Jan. 21, 1930. F. CANNON 1,744,523

GEYSER OR LIKE WATER HEATER

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Fig. 1.

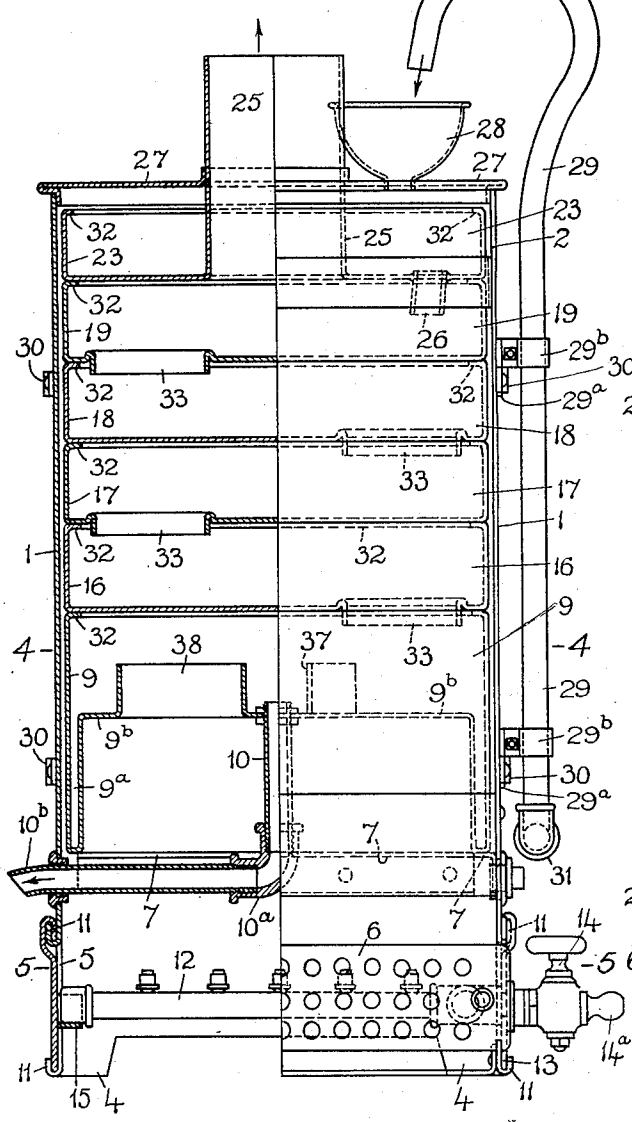
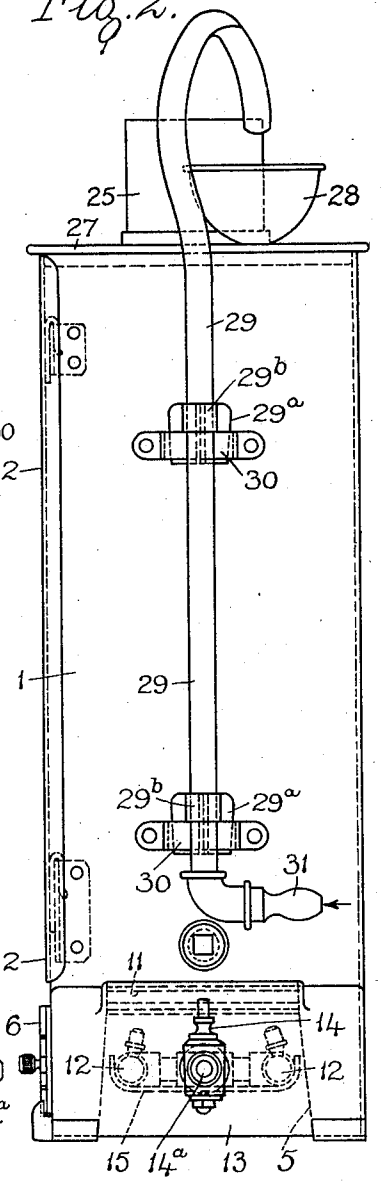


Fig. 2.



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Fig. 3.

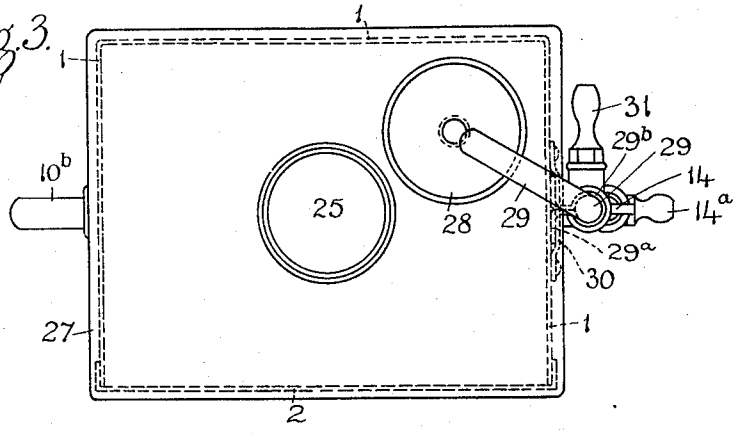


Fig. 4.

