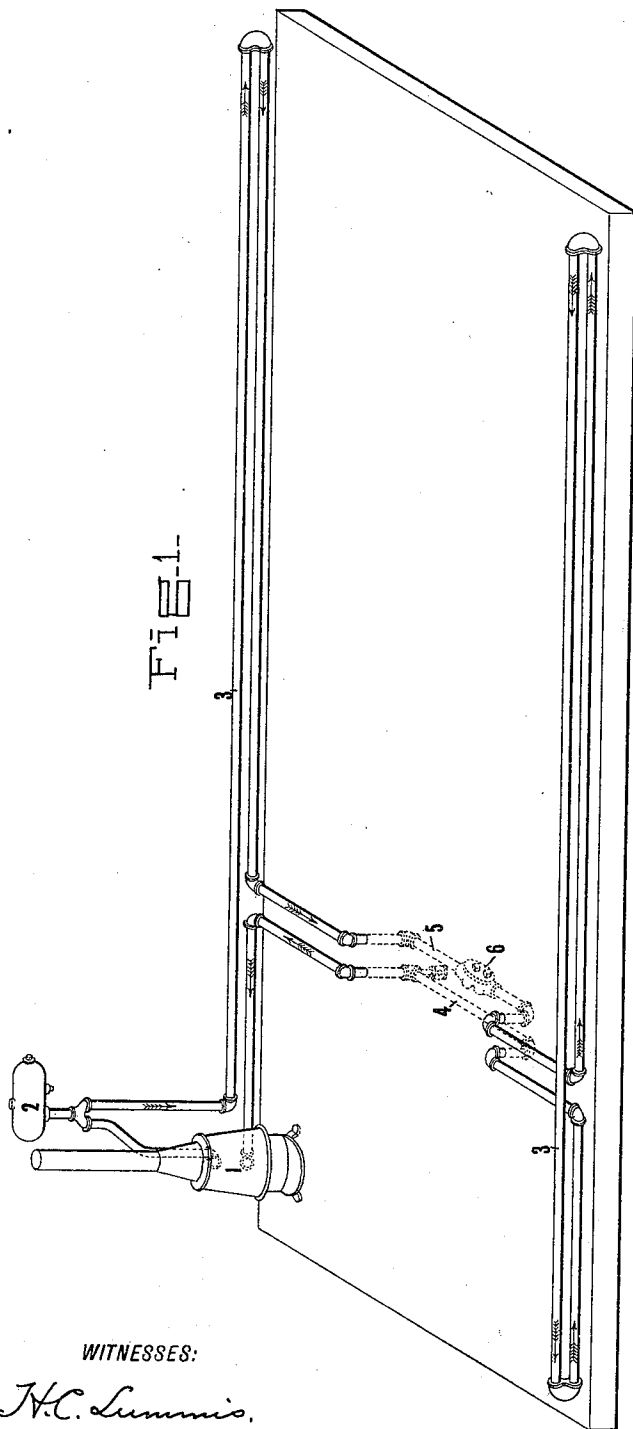


G. E. HULSE.
DEVICE FOR FILLING WATER CIRCULATING SYSTEMS.
APPLICATION FILED JUNE 24, 1907.

993,376.

Patented May 30, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

H. C. Lummis.
Samuel L. Alpert.

INVENTOR

George E. Hulse

BY

Dwight Warfield
ATTORNEY

G. E. HULSE.
 DEVICE FOR FILLING WATER CIRCULATING SYSTEMS,
 APPLICATION FILED JUNE 24, 1907.

993,376.

Patented May 30, 1911.

2 SHEETS—SHEET 2.

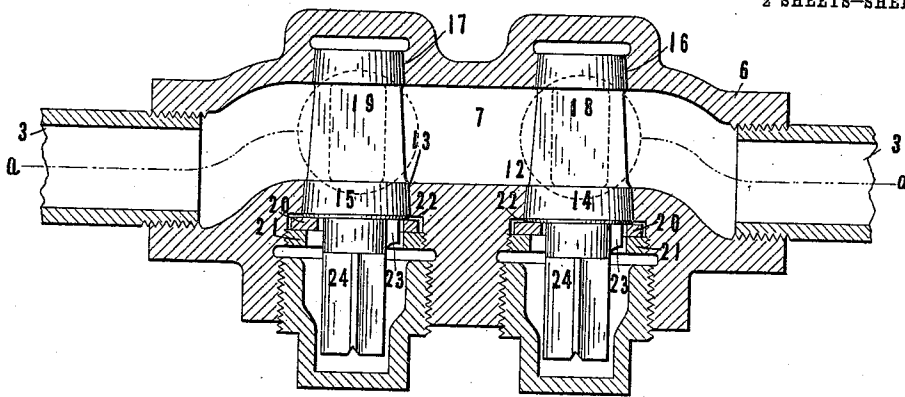


Fig. 2.

