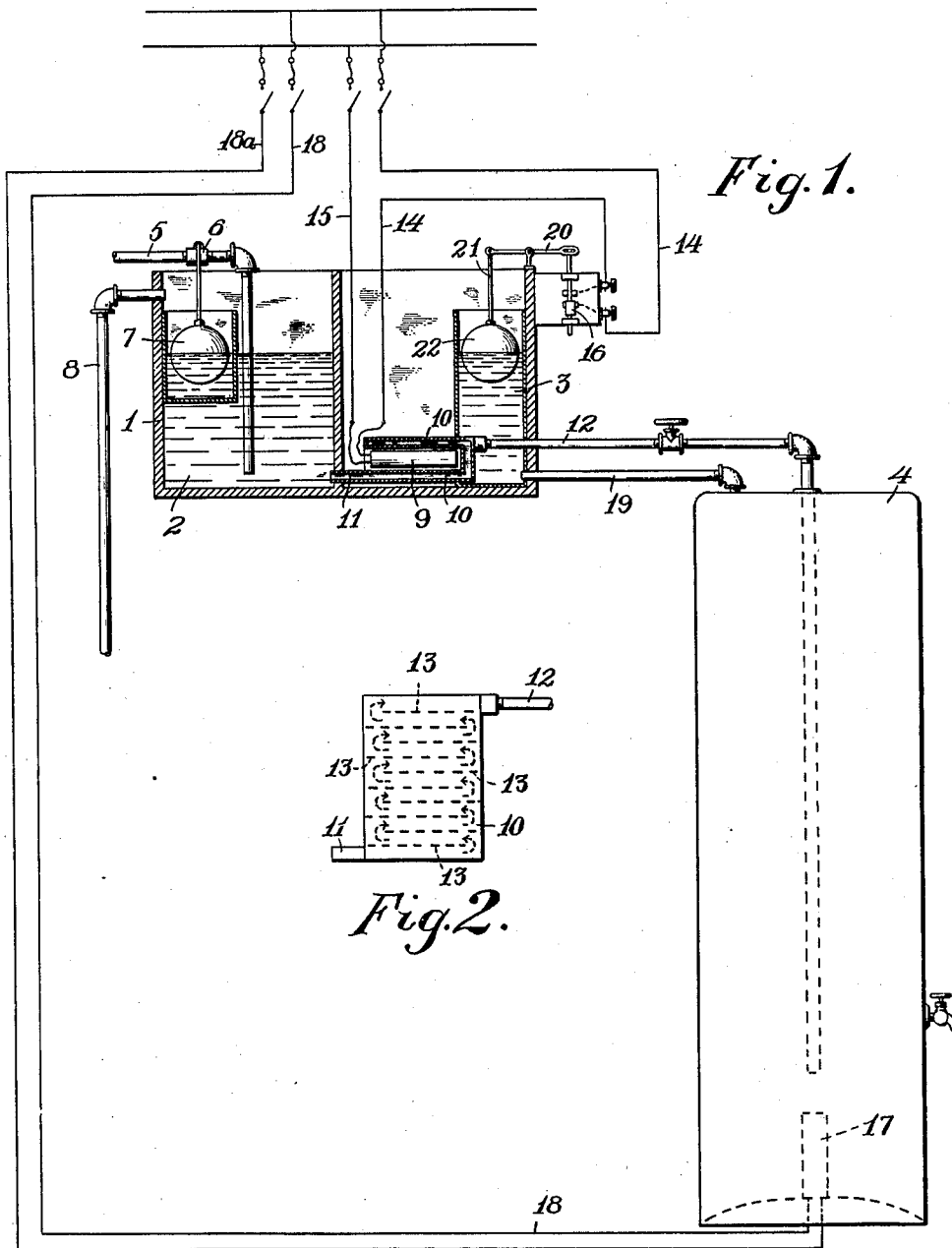


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 APPARATUS FOR HEATING WATER.
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937,777.

