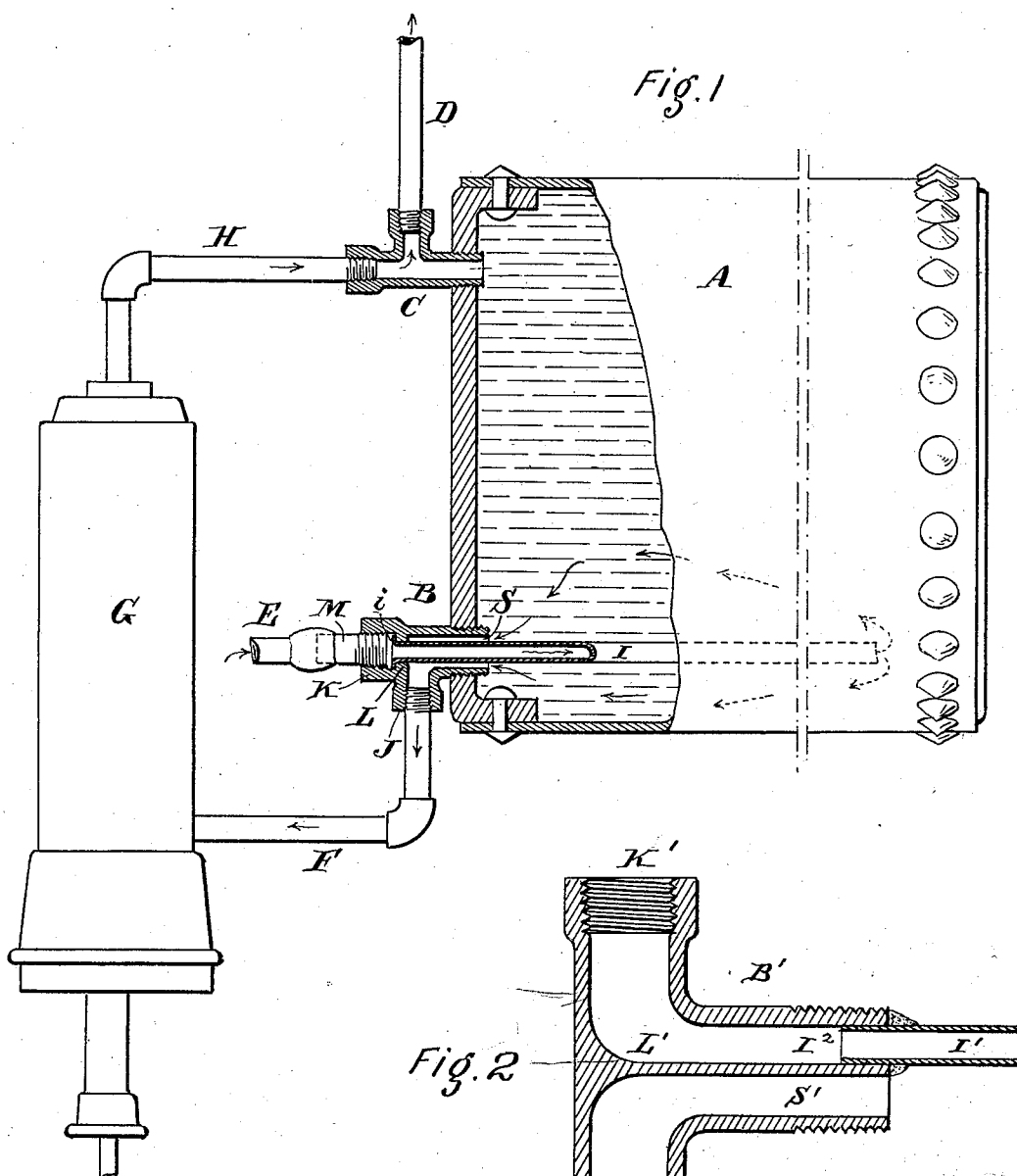


No. 759,380.

PATENTED MAY 10, 1904.

W. KANE.
HOT WATER HEATER.
APPLICATION FILED MAY 19, 1903.

NO MODEL.



Attest
P. M. Kelly.
M. J. Eyre.

Inventor
Wm Kane
By his atty
J. H. Adams & Co.

UNITED STATES PATENT OFFICE.

WILLIAM KANE, OF PHILADELPHIA, PENNSYLVANIA.

HOT-WATER HEATER.

SPECIFICATION forming part of Letters Patent No. 759,380, dated May 10, 1904.

Application filed May 19, 1903. Serial No. 157,764. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KANE, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Hot-Water Heaters, of which the following is a specification.

