H. S. HUMPHREY.

WATER HEATER.

APPLICATION FILED OCT. 30, 1914.

1,142,433. Patented June 8, 1915.

FIG. 2.

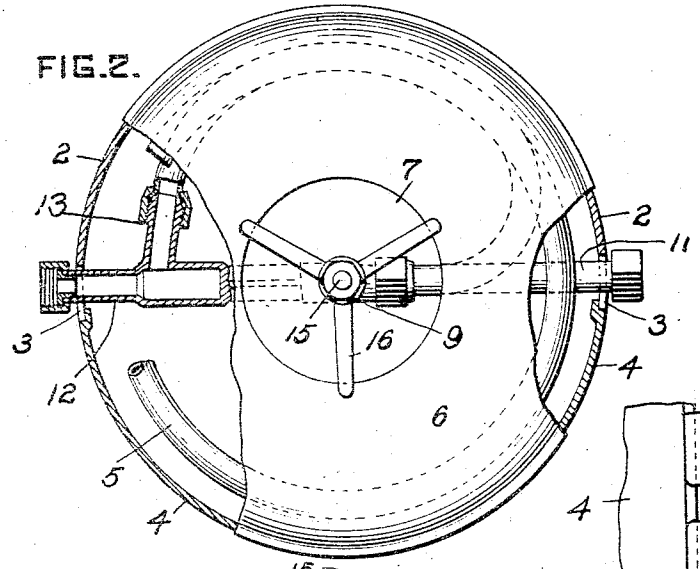


FIG. 3.

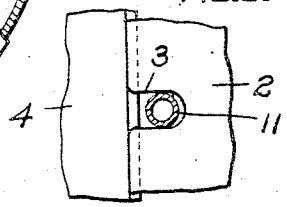
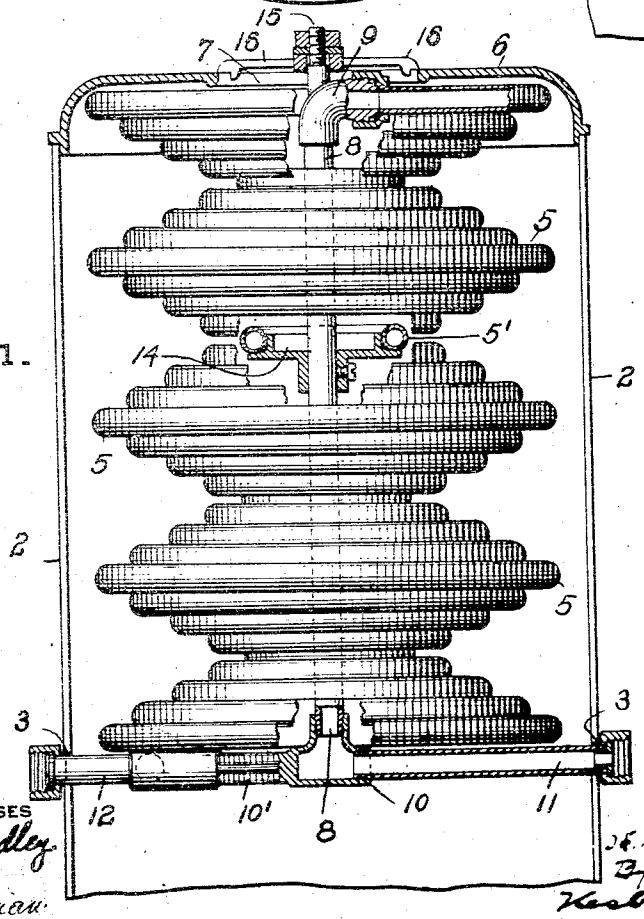


FIG. 1.



WITNESSES

J. Hebert Bradley

Lois Wiseman

INVENTOR

H. S. Humphrey

By Keebler Brownell & Co.

Attys.

UNITED STATES PATENT OFFICE.

HERBERT S. HUMPHREY, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO RUUD MANUFACTURING COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

WATER-HEATER.

1,142,433. Specification of Letters Patent. Patented June 8, 1915.

Application filed October 30, 1914. Serial No. 869,411.

To all whom it may concern:

Be it known that I, HERBERT S. HUMPHREY, a citizen of the United States, and resident of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification.

This invention relates to instantaneous water heaters, and more particularly to the circulation coil thereof, and one object is to provide simple and efficient means for supporting the coil within the heater casing.

A further object is to simplify the construction and reduce the number of parts and connections most liable to disorder by making the support tubular and utilizing it for passing water which flows through the coil.

In the preferred adaptation, a supporting element is disposed transversely of the coil and sustained by the casing with its ends of non-communicating tubular form for passing cold water to the coil and hot water therefrom. In addition to the element just referred to, the invention in its preferred form includes an improved supporting connection with an intermediate portion of the coil, also improved means for sustaining or partially sustaining the coil from above.

In the accompanying drawings, Figure 1 is an elevation of a water heater coil arranged in accordance with the invention, half of the sectional casing being removed and the casing crown and an intermediate portion of the coil shown in section. Fig. 2 is a view in top plan with portions of the casing crown shown in section. Fig. 3 illustrates a portion of the inclosing casing.

