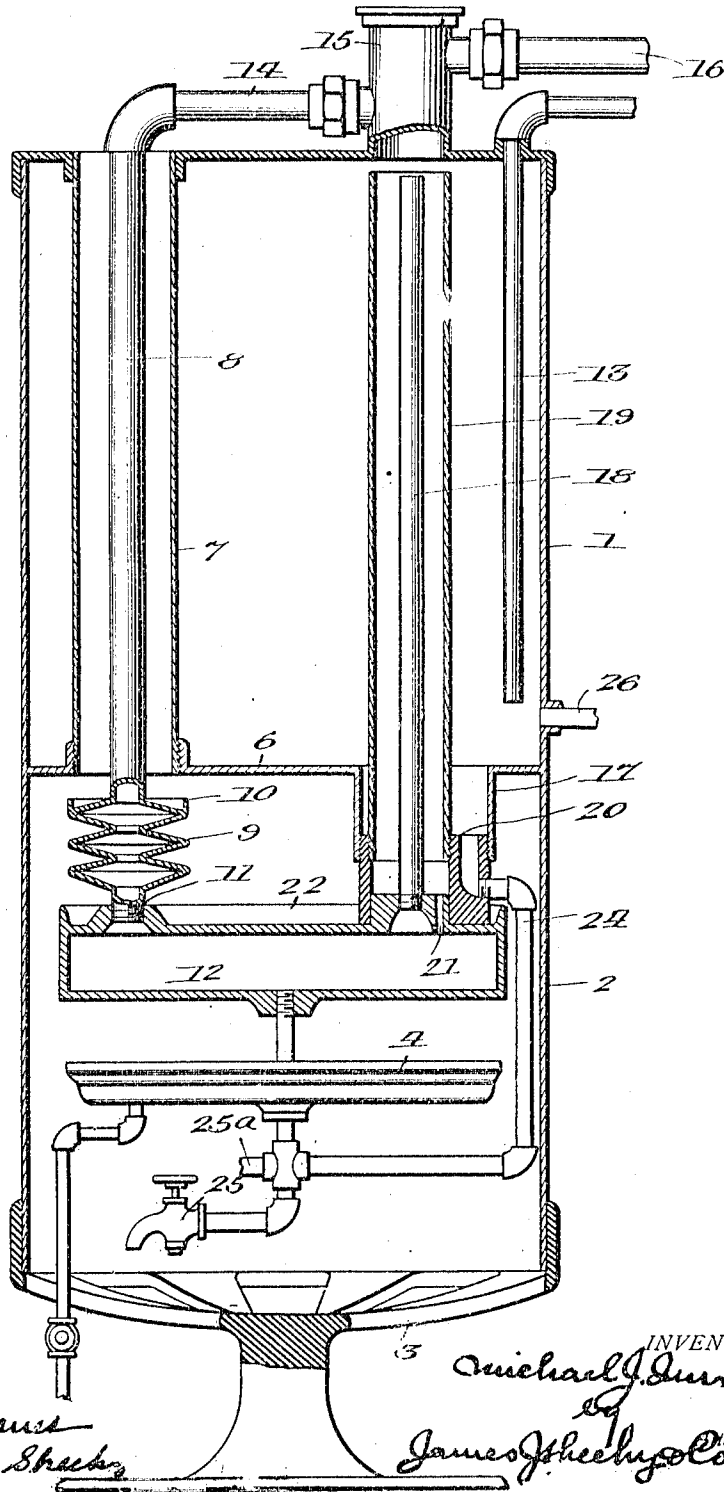


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WATER HEATER.

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1,035,636.

Patented Aug. 13, 1912.



WITNESSES

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WATER-HEATER.

1,035,636.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MICHAEL J. QUINN, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Water-Heaters, of which the following is a specification.

My present invention pertains to water heaters and hot water containers; and it consists in the peculiar and advantageous heater and container hereinafter described and definitely claimed.

In the drawing accompanying and forming part of this specification: the figure is a view illustrative of the combination heater and container or tank constituting the best practical embodiment of my invention that I have as yet devised.