Patented Oct. 26, 1909.



Witnesses

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APPARATUS FOR HEATING WATER.

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To all whom it may concern:

Be it known that I, AUSTIN C. DUNHAM, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Apparatus for Heating Water, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 is a side view of my improved apparatus with the cold water chamber in vertical section. Fig. 2 is a plan view of the heating means.

Similar reference figures refer to similar parts in the different views.

My invention relates to automatic apparatus for maintaining a tank full of heated water, comprising a cold water chamber in which the water is heated, and a tank to receive the heated water, and it consists in the construction and arrangement of parts as hereinafter described and pointed out in the annexed claims.

My invention also includes means operated by the amount of water in the hot water tank for automatically controlling the heat applied to the water.

Referring to the accompanying drawings, 1 denotes an elevated receptacle comprising a cold water chamber 2 and a regulating chamber 3, arranged to receive hot water from the hot water tank 4. Cold water is admitted into the chamber 2 by a pipe 5 from a source of water supply, not shown. An inlet valve 6 is provided in the pipe 5, which is arranged to be closed by the elevation of a float consisting of a hollow ball 7 to a predetermined position by the rise of water in the chamber 2. An overflow pipe 8 is also provided for the chamber 2.

Preferably held in the receptacle 1 between the water chambers 2 and 3 is means for heating the water, comprising in the present instance a resistance coil 9 forming part of an electric circuit, and inclosed by a water jacket 10, which communicates with the water chamber 2 and tank 4. The water jacket is preferably made of metal through which the heat generated by the resistance coil is readily communicated to the water in the jacket, and in order to increase the heating efficiency, I preferably divide the jacket by partitions into spaces through which the

water courses in a serpentine path between the inlet pipe 11 and the outlet pipe 12 leading to the water tank 4, said partitions being indicated by broken lines 13, in Fig. 2. The resistance coil 9 is connected with a source of electricity by wires 14 and 15, one of said wires inclosing a cut out switch 16 of the ordinary construction. Any other method suitable for heating the water may be employed, such, for example, as a gas jet or steam coil inclosed in the jacket 10. The purpose and operation of the cut out switch will be hereinafter described.

The hot water tank 4 is preferably provided at its bottom with means for imparting heat to supply the loss by radiation and maintain its temperature, consisting in the present instance of a resistance coil 17 forming part of an electric circuit through wires 18 and 18^a.

The top of the hot water tank 4 is connected with a pipe 19 with the bottom of the chamber 3, so that heated water will pass from the tank 4 into the chamber 3 when the tank is filled. A lever 20 is pivoted above the chamber 3 having one end connected with the cut out switch 16, and the other end is pivoted to a rod 21 attached to a float or hollow ball 22 which is arranged to rock the lever 20 and operate the cut out switch, and make or break the electric circuit which comprises the resistance coil 9. In the position shown in Fig. 1, the float 22 is shown raised to a predetermined level by the water in chamber 3, causing the electric circuit to be broken leading to the coil 9. As water is drawn from the tank 4 through a faucet 23 the water level in the chambers 2 and 3 will be lowered, and the float 22 drops to a position to complete the electric circuit between the wires 14 and 15 leading to the coil 9.

I have shown the cold water chamber and regulating chamber in the case 1 with the heating means between them, and the hot water tank separate from the case 1, but it is obvious that other arrangements of these parts might be provided.

In operation cold water is admitted through the pipe 5 into the chamber 2, from which it passes through the pipe 11 and the serpentine passages of the water jacket 10 where it is heated by the resistance coil 9,

and conducted into the hot water tank 4 by the pipe 12. After the hot water tank 4 is full, the overflow enters the regulating chamber 3 and, upon attaining the predetermined level, raises the float 22 which operates the cut out switch 16 to break the circuit and disconnect the resistance coil from the source of electrical supply. The amount of water in the cold water chamber 2 is controlled by the valve 6 and the float or hollow ball 7. As the hot water is removed from the tank 4, the water level in the chamber 3 is lowered, the float 22 drops and the resistance coil is again connected with the source of heat supply. I am thus enabled automatically to maintain the tank 4 full of hot water, which is kept in its heated condition ready for use by the resistance coil 17 at the bottom of the tank 4.

