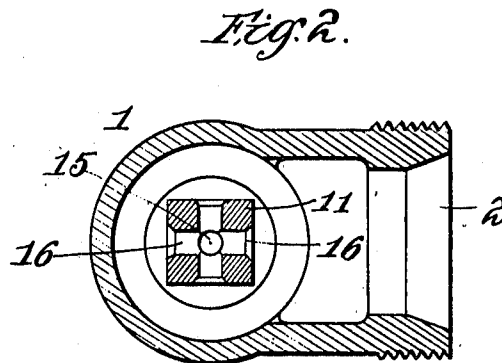
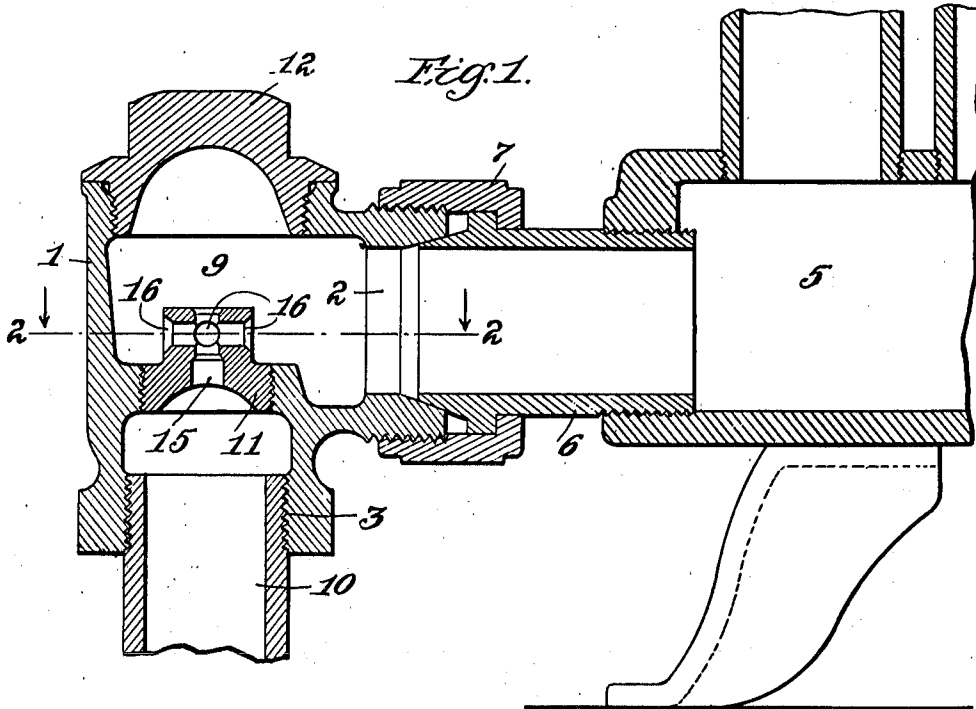


A. C. CASAVANT.
PIPE FITTING.
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1,055,318.

Patented Mar. 11, 1913.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALVIN C. CASAVANT, OF GARDNER, MASSACHUSETTS.

PIPE-FITTING.

1,055,318.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed December 1, 1911. Serial No. 663,247.

To all whom it may concern:

Be it known that I, ALVIN C. CASAVANT, a citizen of the United States, residing at Gardner, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Pipe-Fittings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to pipe fittings and more particularly to pipe fittings of that type which are employed in steam heating systems for connecting the discharge passage of a radiator or steam heating coil with the vacuum return pipe to permit the discharge of air and water of condensation.

The object of the present invention is to provide a fitting of this character which is simple and inexpensive in its construction, which may be readily fitted to any size radiator or steam coil and which will not become clogged or otherwise rendered inoperative with long continued usage.

With this object in view the various features of the invention consist in certain novel features of construction, combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

In the accompanying drawings illustrating the preferred form of the invention, Figure 1 represents a longitudinal section in elevation of the improved fitting applied to a radiator, and Fig. 2 is a transverse section taken upon the line 2—2 of Fig. 1 looking in the direction of the arrows.