Referring to the drawings, the invention is preferably embodied in a vertically divided casing with the opposite edges of part 2 thereof formed with notches 3, and with casing part 4 adapted to joint with part 2 for inclosing the upright circulation coil 5. A crown 6 of conventional form is provided with the usual top opening 7.

The coil is sustained primarily by the riser pipe 8 which extends upwardly through the coil with its upper end connected to the upper coil extremity by fitting 9. The lower end of pipe 8 is secured to the transverse supporting element 10, the laterally extending tubular ends 11 and 12 of which are adapted to rest in casing notches 3, being confined therein when the casing parts are in closed relation, as in Fig. 3. Tubular portions 11 and 12 of the support element 10 are noncommunicating, being preferably connected by a flanged bar section 10', and with portion 12 connected to the lower extremity of the coil by fitting 13, a strong and rigid support is had which provides for the admission and discharge of water to and from the coil. The extremities of portions 11 and 12 are, respectively, adapted to couple with the supply and distribution pipes, not shown.

The coil here shown is in the form of a series of spools, and the smaller convolutions 5' of each spool may be additionally supported by the flanged plate 14 adjustably secured to riser 8. For sustaining the coil from above, a bolt 15 may project upwardly from fitting 9 through and be secured to a spider 16 which bridges crown opening 7.

The invention provides a compact and rigid support for the circulation coil, and by utilizing the supporting means for the cold and hot water connections the parts and fitting are reduced to a minimum. To remove the coil it is only necessary to open casing part 4 and release bolt 15 and the entire coil and its supporting means may be taken out.

The gas burners commonly employed beneath the circulation coil are not shown as they may be variously arranged, and it will also be understood that the casing and other conventional parts of the apparatus not immediately involved in the present invention may be variously embodied.

I claim:

1. In a water heater, the combination of an upright circulation coil, a tubular support extending across the coil with the opposite ends of the support projecting beyond opposite sides of the coil, and a pipe extending upwardly through the coil and connected at its lower end to the support and at its upper end to the upper portion of the coil.

2. In a water heater, the combination of an upright circulation coil, a support of tubular form for sustaining the coil and for providing an inlet therefor, the support extending across the coil and projecting from opposite sides thereof, and an inlet pipe extending upwardly from the support and at

its lower end in communication therewith and at its upper end in communication with the upper portion of the coil.

3. In a water heater, the combination of an upright circulation coil, a support disposed transversely of the coil and having non-communicating tubular portions, and communicating connections between the respective tubular parts of the support and the upper and lower portions of the coil.

4. In a water heater, the combination of an upright circulation coil, a transverse support having tubular non-communicating end portions extending laterally from the coil, and communicating connections between the respective tubular end portions of the support and the upper and lower extremities of the coil.

5. In a water heater, the combination of an upright circulation coil, a transverse support beneath the coil and having non-communicating end portions extending laterally therefrom, a pipe extending upwardly through the coil and at its lower end connected to one of the tubular portions of the support and at its upper end connected to the upper portion of the coil, and a communicating connection between the lower portion of the coil and the other tubular portion of the support.

6. In a water heater, the combination of an upright circulation coil, a tubular support beneath the coil, an inlet pipe extending from the support upwardly through the coil and in communication with the upper portion of the latter, a support above the coil, and a connection between the inlet pipe and the last mentioned support.

7. In a water heater, the combination of an upright circulation coil, and an upright coil-supporting pipe within the coil and in communication therewith.

8. In a water heater, the combination of an upright circulation coil, an upright pipe within the coil and in communication therewith, pipe supporting means, and a supporting connection between an intermediate portion of the coil and said pipe.

9. In a water heater, the combination of a casing, an upright circulation coil therein, a support disposed transversely of the coil and having non-communicating end portions, the support being sustained by the casing with its tubular ends projecting therethrough, and connections between the tubular portions of the support, respectively, and the upper and lower portions of the coil.

10. In a water heater, the combination of an upright circulation coil, and inlet and outlet pipes projecting laterally from the coil in opposite directions and rigidly connected to each other at their adjacent ends and in communication with different portions of the coil.

11. In a water heater, the combination of an upright vertically divided casing with one part of the casing adapted to support a circulation coil and the other part fitting and adapted to close the coil-supporting part, the coil-supporting casing part formed with notches in its vertical edges and with the other casing part adapted to close said notches, an upright circulation coil within the casing, and a coil-supporting member extending across the coil and secured thereto with the opposite ends thereof projecting laterally from the coil and entered in said casing notches.

12. In a water heater, the combination of an upright vertically divided casing with one part of the casing adapted to support a circulation coil and the other part fitting and adapted to close the coil-supporting part, the coil-supporting casing part formed with notches in its vertical edges and with the other casing part adapted to close said notches, an upright circulation coil within the casing, a coil-supporting member extending across the coil and having non-communicating tubular ends extending laterally therefrom and removably entered in the casing notches for supporting the coil, and inlet and outlet circulation connections between the respective tubular ends of the supporting member and the coil.

In testimony whereof I affix my signature in presence of two witnesses.

HERBERT S. HUMPHREY.

Witnesses:
F. A. LEMKE,
B. M. SCHERER.