

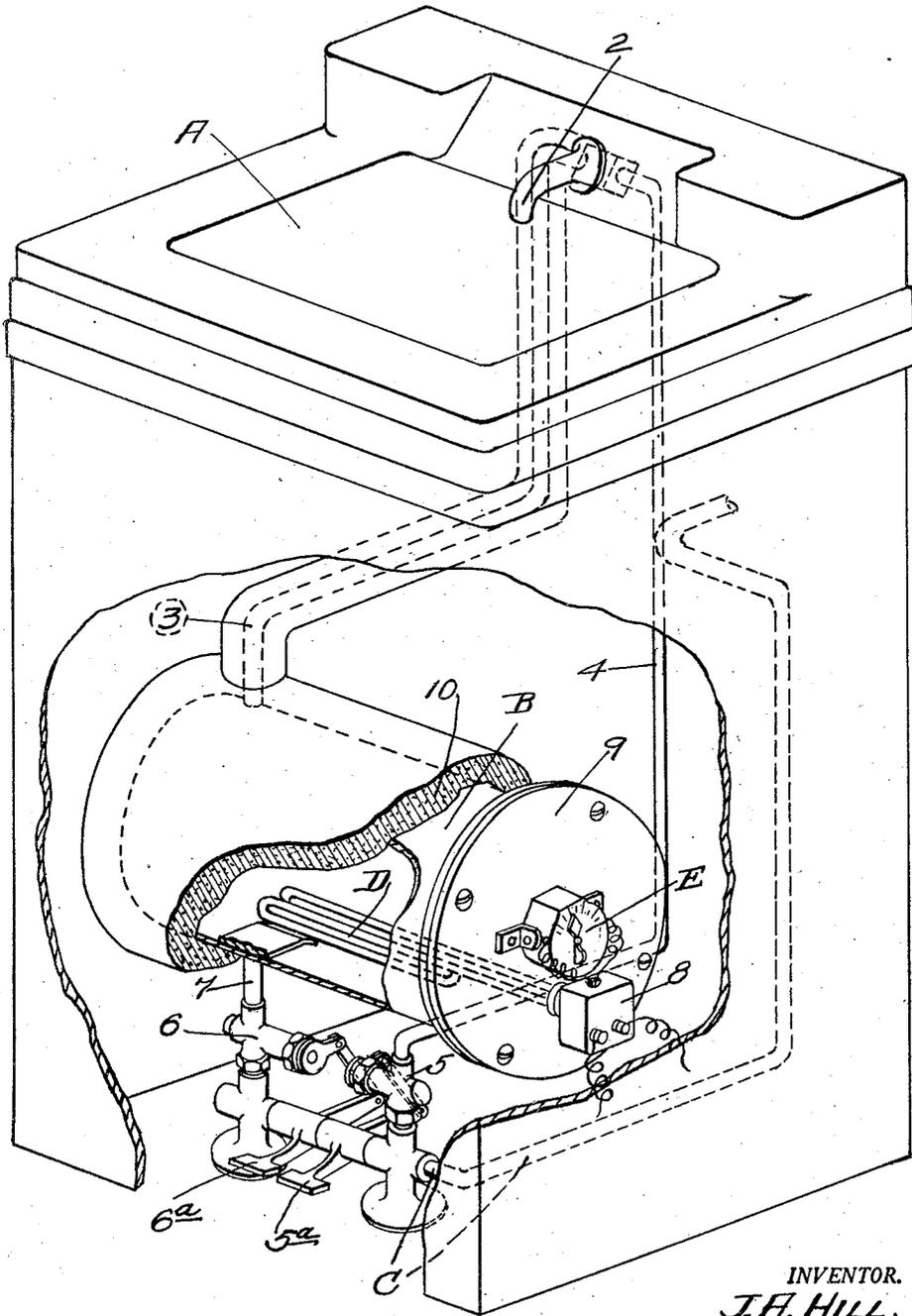
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HOT AND COLD WATER SYSTEM

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HOT AND COLD WATER SYSTEM

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This invention relates to a hot and cold water system for household and other uses and particularly to a system whereby water may be economically heated and delivered to a given spout or outlet.

Practically all homes, apartment houses, hotels and many other buildings are equipped with hot and cold water service, the cold water being carried by one line of piping and the hot water by another. The water heater, whether gas or electrically heated or otherwise is often located in the basement or some other out of the way place in one end of a building and many of the hot water outlets may be located on the second and third floor or the opposite end of a building; hence, when a person at one of these remote outlets requires hot water the spout or faucet must be opened and must remain open until all the cold water in the line has run out and hot water commences to flow. This causes a great waste of water and leaves the pipes full of hot water which quickly cools off and may again have to be run out and wasted before hot water flows. There is not only a great water waste but also a proportional waste of fuel or electricity as the case may be due to conduction and radiation losses, etc. Again the hot water tank or heater, the piping connections and valves are at all times maintained under high pressure and are subjected to corrosion due to the oxygen liberated during the heating of the water and besides that faucet packing and washers are constantly burning out and causing further waste by the leakage.

The object of the present invention is generally to improve and simplify the construction and operation of the hot and cold water systems of the character described; to substantially eliminate hot water piping in a building together with the conduction and radiation losses encountered in connection therewith; to provide a water heating system including a tank or heater which is open to the atmosphere at all times so that water may be heated at substantially atmospheric pressure, oxygen and other corrosive gases contained in the water freely liberated and the tank and connected discharge pipe operated under substantially no pressure; to provide a water heating system of the character described in which the tank or heater and the connected discharge pipes may be fully insulated against heat losses; to provide a water heating system in which the hot water carrying pipes are substantially eliminated and water waste reduced to a minimum; and further, to provide a water heating system in which the valves employed are at no time subjected to the

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action of hot water or gases liberated therefrom.

