

914,418.

Fig. 1.

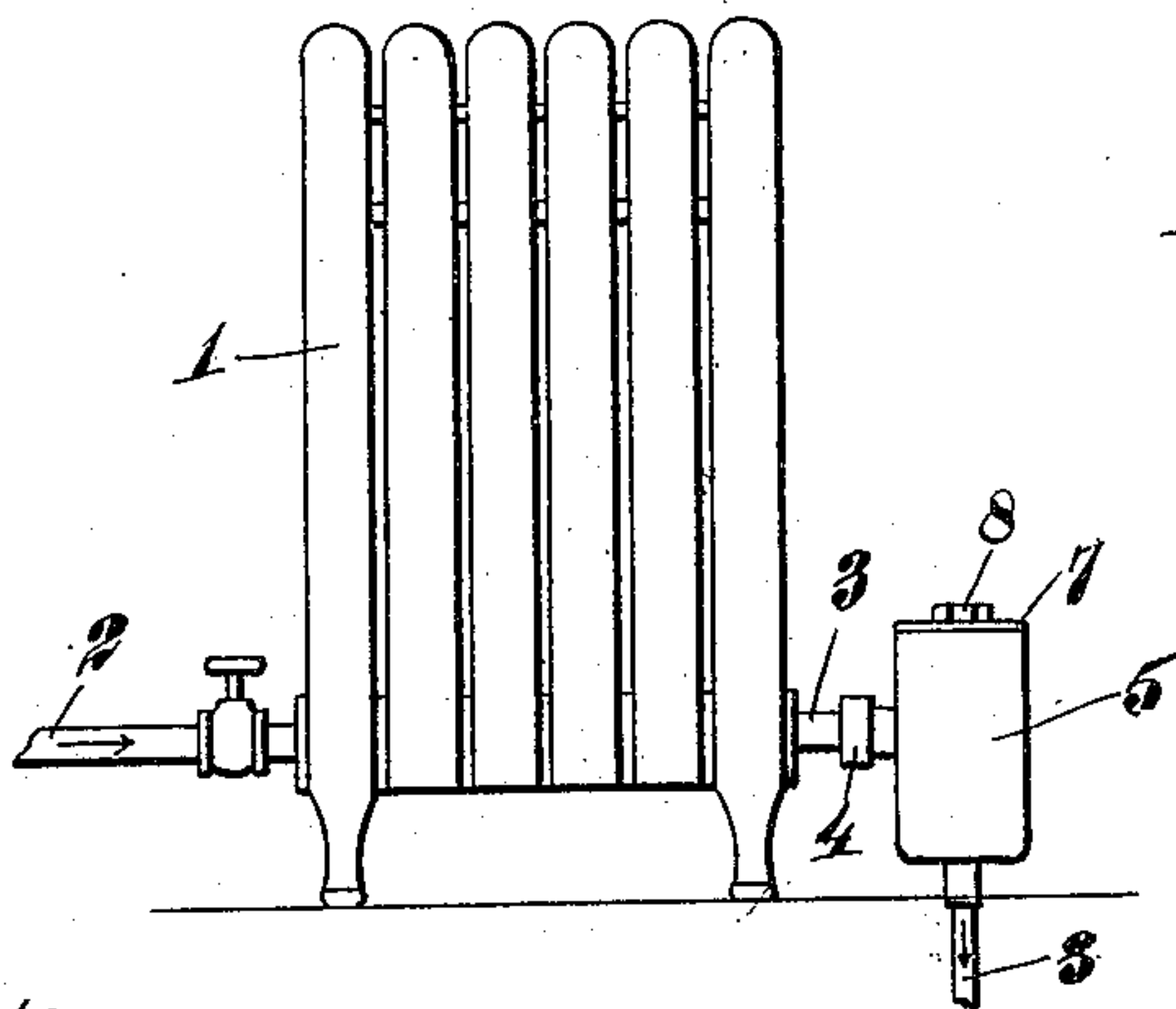


Fig. 2.

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AUTOMATIC VALVE FOR STEAM-RADIATORS.

No. 914,418.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed April 21, 1908. Serial No. 428,434.

To all whom it may concern:

Be it known that I, IRA HUTCHINS, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have
5 invented certain new and useful Improvements in Automatic Valves for Steam-Radiators, of which the following is a specification.

