

Aug. 15, 1933.

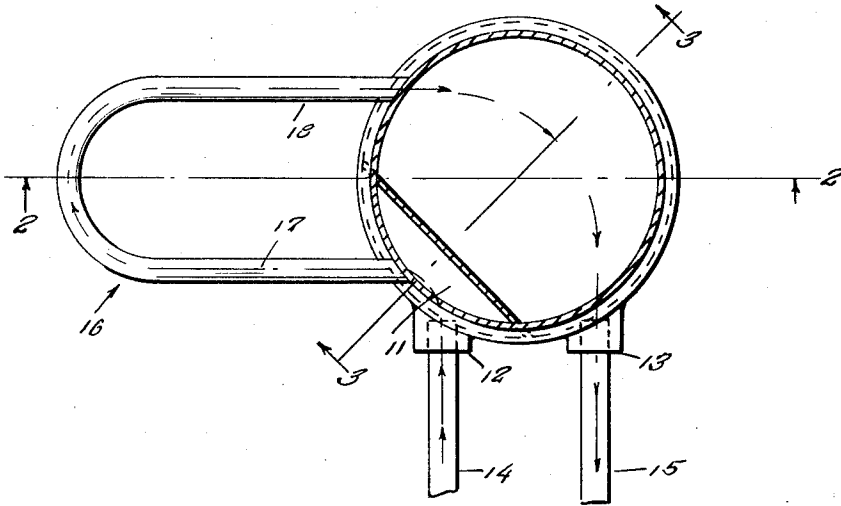
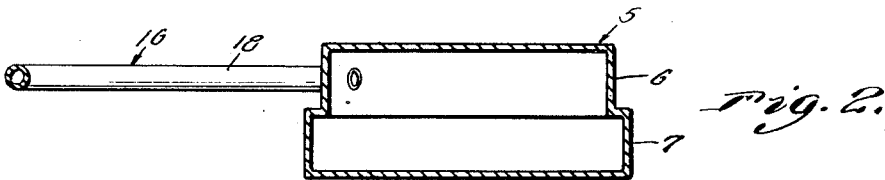
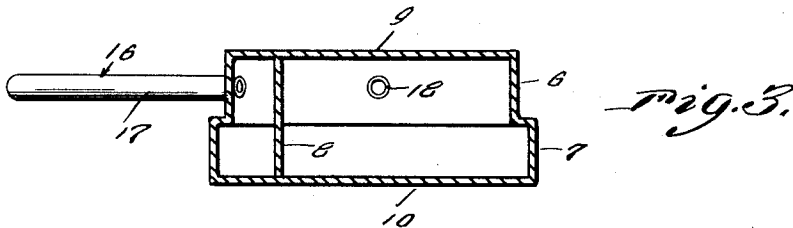
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1,922,581

WATER HEATER

Filed April 25, 1932

Fig. 1.



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UNITED STATES PATENT OFFICE

1,922,581

WATER HEATER

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Application April 25, 1932. Serial No. 607,448

8 Claims. (Cl. 257—248)

Our invention relates to improvements in water heaters, and particularly to a water heater having new and novel features of construction, whereby heating of the water is accelerated, and the convenience of using the device greatly increased.

It is also an important object of our invention to provide a structure of this type which is mechanically superior, and is susceptible of cheap and rugged manufacture.

Other objects and advantages of our invention will be apparent from a reading of the following description in connection with the drawing, wherein for purposes of illustration we have shown a preferred embodiment of the invention.

In the drawing:—

Figure 1 is a horizontal sectional view showing the interior of the drum.

Figure 2 is a transverse vertical sectional view taken approximately on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a transverse sectional view through Figure 1, taken approximately on the line 3—3 looking in the direction of the arrows.

Referring in detail to the drawing, the numeral 5 generally designates the heating drum which is in the form of a generally flat cylinder provided with the upper reduced portion 6 and the lower expanded portion 7.

At one side the interior of the drum is provided with a chordal partition 8 which extends from the top 9 of the drum to the bottom 10 of the drum as seen in Figures 1 and 3. In this way a chamber 11 is formed between the partition 8 and the side walls of the drum for a purpose to be described.

The drum has at one side a pair of tangentially projecting generally parallel nipples 12, 13, which are spaced at a distance somewhat within a diameter of the drum. With the nipple 12 communicates a cold water inlet pipe 14, and with the nipple 13 communicates a hot water outlet pipe 15. The cold water inlet pipe 14 may be connected to any suitable supply of water, while the outlet hot water pipe 15 may be connected to a suitable hot water reservoir, or to any other hot water system desired. It will be observed that the nipples 12, 13 project from the expanded portion 7.

The nipple 12 is located in communication with the chamber 11, while the nipple 13 is located in communication with the main portion of the drum.

A heating pipe 16 of generally U-shaped form is located in a plane approximately at 90 degrees from the plane of the pipes 14, 15. The U-shaped

pipe 16 has its ends communicated around said chordal partition 8 in the reduced portion 6. The U-shaped pipe 16 extends in a plane parallel with the plane of the drum. The arrows indicate that the cold water is introduced by means of the pipe 14, the nipple 12 and the chamber 11 into the leg 17 of the U-shaped pipe 16 and that the cold water travels therein and is heated in the pipe 16 and then passes into the main portion of the drum where it is further heated and then passes out or discharges through the nipple 13 and the pipe 15 into the reservoir or the like which has been provided, which is not shown in the drawing.

