

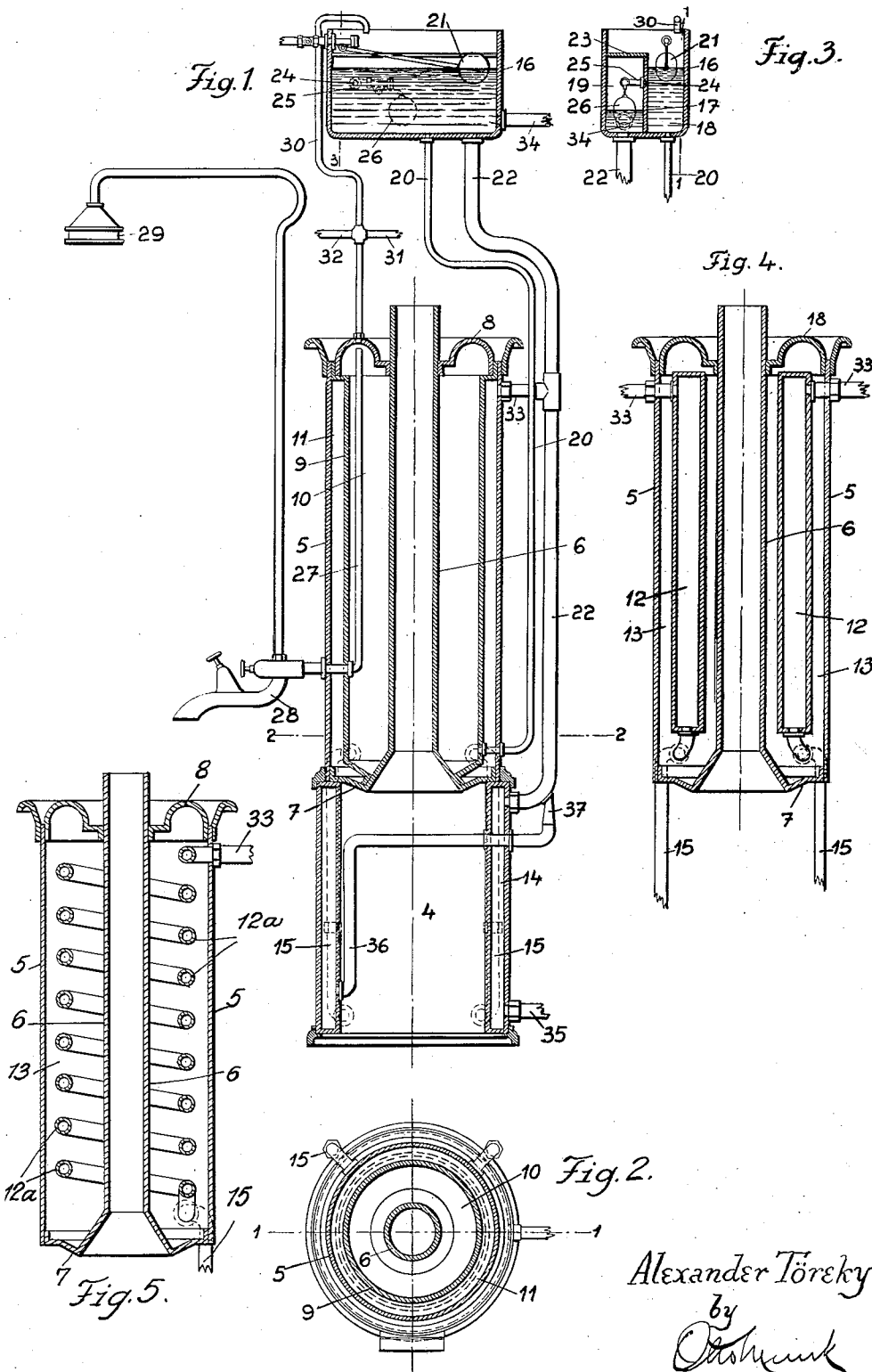
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APPARATUS FOR HEATING WATER

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APPARATUS FOR HEATING WATER

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4 Claims. (Cl. 122—37)

This invention relates to water heating apparatus of the type giving two distinct supplies of hot water, one for baths or other domestic purposes and the other for heating rooms of a building. The object of the invention is to provide that hot-water space of the heating apparatus which communicates with the radiators of the room heating system with pipe connections which will provoke energetic circulation in said space also when communication between the said hot-water space and the room heating system is shut off so that when heating of rooms is not required it is not necessary to empty the room heating system, as ebullition of the water in said space is avoided by the energetic circulation of such water and by the transmission of its heat to the other water space.

Some embodiments of my invention will now be described by way of example with reference to the accompanying drawing in which—

Fig. 1 is a vertical section of the water heating apparatus on the line 1—1 of Fig. 2;

Fig. 2 is a cross section on the line 2—2 of Fig. 1;

Fig. 3 is a section of the cold water cistern on the line 3—3 of Fig. 1; and

Figs. 4 and 5 are detail vertical sections showing modifications in the arrangement of the hot-water spaces.