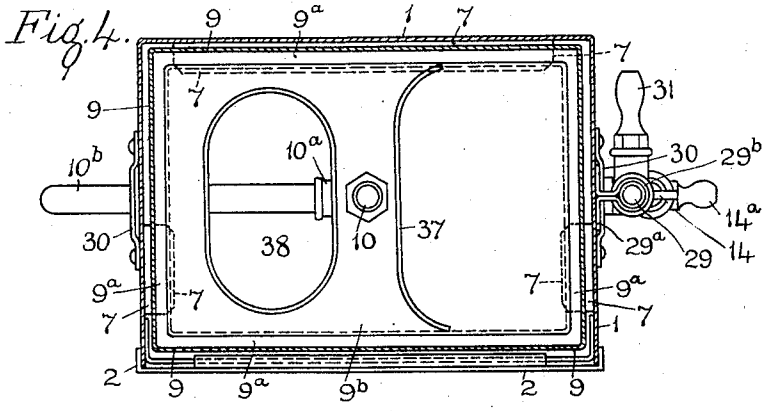


Fig. 5.

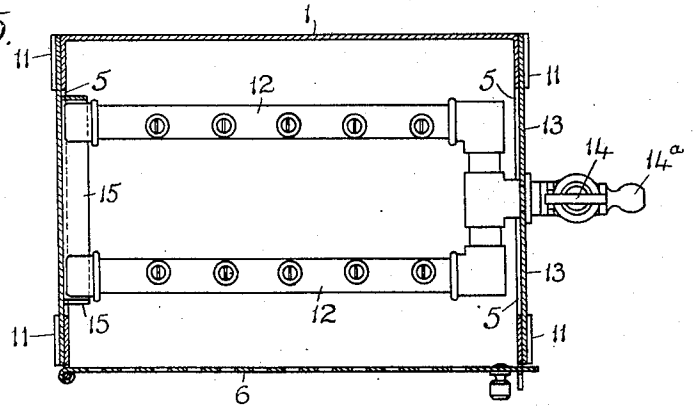
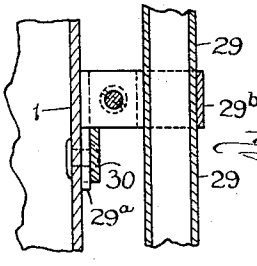


Fig. 6.



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UNITED STATES PATENT OFFICE

FREDERICK CANNON, OF EDGWARE, ENGLAND

GEYSER OR LIKE WATER HEATER

Application filed May 24, 1928, Serial No. 280,276, and in Great Britain June 1, 1927.

This invention relates to geysers and like water heaters of the class in which a number of angled trays are fitted inside of a casing one over the other, the top one of which is supplied with cold water from a pipe, the water flowing from each tray in succession, the products of combustion from a burner at the base flowing upwards between the trays to the outlet for heating the water.

The object of this invention is to construct such apparatus in an improved manner and in which the trays rest upon one another, the majority of them being made alike, whereby all as also the water supply pipe and the gas burners, are removable or replaceable without it being necessary to employ skilled workmen in making up or repairing a geyser.

My invention will be clearly understood from the following description aided by the annexed drawings in which Figure 1 is a part sectional front view, the door of the casing being removed; Figure 2 is a side view of the geyser; Figure 3 is a plan view, Figure 4 a section on the line 4—4 of Figure 1 and Figure 5 is a section on the line 5—5 of Figure 1. Figure 6 is an enlarged section of the water pipe connection.

According to this invention I take an open tube to form a casing 1, say oblong in cross section and open at top and bottom and the front I construct removable or as a door 2, the casing 1 and door 2 being suitably packed if required to conserve heat.

The bottom of the casing rests upon or is provided with feet 4 and the side walls at the bottom are provided with holes or openings 5, the front at the bottom being provided with a hinged door 6 preferably perforated at its lowest part.

At the back and sides inside the casing 1 I position a shelf or flange 7 just above the open portions 5 and this shelf carries a shallow tank 9 constructed with a depending narrow channel 9^a, the outer walls of which form the side walls of the tank and extend to the top thereof where the edges 32 are turned inwards. By this means an inverted bottom 9^b for the tank 9 is formed, and therein is provided a hole having an upstanding wall 38 as an outlet for the gases whilst a curved wall 37 is positioned on the bottom 9^b to act as a weir to prevent a direct flow of the water to the pipe 10.

To the base of this tank 9 and extending through the base near its center I position a depending tube 10 which has a right angled extension 10^a to which is screwed one end of a delivery spout 10^b which projects through a hole in the side of the casing 1 to outside thereof as at Figure 1.

