

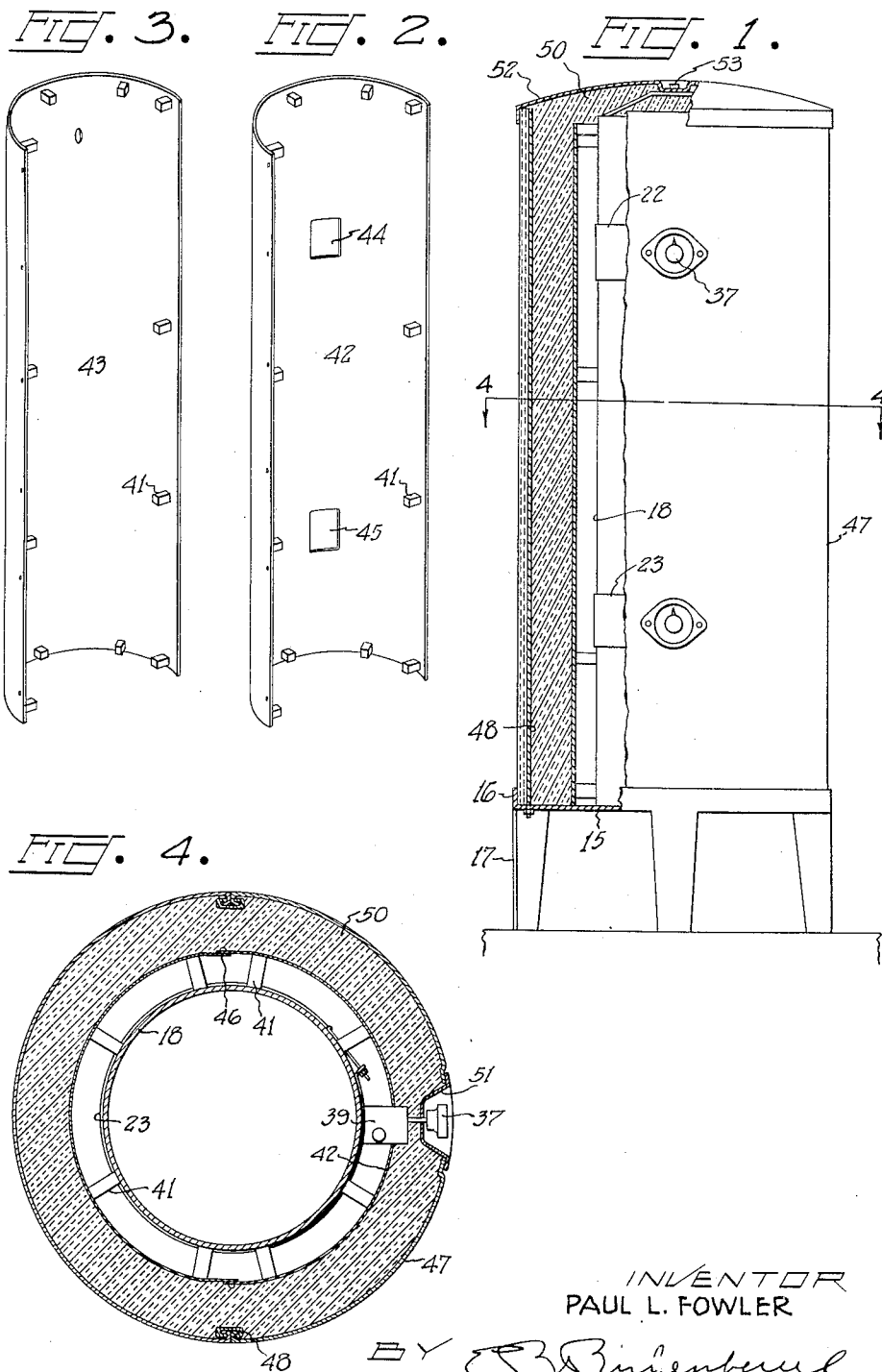
Feb. 28, 1950

P. L. FOWLER
ELECTRIC WATER HEATER

2,498,950

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3 Sheets-Sheet 1



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FIG. 5.

