

J. P. B. SADTLER.  
 DOMESTIC WATER CIRCULATING SYSTEM.  
 APPLICATION FILED FEB. 24, 1906.

1,016,959.

Patented Feb. 13, 1912.

Fig. 1.

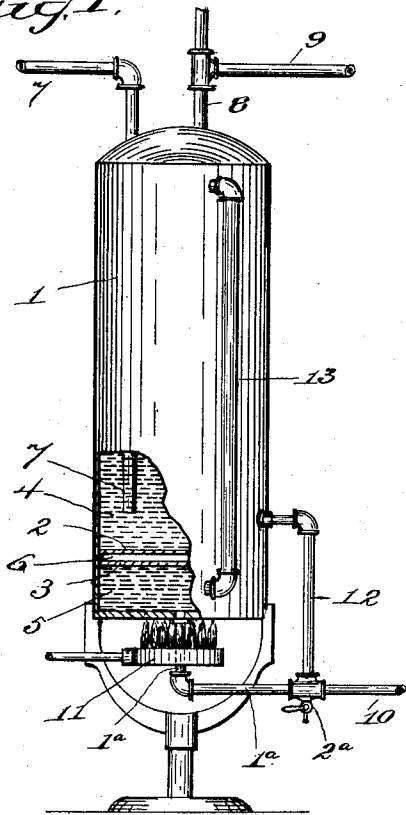


Fig. 2.

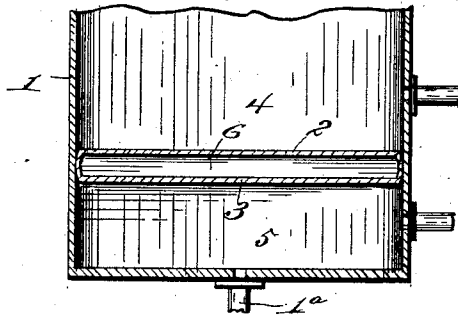


Fig. 3.

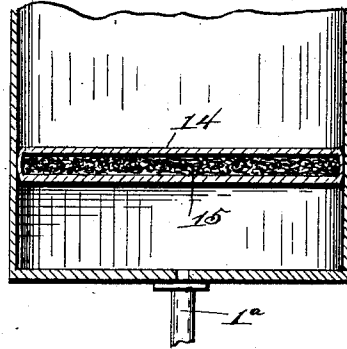


Fig. 4.

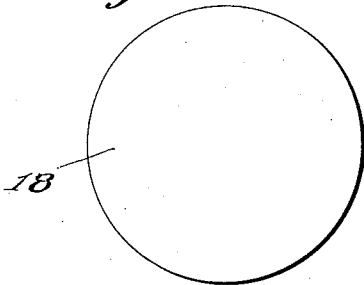


Fig. 5.

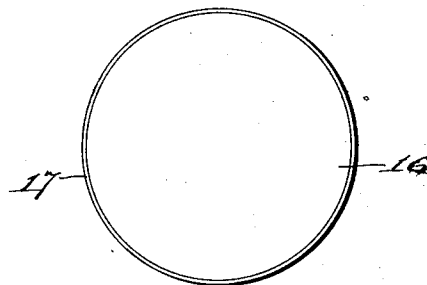


Fig. 6.

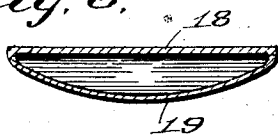


Fig. 7.



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# UNITED STATES PATENT OFFICE.

JOHN P. B. SADTLER, OF BALTIMORE, MARYLAND.

DOMESTIC WATER-CIRCULATING SYSTEM.

1,016,959.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed February 24, 1906. Serial No. 302,729.

*To all whom it may concern:*

Be it known that I, JOHN P. B. SADTLER, citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Domestic Water-Circulating Systems, of which the following is a specification.

This invention relates to a system for circulating and heating water for domestic purposes, and has reference to improvements upon Patent No. 588,016, issued to me August 10, 1897.

The object of the invention is to provide means in a domestic or stand boiler to prevent the hot water in the boiler becoming chilled by inflow of cold water, or to avoid lowering the temperature of the hot water on account of cold water induction, by an insulating partition within the boiler preventing convection currents being set up by reason of its non-conduction of heat.

The object of the invention is to provide a domestic or stand boiler with an arrangement of water pipes relative to certain boiler chambers or compartments whereby an improved system of water heating and circulation is produced.

A still further object of the invention is to provide a domestic or stand boiler with a double partition whereby the boiler is divided crosswise into three separate and independent compartments, one of which is an insulating compartment, and prevents convection currents from being set up in another of said compartments by preventing the conduction of heat through such insulating compartment to said other compartment, and to furnish a system of circulating pipes connecting two of the said compartments to the exclusion of the other of said compartments.

