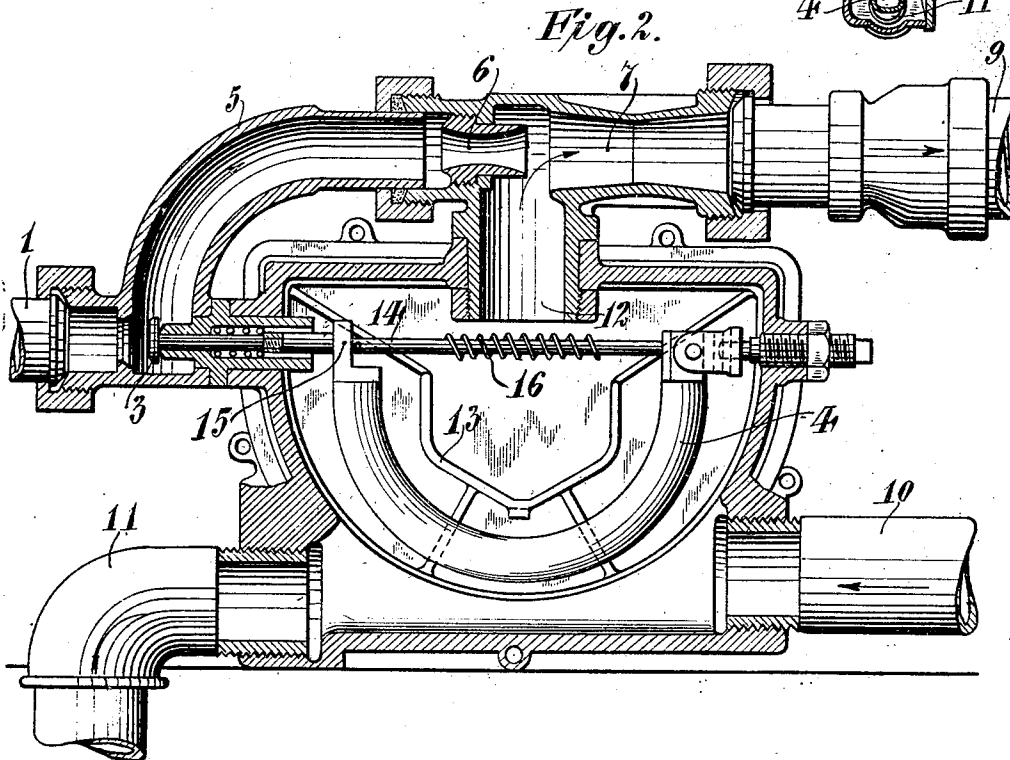
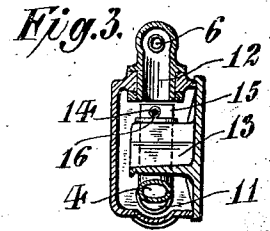
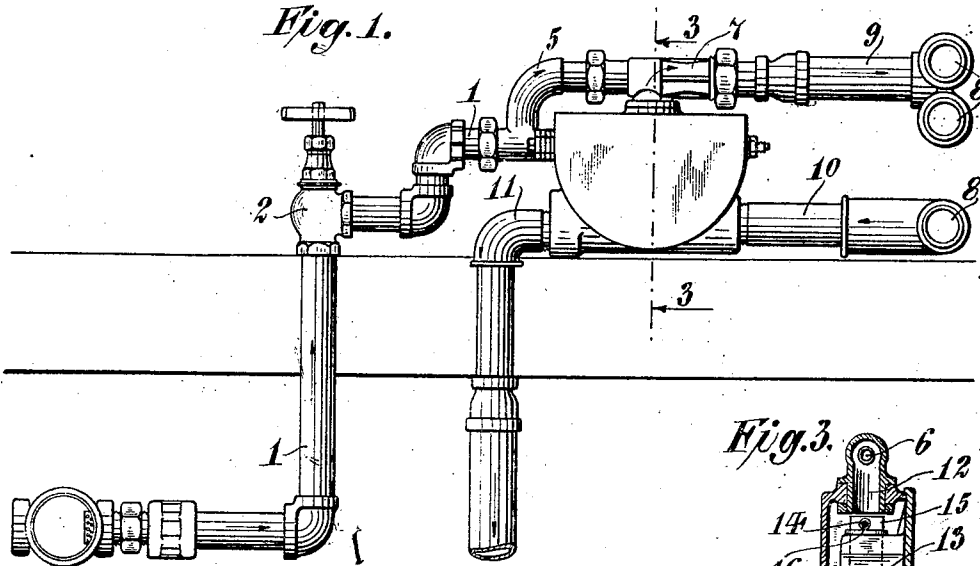


J. E. WARD
STEAM HEATING SYSTEM.
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1,065,568.

Patented June 24, 1913.



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UNITED STATES PATENT OFFICE.

JOHN E. WARD, OF NEW YORK, N. Y., ASSIGNOR TO STANDARD HEAT AND VENTILATION COMPANY, INC., A CORPORATION OF NEW YORK.

STEAM-HEATING SYSTEM.

1,065,568.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed November 10, 1911. Serial No. 659,509.

To all whom it may concern:

Be it known that I, JOHN E. WARD, a citizen of the United States, and a resident of the borough of Manhattan of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Steam-Heating Systems, of which the following is a specification.