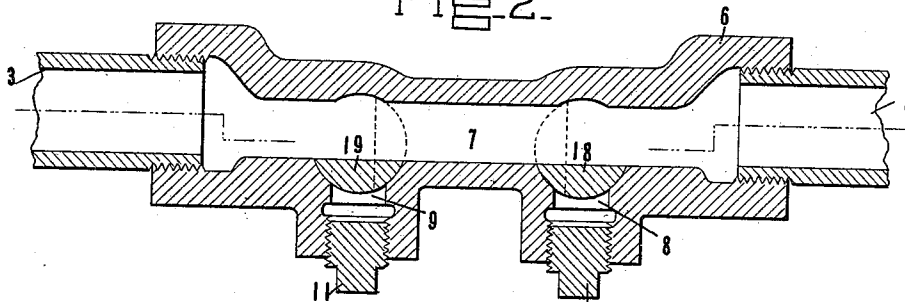


Fig. 3.

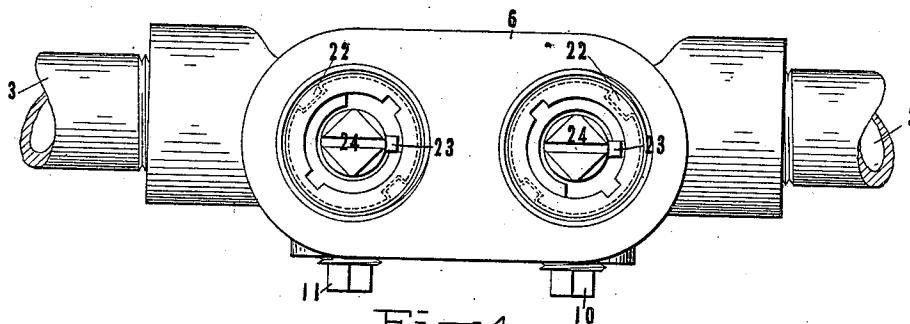


Fig. 4.

WITNESSES:

H. C. Lummis.
Samuel L. Alpert.

INVENTOR

George E. Hulse

BY

Dwight Warfield Dwell
 ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE E. HULSE, OF NEWARK, NEW JERSEY, ASSIGNOR TO SAFETY CAR HEATING & LIGHTING COMPANY, A CORPORATION OF NEW JERSEY.

DEVICE FOR FILLING WATER-CIRCULATING SYSTEMS.

993,376.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed June 24, 1907. Serial No. 380,598.

To all whom it may concern:

Be it known that I, GEORGE E. HULSE, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Devices for Filling Water-Circulating Systems, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to heating apparatus and more particularly to hot water heating apparatus adapted for use in railway cars or like structures.

One of the objects of my invention is to provide a new and improved device for filling car heating systems with water, wherein the body of water is contained in a closed system of piping.

Another object is to provide a device of the above type wherein, in the operation of filling the system, the water will be compelled to flow in one direction, thereby forcing the air from the system in the opposite direction and insuring against the pocketing of air within the system of piping.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, wherein is illustrated one of the various possible embodiments of my invention,—Figure 1 is a view in perspective of a heating system equipped with the same, said system being shown arranged upon the floor of a railway car; Fig. 2 is a horizontal sectional view taken through the filling device; Fig. 3 is a vertical sectional view taken substantially on line *a—*a** of Fig. 2, and Fig. 4 is a view of the filling device in side elevation.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring to the drawings, wherein I have shown my invention employed in a hot water circulating system which receives its heat from a heater of the Baker type, 1 indicates the heater, 2 the expansion tank and 3 a system of radiating pipes which in the

