

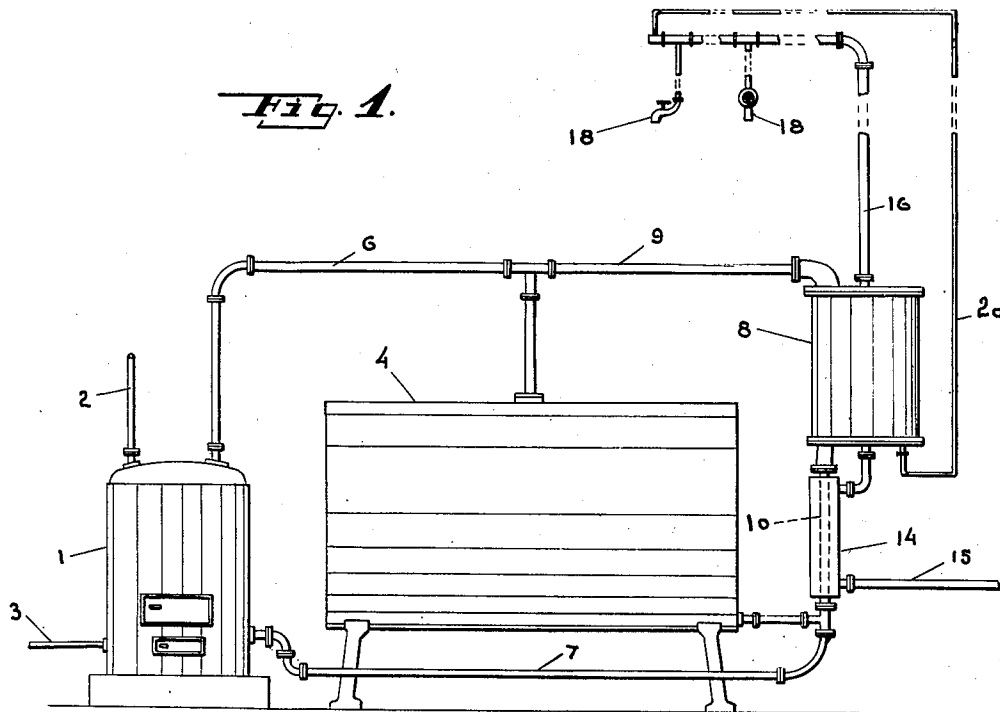
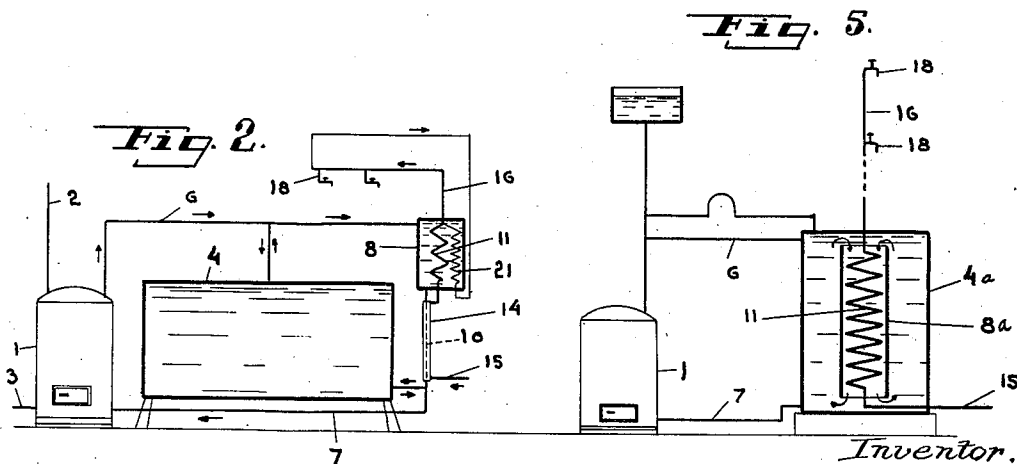
June 16, 1931.

