

No. 828,138.

PATENTED AUG. 7, 1906.

J. O'NEILL.  
HEATING SYSTEM.  
APPLICATION FILED APR. 6, 1905.

Fig. 1.

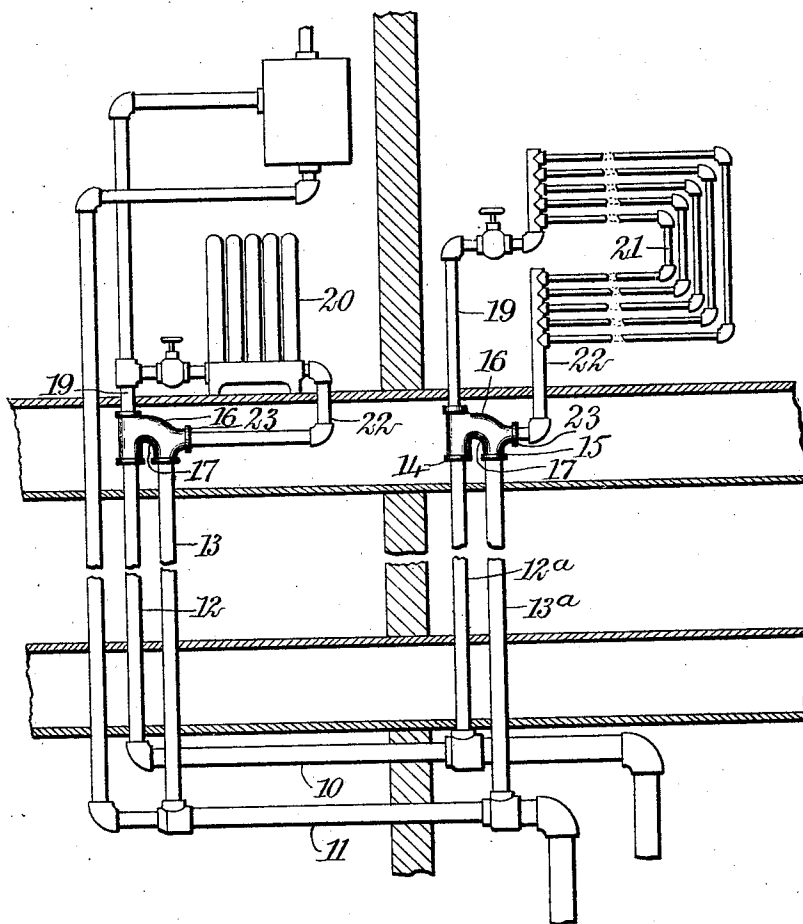
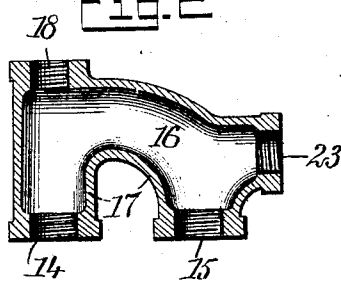


Fig. 2



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## HEATING SYSTEM.

No. 828,138.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed April 6, 1905. Serial No. 254,236.

*To all whom it may concern:*

Be it known that I, JOHN O'NEILL, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Heating System, of which the following is a full, clear, and exact description.

My invention relates to heating systems, and more particularly to those in which a by-pass is furnished about the radiators to maintain the circulation when these are closed. This may be operated upon a two-pipe system, and to furnish the connections between the supply-pipes and the pipes leading from the radiators it is customary to employ in the two-pipe system a T, with which are associated many other fittings to form the proper circuits. It will be seen that with either a T or a cross the returns from the radiators will enter these fittings directly adjacent and on substantially the same horizontal plane as the opening from which the flow takes place. As the radiator return-pipe is usually of a less diameter than the supply, the movement of the heating fluid is liable to be somewhat throttled at these points and surge laterally through the return-openings and meeting the flow-water, diminish or neutralize the circulation.

To obviate these difficulties and furnish an arrangement having but few fittings and in which a proper circulation is insured are the principal objects of my invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 shows in broken elevation a portion of a system to which one embodiment of the invention is applied. Fig. 2 is a central vertical longitudinal section through a fitting employed in arranging the system.

From generally horizontal flow and return pipes 10 and 11, respectively, leading from a heater, rise main flow-pipes 12 12<sup>a</sup> and adjacent main return-pipes 13 13<sup>a</sup>. The risers 12 12<sup>a</sup> and returns 13 13<sup>a</sup> communicate, respectively, with openings 14 and 15 of a fitting 16, which may be situated between the ceiling and floor of the structure in which the system is installed. These openings are shown as separated by a double wall 17, and at the opposite side, but in alinement with the opening 14, is a preferably reduced opening 18, from which leads a flow-pipe 19. This pipe

connects with a radiator system, which may be in the form of a stand-radiator, as is indicated at 20, or a coil of piping 21. From each of these radiators a return-pipe 22 connects with an opening 23, which extends from the fitting 16 in a direction at right angles to the other openings and adjacent to the return. The fitting 16 thus provides a supply-passage between the openings 14 and 18, a return-passage between the openings 15 and 23, and a by-pass extending downwardly from the vicinity of the opening 18 to the opening 23, the opening 23 being lower than the opposite end of the by-pass.

In the system the heating fluid rises through the supply-pipe into the fitting and is delivered to the flow-pipe 19 of the radiator. After passing through the radiator the fluid is conducted to the return-pipe through the opening 23 of the fitting, and it will be noted that the return-pipe is at a point below the flow-outlet 18, and the tendency for the supply to direct itself toward the radiator return-pipe is thus counteracted.

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

1. A hot-water heating system comprising a main flow-pipe, a main return-pipe, a radiator flow-pipe, a radiator return-pipe, and means for connecting all of said pipes together, said means having an inlet for the main flow-pipe, an outlet for the radiator flow-pipe, an inlet for the radiator return-pipe, an outlet for the main return-pipe, the second inlet and outlet being adjacent to each other, and said first-named inlet and outlet being adjacent to each other and constantly communicating with the second inlet and outlet, the second inlet being at a lower level than the first outlet, whereby water returning from the radiator will not interfere with water passing to the radiator, and when the radiator flow-pipe is closed water can pass from the main flow-pipe directly to the main return-pipe.

2. A fitting comprising a body having at one side a flow and a return opening and at the opposite side a flow-opening, while on a level between said opposite openings is a return-opening which is situated lower than the second flow-opening.

3. A fitting comprising a body having at the lower side a flow-opening and a return-opening, at the upper side a flow-opening, and between the last-named flow-opening

and the return-opening a second return-opening located on a level below the flow-opening in the upper side.

4. A fitting comprising a body having two  
5 openings situated at one side and one opening situated at the opposite side, and an opening leading in a direction at substantially right angles to those previously mentioned and nearer the side having the two openings.  
10 5. A fitting comprising a body having two openings situated at one side, one opening

situated at the opposite side, and an opening in a side wall located nearer the side having the two openings.

In testimony whereof I have signed my 15 name to this specification in the presence of two subscribing witnesses.

JOHN O'NEILL.

Witnesses:

MICHAEL J. HAGGERTY,  
MICHAEL O'NEILL.