

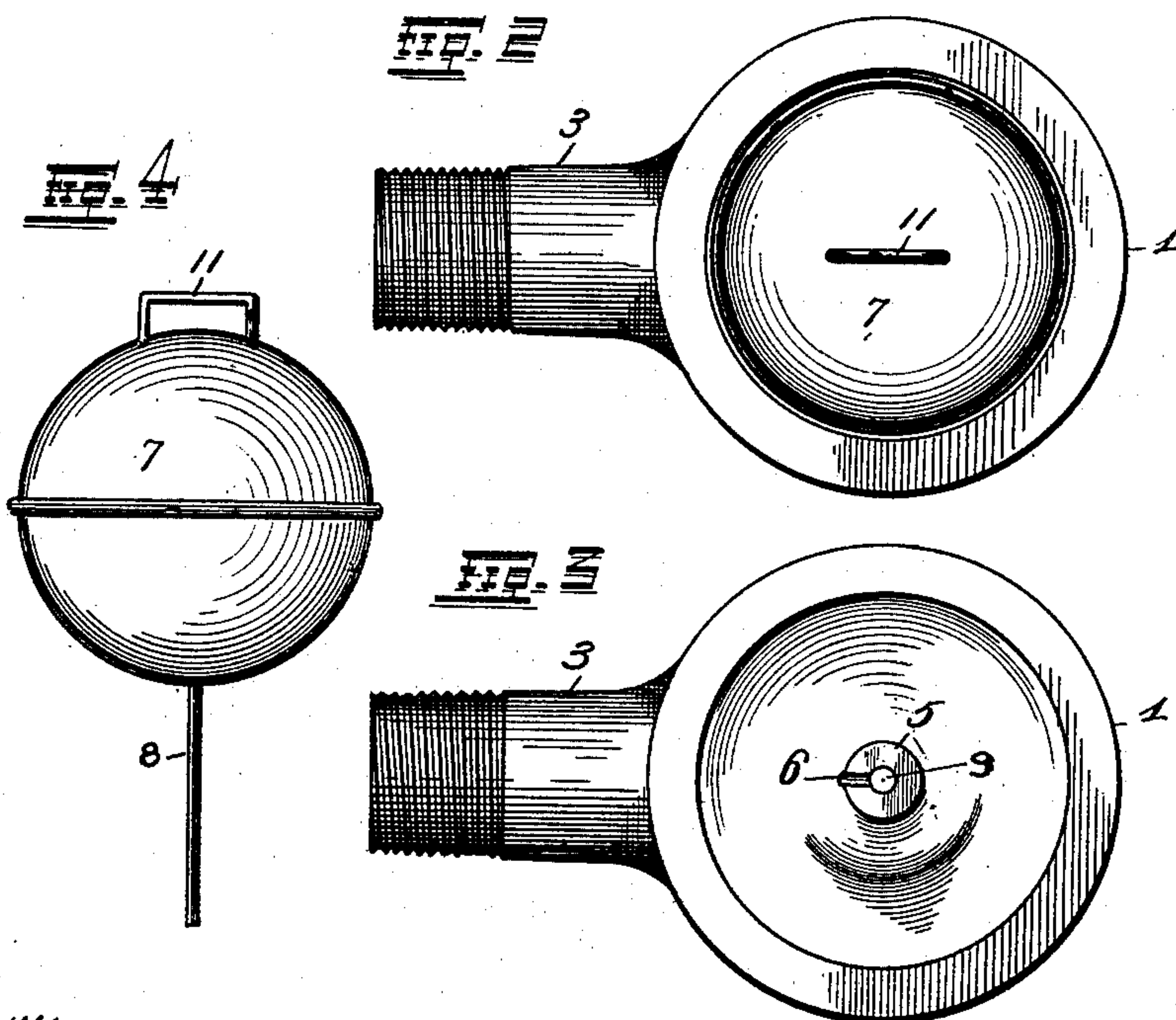