G. R. TELLANDER
HOT WATER SUPPLY SYSTEM

1,810,798

Filed Jan. 12, 1928

2 Sheets-Sheet 1



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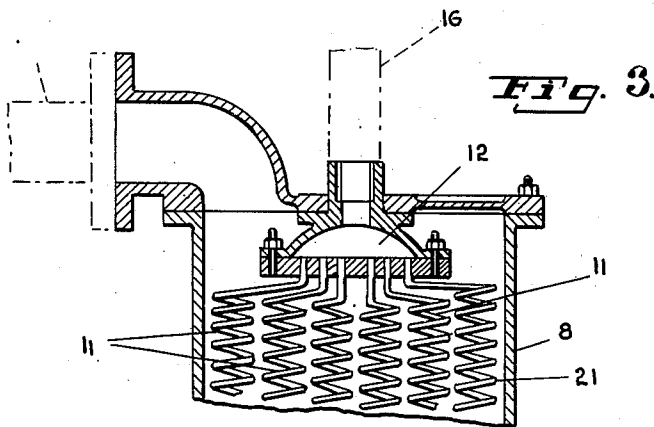
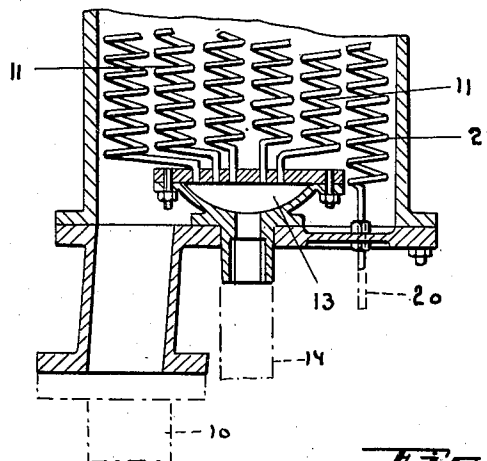
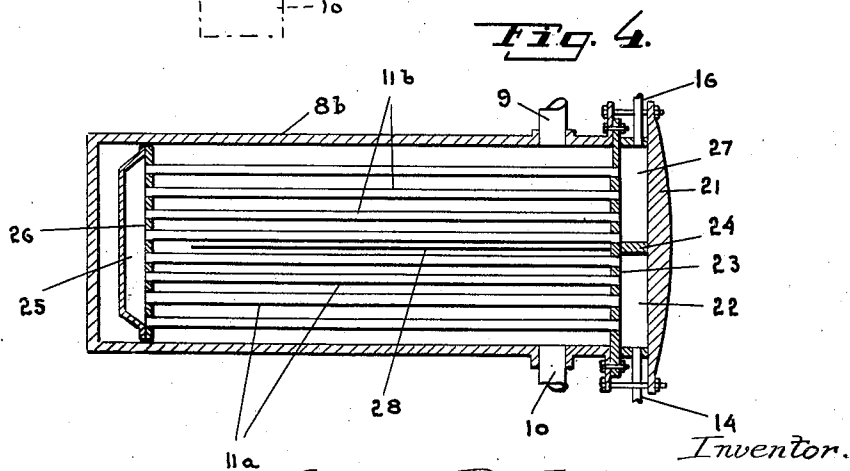
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UNITED STATES PATENT OFFICE

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HOT WATER SUPPLY SYSTEM

Application filed January 12, 1928, Serial No. 246,343, and in Sweden May 14, 1926.

The present invention relates to hot water supply systems of the kind in which the water heated in the boiler system is not consumed itself but is used for heating the service water intended to be drawn off.

The object of the invention is to effect a water heating system of the kind referred to above which, by aid of a comparatively small water heater, yields great quantities of hot service water of a relatively constant temperature.

For this purpose the water heating system according to the invention comprises a water heater, which may have a water space of a comparatively small volume, a water tank of a great volume which is connected to the water heater in such a manner as to allow the water heated in the heater to circulate through the water tank, and a receptacle of a small volume in relation to the water tank, which receptacle at its top communicates with the upper portion of the water tank and its bottom with the lower portion of the water tank, and which receptacle contains a tube system or the like through which the service water is caused to pass in order to be heated.

Some embodiments of the invention are illustrated on the accompanying drawings, wherein Figure 1 shows a water heating system according to one embodiment of the invention, Figure 2 is a diagrammatic view of the system shown in Figure 1, Figure 3 is a longitudinal section of the receptacle shown in Figure 1, Figure 4 is a longitudinal section through a similar receptacle according to a modified embodiment, and Figure 5 is a diagrammatic view of a modification of the water heating system.

