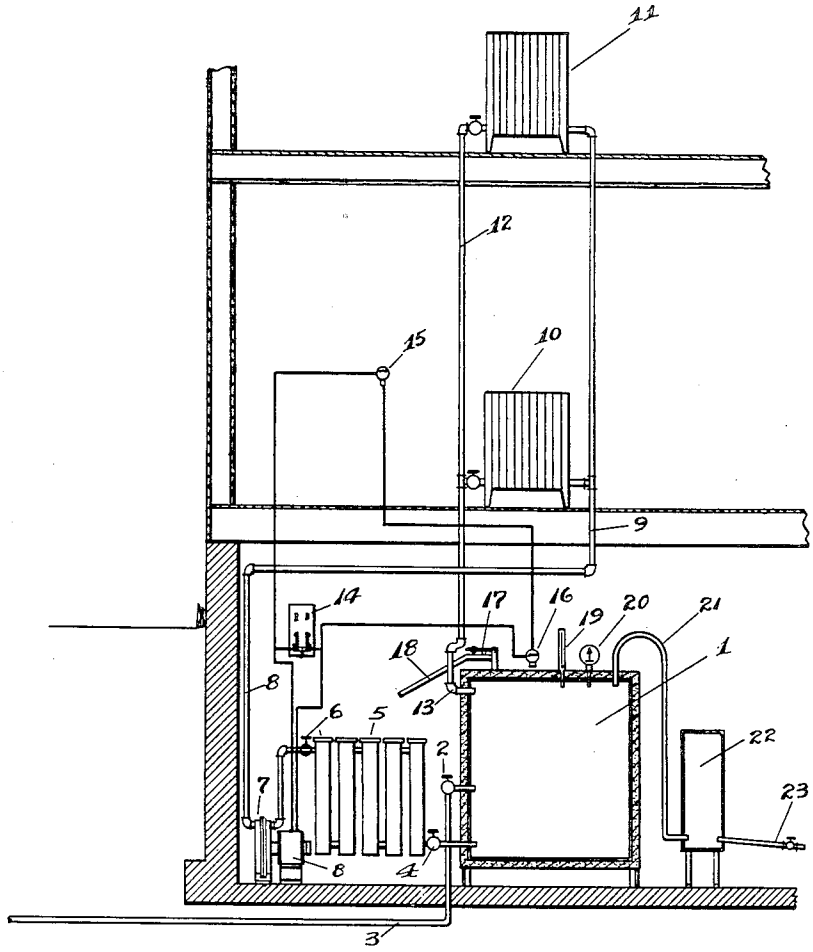
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ELECTRICAL HEATING SYSTEM

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ELECTRICAL HEATING SYSTEM.

Application filed January 25, 1926. Serial No. 83,707.

One object of my invention is to provide an improved form of heating a dwelling, or the like, by electrical power.

Another object is to provide with a hot water tank and heating system, fed therefrom, improved means for forcing a circulation through the entire system.

With these and incidental objects in view, the invention consists of certain novel features of construction and combination of parts, the essential elements of which are hereinafter described with reference to the drawing, which accompanies and forms a part of this specification.

The drawing represents a diagrammatic sectional side elevation of a dwelling house equipped with my improved heating system. In the drawing the hot water tank 1 has a connection 2 to the city water supply 3 and also a connection 4 to the electrical heater 5 and as this heater is similar in general construction to that described in my co-pending application, Serial No. 59631, it will not be further described herein.

This heater is connected at 6 to a circulating pump 7, driven by the motor 8 and the intake of the pump 7 is connected by the pipe 8′ to the riser 9 from which the radiator 10 is tapped off on the first floor and the radiator 11 on the second floor. The two radiators are connected by the pipe 12, which returns at 13 to the tank 1.

The motor 8 and the heater 5 are connected to the switch 14 through the mercoid switches 15 and 16 so that even though the switch is closed to supply power to the system, the opening of the circuit at either of the mercoid switches 15 or 16 will cut the current off from both the motor and the heater.

The mercoid switches are of the thermostatic type and as their action is well known, they will not be further described, except to state that the one 15 is settable to be actuated at a given temperature so as to control the temperature of the room, while the one 16 is set at a temperature such as 180° to prevent the water in the tank 1 ever getting above this predetermined temperature. The tank is also provided with an ordinary safety valve 17, which opens the tank to the drain pipe 18, a thermometer 19 to show the temperature of the water and a pressure gauge 20. While this tank might be connected to an open water tank in the attic of the house, it is much better in my invention to have a pipe connection 21 which leads upwards from the tank and then down into the air tank 22, so the water in the tank will always be under pressure, as in the ordinary pressure system of hot water heating. The customary drain 23 is provided for releasing any water that may get into the air tank 22.

The pump 7 is of ordinary construction, but is preferably of such type that a certain amount of thermo circulation can take place through the pump when it is not running.

With the system described and shown, it is evident that when the motor is running, the water is forced through the heater 5 which heats it to a high temperature and that this hot water then passes into the tank 1 and from this tank 1 out to the heating system under the drive of the pump 7, so that a forced circulation of water is effected throughout the entire system, the returning water is, of course, the coldest in the system and this is brought into the intake of the pump 7 and then passed into the heater to be re-heated. By placing the pump at this particular point with respect to the heater, the heater does not need to handle as hot water as would otherwise and as the water is moving through the system at all times, the water that goes to the radiators is practically the same temperature as when it leaves the heater, so that the radiators can be brought up to the proper temperature in a minimum amount of time.

The tank 1 is insulated so that when the heater is cut off, the heat will not radiate from the tank. Furthermore, after the pump is cut off and the heater is cut off, there would still be a thermo circulation of water from the tank through the system and back through the pump and heater so that the temperature of the radiators will be maintained longer than as if the system was cut entirely off.

While I have described my invention and illustrated it in one particular design, I do not wish it to be understood that I limit myself to this construction, as it is evident that the application of the invention may be varied in many ways within the scope of the following claim.

I claim:

In an electric hot water heating system,

the combination with a series of radiators, of an insulated tank, a pump, and an electric heater all connected in circuit with the radiators, said pump being arranged to pump water from the cool side of the system to the heater, and the entire system including the tank, being substantially filled with water and free from obstruction, when in operation, so that circulation will continue, by convection, when the pump is idle, and means for maintaining a constant air pressure in the system.

GUSTAV N. MADSEN.