No. 801,812. PATENTED OCT. 10, 1905.

J. R. RENIFF.

VALVE.

APPLICATION FILED OCT. 31, 1904.

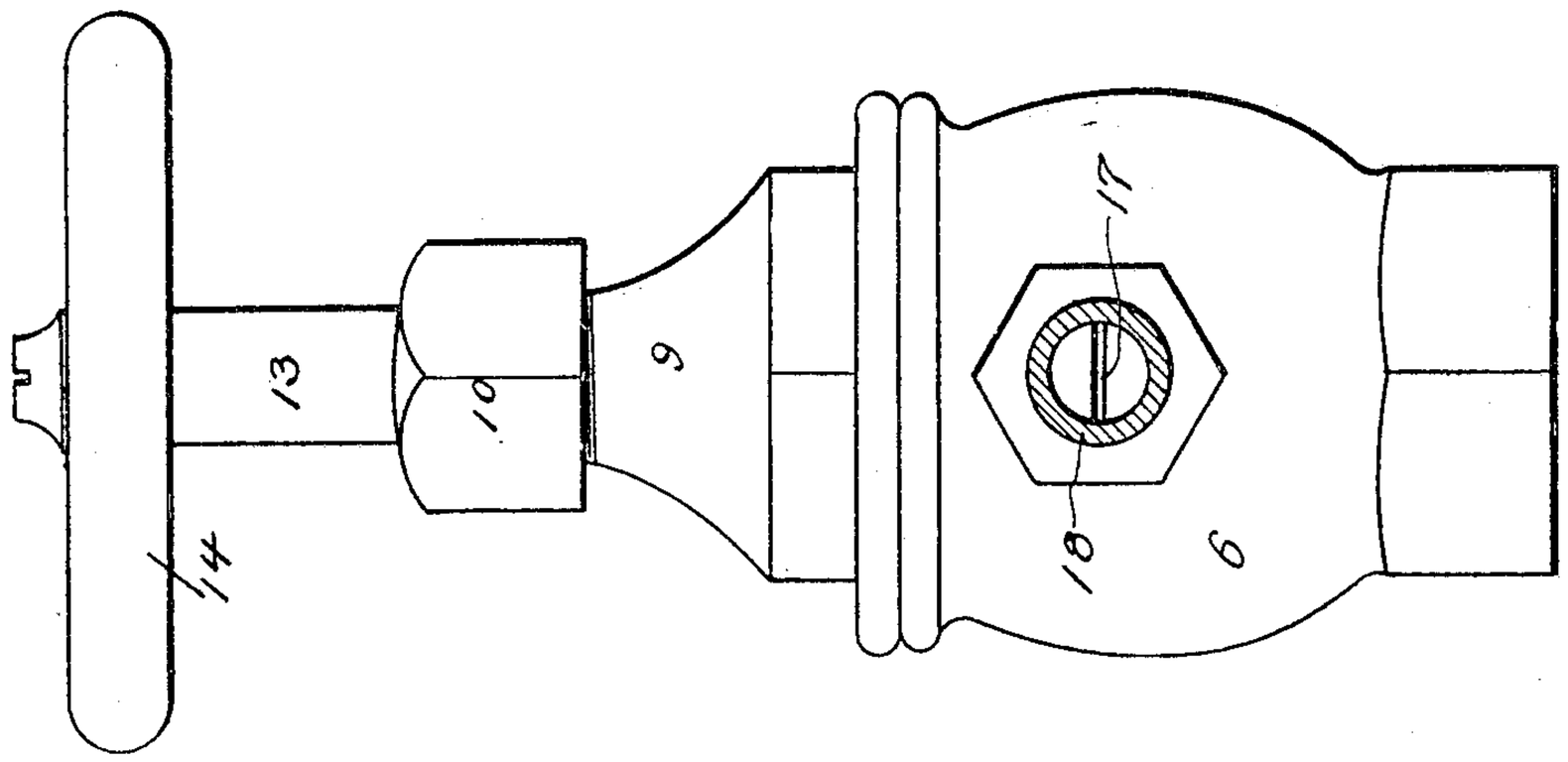

Fig. 1.

