Aug. 18, 1942. H. HERZOG 2,293,392

PIPE FITTING

Filed Sept. 9, 1940

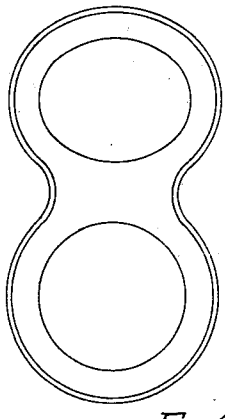


Fig. 6

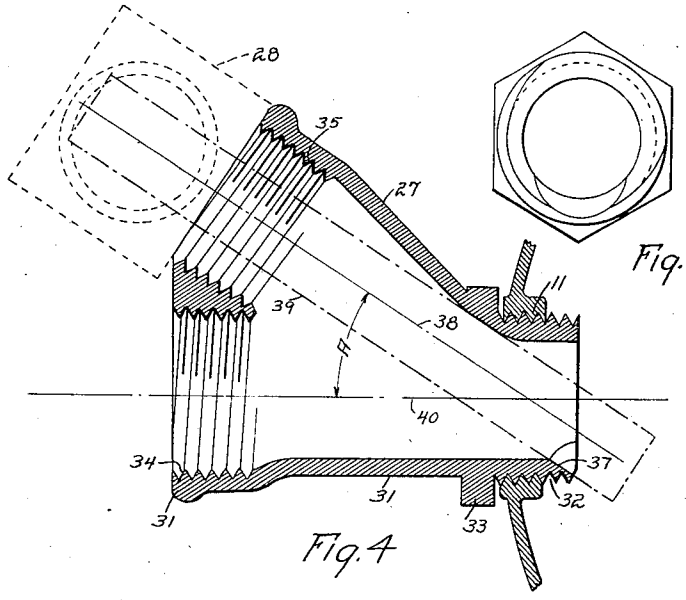


Fig. 4

Fig. 5

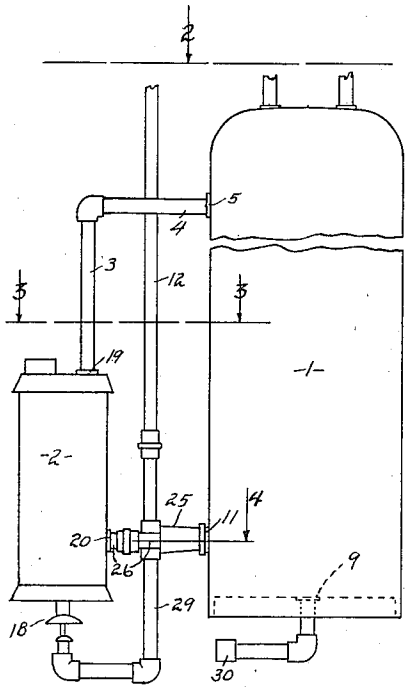


Fig. 1

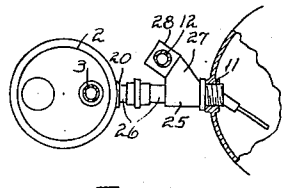


Fig. 3

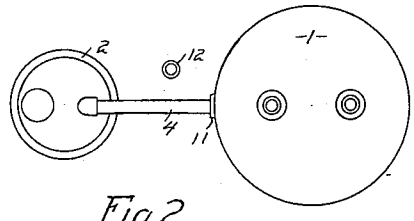


Fig. 2

Inventor

Henry Herzog

By Harry P. Canfield

Attorney

Patented Aug. 18, 1942

2,293,392

UNITED STATES PATENT OFFICE

2,293,392

PIPE FITTING

Henry Herzog, Cleveland, Ohio

Application September 9, 1940, Serial No. 356,017

2 Claims. (Cl. 285—210)

This invention relates to pipe fittings and particularly to unitary fittings for making connections between a domestic hot water heater and a domestic hot water tank, and for also supporting a thermostat for the tank in the line of the gas or other fluid fuel to the heater.

It is common in the usual installation of hot water tank and heater, to make a pipe connection from a lower portion of the tank, through the heater, and thence to an upper portion of the tank, for circulating the water through the tank and heater while being heated; and when a thermostat is employed it is projected into the tank at preferably a lower point thereof, and the thermostat is connected in the pipe line conducting fuel to the heater to control the same in accordance with the temperature of the water in the tank.

