42 having a stop cock 44 therein, the stop cock 44 being normally closed, but adapted to be opened when a supply of hot water is desired immediately at such time when the water in the tank 10 is cold.

The operation is as follows:

The burner 18, which may be gas or any other desired or suitable medium, being put into operation, will heat the water in the coils 16, and such heated water will then automatically flow into the tank 10 past the check valve 26. This heated water will rise to the top of the tank 10, and the temperature of the water in the tank will gradually increase as long as the burner is in operation. Any excess air or steam will be expelled through the safety valve 40, and in the event that the pressure grows too great the check valve 34 will open, allowing the pressure in the entire sys-

tem to approach that in the intake pipe 20, the difference being regulated by the tension of the spring 34. Hot water as desired can be withdrawn by means of the pipe 38, the tank 10, and the associated piping system remaining full at all times.

It will be evident that herein is provided an efficient and economical heating plant for water or the like which is entirely self-contained in operation and which will insure an adequate supply of hot water at all times. Further, hot water can be delivered by means of this device at practically instantaneous notice. The regulation of the pressure in the system is further entirely automatic, and so governed as to insure absolute safety at all times.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. In a hot water heater, a heating element comprising a plurality of U-shaped lengths of pipe adapted to be vertically disposed, central horizontal headers, means for connecting said U-shaped pipes to the central headers, each of said headers comprising arms on two levels, and passages centrally connecting said arms for supplying water to said U-shaped pipe sections.

2. In a hot water heater, a heating element comprising a plurality of U-shaped lengths of pipe adapted to be vertically disposed, central horizontal headers, means for connecting said U-shaped pipes to the central headers, each of said headers comprising arms on two levels, and passages centrally connecting said arms for supplying water to said U-shaped pipe sections, the arms being equally spaced around the headers forming a maximum heating surface.

In testimony whereof I affix my signature.
EDWARD A. PEDIGO.

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