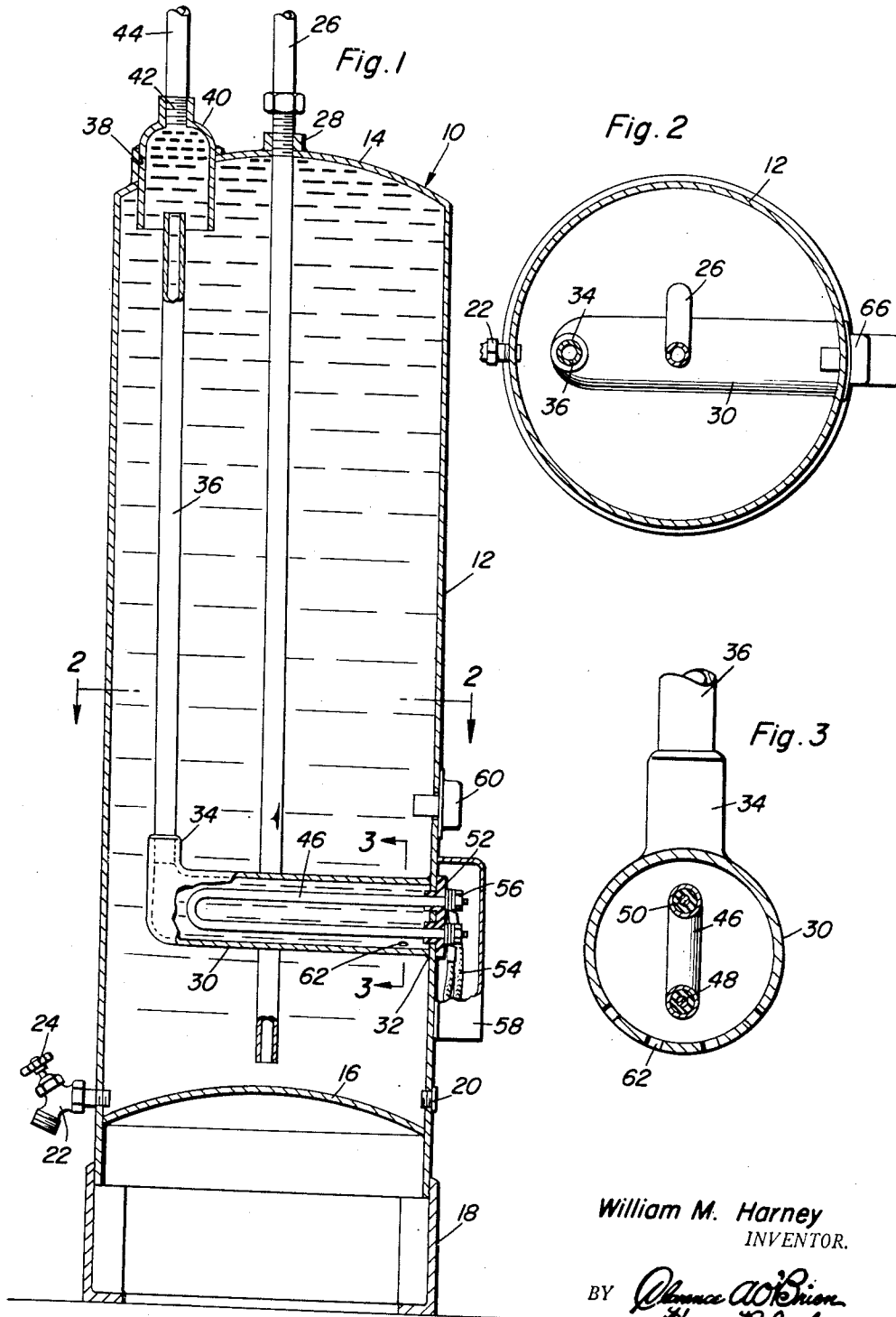


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W. M. HARNEY
WATER HEATING DEVICE
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William M. Harney
INVENTOR.

BY *Oliver A. Orin*
and *Harvey E. Jackson*
Attorneys

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WATER HEATING DEVICE

William M. Harney, Sillery, Quebec, Canada

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4 Claims. (Cl. 219—38)

This invention generally relates to a water heating device, and more specifically provides improved and novel construction in that type of water heaters normally found in domestic water supply systems for providing hot water for domestic use.

The primary object of the present invention is to provide a water heating device that will provide a supply of hot water almost instantaneously after the water heater has been actuated, thereby assuring a supply of hot water at all times.

Another object of the present invention is to provide a novel arrangement of coacting elements in a water heater that provides for the water being heated to be instantaneously discharged into the hot water supply conduit.

Other important object of the present invention will reside in its simplicity, efficiency of operation, instantaneous supply of hot water, long lasting qualities, and its relatively inexpensive manufacturing costs.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a vertical sectional view taken substantially upon a plane passing along the longitudinal center line of the water heating device of the present invention with portions thereof being broken away showing the details of construction thereof;

Figure 2 is a plan sectional view taken substantially upon a plane passing along section line 2—2 of Figure 1 showing the arrangement of the casing within the water tank; and

Figure 3 is a vertical, sectional view taken substantially upon a plane passing along section line 3—3 of Figure 1 showing the construction and spacing of the heating element, together with the inlet apertures in the casing and the relationship of the discharge pipe.