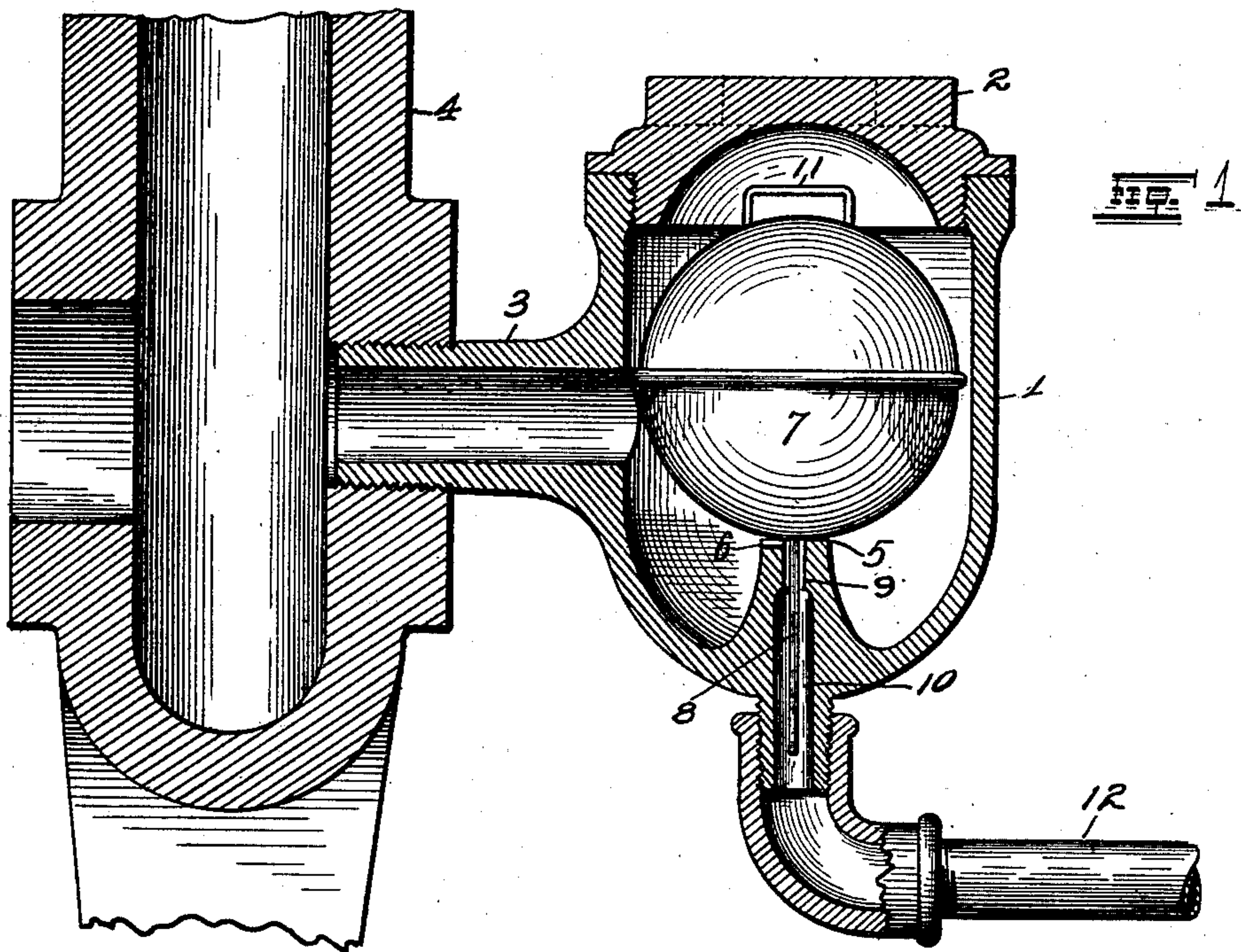
No. 671,854.