The fitting shown in the illustrated embodiment of the invention provides a connection between the discharge pipe of a radiator or steam coil and the return pipe of the heating system which is connected to a suitable vacuum pump. A chamber is provided opening directly into the discharge pipe of the radiator and which communicates with the return pipe through a valve constructed and arranged to allow the slow escape of water of condensation in addition to the passage of air without interfering with the vacuum in the return pipe. The fitting is indicated at 1 and comprises an L shaped casting having an inlet branch 2 arranged to communicate with the discharge pipe of

the radiator or steam coil and an outlet branch 3 for connection to the return pipe of the heating system. The radiator is indicated at 5 and is provided with a horizontal discharge pipe 6 threaded in the base to allow substantially all of the water of condensation to be drained from the radiator. The discharge pipe 6 may be connected to the fitting in any suitable manner but is preferably connected to the fitting by a union consisting of a threaded sleeve 7 and cooperating joint seats formed on adjacent ends of the discharge pipe and fitting. The interior of the fitting is provided with a chamber 9 which opens directly into the inlet branch and which communicates with the return pipe 10 through a valve 11. This valve is provided with passages which are restricted in their area to allow the escape of air and water of condensation from the radiator without interfering with the vacuum in the pipe 10. It will be noted that the valve 11 is located above the return pipe and communicates directly with the discharge outlet of the radiator, thus effectually handling the water of condensation and maintaining the vacuum without the necessity of a separate vacuum chamber and a waterseal to preserve the vacuum.

In order to make the fitting universal in its application and to fit it for use with any size radiator, the valve 11 is removably secured in the fitting and may be readily removed and replaced by a valve of a different size when so desired. To this end the valve 11 is threadedly mounted in the fitting 1 directly above the outlet branch 3 and a removable cap 12 is threaded in the top of the fitting above the valve, thus enabling the valve to be changed without disconnecting the inlet or outlet branch of the fitting.

As a considerable amount of entrained scale and dirt is carried through the valve, it is desirable to provide some means for preventing the clogging of the passages in the valve and insuring the free passage of air and water therethrough. To this end the valve 11 is provided with a vertical axial bore 15 and with radial intersecting bores 16 through which the air and water of condensation rush into the vertical bore. The vertical bore is pointed out or counter-bored from the underside as shown clearly in Fig. 1, thus forming a flaring passageway which allows the escape of air and water without clogging the valve. In addition to

the construction of the central bore, the provision of the several radial bores intersecting with the single central bore serves to maintain the central passage free from scale and dirt and enables the valve to operate without attention for a long continued period.

The operation of the improved device is substantially as follows: When the radiator is started, the pocketed air is first caused to rush out through the side and top holes of the valve and is followed by the water of condensation, which continues to flow through all of the holes until a constant level is established somewhat below the top edge of the radial passages. While the radiator is in operation, the water of condensation is continuously flowing through the axial bore 15, filling the small portion of the bore and forming a seal to prevent the escape of steam therethrough. It will be noted that the area of the reduced portion of the bore is equal to the area of each of the side and top passages. Thus the only function of the plurality of passages after the device is in operation is to allow the water of condensation to pass out through the valve even if one or more of the passages are clogged by scale or dirt. If no protection were afforded for the central bore it would soon fill with dirt and the valve become inoperative. The provision of the opening in the top of the valve allows the air to escape with greater facility when the radiator is started, thus enabling the radiator to be heated in a much shorter time.

While it is preferred to employ the specific construction and arrangement of parts shown and described, it will be understood that this construction and arrangement is not essential except so far as specified in the claims, and may be changed or modified without departing from the broader features of the invention.

Having thus described the invention what is claimed is:

1. A fitting for connecting the discharge

pipe of a radiator or steam coils with the return pipe of a steam heating system having, in combination, an inlet branch, an outlet branch, and a valve removably secured in the fitting provided with a central passage and a plurality of intersecting passages to allow the escape of water of condensation, the central passage forming the sole communication between the two branches and being completely filled with water to prevent the escape of steam during the normal operation of the radiator, substantially as described.

2. A fitting for connecting the discharge pipe of a radiator or steam coils with the return pipe of a steam heating system having, in combination, an inlet branch, an outlet branch, a valve chamber opening directly into the inlet branch, and a valve removably secured in the lower portion of the chamber and having an axial passage extending completely through the valve and radial intersecting passages located below the top of the valve, the axial passage forming the sole communication between the branches and having a restricted diameter causing the passage to be completely filled with water during the normal operation of the radiator, substantially as described.

3. A fitting for connecting the discharge pipe of a radiator or steam coils with the return pipe of a heating system having, in combination, an inlet branch, an outlet branch, and a valve located between the two branches in direct communication therewith and provided with an axial bore having an enlarged opening on the underside and radial bores intersecting the axial bore at its upper end to allow the escape of water of condensation from the radiator each of the radial bores having a diameter equal to that of the axial bore, substantially as described.

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Witnesses:

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