The invention relates particularly to apparatus for use in heating railway cars where the steam is ordinarily supplied from the engine. In systems of this kind where a thermostatic device is used to control the supply of steam to the radiator circuit, great difficulty is encountered due to the fact that the condensed steam in the radiator pipes frequently spills into the thermostatic chamber in such manner that the hot water can impinge directly upon the thermostatic member thereof.

The present invention is directed to a construction by which the contact of the hot water with the thermostatic controlling member is prevented.

As showing a specific embodiment of the invention reference is made to the drawings forming a part of this specification and in which—

Figure 1 shows a side elevation of the car piping. This includes a pipe leading from the main or engine supply, the thermostatic controlling device, the pipes leading therefrom and returning thereto which connect to the radiator sections and a pipe connecting with the atmosphere which permits an escape of excess steam or the suction of air. Fig. 2 is a side elevation partly in section of the thermostatic steam regulating, controlling and reducing device. Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1.

Steam from the boiler or other source of high pressure supply is admitted to the system through the pipe line 1 controlled by the stop valve 2. This line 1 leads to and is connected with the thermostatic regulating device shown on a larger scale in Fig. 2. The steam coming from the pipe line 1 must pass by the valve 3 whose position is regulated by the thermostatic U-shaped valve changing member 4. After passing the regulating valve 3 the steam passes upward through the angle shaped pipe 5 through the nozzle 6 thence through the inwardly flaring portion 7 to the radiators 8

by means of the supply piping 9 of which the flaring portion 7 may be considered a part. It will be apparent that the steam passing through the nozzle 6 and through the restraining portion 7 will cause a decrease of pressure within the thermostatic device and any cooler steam returning from the radiator 8 through the pipe 10 will be sucked up by and mixed with the steam of higher temperature which is passing from the nozzle 6 into the restraining portion 7. The waters of condensation that flow from the radiating system through the pipe 10 will pass under and entirely out of contact with the U-shaped thermostatic member 4 and out of the overflow 11 which is directly connected to the atmosphere.

Sometimes the water of condensation will be spilled back from the radiating system through the pipe 9 and the only egress for this water when thus spilled back is through the vertical opening 12. In order to prevent this water from striking the U-shaped thermostatic member 4 there has been provided a shield or apron 13 which projects from one side of the casing and extends over and beyond the U-shaped member 4 in such a manner that all of the water passing downward through the vertical opening 12 will fall beyond the U-shaped thermostatic member 4 and therefore not contact therewith.

From an inspection of Fig. 2 it will be noted the valve 3 is provided with a stem 14 that is directly connected at 15 to the U-shaped member 4. As this stem extends across and is located directly below the end of the vertical opening 12 the condensed waters flowing backward from the pipe 9 will necessarily contact with said stem and unless there is provided some means for preventing said water from creeping along this rod or stem 14 it would naturally follow along the same and from thence drip down upon the thermostatic member 4 thus affecting said member and thereby the position of the valve 3, which is undesirable. In order to prevent the water from creeping along this rod in the manner above described there is provided a spring 16 which is retained directly under the opening on the rod.

From an inspection of Fig. 3 it will be observed that the thermostatic U-shaped member 4 is located a sufficient distance above the bottom of the interior of the thermostatic device to permit any water of condensation

which may be returned to said device through the pipe 10 to pass under said member without actually contacting therewith.

It is obvious that various changes and 5 modifications may be made without departing from the spirit and scope of my invention.

I claim as my invention:

1. A heating system having a main pipe 10 line, a radiator, a thermostatic device for controlling the flow of steam from the pipe line to the supply pipe leading to the radiator and a connection or conduit returning to the device from said radiator, said thermostatic device having a chamber, a thermostatic member therein and a passageway 15 leading from said chamber to said supply pipe, a nozzle for directing steam to said supply pipe and arranged relative to said passageway in such a manner as to produce 20 a decrease of pressure within said device, and thermostatic member being located below said passageway, the said chamber having therein and connected to the 25 casing thereof a shield between a terminal of said passageway and the thermostatic member, which shield is arranged to prevent the water that passes through the passageway from contacting with said 30 thermostatic member.

2. A heating system having a radiator line, a nozzle for directing steam to the radiator line, a casing having a chamber 35 and a passageway which forms a communication between the said chamber and the radiator line at a place adjacent to the de-

livery end of the nozzle, a thermostatic member, in said chamber, the end of said passageway which is farthest removed from the nozzle terminating above the thermo- 40 static member, and a shield on the chamber casing and extending between said last mentioned end of the passageway and the thermostatic member to prevent the splash- 45 ing of condensed water which passes through the passageway against the thermostatic member.

3. In a thermostatic device for heating, the combination of a casing having a chamber, a U-shaped thermostatic member in said 50 chamber, a rod which extends between the ends of said thermostatic member, said casing being provided with a passageway leading to and from the interior of the chamber, the rod being located between a terminal 55 of the passageway and the curved portion of the U-shaped thermostatic member, an apron or shield located between said terminal and the curved portion of the thermostatic member, to prevent water entering 60 the chamber through said opening, from engaging the thermostatic member, and means on the rod to prevent water that passes through said passageway into the chamber from creeping along the rod and thence to 65 the thermostatic member.

This specification signed and witnessed this 6th day of November A. D., 1911.

JOHN E. WARD.

Signed in the presence of—

G. McGRANN,

EDWIN A. PACKARD.