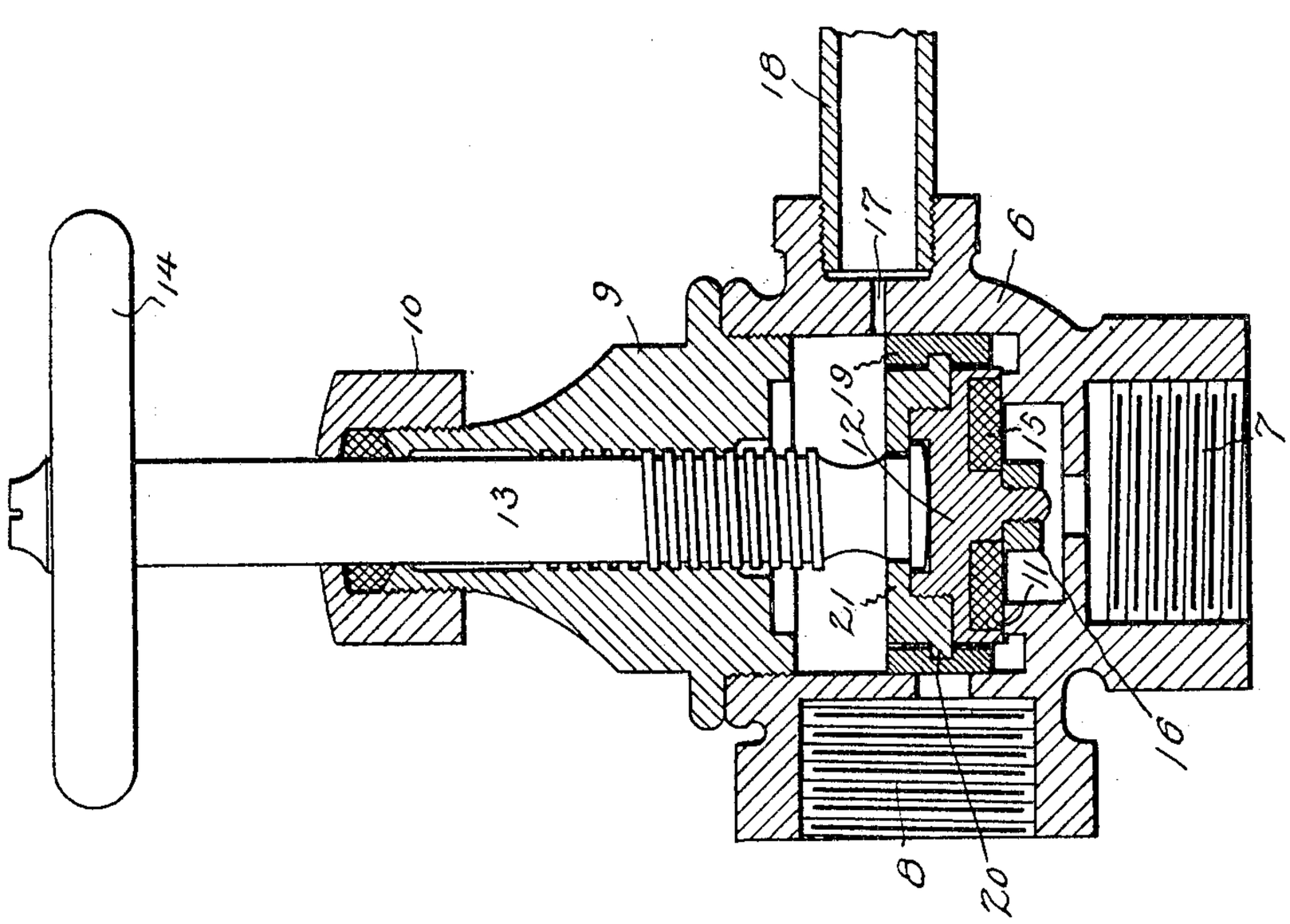

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JAMES RUFUS RENIFF, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM G. TAYLOR, OF CLEVELAND, OHIO.