Referring first to the Figures 1-3, 1 denotes the heater of the system which may be of any suitable type, f. i. as shown, an ordinary boiler for a house heating system of a hot water type, the pipe 2 conducting the water to the radiators of the system, and 3 denoting the return pipe from the radiators. 4 denotes a water tank of a great volume to which the water heated in the boiler 1 is conducted through a pipe 6 and from which the water returns to the boiler through a pipe 7. To the water tank 4 a small receptacle 8 is con-

nected by means of two pipes 9 and 10, the pipe 9 connecting the upper portions of the tank 4 and the receptacle 8, and the pipe 10 connecting the lower portions of the same. Within the small receptacle 8 there is provided a set of spiral-shaped pipes 11, each connected at the one end to a chamber 12 provided at the top of the receptacle, and at the other end to a chamber 13 provided at the lower portion of the same, the last mentioned chamber 13 being by means of a pipe 14 connected to the cold water service 15 while the upper chamber 12 is connected to a discharge pipe 16 which conducts the water heated in the pipe system 11 to the water taps 18.

As long as any difference exists between the temperature of the water in the boiler 1 and the water in the tank 4, the water will circulate through the pipes 6, 7, the water tank 4 and the boiler 1 in the direction indicated by arrows in Figure 2. Similarly the water in the tank 4 will circulate, as indicated by the arrows, through the receptacle 8 containing the pipe system 11 for the service water.

When service water is drawn off through the taps 18 the water in the receptacle 8 is deprived of its heat, the water thus cooled flowing to the bottom of the tank 4 (or, alternatively, to the boiler 1). At the same time hot water flows to the receptacle 8 from the tank 4 through the pipe 9 (or, alternatively, from the boiler 1 through the pipe 6 and 9). It is to be observed that the hot and cold water in the tank 4 will be kept separated on account of the difference in specific gravity so that, even when large quantities of hot service water are drawn off, the water flowing over to the receptacle 8 will keep it a relatively constant temperature.

In order to maintain a movement of the water in the discharge pipe 16 and thus prevent the same from being cooled when water is not drawn off through the taps, a return pipe 20 is provided, the one end of the same being connected to the discharge pipe 16 near the taps and the other end connected to the lower end of a spiral-shaped pipe 21 disposed within the receptacle 8, the upper end of this pipe being connected to the

chamber 12. It is evident that by this arrangement a circulation of hot water is effected through the discharge pipe 16 and the return pipe 20 so that hot water immediately

heated and at its other end directly to a pipe for the heated service water to be drawn off.

In witness whereof I have hereunto set my hand.

GUNNAR RICHARD TELLANDER.

5 can be drawn off at the taps 18.
In order that the water in the pipe 10 may be given a low temperature, thus effecting a lively circulation of the water through the receptacle 8, said pipe 10 is surrounded by
10 the pipe 14 which conducts the cold service water to the pipe system 11.

In Figure 4 a modification of the receptacle 8 and its tube system is shown, according to which the latter consists of straight
15 tubes. In order to facilitate the cleaning of the sets of tubes 11a and 11b, the receptacle 8b is at its one end provided with a detachable cover 21. The tubes 11a conduct the cold service water from a chamber 22 formed by
20 the cover 21, the front tube plate 23 and a partition 24, to a chamber 25 disposed adjacent the rear tube plate 26, and from this chamber 25 the water returns through the tubes 11b to a chamber 27 situated at the
25 front of the receptacle 8 at the other side of the partition 24, to which chamber 27 the discharge pipe 16 for the heated service water is connected. The sets of tubes 11a and 11b may suitably be separated by a
30 partition 28, which causes the water flowing through the receptacle 8 to pass along the sets of tubes in their longitudinal direction.

In certain cases it may be convenient to dispose the receptacle 8 within the tank 4, as
35 shown in Figure 5. In this case the hot water in the tank 4a flows over the upper edges of the receptacle 8a and is conducted to the bottom of the tank 4a where it leaves the receptacle 8a in a cooled state.

40 It is of course understood that various modifications of the invention may be effected and such modification as is within the scope of my claim I consider within the spirit of my invention.

45 What I claim is:—

A system for heating service water intended to be drawn off, comprising in combination, a heater, a receptacle of comparatively
50 small volume, a storage tank of a comparatively large volume entirely filled with a heating medium and communicating at its upper portion to the upper portion of the receptacle and with the upper portion of the heater, and at its lower portion with the
55 lower portion of the receptacle and with the lower portion of the heater, whereby to form together with said heater and said receptacle a closed circulation system for the heating medium, a tube system for conveying the
60 water to be heated arranged within the receptacle, means for preventing the interior of said tube system from communication with the heating medium, and said tube system being connected at one of its ends directly to a supply pipe for the cold water to be

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