The conventional hot water tank, besides having two threaded openings in the upper head for respectively introducing a supply of cold water into the tank and for withdrawing hot water therefrom, is provided with an upper and a lower threaded opening on one side of the tank, one directly above the other, and a threaded opening in the center of the lower head.

The conventional water heater is provided with a lower threaded opening at one side and with an upper threaded opening in its top directly above the side opening.

The use of a thermostat is not ordinarily contemplated, and in such cases the pipe connections for circulating water through the heater and tank and which connections are made on the job by the plumber in installing the outfit are relatively simple, a straight pipe line connection being made from the lower side of the tank to the lower side opening of the heater and a pipe line with one right angle bend being made from the top opening of the heater to the upper side opening of the tank; and it is to be noted that these connections are simple and cheap to make because the points of connection are all in a vertical plane.

When however a thermostat is wanted in the installation, it is customarily screwed into the lower one of the two side openings of the tank, and the heater circuit is made from the upper side of the heater by connecting it to the upper side opening of the tank as before, but the lower side opening of the heater is now connected to the central opening in the lower head by a pipe line having a triple bend.

The lower side opening of the tank which is now utilized for the thermostat, is directly below and in the same plane with the upper pipe of the heating circuit, and since the triple bend pipe of the circuit is also in this plane and below the thermostat, it follows that the fuel line pipe, which customarily comes from overhead, must be offset to pass the upper circuit pipe on its way to the thermostat and must again be offset to pass the lower triple bend pipe on the way to the burner on the under side of the heater.

The time consumed by the plumber in making these offset connections in the fuel line, and in making the aforesaid triple bend pipe line, is considerable; and as well known plumbers charge by the hour, so that the making of an installation of this kind including a thermostat connection, entails a considerable cost for the plumber's time and for the parts to make the water and fuel line connections.

It is the primary object of this invention therefore to provide a fitting by which the aforesaid triple bend to the bottom opening of the tank and the aforesaid offset connections in the fuel line may be eliminated in a thermostatically controlled installation of the type referred to, and the cost of labor and parts thereof saved.

Other objects are:

To provide generally, in an installation of the type referred to, an improved unitary pipe fitting for effecting the mounting of a thermostat, a fuel line connection through the thermostat to the heater, and a water connection between the tank and the heater;

To provide a fitting of the type mentioned above which will utilize the minimum of material and labor to produce and install it and which will be simple to install and effective in operation.

Other objects will be apparent to those skilled in the art to which my invention pertains.

My invention is fully disclosed in the following description taken in connection with the accompanying drawing in which,

Fig. 1 is an elevational view of a hot water tank and a heater and the fitting and connections embodying my invention associated therewith.

Fig. 2 is a view taken from the plane 2 of Fig. 1 with some of the parts behind the plane omitted for simplicity.

Fig. 3 is a sectional view taken from the plane 3 of Fig. 1.

Fig. 4 is a view approximately full scale and in horizontal longitudinal section of a fitting embodying a part of my invention, the view being considered as taken from the plane 4 of Fig. 1 and

Published by AsbestosClaims.Law
asbestosclaims.law/library/23331/2

the view illustrating certain geometrical properties of the fitting.

Fig. 5 is an elevational view of the right-hand end of the fitting of Fig. 4.

Fig. 6 is an end elevational view of the left-hand end of the fitting of Fig. 4.

Referring to Figs. 1 to 3 of the drawing, I have shown the tank 1 and the heater 2, the tank having the conventional upper and lower threaded openings 5 and 11 one directly above the other, and the heater having upper and lower threaded openings 19 and 20, all four threaded openings being disposed in a common plane. The upper circulating pipes 3 and 4 are as simple as is possible, being in a single plane. A fitting 25 is provided threaded into the opening 11 at one end and joined by a straight pipe 26 with the heater at the opening 20, the openings 20 and 11 being axially aligned with each other and with the pipe 26 and the fitting 25, so that the heater 2 occupies the normal conventional position with respect to the tank 1 and may be disposed close thereto and the two units thereby caused to take up the minimum of space. A branch 27 joined to the fitting 25 extends therefrom at an angle and on its outer end carries the thermostat device 28, proper, and the fuel line 12 from overhead is joined to the upper side of the thermostat device 28, and a pipe 29 conducts fuel downwardly beyond the device 28 to the burner 18.

