G. H. BUGENHAGEN.

RADIATOR VALVE.

APPLICATION FILED MAY 13, 1919.

1,417,592. **Patented May 30, 1922.**

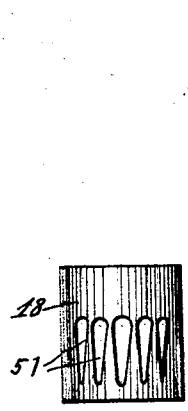


FIG. 4.

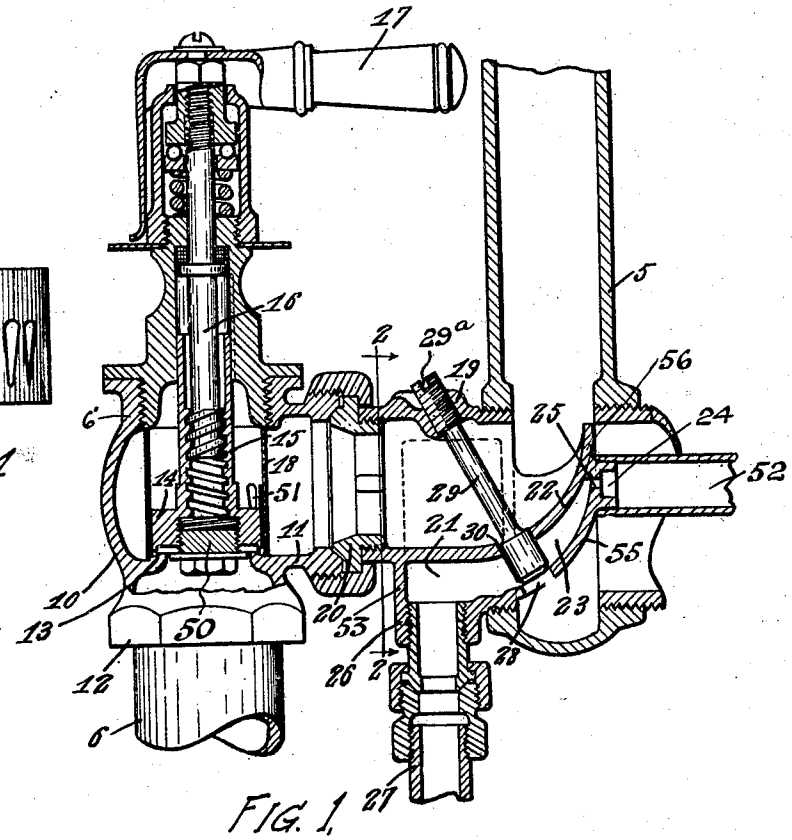


FIG. 1.

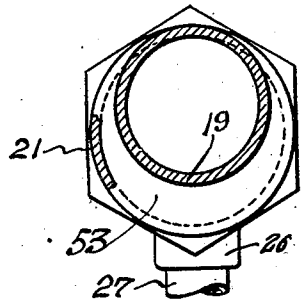


FIG. 2.

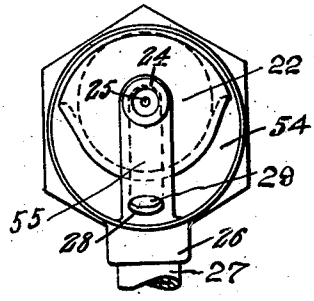


FIG. 3.

WITNESS

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UNITED STATES PATENT OFFICE.

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RADIATOR VALVE.

1,417,592. Specification of Letters Patent. Patented May 30, 1922.

Application filed May 13, 1919. Serial No. 296,765.

To all whom it may concern:

Be it known that I, GEORGE H. BUGENHAGEN, a citizen of the United States, residing at Minot, in the county of Ward and State of North Dakota, have invented a new and useful Radiator Valve, of which the following is a specification.

This invention aims to provide novel means for conducting away the water of condensation and the air in a radiator, the construction being such that the water cannot flow backwardly into the steam supply pipe.

In the drawing:— Figure 1 shows in vertical section, a device constructed in accordance with the invention, parts appearing in elevation, and a portion of a radiator being shown; Figure 2 is a section on the line 2—2 of Figure 1, distant parts being omitted; Figure 3 is an end view of the connection and attendant parts, the same being detached from the radiator; Figure 4 is an elevation of the valve cage.