With these and various other objects, advantages and improved results in view, the invention consists essentially in separating hot and cold water in a domestic stand boiler by an insulating partition placed across the boiler so as to prevent convection currents being set up between the hot and cold water contained in or circulated through the boiler.

In the accompanying drawings forming part of this application: Figure 1 is an elevation of a stand boiler, partly broken away, embodying the invention. Fig. 2 is an enlarged sectional view of the lower end

of the boiler constructed in accordance with my invention. Fig. 3 is a similar view showing a packing in the chamber. Figs. 4 and 5 are elevations of modifications. Figs. 6 and 7 are sections of devices shown in Figs. 4 and 5 respectively.

The same reference numerals denote the same parts throughout the several views of the drawings.

In carrying out the invention, an ordinary domestic stand boiler 1 is employed, having the usual water supply pipe 7, and discharge pipes 8 and 9. The boiler is divided into two water compartments 4 and 5, by means of an insulating partition which preferably comprises a pair of plates 2 and 3, fixed apart crosswise the boiler so as to form a closed or vacuum chamber 6, separate and independent of the compartments 4 and 5. The rims of these plates may be joined together, or the plates may be cast or otherwise made in one piece to form the chamber 6.

The bottom of the boiler has a pipe 1<sup>a</sup> leading into the compartment 5 for supplying it with water, and this pipe is connected by a suitable cock 2<sup>a</sup>, with a cold water pipe 12 leading from the lower end of the compartment 4; and with a cold water pipe 10 leading from the cock to a range or other water-back. A water pipe 13 on the outside of the boiler conveys hot water from the compartment 5 to the upper portion of the compartment 4. By this arrangement of the various pipes with respect to the boiler compartments, an improved system of circulation is accomplished.

In order to maintain hot water in the compartment 5, a gas burner 11 is secured to the pipe 1<sup>a</sup>, under the bottom of the boiler or compartment 5.

The insulating chamber 6 prevents convection currents being set up in the compartment 4 by preventing the conduction of heat through the chamber 6. It is by reason of the absence of such convection currents within the compartment 4, that the hot water in the upper portion of the boiler or compartment 4, is maintained available for use, and the mixing of the cold water with the hot water in the compartment 4 is prevented.

In Fig. 3 the insulating partition 14 is shown having a packing 15 of suitable material, to further prevent convection currents or to insure separation of heat and

cold effect of the two bodies of water upon each other.

The modified form of insulating partition shown in Figs. 4 and 6 is made in one piece having a flat top 18, and a curved or semi-circular bottom 19.

Referring to the modification shown in Figs. 5 and 7, the insulating partition is formed by two pan-like vessels 16, having over-lapping flanges 17.

It is obvious that the insulating partition may be placed as desired so as to leave a hot water compartment next to the bottom of the boiler; and that the position of the said partition relative to the bottom of the boiler may be varied so as to increase or diminish the size of the compartment 5.

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

1. In a domestic stand boiler for circulating hot and cold water, an insulating partition within the boiler and dividing the boiler into an upper water chamber and a lower water heating chamber, means for supplying water to said water heating chamber, and water conducting means between the said chambers.

2. In a stand boiler for circulating hot and cold water, an insulating partition dividing the boiler into an upper water chamber and a lower water heating chamber of less capacity than the upper chamber, water conducting means between said chambers, and means for supplying water to said water heating chamber.

3. The combination, with a stand boiler, of an insulating partition forming a supplemental bottom for the boiler with a water chamber between the supplemental

bottom and the top of the boiler and a water heating chamber between the supplemental bottom and the bottom of the boiler, a water pipe connecting the lower chamber with the upper portion of the upper chamber, and means for supplying water to said water heating chamber.

4. In a water circulating system, a stand boiler, an insulating partition dividing the boiler into an upper and a lower compartment and preventing convection currents being set up in the upper compartment from a source of heat applied to the lower compartment, means for supplying water to the boiler, means forming communication between the lower compartment and the lower portion of the upper compartment, means forming communication between the lower compartment and the upper portion of the upper compartment, and means for heating the lower compartment.

5. In a water circulating system, a stand boiler, a partition provided with a vacuum chamber dividing the boiler into an upper and a lower compartment and preventing convection currents being set up in the upper compartment from a source of heat applied to the lower compartment, means for supplying water to the boiler, a pipe connecting the lower compartment with the lower portion of the upper compartment upon the outside of the boiler, and a heater under the lower compartment.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOHN P. B. SADTLER.

Witnesses:

C. T. BELT,

J. ROSS COLHOUN.