It will be observed that the device of the invention may be placed to rest upon or to be mounted in conjunction with the heat producing means, such as a coal or wood stove or a gas or electric range. The U-shaped pipe 16 may be placed in the flame of the source of heat, while the drum may be placed with its wide end upon a stove top or in a stove opening or in any other suitable heat receiving relationship. If desired, the bottom 10 of the drum may be made of heavy heat retaining material so that the water therein may be kept hot longer.

Because of the circulation set up by the arrangement of the partition and the communications of the inlet and outlet pipes and of the U-shaped pipe 16, a continuous circulation of water is produced, the cold water being introduced and circulated into the U-shaped pipe 16 which is maintained at a high temperature, and the water is given an increased temperature as it passes into the drum, which is also heated, where the water gains further heat and condenses the steam therein, then is circulated and discharged through the outlet pipe 15 to be stored or used.

Though we have shown and described herein a preferred embodiment of the invention, it is to be definitely understood that we do not desire to limit the application of the invention thereto, and any change or changes may be made in material and structure and arrangement of parts, within the spirit of the invention and the scope of the subjoined claims.

What is claimed is:—

1. A water heater comprising a vertical cylindrical drum, a chordal partition in the drum defining a small chamber at one side thereof, and a cold water inlet communicating with said chamber, and a hot water outlet leading from the remainder of the interior of the drum, and a heating pipe extending from the drum and communicated with said chamber and with the

remainder of the drum, whereby cold water introduced into the drum is circulated first through said chamber, then through said heating pipe and then into the drum for discharge therefrom, said drum being relatively flat and provided with a reduced upper portion from which said heating pipe is extended.

2. A water heater comprising a vertical drum, a partition in the drum defining a chamber, and a cold water inlet communicating with said chamber, and a hot water outlet communicating with the remainder of the interior of the drum, and a heating pipe extending from the drum and communicated with said chamber and the remainder of the drum, whereby cold water introduced is circulated through the chamber, through said heating pipe and returned into the drum for discharge therefrom, said drum being relatively flat and provided with a reduced upper portion in which said heating pipe is located, said inlet and outlet means being located in the unreduced portion of the drum.

3. A fluid heater comprising a casing, a fluid heating pipe extending laterally from the casing and having its ends communicated through the wall of the casing at spaced points approximately in the same plane, a partition in the casing defining a relatively small chamber at one side thereof, one end of said partition being located between the ends of the heating pipe and at a relatively sharp angle thereto, cold fluid inlet means communicated with the chamber, and heated fluid discharge means leading from the main portion of the casing, the bottom of the casing and said heating pipe being adapted for subjection to heat.

4. A fluid heater comprising a casing, a heating pipe extending laterally from the casing and having its ends communicated through the wall of the casing at spaced points approximately in the same plane, a partition in the casing defining a relatively small chamber, one end of said partition being located between the ends of the heating pipe, cold fluid inlet means communicated with the chamber, and hot fluid discharge means communicated with the main portion of the casing, the bottom of the casing and said heating pipe being adapted for subjection to heat, said fluid inlet means, and hot fluid discharge means being located in planes below the points of entry of the ends of the heating pipe.

5. A fluid heater comprising a casing, a heating pipe extending laterally from the casing and having its ends communicated through the wall of the casing at spaced points approximately in the same plane, a partition in the casing defining a relatively small chamber, one end of said partition being located between the ends of the heating pipe, cold fluid inlet means communicated with the chamber, and hot fluid discharge means

communicated with the main portion of the casing, the bottom of the casing and said heating pipe being adapted for subjection to heat, said casing being a vertical cylinder having a reduced upper portion and an expanded lower portion.

6. A fluid heater comprising a casing, a heating pipe extending laterally from the casing and having its ends communicated through the wall of the casing at spaced points approximately in the same plane, a partition in the casing defining a relatively small chamber, one end of said partition being located between the ends of the heating pipe, cold fluid inlet means communicated with the chamber, and hot fluid discharge means communicated with the main portion of the casing, the bottom of the casing and said heating pipe being adapted for subjection to heat, said casing being a vertical cylinder and said partition being arranged chordally close to one wall of the casing.

7. A fluid heater comprising a casing, a heating pipe extending laterally from the casing and having its ends communicated through the wall of the casing at spaced points approximately in the same plane, a partition in the casing defining a relatively small chamber, one end of said partition being located between the ends of the heating pipe, cold fluid inlet means communicated with the chamber, and hot fluid discharge means communicated with the main portion of the casing, the bottom of the casing and said heating pipe being adapted for subjection to heat, said casing being a vertical cylinder having a reduced upper portion and an expanded lower portion, said heating pipe being communicated with the reduced upper portion of the casing, and said fluid inlet means and fluid discharge means being communicated with the expanded lower portion of the casing.

8. A fluid heater comprising a casing, a heating pipe extending laterally from the casing and having its ends communicated through the wall of the casing at spaced points approximately in the same plane, a partition in the casing defining a relatively small chamber at one side thereof, one end of said partition being located between the points where the ends of the heating pipe communicate with the interior of the casing, cold fluid inlet means leading into the chamber, and hot fluid discharge means leading from the main portion of the casing, the bottom of the casing and said heating pipe being adapted for subjection to heat so as to heat and circulate the fluid therein, said heating pipe, and said inlet means and discharge means, being arranged at approximately 90° of horizontal angularity with the heating pipe.

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