My invention has reference to hot-water heaters; and it consists of certain improvements, which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

Heretofore it has been customary in certain types of hot-water boilers for house use to employ a horizontal boiler in the chimney-flue to be directly heated, and such boilers have been provided with a cold-water-supply spud and pipe at the lower part and a hot-water-delivery pipe at the upper part. No water-back is employed, and no circulation for heating purposes were employed. With such a boiler there is no provision for connecting with the water-heater such as now found in the market and heated by gas.

The object of my invention is to provide means whereby a boiler of the character above referred to may have its water heated by circulation through a water-heater having gas as fuel, the attachment being made through the two holes for the water supply and discharge now in use, whereby no extra holes are required to be bored and tapped. In this manner the attachment may be easily and speedily made by any plumber and at small cost.

In carrying out my invention I remove the usual water-supply spud and substitute in lieu thereof a specially-constructed spud having a cold-water inlet and a cold-water-supply outlet to the heater. I may also remove the hot-water-delivery spud and insert a T-spud having an outlet for the hot water to the house-pipes and an inlet for the hot water from the heater.

My invention also comprehends details of construction which, together with the above features, will be better understood by reference to the drawings, in which—

Figure 1 is an elevation of a hot-water boiler and connections with a heater with part in

section and embodying my invention. Fig. 2 is a sectional elevation of a modified form of spud adapted to my invention.

A is the boiler and is provided with a cold-water spud B near the bottom and a hot-water spud C at the upper part. The cold-water spud B consists of a nipple screwed into the side of the boiler and having side outlet J for connection with the supply-pipe F, leading to the heater G, an annular diaphragm L for receiving the circulating copper pipe I and its flanged end *i*, and a threaded end K for receiving the nipple M, to which the cold-water-supply pipe E is soldered. In case this cold-water pipe is an iron pipe it may be directly screwed into the end K of the spud. The copper circulating-pipe I snugly fits the diaphragm, as shown, and is thereby supported and leaves an annular space S about it leading to the outlet J. In this manner the spud B performs the function of supplying cold water to the distant end of the boiler and withdrawing water from the end adjacent to the spud to supply the heater G and obviates the necessity of boring and tapping another hole in the boiler.

The spud C is simply a branched structure, one branch connecting with the hot-water-supply pipe D for the house and the other branch connecting with the hot-water-circulating pipe H, leading from the heater G. In this way the auxiliary heater is enabled to circulate the water of the boiler and raise it to the requisite temperature when the range is not in use. It further enables a plumber of ordinary intelligence to attach a heater to such a boiler without having to resort to the expensive and slow operation of boring and tapping extra holes in the boiler.

In place of the form of spud B shown in Fig. 1 I may employ the form shown in Fig. 2. In this case the spud is made with the body part B' divided by a diaphragm L', forming two passages I' and S', the former connecting with a screw-threaded outlet K' and the latter with a similar outlet J'. The outlet J' connects with the pipe F, leading to the heater, and the outlet K' connects with the

cold-water pipe E. The circulating-pipe I' in this case is soldered or otherwise fastened in the end of the passage-way I', as shown.

While I prefer the construction shown, I do not limit myself to the precise details, as these may be modified in various ways without departing from the spirit of my invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A hot-water horizontal boiler, combined with a spud in its head at its lower part consisting of a body screwed into the boiler and having two openings one to supply cold water and the other to withdraw water for supplying a heater said openings being separated by an annular diaphragm L, and a horizontal circulating-pipe extending into and near the distant end of the boiler and driven through the hole in the diaphragm of the spud so as to extend into the cold-water opening and form an annular passage S communicating with the opening supplying the heater.

2. The combination of a horizontal boiler, a spud arranged to open into the lower part of the end of the boiler and having two openings, one of which opens directly from the interior of the boiler, a horizontal cold-water-circulating pipe extending from the other opening

to a distant part of the boiler, a cold-water pipe for supplying cold water to one of the openings and circulating-pipe, a spud arranged in the upper part of the end of the boiler having two branch openings, a hot-water heater, a pipe connecting one of the terminals of the heater with the opening of the lower spud which opens directly from the interior of the boiler, and a pipe connecting the other terminal of the heater with the other branch opening of the upper spud.

3. A spud for a hot-water boiler consisting of a body B having a cold-water opening K, a water-circulating opening J adapted to lead to a water-heater and an annular diaphragm L between said opening, combined with a circulating-pipe I driven through the diaphragm and having a flange resting against the outer face of said diaphragm and forming the annular space S connecting with the opening J, and the nipple M screwed into the end of the cold-water opening K to retain the flanged pipe I in place.

In testimony of which invention I have hereunto set my hand.

WILLIAM KANE.

Witnesses:

ERNEST HOWARD HUNTER,
R. M. KELLY.