VALVE.

No. 801,812. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed October 31, 1904. Serial No. 230,777.

To all whom it may concern:

Be it known that I, JAMES RUFUS RENIFF, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Valves, of which the following is a specification.

This invention is a valve designed especially as an admission-valve for radiators in steam-heating apparatus. It is characterized particularly by a leakage-port to let out any steam which may leak through the main valve when such valve is closed. It is a defect frequently found in steam-heating systems that the steam leaks through the controlling-valve and into the radiator, where it condenses, and in cold weather this leakage freezes, continually accumulating and freezing until finally the pipes burst. This condition frequently occurs in railway-car radiators in which the cars when not in use are left cold, and the freezing in the radiators puts the car out of service until the condition is remedied.

The purpose of the present invention is to avoid these defects by the means hereinafter described, and illustrated in the accompanying drawings.

In the drawings, Figure 1 is an elevation of the valve. Fig. 2 is a central longitudinal section thereof.

Referring specifically to the drawings, 6 indicates the valve-casing, having the supply-inlet at 7 and the outlet to radiator at 8.

9 is the valve-casing cap, and 10 the stuffing-box cap.

The valve-seat is shown at 11, the valve-disk at 12, and the screw valve-stem at 13, the latter being provided with a hand-wheel 14.

The valve-disk carries a packing-ring 15, which contacts with the valve-seat and is held to the disk by a nut 16.

A leakage-port from the valve-casing is indicated at 17, communicating with a drip-pipe 18, extended to waste outside the car or building.

19 indicates an auxiliary ring extending around the outer edge of the valve-disk. This ring is carried by a cap 21, which is screwed onto the disk and has a flange 20 fitting in a groove in the inner side of said ring. The cap 21 also serves to secure the valve-disk to the valve-stem by projecting over the shoulder at the foot of the stem.

The ring 19 covers and uncovers the port 17 when the valve is opened and closed. The port is located just above the upper edge of the ring when the valve is seated and then affords an outlet from the space above the valve. When the valve is open, the ring slides up and closes the port; also, when the valve is closed the ring 19 closes the passage 8 to the radiator.

In case of leakage through the closed valve the steam forces its way between the valve-disk and the auxiliary ring into the space above the disk, whence it escapes through the leakage-port 17. The pressure of the steam on the inner side of the ring, which is loose upon the valve-disk, assists in closing the opening 8 to the radiator. When the valve is open, the port 17 is closed by the ring and the outlet 8 to the radiator is open. It will be seen that any leakage through the valve will escape through the port 17, and the port 8 cannot be opened without closing the leakage-port, and vice versa.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a valve-casing having inlet and outlet openings, of a reciprocating valve therein, the casing having a leak-port from the space between the openings, the valve being constructed to open said port and close the inlet and outlet openings, and vice versa.

2. The combination with a valve-casing having inlet and outlet openings and a leak-port, of a reciprocating valve the face of which works to and from the inlet and the sides or edges of which work over the outlet and leak-port, to open and close the same.

3. The combination with a valve-casing having an inlet and valve-seat in the bottom, and an outlet and leak-port in the sides, of a reciprocating valve in the casing, working to and from the seat, and having at its outer edge a ring in contact with the sides of the casing and movable over the outlet and port, to open and close the same.

4. The combination with a cylindrical casing having in the bottom an inlet, and valve-seat around the same, and in the sides an outlet and a leak-port, of a reciprocating valve fitting the seat and carrying at its outer edge a ring which is slidable against the sides of the casing, over said outlet and port, the port

being above the outlet, and the ring being constructed to open the port when the inlet and outlet are closed, and vice versa.

5. The combination with a valve-casing having an inlet and valve-seat in the bottom, and an outlet and a leak-port in the sides of the casing at unequal heights above the seat, of a reciprocating valve working to and from the valve-seat, to close and open the inlet, and over the outlet and leak-port, to open and close the same alternately.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES RUFUS RENIFF.

Witnesses:
WM. J. ROBINSON,
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