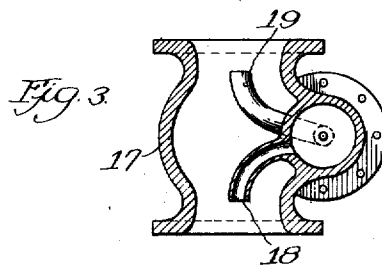
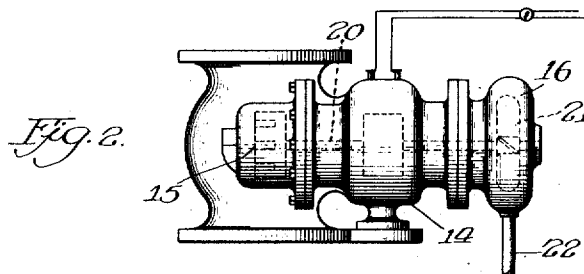
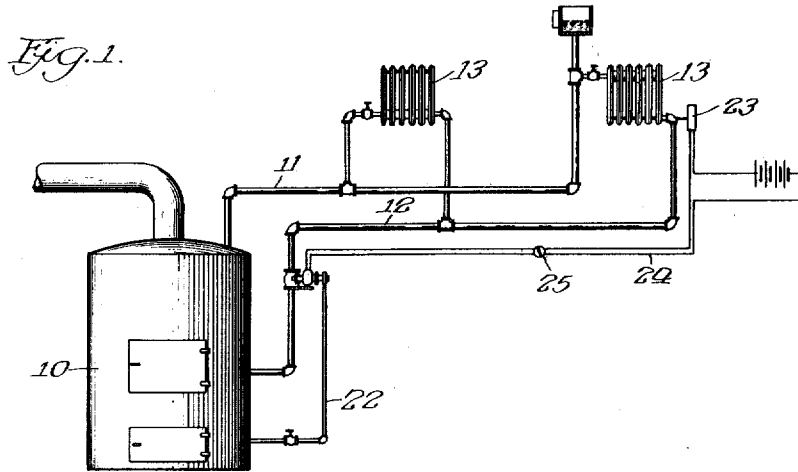


A. M. GOW.
HOT WATER HEATING SYSTEM.
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1,241,208.

Patented Sept. 25, 1917.



Witnesses:
C. H. Kressner.
C. F. Murray

Inventor:
Alexander M. Gow
By *W. G. Luthman* Atty.

UNITED STATES PATENT OFFICE.

ALEXANDER M. GOW, OF DULUTH, MINNESOTA, ASSIGNOR OF ONE-HALF TO STACY H. HILL, OF DULUTH, MINNESOTA.

HOT-WATER HEATING SYSTEM.

1,241,208.

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To all whom it may concern:

Be it known that I, ALEXANDER M. GOW, a citizen of the United States, and resident of Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Hot-Water Heating Systems, of which the following is a specification.

My invention comprises apparatus where- by the efficiency and effectiveness of hot water heating systems may be increased.

The objections to hot water heating systems as now installed are: (1st) the length of time required to heat the large body of water necessarily contained in the system and (2nd) the sluggishness of the circulation. On account of these objections many persons prefer low pressure steam or hot air systems. When a house has cooled down over night, it is very desirable that in as short a space of time as possible it be brought to normal temperature and remain there during the day. To accomplish the more rapid circulation of the water several devices called "circulators" have been proposed to augment by mechanical means the flow of the water through the system. But it is evident that only a part of the desired result is obtained, for there is little gained in increasing the rapidity of flow unless at the same time there is a commensurate increase in the temperature of the water. The large volume of water contained makes the heating of it necessarily slow, especially so when at the same time it is giving up through the radiators a portion at least of the added heat. In my device I make provision for blowing up the fire by a blast of air coincident with the augmentation of the circulation and I accomplish this by means which may be controlled by a thermostat or alarm clock. Furthermore, my circulator is of an improved type and highly efficient.

Referring to the drawings:

In Figure 1 is shown diagrammatically a hot water heating system with my device applied thereto;

Fig. 2 is an elevation of the circulator, motor and blower, and,

Fig. 3 is an enlarged vertical section through the circulator.

In the embodiment of my invention shown in the drawings, the hot water heater is indicated at 10. Pipes 11, 12, constituting the

feed and return pipes respectively, are connected to radiators 13. My novel accelerator and blower is indicated as a unitary structure and comprises a motor 14, a centrifugal pump 15 and a blower 16. Referring particularly to Fig. 3, it will be seen that in the fitting 17 are two short pipes 18, 19, which are so bent as to provide for the entrance of water in the direction of its flow and the discharge thereof from the pump, also in the direction of flow. It will be noted that as the accelerator unit is located in the return pipe, the water will be flowing toward the heater 10, and, therefore, that the curved pipe 19 should communicate with the center of the centrifugal pump, whereas the pipe 18 is in communication with the casing exteriorly of the blades. The blades, or propeller, of the centrifugal pump are rigidly mounted on the armature shaft 20 of the motor. Also mounted on the armature shaft, on the opposite end, is a fan 21, located within the casing 16. A pipe 22 extends from the blower casing to the ash pit of the hot water heater. Preferably I provide a thermostat, indicated at 23, which is connected by suitable wiring 24 to the motor 14. I may also provide a hand-operated switch 25 in the electrical line. The thermostat is preferably arranged to be actuated by the heat of the water instead of by the heat of the room, although it may be arranged for operation in either manner, or other automatic means may be provided for switching the motor on and off.

In operation, assuming that it is desired to quickly heat a house or building equipped with a hot water system, a switch is closed, thereby starting the motor 14 in operation. A strong blast of air is created, which accelerates combustion in the heater, causing a rapid rise in the temperature of the water. Because of the pump which acts as an accelerator the hot water is caused to rapidly circulate through the radiators, thereby securing much quicker action than would be possible by the thermo-siphon system. By constructing the motor, accelerator and blower as a unit the device may be installed at small expense and without material modification in the piping.

It will be noted that the fitting 17 is so arranged as to permit the free circulation of water even though the pump be idle.

The inlet and outlet pipes 19, 18, respectively, occupy only a small portion of the space within the fitting.

Obviously it is immaterial whether the accelerator is located in the feed or return pipe; also as to the exact character of the automatic regulating means for the motor; these and other modifications such as would suggest themselves to those skilled in the art are considered as being covered by the claims hereto appended.

I claim:

1. In a liquid supply system, the combination of pipes, a casing interposed in one of said pipes, said casing having a plurality of compartments, one of which compartments is in the line of flow of water and another of which is outside of the line of flow, a pump in the last named compartment, and oppositely disposed inlet and outlet pipes for said pump, said pipes terminating in the first mentioned compartment and being of such size relative to the compartment as not to materially interfere with the

flow of water therethrough when the pump is not in operation, substantially as described.

2. In a liquid supply system, the combination of pipes, an accelerator disposed in one of said pipes, said accelerator comprising a double compartment casing, one compartment being located in the line of flow of the water through the pipe and the other compartment being located at one side of the line of flow, a pump in said last named compartment, and inlet and outlet pipes for said pump, said inlet and outlet pipes being located concentrically within the first mentioned compartment and being so proportioned as not to materially interfere with the flow of water through the pipe, substantially as described.

Signed at Duluth, Minn., this 31 day of January, 1916.

ALEX. M. GOW.

Witnesses:

J. E. CARLSON,
E. B. RYAN, Jr.