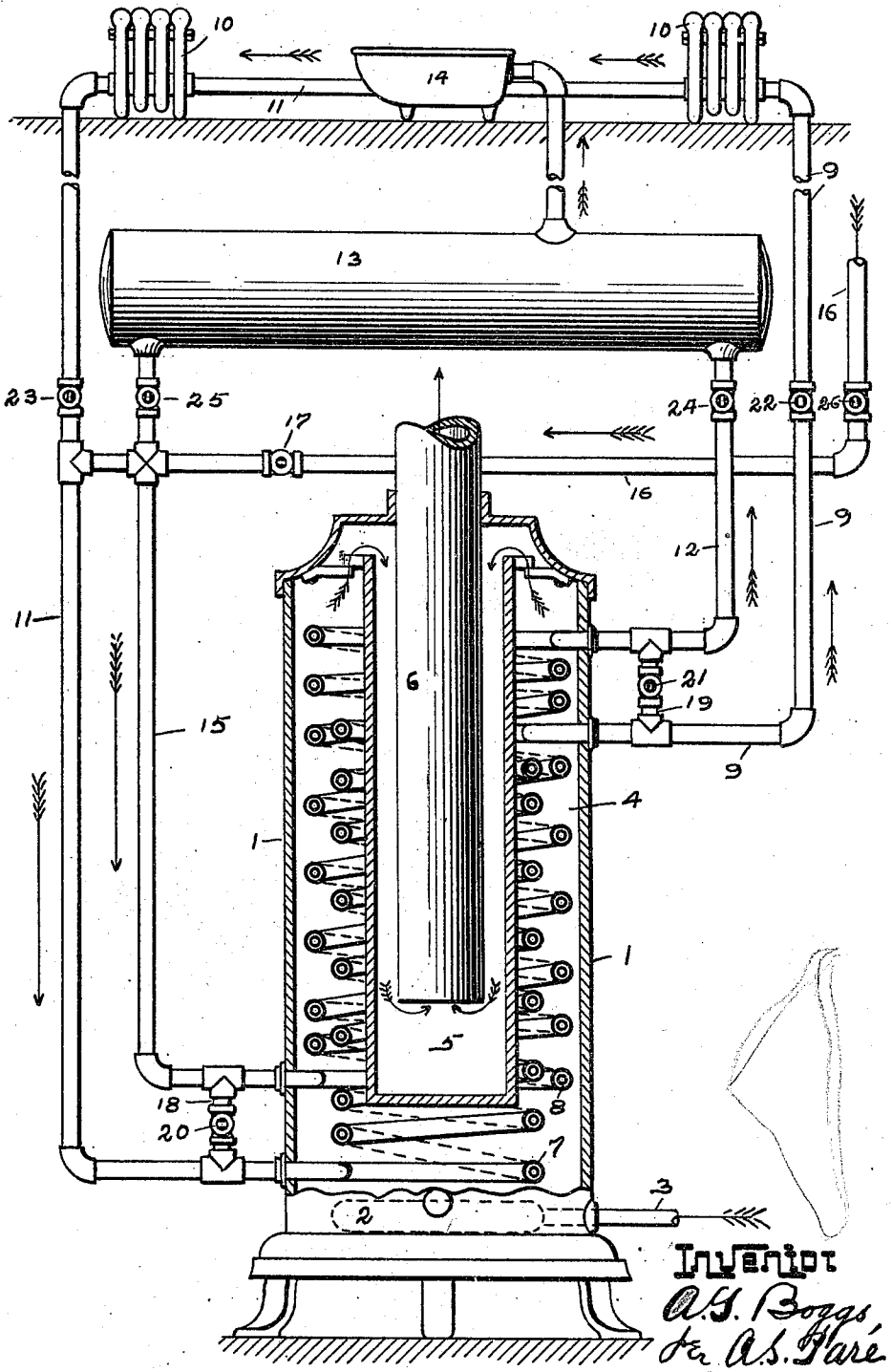
Aug. 14, 1923. 1,465,109

A. G. BOGGS

WATER HEATING APPARATUS

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Inventor
A.G. Boggs
for A.S. Paré
Attorney

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UNITED STATES PATENT OFFICE.

ANGUS G. BOGGS, OF SAN FRANCISCO, CALIFORNIA; MAE HELENE BOGGS EXECUTRIX OF SAID ANGUS G. BOGGS, DECEASED.

WATER HEATING APPARATUS.

Application filed November 28, 1919. Serial No. 341,307.

To all whom it may concern:

Be it known that I, ANGUS G. BOGGS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Water Heating Apparatus, whereof the following is a specification.

This invention relates to water heating apparatus.

The object of the invention is to combine an apparatus for heating a dwelling or other space by the hot-water method, with an apparatus for heating water for use in a bath, basin or sink, or other purpose in which hot water is directly used.