Referring first to Figs. 1 to 3, the fire-place 4 is surmounted by a hollow cylindrical body 5 having a central flue 6 which is fixed to the bottom 7 and top 8 of the body 5. The annular space between 5 and 6 is divided by a cylindrical partition 9 into an inner space 10 for the supply of hot water for baths or other domestic purposes and an outer space 11 supplying hot water for room heating purposes.

The fire place 4 has double cylindrical walls and the annular space 14 between the latter forms part of the water space supplying hot water for room heating purposes. Communication between the bottom end of space 14 and the bottom end of space 11 is established by pipes 15 carried in proximity to, and on the outer side of, the outer wall of space 14.

The cold water supply cistern 16 is divided by a partition 17 into two compartments 18 and 19. Compartment 18 feeds through pipe 20 the water space 10 supplying hot water for baths or other domestic purposes, and is provided with the usual water inlet comprising a valve controlled by float 21. Compartment 19, which serves for feeding, through pipe 22, the combined water spaces 11 and 14 supplying hot water for room heating purposes, is closed by a cover 23 and is fed through

an opening 24 in partition 17 and a pipe 25 from compartment 18 when a valve controlled by float 26 is opened. The water level as controlled by float 26 in the compartment 19 is lower than that in compartment 18 so that water may flow from compartment 18 into compartment 19, but not in the reverse direction. There is, therefore, no possibility of the water circulating in the radiators of the room heating system commingling with the water used for baths or other domestic purposes.

Hot water for baths may be taken from the top end of the annular space 10 through pipe 27 either by the tap 28 or by the rose 29. In order to prevent the hot water from being driven back through pipe 20 into the cistern 16 by the action of an excessive pressure in the annular space 10, a pipe 30 carried upwardly from the top end of space 10 opens over compartment 18 of the cistern 16. From branches 31, 32 of pipe 30 moderate quantities of hot water may be tapped for domestic purposes.

Pipe 22 is carried from the bottom of compartment 19 of the cistern 16 to the top end of the hot-water space 14, while a branch 33 of pipe 22 is carried to the top end of the hot-water space 11. The water heated in the combined spaces 14 and 11 is conducted through pipe 22, compartment 19 and pipe 34 to radiators located in one or more rooms of the building, in the bath-room of which the apparatus is located. The return pipe 35 from the radiators is carried to the bottom end of space 14.

As the space 11 communicates through pipes 15 with the bottom end of space 14, it will always receive water which has given up its heat in the radiators of the room heating system, whereby the mean temperature of the hot-water space 11 is lowered and its heat-absorbing capacity is increased. The lower ends of pipes 15 may, if desired, directly communicate with the return pipe 35 so as to conduct water from the latter immediately to the space 11.

Owing to the described connections 15, 33 and 22 between the hot-water spaces 14 and 11, the room heating system may be simply shut off from the water heating apparatus without having to empty the radiators, as ebullition of the water in the spaces 14 and 11 will be prevented by an energetic circulation. If communication with the room heating system is shut off, the water heated in space 14 will rise in pipe 22 and will flow through pipe 33 into space 11 where it will give up its heat to the water in space 10 and will descend through space 11 and pipes 15 into the

bottom end of space 14. This circulation may still be promoted, in a manner known in the art by a pipe 36 carried from the lower portion and the inner side of space 14 upwardly and through the fire-place 4 to the lower end of pipe 22 where it ends in a nozzle from which the highly heated water is centrally projected into pipe 22.

In Figs. 4 and 5 two modifications are shown. In both modifications the cylindrical partition 9 shown in Figs. 1 and 2 is omitted and hot-water spaces corresponding to the space 11 of Figs. 1 and 2 and communicating at their lower ends with the upper ends of pipes 15 and at their upper ends with pipe 33 are so separated from the annular space 13 between 5 and 6 as to be surrounded by the space 13. In the modification shown in Fig. 4 a vertical tube 12 of comparatively large diameter, or an interconnected series of such tubes, is located within the annular space 13 and in the modification shown in Fig. 5 a serpentine worm 12a is substituted for the tubes 12.

What I claim is:—

1. A water heating apparatus with two distinct hot-water supplies, the first for baths and the second for room heating purposes, which com-

prises a fire-place with double walls forming between them part of said second hot-water supply, an upright hollow body resting on the walls of said fire place and comprising a central flue and two separate hot-water spaces, one of which forms in itself said first hot-water supply, while the other forms part of said second hot-water supply, a pipe connection between the bottom ends of said two parts of said second hot-water supply, and a second pipe connection between the upper ends of said two parts of said second hot-water supply.

2. A water heating apparatus as claimed in claim 1, in which the upright hollow body is divided by a partition into two concentric hot-water spaces.

3. A water heating apparatus as claimed in claim 1, in which a vertical tube located within the upright hollow body forms part of the hot-water supply for room heating purposes.

4. A water heating apparatus as claimed in claim 1, in which a serpentine worm located within the upright hollow body forms part of the hot-water supply for room heating purposes.

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50	125
55	130
60	135
65	140
70	145
75	150