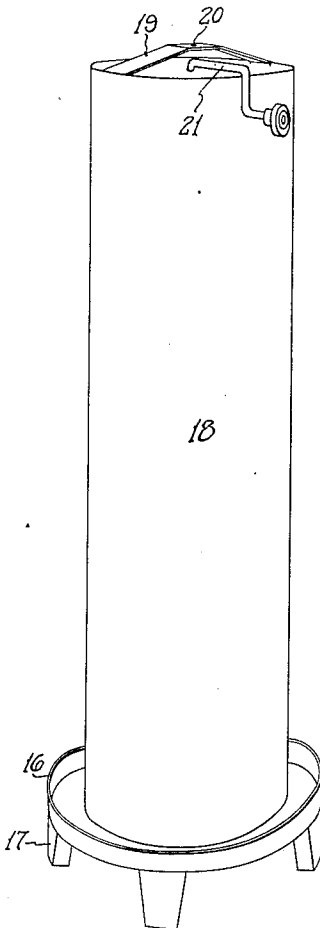


FIG. 6.

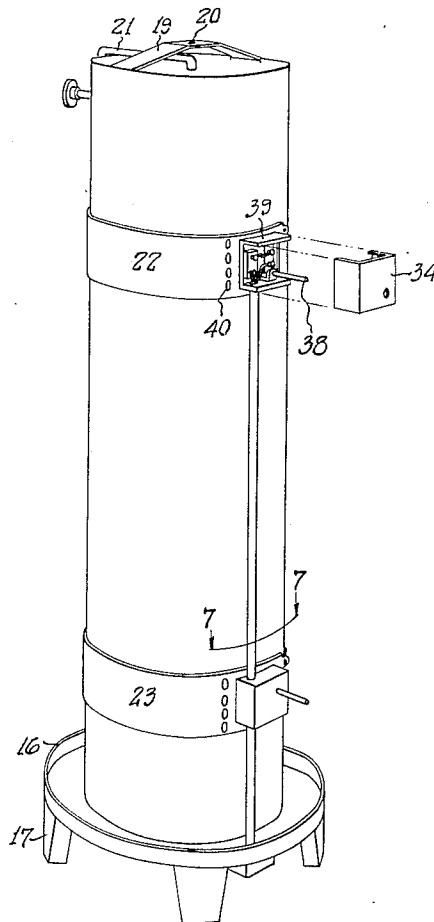
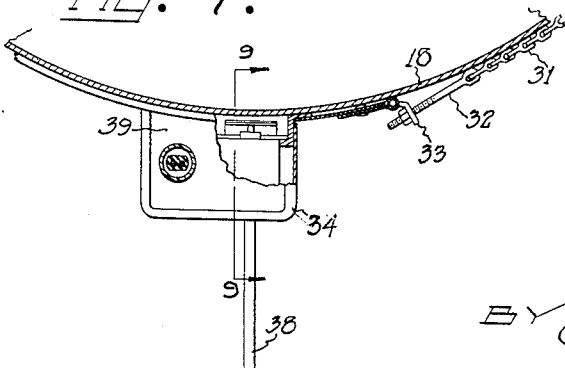


FIG. 7.



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FIG. 8.