Referring now specifically to the drawings, it will be seen that the numeral 10 generally designates the water heating device of the present invention which includes a generally vertical cylindrical tank 12 having a dome top 14 and a concave bottom 16 together with supporting legs 18 for supporting the tank 12 on any suitable surface. The tank 12 is provided with the usual fusible plug 20 and a drain fitting 22 having a suitable drain valve 24 therein. Also, an inlet pipe 26 is provided which extends downwardly through the top 14 of the tank 12 to a point closely adjacent the bottom 16. This pipe 26 extends through a suitable fitting 28 in the top of the tank 14 in sealed relation thereto.

Secured to and projecting inwardly from the peripheral wall of the tank 12 is a horizontally disposed hollow and cylindrical casing 30 which is attached to the tank 12, as by suitable welding 32 or the like. The in-

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ner end of the casing 30 is provided with an upwardly extending boss 34 for receiving one end of a vertically extending discharge pipe 36 which terminates adjacent the upper end of the tank 12. Rigidly secured to and positioned in an opening 38 in the top 14 is a generally bell-shaped hood 40 which projects inwardly and is disposed over the terminal end of the discharge pipe 36. The bell-shaped hood 40 is larger in diameter than the discharge pipe 36 and is connected by a screw threaded coupling 42 to a hot water supply conduit 44 whereby hot water passing through the discharge pipe 36 will be immediately available to the hot water supply conduit 44.

Positioned in and spaced from the peripheral wall of the cylindrical casing 30 is a U-shaped heating element 46 having resistance type heating wires 48 positioned therein and insulated therefrom by insulation 50. The terminal ends of the U-shaped heating element 46 extend through a seal or adapter 52 and are connected to suitable electrical conduits 54. These connections, designated by the numeral 56, are protected by a cover 58, thereby preventing possible shock from accidental engagement with the electrical conductors 54 or the connectors 56. In order to control the supply of electrical energy to the heating element 46, a thermostat 60 is provided in the peripheral wall of the tank 12 whereby the heating element 46 will be controlled in accordance with the temperature of the water within the tank 12 at the thermostat 60.

Also, the casing 30 is provided with a plurality of spaced apertures 62 on the undersurface thereof for permitting inlet of water into the casing 30.

In practical operation, the heating element 46 will heat water within the casing 30 which has entered through the aperture 62. This heated water will immediately proceed vertically through the discharge pipe 36 into the interior of the bell-shaped hood 40 and immediately into the hot water supply conduit 44 so that hot water 44 will be substantially instantaneously available wherever desired. As the temperature of the water increases, the water in the entire tank 12 will have its temperature raised until the thermostat 60 is actuated for cutting off the electrical energy. Therefore, it will be seen that the present invention provides a hot water heater that will provide a substantially instantaneous supply of hot water. While insulation of the tank has been omitted, it may be included when desired as may other desirable features.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. In a water tank, an electric water heating device inserted therein, a casing supported in the vertical wall of said tank and having an inlet in its bottom, a water heating element mounted in said casing and spaced from the inner wall thereof, an outlet pipe extending upward from said casing, a hood of larger diameter than said outlet pipe, open at the bottom and closed at the top, extending down through the upper end of the tank and surrounding the upper end of said outlet pipe and spaced therefrom, said hood having a delivery pipe extending from the upper end of the hood.

2. A water heating device comprising a closed tank, a hollow casing attached to the vertical wall of said tank and projecting inwardly into the tank, a heating element disposed in said casing in spaced relation to the walls

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thereof, water inlet means in said casing, a discharge pipe connected to the casing and terminating at a point adjacent the top of the tank, and a hood of larger diameter than the discharge pipe positioned over the terminal end thereof, said hood being attached to a hot water supply conduit whereby water heated by the heating element will be instantaneously discharged into the supply conduit.

3. A water heating device comprising a closed tank, a hollow casing attached to the vertical wall of said tank and projecting inwardly into the tank, a heating element disposed in said casing in spaced relation to the walls thereof, water inlet means in said casing, a discharge pipe connected to the casing and terminating at a point adjacent the top of the tank, and a hood of larger diameter than the discharge pipe positioned in enclosing relation to the terminal end thereof, said hood being attached to a hot water supply conduit whereby water heated by the heating element will be instantaneously discharged directly into the supply conduit, said inlet means including a plurality of openings in the bottom of the casing and said discharge pipe being connected to the upper end of the casing.

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4. A water heating device comprising a closed tank, a hollow casing attached to the vertical wall of said tank and projecting inwardly into the tank, a heating element disposed in said casing in spaced relation to the walls thereof, water inlet means in said casing, a discharge pipe connected to the casing and terminating at a point adjacent the top of the tank, and a hood of larger diameter than the discharge pipe positioned over the terminal end thereof, said hood being attached to a hot water supply conduit whereby water heated by the heating element will be instantaneously discharged into the supply conduit, said tank having a water inlet pipe extending downwardly from the top thereof and terminating below said casing.

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