My invention relates to controlling valves
10 for steam heating systems of that class in which the air and water of condensation is removed from the radiators by the maintenance of a lower pressure or partial vacuum in the return.

15 The object of my invention is to provide a valve or controlling device whereby the water of condensation may be readily and automatically removed from the radiator without the undue escape or waste of steam.

20 A further object of my invention is to provide a device as mentioned, which will prevent the accumulation of scale about the outlet preventing the proper discharge of the water.

25 Other objects will appear hereinafter.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

30 Figure 1 is a vertical sectional view of a valve embodying my invention in its preferred form, and Fig. 2 is an elevation of a radiator with the valve in position thereon.

Referring now to the drawings, 1 indicates
35 a steam radiator of any ordinary form having the valve controlled inlet pipe 2 and the return 3. The valve or controller embodying my invention, is interposed in the return pipe and to this end, is connected to the return
40 end of the radiator by a union 4.

The valve shell comprises a cylindrical casing 5 open at the top and having a preferably integral bottom 6. The top is closed
45 by the closure 7 threaded upon the upper end thereof and having a wrench hold 8 formed upon the upper face thereof. Tapped centrally into the bottom 6 of the shell or casing 5 is a nipple 9 which is internally threaded to receive the return pipe 3. Extending up-
50 wardly from the nipple 9 is a tube 10 having a closed upper end 11. The nipple may be removed from the outside of the casing and the tube 10 is removable therewith. The sides of the tube 10 are perforated as at 12 a
55 short distance above the bottom 6 and at 13 a little higher than the perforations 12. As

the valve is opened the perforations 12 are first unclosed and then the perforations 13, giving a small discharge at first which is increased as the volume of water to be dis- 60 charged is increased.

A hollow float valve 14 is provided which comprises a closed shell having a central sleeve 15 which fits snugly about the tube 10 and regulates the perforations or ports 12 65 and 13. The sleeve 15 extends entirely through the valve and is closed at the top as at 16, and the sleeve is of sufficient length to permit its bottom edge 17 to rest upon the upper end of the nipple 9. The lower edge 70 of the perforations 12 are a slight distance above the upper end of the nipple, hence a constant water seal is provided which prevents steam from passing through the ports 12 and 13 at all times. The lower end of the 75 sleeve 15 within the float valve 14 is provided with a perforation or aperture 18. This permits drainage of the float should the same leak and prevents water logging of the same. The closures 11 and 16 of the tube 10 and the 80 sleeve 15 respectively, are provided with the minute perforations 19 and 20, through which a constant circulation is maintained, the holes being of sufficient size only to maintain a sufficient circulation without the waste of 85 steam. The perforations 19 and 20 permit free egress of air but are closed by the water of condensation of the steam to such an extent as to permit but a small quantity of steam to pass to maintain the circulation. 90 As the water accumulates, the valve or float rises opening the ports 12 and 13 and permitting the water to pass freely into the return 3. Should scale accumulate, about the ports, the lower edge of the sleeve 15 will clear the 95 same away in descending.

It is obvious that with this device, water cannot accumulate in quantities in the radiator or valve shell, also that the steam cannot escape through the water discharge ports 100 and waste, the only escape for the steam being through the minute apertures 19 and 20, which as before stated, are but a sufficient size to maintain the proper circulation.

Having described my invention what I 105 claim as new and desire to secure by Letters Patent, is:

1. A valve comprising a casing having a discharge opening in its bottom wall, a tube extending upwardly from said opening and 110 having discharge ports near its lower end, a closed hollow float valve comprising an outer

shell and a central sleeve surrounding said tube and the lower end of said sleeve being provided with an aperture within said float, said discharge ports communicating with
5 said casing when the float is raised and with the interior of said float through said aperture when the float is in lowermost position, substantially as described.

2. A valve comprising a casing having a
10 discharge opening in its bottom wall, a tube extending upwardly therefrom and having a discharge opening near its lower end communicating with said casing and also having a closed upper end, said upper end being pro-

vided with a minute perforation, in combination with a float valve comprising a closed hollow shell and a tube extending there-
through, said tube fitting snugly about the first said tube and having a closed upper end provided with a minute perforation, sub- 20
stantially as described.

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

IRA HUTCHINS.

Witnesses:

HOWARD S. AUSTIN,
ANNA L. EKVALL.