The fuel pipe 12 does not have to be offset to clear the pipe 4 because the thermostat 28 is offset at the fitting 27. There are no complications in the connection between the heater and the lower opening 11 of the tank because they are in direct alignment with each other. The fuel pipe 12 being offset, the pipe connection 3—4 can as stated above be in a single plane and of maximum simplicity.

The opening 9 in the center of the lower head of the tank may be reserved for draining purposes. It is shown closed by a dead end at 30 but a valve may be substituted therefor if desired.

The fitting 25 is shown separately in Figs. 4 to 6 and comprises a tubular body 31 having an external pipe thread 32 at one end for screwing into the threaded opening 11 of the tank and a collar 33 of hexagonal form is provided thereon for turning it. The opposite end of the body 31 is provided with an internal thread 34 into which the pipe from the heater may be screwed.

The branch portion 27 is generally tubular, communicating with the interior of the main body 31, and its outer end is preferably internally threaded as at 35 for threadedly receiving the thermostatic device 28 shown in dotted line.

Thermostatic devices of the type suitable to be screwed into a threaded opening such as that of a tank, comprise a thermal element or rod to be projected into the tank or the like to which the device is attached and in some cases surrounded by a tubular sleeve. Such rods and sleeves are made in different sizes but within the range of sizes employed for hot water tanks, the maximum outside diameter of the rod or sleeve is approximately ⅝ of an inch. I prefer to make the fitting 25, for the sake of the minimum of necessary material and therefore of the least cost to manufacture, as short as possible and still permit a ⅝ diameter rod or sleeve to extend from the thermostatic device 28, through the threaded opening 35, through the tubular branch 27, through the inner threaded end of the body 31 and into the tank. Allowing the minimum of axial length for the threads 34 and 35, when these are of standard pipe dimensions for systems of this class, and by cutting away a part of the inner end of the body 1 as at 37, the minimum of material will be necessary if the branch 27 is so disposed that the axis 38 of a ⅝ diameter tube, indicated at 39 and aligned axially with the threaded opening 35, makes an angle A of 32 degrees with the axis 40 of the axially aligned threads 32 and 34.

The fitting 25 is preferably made as an integral casting.

It is to be understood that the thermostatic device 28 may have associated therewith a pilot burner pipe line, but this feature, being well known has been omitted for the sake of simplicity.

In the foregoing I have set forth my invention and the advantages and improvements which may be enjoyed by its use, and it is to be understood that my invention is comprehensive of such modifications and changes which may come within the scope of the appended claims.

I claim:

1. In a fitting of the class described, a tubular body threaded at an inner end for connection to a hot water tank side opening, and threaded at the opposite outer end for connection to the water inlet of a hot water heater, the threads at the two ends being in co-axial alignment, a side tubular branch communicating internally with the body intermediate its ends, and threaded at its outer end for mounting a fuel line thermostat thereon, and the internal diameter of the tubular branch being large enough and the axis of the branch threads being disposed at a divergent angle to the axis of the body such that a thermostat tube of a thermostat mounted on the threads of the tubular branch may project into and through the tubular branch, coaxial with its threads, and angularly through the body, and out through the inner threaded end of the body.

2. In a fitting of the class described, a tubular body threaded at an inner end for connection to a hot water tank side opening, and threaded at the opposite outer end for connection to the water inlet of a hot water heater, the threads at the two ends being in co-axial alignment, a side tubular branch communicating internally with the body intermediate its ends, and threaded at its outer end for mounting a fuel line thermostat thereon, and the internal diameter of the tubular branch being large enough and the axis of the branch threads being disposed at a divergent angle of approximately 32 degrees to the axis of the body so that a thermostat tube of a thermostat mounted on the threads of the tubular branch may project into and through the tubular branch, coaxial with its threads, and angularly through the body, and out through the inner threaded end of the body.

HENRY HERZOG.

Published by AsbestosClaims.Law
asbestosclaims.law/library/23331/3