Referring in detail to the drawing, wherein like characters of reference designate like parts in all of the views, a portion of a radiator is shown generally at 5 and the numeral 6 designates the steam supply pipe.

The device includes a casing 10 which is provided with a lateral nipple 11, and with a nipple 12 which receives the pipe 6. The casing 10 is provided with a valve seat 13 upon which a slidable valve 14 cooperates. The valve 14 has an interiorly threaded neck 15 in which a stem 16 is threaded. The stem 16 is rotated by a handle 17. A screw plug 50 is mounted in the valve 14 and gives access to the threaded bore of the neck 15.

Encircling the valve 14 is a cage 18 having slots 51 which permit the passage of steam. The numeral 19 marks a tubular connection, the outer end of which is united by a union 20 with the nipple 11. The tubular connection 19 is provided with a retarder 22, extended into the radiator 5, a trough-shaped conduit 23 for the water of condensation being carried by the retarder and by the connection 19. The conduit 23 comprises a shell 21 partially enclosing the connection 19 transversely, the shell being joined to the connection by an outer end wall 53 and by an inner end wall 54. The conduit 23 includes a narrowed extension 55 joined to the retarder 22 and opening through the inner end wall 54. The extension 55 is joined at its upper end to the retarder 22, as shown at 56, whereby the conduit 23 will be heated by conduction directly from the retarder 22. A nipple 26 extends downwardly from the shell 21 and is connected to a pipe 27, the nipple and the pipe constituting an outlet. The lower portion of the extension 55 is provided with an inlet 28 for the water of condensation. A nipple 24 projects from the extension 55. The extension 55, which forms part of the conduit 23, is supplied with an air inlet 25, located within the nipple 24. The nipple 24 is connected with a pipe 52 which is extended within the radiator to the far end of the radiator and is adapted to conduct air therefrom and discharge the same into the conduit 23 and thence through the pipe 27. The steam, being lighter than air, rises in the radiator while the air passes out as above stated.

A valve 29 extends diagonally across the member 19 and is threaded thereto, the valve being slidable in an opening 30 in the retarder 22 and being adapted to control the inlet 28 for the water of condensation, the outer end of the valve 29 having a screw driver kerf 29^a.

From the disclosure it will be apparent that water rising in the lower end of a radiator will be prevented from flowing back to the pipe 6 owing to the presence of the retarder 22. The water will flow through the inlet 28 and be discharged by way of the conduit 23 and the pipe 27. It will also be obvious that air conducted through the conduit 23 will be discharged through the pipe 27.

What is claimed is:—

1. In a device of the class described, a tubular connection provided with a retarder and a trough-shaped conduit for the water of condensation, the conduit being carried by the retarder and the connection being joined at its upper end to the retarder, whereby the conduit will be heated by conduction directly from the retarder, the conduit having an outlet, and being provided in its lower portion with an inlet for the water of condensation, the conduit having an air inlet located between the inlet for the water of condensation and the point of juncture between the upper end of the conduit and the retarder; and a valve controlling the passage of steam through the connection.

2. In a device of the class described, a tubular connection provided with a retarder, and a trough-shaped conduit for the water

of condensation, the conduit being carried by the retarder and the connection being joined at its upper end to the retarder whereby the conduit will be heated by conduction directly from the retarder, the conduit having an outlet, and being provided in its lower portion with an inlet for the water of condensation; a valve controlling the passage of steam through the connection; and a second valve extended transversely of the connection and the conduit and mounted therein, the said valve controlling the inlet for the water of condensation.

3. In a valve for radiators, a casing adapted to be connected with the steam supply pipe and including a laterally extending nipple, a union connected with the laterally extending nipple and with a tubular connection for engagement with the intake port of a radiator, a wall formed at the bottom of the connection extending longitudinally thereof and projecting out of the same, that part of the wall which projects out of the casing being curved upwardly, a conduit formed upon the outer face of the wall having an opening therein adapted to permit the passage of air therethrough, a nipple formed upon the opposite end of the conduit, said end being also provided with an opening for the passage of water therethrough and a valve in the union adapted to control the water opening.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE H. BUGENHAGEN.

Witnesses:
F. L. TURNBULL,
DORR H. CARROLL.