I construct a gas burner 12 preferably two armed and I connect same to a plate 13 with the tap 14 and gas pipe connection 14^a on the opposite side to the burner and this burner 12 I position under the tank 9 with one end resting on a bar 15 positioned across the casing with the plate 13 engaging hooks 11 projecting from the feet or lower side of the casing so that such burner 12 can be easily positioned and removed.

I construct a number of shallow trays 16, 17, 18, 19 of a size to fit the casing loosely, each tray having a turned in edge 32 at the top and walled or sleeved opening 33 at the bottom, the sleeve in each case projecting above the bottom of the tray so as to form a weir.

I employ a number of these trays and position them one above the other with their openings 33 alternatively arranged, the bottom one resting on the turned in edge 32 of the tank 9 while the others rest upon one another.

In the top of the casing I position a shallow vessel or tray 23 and rest same on the turned in edge 32 of the uppermost tray 19, and such vessel 23 has a central chimney 25 and a spout 26 near one end and on this vessel 23 I position a cover 27 having a cone shaped funnel 28 and also a hole for encircling the chimney 25.

The water supply pipe 29 is supplied with clips 29^b having hooks 29^a for being connected to ledges or loops 30 on the outside of the casing 1 as will be understood from Figures 1, 2, 4 and 6, and such supply pipe 29 has a curved top for leading the water into the funnel 28 whilst the lower part is provided with detachable means 31 for connection to the water supply main.

On closing or affixing the door 2 and po-

sitioning the cover 27 the tank 9 and trays 16, 17, 18, 19, 23 are completely enclosed.

Thus it will be seen that the cover 27 and top vessel 23 and the water supply pipe 29 can be easily removed and on opening or removing the door 2 the trays 16, 17, 18, 19 can be readily removed, and on disconnecting by unscrewing the outlet pipe 10^b from the tank 9, both can be readily removed as also can the gas burner 12, by lifting it with the plate 13 off the hooks or engaging means 11.

In operation the water flows from the supply pipe 29 into the funnel 28 from which it passes into the vessel 23 to the spout 26 where it passes into the top tray 19 and passes along same to its opening 33 to fall into the next tray 18 and so on through the series of trays to the tank 9 where it passes to the outlet pipe 10^b, the water passing along each tray and the tank in film form, and the top of each spout projecting above the bottom of the vessel, trays and tank, water will be held in film form, the upwardly projecting portions of the walls 33 and the projecting top of the pipe 10^b acting as weirs.

The heat from the gas acts firstly upon the bottom of the tank 9 and then passes through the opening of the wall 38 and up to under the bottom tray 16, passing through the walled opening 33 and then to the next tray 17 and through the opening in its wall 33 and so on between and through the series of trays in a zigzag manner to the vessel 23 at the top, where it passes to the chimney 25, thus heating the water in the tank, trays and vessel during its progress.

If the case is complete, i. e. without a door, the tank and trays may be dropped in or removed from the top, the tank resting on a ledge with the trays resting on one another and the top vessel or cover may be afterwards connected.

Where gas is not available an oil lamp may be employed instead of the gas burner.

What I do claim as my invention and desire to secure by Letters Patent is:—

1. A geyser comprising a vertical casing having openings at the base, shelves within the casing adjacent the base, a tank having a depending narrow channel around same, and having a hole in the bottom, a sleeve fitting in said hole and extending above the bottom, an outlet pipe connection from the bottom of the tank, an inturned edge at top of tank, a weir carried upon the upper side of and across the tank, the tank resting on said shelves in the casing, a series of trays each having an inturned upper edge and provided with a hole in the bottom, a sleeve mounted in said hole and extending upon both sides of the bottom, the trays being positionable within the casing and resting one upon the other and on the tank with the sleeves alternately arranged, a shallow vessel positionable on the top tray and within the casing and having a central chimney, a spout and an inturned upper edge, a removable cover for the casing having a hole embracing the chimney of the shallow vessel, and a funnel, mounted in the cover and emptying into the shallow tray.

2. A water heater including an open ended casing, a plurality of inwardly projecting flanges carried by the casing and adjacent to the bottom thereof, a lid for the top of the casing and having a flue opening and water inlet, and a water and heat conducting member mounted in the casing from the top end thereof and resting upon the flanges, said member comprising a lower tank provided with an inverted portion in its bottom forming a heating chamber with an outlet below the upper edge of the tank, an upper tray having a central flue projecting through the flue opening of the lid and with an inturned rim terminating short of the top of the flue, and a plurality of intermediate trays resting one upon the other and on the tank, and supporting the upper tray, each of said intermediate trays being provided with a water outlet, and a sleeve disposed in each outlet and projecting above and below the bottom of its respective tray to form means to regulate the depth of the water film in its respective tray and also a by-pass for the gas.

In testimony whereof I have hereunto set my hand.

FREDERICK CANNON.