Referring by numeral to the said drawing: 1 is a container or tank, having a depending skirt or wall 2 and mounted on and supported by a conventional boiler stand 3. In the skirt 2 is disposed a gas burner 4 that is preferably of foraminous character, as illustrated, and with said burner 4 is connected a pipe 5, designed to lead from a suitable source of gas supply. The tank or container 1 is provided with a side wall, a top wall and a bottom wall, the bottom wall being indicated by the reference character 6.

Interposed between and fixed with respect to the bottom wall 6 and the top wall of the tank 1 is a flue 7 that is open at its upper and lower ends, as shown, and extending through the said flue is a hot water tube 8 that is considerably smaller in diameter than the flue so as not to materially impede the passage of products of combustion through the latter. At a point below the bottom wall 6 of the tank 1, the tube 8 is provided with a plurality of annular water containers 9 which surround and communicate with the interior of the tube and are tapered or gradually reduced in thickness outward. The said containers 9 are designed to offer large surfaces to the heating medium, and to hold the water in such divided portions as to accelerate the heating of the water by the burner 4. The uppermost of the containers 9 is provided with an upstanding marginal flange 10 which serves to form a shallow pan or receptacle at the top of the container. Said shallow pan is designed to receive water of condensation

and retain such water until it is vaporized, this with a view to obviating the dripping of water upon the floor below the tank.

The plurality of superposed annular containers 9 are arranged as shown in the upper portion of the space within the depending skirt 2, and depending from the lowermost of the containers 9 is a tube 11 that is connected with a water disk 12—i. e., a water container that is disposed horizontally and is of much greater diameter than depth. The said disk-like water container 12 is arranged immediately over the burner 4 so as to be heated to the best advantage by said burner.

Leading from a street main or other suitable source of supply through the top wall of the tank 1 and down to a point adjacent the bottom wall of said tank is a pipe 13, intended to supply water to the tank.

The hot water tube 8 extends throughout the height of the flue 7, and at its upper end said tube is provided with a lateral arm 14. This lateral arm 14, in turn, is provided with a T-coupling 15, the lower arm of which is connected with the interior of the tank 1, while its upper arm is designed to be connected with a pipe 16 that leads off to the fixtures (not shown) or other points at which hot water is to be used.

At 17 the tank 1 is provided with a water leg, and extending upward through the said water leg is a hot water tube 18, the lower end of which is connected with the upper wall of the disk-like container 12 and is in communication with the interior of the said container. The said tube 18 extends to a point adjacent the top wall of the tank 1 and is surrounded by a considerably larger tube 19. This latter extends a slight distance above the upper end of the tube 18, and is itself open at its upper end. At its lower end the tube 19 is arranged and suitably secured in an upwardly extending annular projection 20 on the top wall of the container 12, and is also in communication with the container 12 by an aperture at the point 21, through which all water may be drawn from the tube 19 when it is desired to drain the water from the combined tank and heater. Attention is here drawn to the fact that the container 12 is provided with an upstanding marginal flange 22 for the same purpose as heretofore ascribed to the

flange 10 of the uppermost annular container 9.

Communicating at 23 with the lower end of the water leg 17, and extending outward and downward therefrom, is a tube 24, which tube 24 is continued inward to about the vertical center of the device, and is then carried upward through the burner 4, and is connected with the bottom wall of the disk-like container 12. The said tube 24 is preferably, though not necessarily, provided with a drain cock 25, through which all water can be drawn from the device. I would also here have it understood that a pipe 25^a may when desired, be carried from the water back of a range (not shown) to the tube 24, and that the interior of the tank 1 may be connected with the said water back through the pipe 26, this in order to allow the range fire to be used in heating the water in the tank 1 independent of the gas heating device.