The water heating system is shown by way of illustration in the accompanying drawing which is a perspective view partially broken away showing the water heating system.

In the drawing A indicates a wash basin or kitchen sink and 2 a water delivering spout disposed above the sink. Connected with the spout are two pipes 3 and 4, the pipe 3 leading to a tank B and the pipe 4 to a valve 5. Cold water under pressure from the regular service system is delivered by pipe C which is connected with a valve 5 and also with a valve 6 which in turn delivers water to tank B through pipe 7. The valves 5 and 6 are actuated by foot pedals indicated at 5a and 6a. As the pedal 5a is depressed valve 5 is opened and cold water will flow through a pipe 4 to a spout 2 and to the basin. If the pedal 6a is depressed valve 6 will open and cold water will flow into the tank B through pipe 7 and then through pipe 3 to the spout 2 and into the basin. No valve of any character is required in the spout 2 and in fact is purposely eliminated as it is desired that the spout 2 shall function not only as a discharge for cold and hot water but also as an open vent for the tank which maintains the water in the tank under substantially atmospheric pressure at all times.

The tank B contains an electric heating element D which is connected with a terminal outlet box 8. A thermostat E is also provided and this controls the temperature of water to be heated. The tank B is preferably provided with a removable head 9 so that the tank may be readily opened for inspection, cleaning and repair, and the tank may be covered with insulating material such as indicated at 10 and so may the pipe 3 to insulate against conduction and radiation losses.

By providing a system as here shown, hot water piping throughout a building is substantially eliminated as the only hot water discharge pipe required is that indicated at 3 and as this is insulated and the tank or heater is similarly insulated conduction and radiation losses are reduced to a minimum and obviously water waste is practically eliminated.

Only two valves are required as indicated at 5 and 6. These are disposed on the cold water side of the system and as such are not subjected to heat or corrosion of gases liberated by the water.

In as much as the hot water side of the system is maintained at substantially atmospheric pressure and as the tank is open to the atmosphere

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by being vented through the pipe 3 and the spout 2 it is obvious that the tank may be made of comparatively light gauge sheet metal and as the tank is provided with a removable head it may be readily galvanized both inside and outside so as to protect the metal against corrosion. Furthermore there is little if any tendency to corrosion as oxygen liberated during the heating of the water is permitted to freely escape at all times.

While pedal operated valves are shown it is obvious that they may be operated in any suitable manner but pedal operation is preferable as it leaves both hands free. Also wastage of water is further reduced as either the valves or the pedals are spring actuated thereby insuring quick closing of the valves and saving of either hot or cold water.

If a system of this character is installed in an ordinary house two and possibly three heaters such as here shown may be employed, one in connection with the bath tub or shower, one in connection with the wash basin and one in connection with the kitchen sink. Small tanks can accordingly be employed and conduction and radiation losses are proportionately reduced. Also by having a separate heater for each outlet it is possible to regulate the water temperature in each heater by means of a thermostat, thereby providing water at any temperature desired at each outlet.

By employing comparatively small tanks or heaters low capacity heating elements may be employed thereby eliminating special wiring for the water heaters.

While the heater illustrated is electrically heated by the element D it is obvious that gas or other fuel may be employed and thermostatically controlled, and while this and other features of the invention have been more or less specifically described and illustrated, I nevertheless wish it understood that changes may be resorted to within the scope of the appended claims, and that the materials and finish of the various parts employed may be varied according to the experience of the manufacturer or varying conditions may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A water heating and delivering system comprising a tank connected with a source of cold water supply under pressure, a valve controlling the flow of water from said source to the tank, an open discharge outlet connected with the

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uppermost part of the tank and extending above the tank, said open discharge maintaining approximately atmospheric pressure in the tank and maintaining a sufficient head of water above the tank to insure a full tank of water at all times and at the same time permit a free escape of oxygen liberated during heating of water in the tank, and a thermostatically controlled electric heating element to maintain the water in the tank at a predetermined temperature.

2. A water heating and delivering system comprising a tank, a source of cold water supply under pressure, a valve controlling the flow of water from said source to the tank, an open discharge spout adjacent the tank, a pipe connecting said spout with the tank, said spout and pipe forming a discharge outlet for water delivered to the tank and a vent therefor which maintains approximately atmospheric pressure in the tank, means for heating the water in the tank, a second pipe connected at one end with the open discharge spout and at the other end with the source of water supply and a valve on said pipe to control the flow of cold water from the source of supply through to the spout.

3. A water heating and delivering system comprising a tank, a source of cold water supply under pressure, a valve controlling the flow of water from said source to the tank, an open discharge spout adjacent the tank, a pipe connecting said spout with the tank, said spout and pipe forming a discharge outlet for the water delivered to the tank and a vent therefor which maintains atmospheric pressure in the tank, a thermostatically controlled electric heating element in the tank to maintain the water at a predetermined temperature, a second pipe connected at one end with the open discharge spout and at the other end with the source of water supply, and a valve on said pipe to control flow of cold water from the source of supply through to the spout.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,802,316	Bree	Apr. 21, 1931
2,110,251	Wolcott	Nov. 8, 1938
2,262,403	Pankow	Nov. 11, 1941
2,269,448	Ferris	Jan. 13, 1942