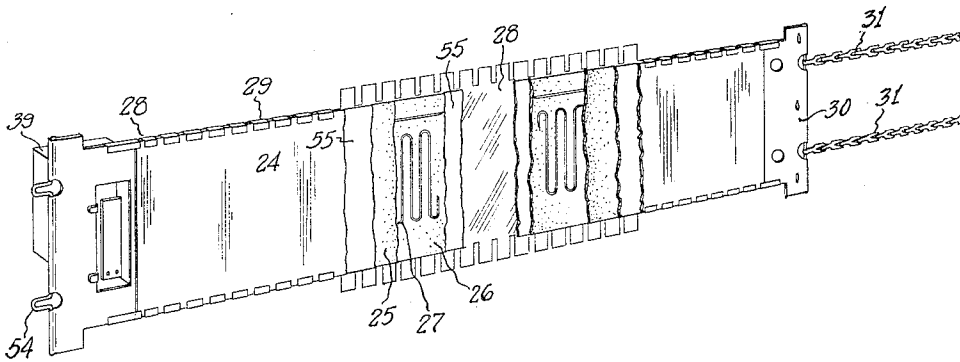
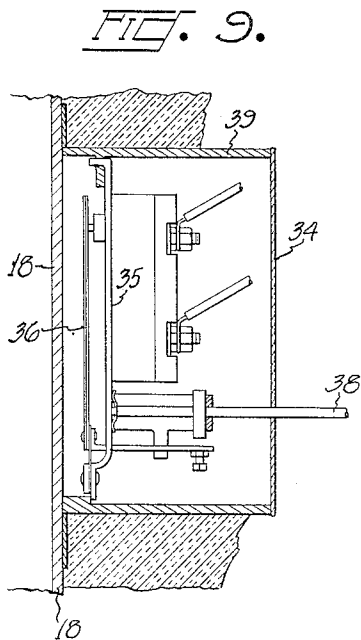


FIG. 10.



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ELECTRIC WATER HEATER

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3 Claims. (Cl. 219—39)

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This invention relates generally to heating devices and particularly to an electric water heater.

The main object of this invention is to construct a water heater, having as near as possible the maximum efficiency.

The second object is to construct an electric water heater in a manner that will be simple to manufacture and assemble and that the parts thereof are easily accessible at all times.

The third object is to so construct the devices that heat rays emanating from the tank will be reflected back through instead of being permitted to escape as is commonly the case.

The fourth object is to provide a unique form of reflector and spacing means therefor whereby same may be easily applied to a tank and whereby the reflector forms the inner wall of the insulation storing space.

The fifth object is to so separate the tank from its insulation by sealed dead air space that no heat is transferred from the tank to the insulation by conductivity.

These objects will become more apparent from the specifications following as illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of the unit with a portion broken away in vertical section.

Fig. 2 is a perspective view of the front half of the aluminum reflectors.

Fig. 3 is a perspective view of the rear half of the aluminum reflectors.

Fig. 4 is a horizontal section taken along the line 4—4 in Fig. 1.

Fig. 5 is a perspective view of the tank resting on its base with the insulation and heating elements removed.

Fig. 6 is a view similar to Fig. 5 showing the heating elements in place.

Fig. 7 is a fragmentary section taken on the line 7—7 of Fig. 6.

Fig. 8 is an expanded view of one of the heating elements with portions broken away to disclose the parts thereof.

Fig. 9 is the vertical section taken on the line 9—9 of Fig. 7.

Fig. 10 is a perspective view of one of the channel iron seams.

Similar numbers of reference refer to the same or similar parts throughout the several views.

Referring to the drawing, there is shown a base 15, having the up-turned flange 16 and legs 17.

Mounted on the base 15 is a cylindrical water tank 18 in which is incorporated a bridge bar 19 having a threaded hole 20 in the center there-

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of. The usual water pipe connection 21 constituting a hot water outlet is also indicated.

Surrounding the tank 18 are a pair of heating elements 22 and 23 which are alike except as to position, the former being well up near the top of the tank and the latter being near the bottom of the tank. Since they are alike only one of them will be described in detail.

Each heating element 22 consists of a metal band 24 against the back of which is mounted suitable insulation 25 between which and another sheet of insulation 26 is mounted the heating element 27.

A backing sheet 28 is provided with the lateral ears 29 which are crimped around the side 24 to hold the portions of the element together.

A fastening clip 30 is attached to one end of the element 22 and has attached thereto the chains 31, the opposite ends of which are attached by means of an eye bolt 32 to the clips 33, which in turn are attached to the element 22.