In carrying out the invention, I provide an apparatus with a combustion chamber, in the lower part of which chamber is means for the combustion of fuel, and about the fuel burner is a double set of appliances for carrying water and subjecting it to the heat so that it becomes warmed or heated to a desired degree. These appliances are connected respectively, one to the pipes which convey hot water to bath, basin, sink, or other appliance, and the other to the pipes which connect with the heating coils or radiators of the space to be warmed. I also provide the two sets of devices in which the water is heated by the fuel, with connecting by-passes, and valves, whereby the water from both sets may be directed into either the radiating system or the bath system, when an emergency demands an increased supply therefor.

In the accompanying sheet of drawing I have illustrated my invention in a convenient form for use in an ordinary dwelling house.

The figure shows a furnace designed for burning gasses, oil, or other fuel, with two coils of pipe above the burner, and in the path of the flame therefrom, the furnace being in sectional elevation, showing one coil of pipe connected with a hot water containing tank, and the latter connected to a bath; and also showing the other set of pipes connected to radiators for warming the rooms of the house, and shows further, the by-pass connections between the two systems.

In the figure: The upright furnace 1 has in its lower part a fuel burner 2, shown in dotted lines, supplied by fuel pipe 3. The combustion chamber 4 is immediately above the burner 2, and the burning gasses pass upward through the chamber between the outer wall of the furnace and the interior baffle tube 5, and downward in the latter and out exit pipe 6, as shown by the arrows. Within the combustion chamber are two independent coils of pipe 7 and 8, of different capacities. One of these coils, as 7, is connected by pipe 9 with the system of heating raditors of the building, by which the latter is warmed in cold weather, the water passing from the heating coil 7, through pipe 9 to the radiators 10, and thence by the return pipe 11 to the bottom of the coil 7. The other coil 8, is connected at its top, by the pipe 12, with the hot water tank 13, from which water may be drawn to supply a bath, as 14, or other appliance for the direct use of the hot water. From the tank 13 the water returns by pipe 15, to the lower part of coil 8. The return pipes 11 and 15 are connected with a source of cold water supply, such as a city main, by pipe 16. A check valve 17 prevents a reverse flow through pipe 16. The two sets of coils 7 and 8, are not necessarily of different capacities, but are preferably so, to correspond with the exigencies of climate and the habits of the users of the apparatus. For example, a large family, living in a small house, and given to frequent bathing, would require the greater supply of hot water in the tank and bath supply system, especially in a warm climate, whereas a small family, living in a large house, and in a cold climate, would require the greater supply of hot water in the radiator coil. It will sometimes happen that, owing to seasonal exigencies, or other circumstances, it is desirable to reduce the supply of hot water to one of the sets of consuming apparatus, or to greatly increase the same. For this purpose I have provided the by-pass connection 18 joining pipes 11 and 15, and the by-pass 19 joining the pipes 9 and 12. These by-passes are provided respectively with valves 20 and 21, by which they may be closed or opened, and I also place valves 22, 23, 24, 25 and 26, in the pipes 9, 11, 12, 15 and 16, respectively. If, now, it be desired to turn all the heated water into the warming radiators, I open the valves 20 and 21, in the by-passes, and close the valves 24 and 25. But if it be desired to turn all the heated water into the

direct use tank 13, I similarly open the by-passes and close the valves 22 and 23. When it is desired to have hot water in both the radiator system, and the bath system, I close the by-pass valves and open all the others.

Having thus described my invention, and an embodiment of it, in the full, clear and exact terms required by law, and knowing that it comprises novel, useful and valuable improvements in the art to which it pertains, I here state that I do not wish to be limited to the precise construction and arrangement of the several parts, as herein set forth, as the same may be variously modified by a skilled mechanic without departing from the spirit and scope of the invention as defined in the appended claims.

What I claim and desire to secure by Letters Patent of the United States, is the following, to wit:

1. A hot-water heating apparatus, comprising, in combination, a horizontally disposed hot-water tank, a vertically disposed coil of pipe connected to said tank, a second coil of pipe within said first named coil and parallel thereto, radiators connected to said second coil, by-passes connecting said coils, said by-passes provided with valves, and means for heating said coils.

2. A hot water distributing apparatus, comprising, in combination, a horizontally disposed hot water tank, and heat radiating means, a perpendicularly disposed coil of pipe connected to said hot water tank, a second coil of pipe disposed within said first coil of pipe and connected to said heat radiating means, by-passes connecting said coils of pipe together, valves on said by-passes whereby the manipulation of said valves diverts the hot water from said coils of pipe to either said hot water tank or said heat radiating means and means for heating said coils of pipe.

3. A hot-water heating apparatus, comprising, in combination, a combustion chamber, a water tank and radiators above said chamber, two vertically disposed coils of pipe within said chamber, said coils positioned parallel to each other, one of said coils being connected to said water tank and the other of said coils to said radiators, by-passes outside of said combustion chamber connecting said coils together, valves in said by-passes adapted to direct the water from one coil to the other, and means in said chamber for heating said coils of pipe.

In testimony that I claim the foregoing, I have hereto set my hand in the presence of two witnesses, this 22nd day of November, 1919.

ANGUS G. BOGGS.

Witnesses:

FLORENCE L. WOLFE,
LOUISE BRANDEN.