The above described apparatus has been shown with heating means supplied by an electric current and I prefer this method of supplying heat, as it is safe, cleanly, and readily transmitted from any convenient source, and capable of complete control. It will be obvious, however, that other heating means might be employed, such, for example, as a gas jet in place of the resistance coil, in which case the control would be effected by a shut off cock operated by the float 22 in the same manner as the supply of cold water is cut off by the float controlled valve 6.

I claim,

1. In an apparatus for heating water, the combination with a water tank and means for supplying water to said tank, of means for controlling the flow of water to said tank, and means for heating the water during its passage to said tank.

2. In an apparatus for heating water, the combination with a water tank, of means for supplying water to said tank, means for controlling the water supply, means for heating the water during its passage to said tank, and means for discontinuing the heating determined by the water supply.

3. In an apparatus for heating water, the combination with a closed water tank, means for supplying water to said tank from a higher level, means for heating the water during its passage to said tank, means for controlling the supply of water, an overflow pipe for said tank, and means for discontinuing the heating determined by the accumulation of the overflow water from said tank.

4. In an apparatus for heating water, the combination with a closed tank for holding the heated water, a water supply chamber above the level of said tank, means for controlling the water line in said supply chamber, a conduit leading from said supply chamber to said tank, means for heating the water during its passage through said con-

duit, an overflow chamber on a level with said supply chamber and communicating with said tank, and means for controlling the heating determined by the water line in said overflow chamber.

5. In an apparatus for heating water, the combination with a closed water tank, means for supplying water to said tank, means for controlling the water supply, an overflow chamber connected with the top of said tank, means for heating the water supply during its passage to said tank, and means for controlling the heating means determined by the water line in said overflow chamber.

6. In an apparatus for heating water, the combination with a tank, of a water supply chamber communicating with said tank, means for heating the water between said tank and said supply chamber, and means for controlling the heating means determined by the overflow from said tank.

7. In an apparatus for heating water, the combination with a tank, a water supply chamber above the level of said tank, a conduit for water from said supply chamber to said tank including a water jacket, a resistance coil forming part of an electric circuit inclosed by said jacket, and means controlled by the water supply to said tank for making and breaking the electric circuit.

8. In an apparatus for heating water, the combination with a closed tank for the hot water, a water supply for said tank, means for heating the water between the water supply and the tank, forming part of an electric circuit, and means for breaking said electric circuit determined by the overflow of water from said tank.

9. In an apparatus for heating water, the combination with a closed tank, of a water supply, means for heating the water between the water supply and tank, comprising a heating member forming part of an electric circuit, an overflow chamber connected with the top of said tank, a float in said overflow chamber, and a switch controlling the electric circuit operatively connected with said float.

10. In an apparatus for heating water, the combination with a closed tank, a water supply chamber above the level of said tank, means for controlling the water supply to said chamber at a predetermined water line, a conduit leading from said chamber to said tank, means for heating the water as it passes through said conduit, comprising a heating member forming part of an electric circuit, an overflow chamber on a level with said water supply chamber and communicating with said tank, and means controlled by the water line in said overflow chamber for breaking the electric circuit.

11. In an apparatus for heating water, the combination with a tank for hot water, a water supply for said tank, means for heat-

ing the water during its passage to said tank, and means for applying heat to water in the bottom of said tank.

12. In an apparatus for heating water, the combination with a tank for the hot water, a water supply chamber communicating with said tank, means for heating the water between the supply chamber and the tank, comprising a heating member forming part

of an electric circuit, means for breaking 10 said circuit controlled by the overflow water from said tank, and means for applying heat to the water in said tank comprising an independent electric circuit.

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Witnesses:

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