Mounted on each of the heating elements 22 and 23 is a junction box 34, having disposed therein a plate 35 between which and the tank 18 is disposed a thermostat 36.

The particular details of the control illustrated herein are of no special importance it being desirable merely to have a control that can be easily adjusted through an external knob or dial 37 operating through a stem 38.

The channel shaped box 39 which forms a housing for the control is attached to the element 22 in a convenient manner. It is desired to provide perforations 40 across the element 22 to prevent heat conducted along element from producing a false or premature action by the thermostat.

Surrounding the tank 18 and spaced therefrom by means of the wooden blocks 41 are the semi-cylindrical aluminum reflectors 42 and 43, the former of which has openings 44 and 45 formed therein for the reception of the control boxes 39. The two halves 42 and 43 are secured together by means of screws 46.

Surrounding the reflectors 42 and 43 and just inside the flange 16 is the outer shell 47, which is also in halves and inturned edges are joined by means of the channels 48 having a threaded shank 49 at the lower end thereof which projects through holes in the base 15 and are held thereto by means of a nut 49—A. Suitable insulation material 50 is placed between the reflectors 42 and 43 and the outer shell 47.

It is desired to provide a depressed casing 51 for each of the dials 37 to prevent their being

injured or unintentionally moved, as is commonly the case when such adjustments project beyond the outer surface of the shell.

Insulation 50 is also placed over the top of the tank and is covered by a cap 52 which is held in place by means of a nut 53, which is threaded into the opening 20 in the bridge 19.

It can be seen from the foregoing that the assembly of this tank is extremely simple, it being necessary only to place the tank 18 on the base 15 and to place the bands or heating elements 22 and 23 in position by hooking the chains 31 to the fasteners 54 in a manner to hold the chains taut in a manner to provide a close contact between the elements 42 and 43 and the exterior of the tank 18.

It will be noted in Fig. 8 that the heating elements 22 and 23 are provided with a metallic backing 24, preferably a band of copper which is used on account of its heat conductivity.

The outside or backing sheet 28 is preferably of a light gage steel.

It is desirable to place a sheet of mica 55 between the insulation 25 and 26 and their adjacent metal portions 24 and 28.

I am aware that numerous forms of hot water tanks have been constructed in the past. I am also aware that it is common practice to insulate such tanks to prevent the escape of heat therefrom. I am therefore not claiming such constructions broadly but I do intend to cover such forms and modifications thereof as fall fairly within the appended claims.

I claim:

1. In the hot water tank a combination of a cylindrical water container with a heating element clamped against the exterior of said container, a cylindrical reflector concentric with hot water container and spaced therefrom by means of wooden blocks, a cylindrical outer shell surrounding said reflector and spaced therefrom by means of an insulating material, said outer shell being divided into halves, the edges of said halves being inturned, a channel member adapted to unite said inturned edges and hold said shell

to a cylindrical form together with a base and cap at opposite ends of said tank, forming closures for the space between said tank and reflector and means for securing said channels to said base.

2. A hot water tank of the class described, consisting of a cylindrical water container, a strip heater clamped to the outer surface of said container, said strip heater having a control box mounted thereon projecting radially therefrom, a two-part cylindrical reflector surrounding the sides of said tank and spaced therefrom, said control box projecting through one of said reflectors, an outer shell concentrically surrounding said reflectors, an insulating medium between said reflectors and outer shell and a depressed casing extending from said outer casing into the space between said outer casing and reflectors, together with a control knob mounted in said depressed casing having operating connections to said control box.

3. In a tank of the class described a combination of a base having a flange formed around the circumference thereof and having legs for elevating said base, a tank mounted on said base, a bridge bar extended across the top of said tank and secured thereto, a cylindrical casing surrounding said tank and resting upon said base inside of its flange, a cap over the top of said tank having a down-turned flange inclosing the upper edge of said casing and means for securing said cap to said bridge bar.

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