Dec. 19, 1922. 1,438,973.

W. M. VAN DER VOLGEN.

DRAINAGE DEVICE FOR BOILER FEED WATER PIPES.

FILED MAR. 29, 1921.

Fig-1

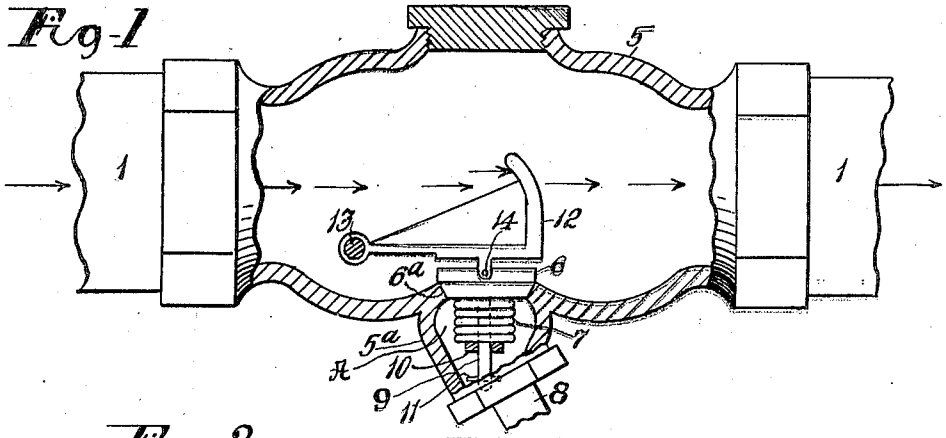


Fig-2

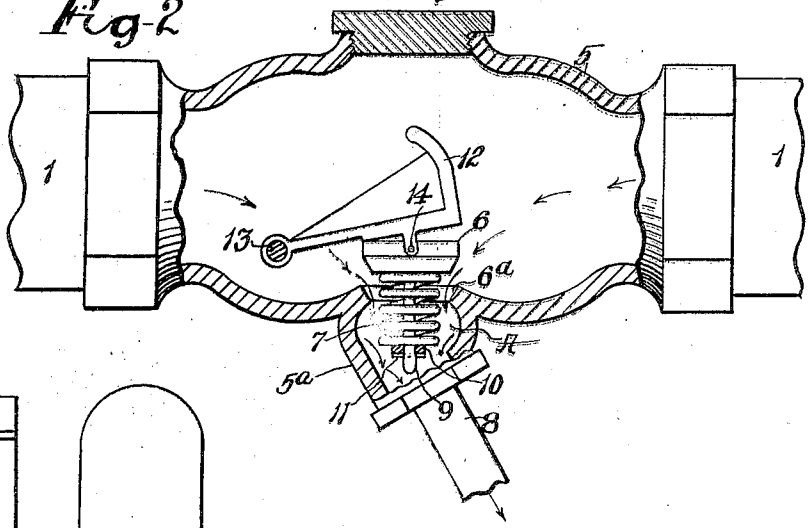
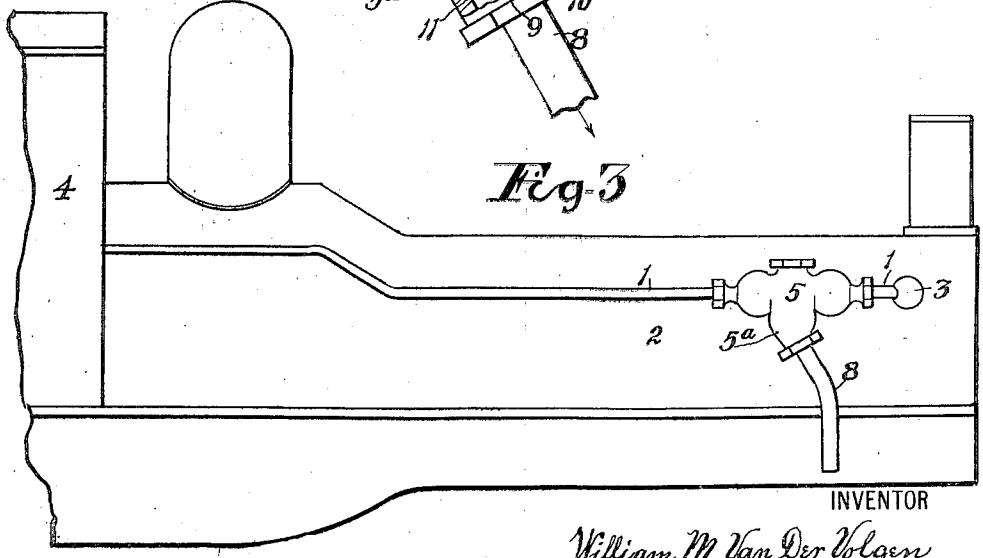