It will be readily understood from the drawing that the depending arm of the T-coupling 15 is disposed above and in vertical alinement with the hot water tube 18, and that therefore when the fixture with which the pipe 16 is connected is opened, the said pipe 16 will be supplied with hot water from the tube 18, and also from the tube 8, as well as from tank 1. When water is supplied to the interior of the tank 1 through the pipe 13 and the burner 4 is ignited, it will be manifest that the cold water will circulate from the water leg 17 and through the tube 24 to the disk-like container 12 in which and also in the annular water containers 9 the water will be quickly heated and maintained in a highly heated state. Water that is heated in the container 12 will rise in the tube 18 and also in the tube 8, and will find its way to the upper portion of the tank 1 through the arm 14 and T-coupling 15, and through the upper end of the tube 19. During the upward passage of the said heated water in the tube 18, the tube 19 will serve to keep the cold water in the lower portion of the tank 1 away from the tube 18, and in that way prevent the entering cold water from lowering the temperature of the water in the tube 18, while it is circulating to the upper portion of the tank 1. By virtue of the superposed annular containers 9 being arranged below the flue 7 and in alinement therewith, and the tube 8 being carried through the flue 7, it will be manifest that the water in the said container 9 and the tube 8 will be additionally heated, so that whenever the fixtures with which the pipe 16 is connected are opened an abundance of highly heated water will be supplied thereto.

It will be gathered from the foregoing that my novel combined tank and heater is simple and inexpensive in construction, and

this notwithstanding the fact that the combined device is possessed of high capacity in heating water and maintaining the same economically in a highly heated state.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. The combination of a tank having a depending water leg, a skirt depending from the tank and surrounding said water leg, a disk-like water container disposed within the skirt, a conduit intermediate the lower portion of the water leg and said container, a hot water tube communicating with said container and extending up through the water leg and into the tank to a point adjacent the upper end thereof, a tube, of larger diameter than the water tube, surrounding the said water tube and arranged in the water leg and extending to a point above the water tube and open at its upper end, a flue extending vertically through the tank and open at its upper and lower ends, a plurality of superposed annular water containers arranged above and connected with the disk-like container and also arranged below and in vertical alinement with the flue, a hot water tube connected with the uppermost of the annular water containers and extending vertically through the flue and having a lateral arm above the tank and a T-portion the lower arm of which is arranged above and in vertical alinement with the first-named hot water tube, means for supplying water to the tank, and means arranged within the skirt for heating the disk-like water container and the annular water containers; the said disk-like water container and the uppermost of the annular water containers being each provided with an upstanding marginal flange.

2. The combination of a tank having a depending skirt, an upright flue extending through the tank and open at its upper and lower ends, a water container disposed within the skirt, a conduit intermediate the interior of the tank and the water container, a plurality of superposed annular water containers connected together and with the first-named water container and disposed below and in vertical alinement with the flue, a hot water tube connected with the uppermost of the annular water containers and extending through the flue, means within the skirt for heating the water containers, and means for supplying water to the interior of the tank.

3. The combination of a tank having a depending water leg, means for supplying water to the tank, a water container disposed below the tank, a hot water tube leading from said water container, a conduit intermediate the water leg and said container, means for heating the container, a hot water tube communicating with the container and

extending up through the water leg and into the tank to a point adjacent the top thereof and open at its upper end, and a tube, of larger diameter than said hot water tube, surrounding and extending above the same and open at its upper end and having its lower end secured in the said water leg, and in communication with the container.

4. The combination of a tank, means for supplying water thereto, a flue extending through the tank and open at its upper and lower ends, a water container positioned below the tank, a conduit intermediate the tank and said container, a plurality of superposed annular water containers connected together and interposed between the first-named container and the tank and aligned with the flue and connected with the interior of said first-named container; said annular containers being tapered outward, means for heating the containers, and a hot water tube connected with the uppermost

of the annular containers and extending through the flue.

5. The combination of a tank, means for supplying water thereto, an upright flue extending through the tank and open at its upper and lower ends, a plurality of superposed annular water containers connected together and disposed below the tank and in alinement with the upright flue, a hot water tube connected with the uppermost of said containers and extending through the flue, means connecting the interior of the tank and the interior of the lowermost of said containers, and means for heating said containers.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MICHAEL J. QUINN.

Witnesses:

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FRANK C. PERKINS.