present instance are arranged at either side of the car. Portions 4 and 5 of the system of piping are dropped beneath the floor of the car, and in the lowest part of the system, in the portion indicated at 5, is connected a casing 6, said casing having a passageway 7 extending longitudinally therethrough, through which the circulating water flows during the normal operation of the apparatus. Casing 6 is provided with two ports 8 and 9 respectively, one of said ports constituting the filling port for the system and the other the vent port thereof. Ports 8 and 9 are interiorly threaded, as shown, to permit the attachment of a screw-threaded nozzle or other similar device through which the water is supplied to the system. Said ports are normally closed by means of screw plugs as 10 and 11 respectively. Journaled in apertures 12 and 13 of casing 6 are plug valves 14 and 15 respectively, one of said valves being provided for each of said ports. Valves 14 and 15 have bearing portions within the casing as at 16 and 17, the operative portions 18 and 19 of said valves being of segmental shape as clearly shown in Fig. 3 of the drawings, the curved portions thereof resting, while the apparatus is in normal operation, in correspondingly shaped seats formed within the casing, the arrangement being such that an unobstructed passageway is provided through the casing. Portions 18 and 19 of the valves are adapted, however, when the valves are rotated through an angle of 90° to close the passageway through the casing, as shown by the dotted lines of Fig. 3, the purpose of which will be made apparent hereinafter. In this latter position of the valves ports 8 and 9 are open.

The valves are held in position within the casing by means of collars 20 and 21, collars 20 being loosely set within the casing and engaging a shouldered portion of the valves, lugs 22 formed integrally upon the casing extending within recesses formed within this collar and holding it against rotation. Collars 20 are held in position by means of collars 21 which are threaded interiorly of the casing. The rotative movements of the valves are limited by means of shoulders formed interiorly of collars 20, the shoulders being so arranged, in the present instance, that the valves will have a rotation through an angle of substantially 90°. These shoulders are engaged by a lug or

wing 23 extending from the stem 24 of each of the valves, said stems extending exteriorly of the casing and being squared or otherwise shaped to receive a wrench or other turning instrument. The outer ends of these stems are, in the present instance, protected by means of hollow caps threaded into the casing. These protecting caps insure against the valves being accidentally turned where-

by the circulation of water will be arrested. Having thus described the construction of this embodiment of my invention, the operation thereof may now be understood.

In Fig. 2 of the drawings the parts are shown in normal position, filling and vent ports 8 and 9 being closed. When it is desired to fill the system, plugs 10 and 11 are removed and the nozzle of the apparatus from which the water supply is obtained is attached to the filling port of the casing as by threading the same therein. Valves 14 and 15 are then turned to the position shown in the dotted lines of Fig. 3, in which position the passageway leading through the casing is obstructed and the filling and vent ports opened. The water which is then turned into the system will follow the course indicated by the arrows in Fig. 1, and the displaced air will leave the system through vent port 8. Thus the flow of water fills the piping and at the same time exhausts all the air therein so that no air pockets will exist within the system. When the air is exhausted, which is indicated by water flowing through the vent port, the valves may be returned to their normal position.

It will accordingly be seen that I have provided a device well adapted to attain among others the objects and ends above mentioned in an exceedingly simple yet efficient manner. The water is caused to follow progressively a predetermined course through the system, which operation effectively expels the air therein. The construction of the device also insures that a free and unimpeded passageway will at all times exist in the filling device, there being no hinged or pivoted parts interposed in the avenue of flow.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. It is also to be under-

stood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

1. In a device of the class described, the combination with a casing having ports adapted to be connected with the pipes of a water circulating system and having a filling port and a vent port adapted to be conjointly employed in filling said circulating system, and a plug valve for each of the latter ports, each of said valves being adapted to close its port or to prevent a flow of water through said casing.

2. In a device of the class described, in combination, a casing having a filling port and a vent port adapted to be conjointly employed in filling said circulating system, a plug valve for each of said ports located within said casing and operable from a position exterior thereto, said valves being adapted to be rotated to two positions, and when in one of said positions to close said ports and allow a free flow through said casing and in the other of said positions to open said ports and obstruct the passageway through said casing and means for limiting the movement of said valves when moved to either of said positions.

3. In a device of the class described, in combination, a casing having a passageway extending longitudinally thereof and provided on one side with a feed port and a vent port adapted to be conjointly employed in filling said circulating system, a plug valve for each of said ports located within said casing but extending without the same so as to be operable from a position exterior thereto, said valves being adapted to be rotated to one position to close said ports, while permitting a free flow through the casing and also adapted to be rotated to another position to open said ports and obstruct the passage way through said casing, and means of limiting the rotative movement of said valves in each of said positions.

In testimony whereof I affix my signature, in the presence of two witnesses.

GEORGE E. HULSE.

Witnesses:

FREDERICK E. KESSINGER,
E. E. ALBEE.