Fig-3



INVENTOR

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UNITED STATES PATENT OFFICE.

WILLIAM M. VAN DER VOLGEN, OF BRIDGEPORT, CONNECTICUT.

DRAINAGE DEVICE FOR BOILER-FEED WATER PIPES.

Application filed March 29, 1921. Serial No. 456,625.

To all whom it may concern:

Be it known that I, WILLIAM M. VAN DER VOLGEN, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Drainage Devices for Boiler-Feed Water Pipes; 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.

This invention relates to means for automatically draining boiler feed water pipes, and is particularly adapted for locomotives. It consists in inserting a valve in the feed water pipe adapted to be closed by the pressure of the feed water, and to automatically open to drain the pipe when said pressure is removed.

Referring to the accompanying drawings;

Figure 1 represents a broken view of the feed and drain pipes, broken sectional view of the valve casing showing the valve seated as when the feed water is passing through the casing;

Figure 2 is a similar construction of valve casing and pipes showing the valve in open position to drain the feed water pipe, and

Figure 3 is a partial view of a locomotive showing the arrangement of the feed water pipe and the relation of the drain valve with respect thereto.

1, Figure 3, is the feed water pipe for the boiler 2. This pipe connects with the usual check valve 3 and also with the water tank of the tender, not shown. Within the cab 4, and under the control of the engineer, is located the common injector, not shown, and which is manually operated by the engineer to cause water to be fed to the boiler as often as required to maintain the proper water level therein. The injector is then closed leaving the feed pipe full of water, which, in extremely cold weather, will congeal and effectually shut off further boiler feed, if not otherwise removed.

The present invention consists of the valve body or casing 5 located in the feed pipe and carrying the drain valve 6, which is automatically closed on the seat 6^a by the pressure of the feed water, Figure 1, and will remain closed until the pressure is shut off, when the spring 7 will re-open the valve and allow water in the feed pipe to flow out through the drain pipe 8.

The valve 6 is preferably provided with the stem 9 guided through an opening in the rib or cross piece 10 located in the chamber A of the casing extension 5^a. The pin 11 in the lower end of the stem 9 will contact with the rib 10 to limit the valve opening. To maintain the valve in vertical position and to prevent its cramping and improperly seating, and also to insure its being instantly seated by the first impulse of the feed water, the member 12 is pivoted on the cross pin 13, and to the valve at the point 14, and said member extends far enough above the valve to get the full force of the feed water and instantly seat the valve.

The shape, location, or means for connecting the member 12 with the drain valve or the exact location of the valve is immaterial, as it is quite evident that all of the above features could be changed or modified and yet produce the required result, viz: to provide means associated with the valve to be acted upon by the force of the feed water to instantly close the same during the continuance of such force, and said valve to automatically open when such force is spent.

Having thus described my invention what I claim is:—

A drainage device for boiler feed water pipes comprising a casing connected with the feed water pipe having a drainage outlet casing and valve seat therefor, a valve for the seat located within the feed water casing, said outlet casing having a rib therein, the valve having a stem guided in the rib and means carried by the stem adapted to contact with the rib to limit the valve opening, a spring located between the valve and rib, a valve closing member pivotally located in the feed water casing and pivotally connected to the valve, said member having a flange portion projecting well into the interior of the feed water casing and directly in line with the incoming feed water to get the full force of the water to close the valve.

In testimony whereof I affix my signature.

WILLIAM M. VAN DER VOLGEN.