Patented Apr. 9, 1901.

A. B. CROWDER.  
SELF CLEANING FLOAT VALVE.

(Application filed Mar. 12, 1900.)

(No Model.)



Witnesses.

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Inventor

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By Higdon & Longan, Attys.



# UNITED STATES PATENT OFFICE.

ALBERT B. CROWDER, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF  
TO BERNARD GRIESEDIECK, OF SAME PLACE.

## SELF-CLEANING FLOAT-VALVE.

SPECIFICATION forming part of Letters Patent No. 671,854, dated April 9, 1901.

Application filed March 12, 1900. Serial No. 8,328. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT B. CROWDER, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Self-Cleaning Float-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a self-cleaning float-valve for steam heating apparatus; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

The object of my invention is to provide an improved self-cleaning valve to be applied directly to each radiator in steam-heating systems, which will return the water of condensation under a partial vacuum.

In the drawings, Figure 1 is a section of my improved valve and a portion of a radiator. Fig. 2 is a plan view of the valve with the cover removed. Fig. 3 is a plan view of the valve with the cover and float-valve removed. Fig. 4 is a side elevation of the float-valve detached.

1 indicates the casing, the upper end of which is provided with a cover 2, threaded to the casing or otherwise removably connected thereto in such manner as to form a tight joint therewith. Projecting laterally from the casing is a hollow shank 3, which is provided with screw-threads and adapted to be screwed directly into the water-discharge opening of the radiator 4. Of course the shank may be connected to the radiator in any other known manner. The interior of the casing 1 is provided with a raised or elevated valve-seat 5, which projects a considerable distance above the bottom of the casing, so that sediment or obstructions will lodge at the bottom of the casing and not interfere with the seating of the valve. A lateral leakage channel or depression 6 is formed in the top of the valve-seat, so that a definite amount of leakage will at all times take place past the float-valve 7 and its seat. Said float-valve 7 is of slightly smaller size than is the interior of the casing, so that it may freely move vertically therein. 8 indicates a wire or stem secured at its upper end to the said float-

valve and projecting downwardly through a restricted vertical opening 9, formed in the valve-seat 5, and also projecting a distance beyond said restricted opening into an enlargement 10, formed in the base of said casing. A suitable handle 11 is applied to the upper part of the said float-valve for use in removing the float-valve after the cover 2 has been detached. It will thus be seen that I have provided an improved fitting for steam-heating systems, and having a casing provided with inlet and outlet ports adapted for connection in the system, said outlet-port being surrounded by a suitable valve-seat formed with a leakage-channel, so that the float-valve is adapted to normally rest on said valve-seat and yet provide an outlet for the passage of air and water during the normal operation of the device, and the flotation of the valve opens the entire area of the outlet upon an abnormal accumulation of water in the casing.

12 indicates the water-return pipe, through which the water of condensation from the radiator 4 is returned to the usual place.

The operation is as follows: Steam being supplied to the radiator 4 in the usual manner, water of condensation will form therein and will pass into the casing 1, and if the flow is too great to be carried off by the leakage-channel 6 water will rise in the said casing until the float-valve 7 is thereby elevated, which will raise said float-valve off of its seat 5 and uncover the opening 9, and thereby provide a larger passage for the water, which will thence flow downwardly into the return-pipe 12 and be discharged at the usual place, and said float-valve 7 will then of course resume its normal position, as shown in Fig. 1.

The vertical movement of the wire 8 in the opening 9 will act as a cleaning device and automatically clean said opening of any oil or refuse that may lodge therein. Were it not for this automatic cleaning device said opening would very soon become obstructed by such material, as it is quite common in a steam heating apparatus.

The leakage-channel 6 normally provides a restricted passage sufficient for the air and



water, except upon first starting the radiator, when the latter is cold, and the float-valve 7 only rises when there is an excessive flow of water. During operation a partial vacuum 5 is to be maintained in the return-pipe 12 by means of a common pump or other vacuum-producing device now in use in the steam-heating art. The wire or stem 8 guides the float-valve 7 to its seat after it has been ele- 10 vated and also retains said valve in vertical position.

I claim—

1. In a fitting for steam-heating systems, the combination of a casing provided with 15 inlet and outlet ports adapted for connection in the system, said outlet-port being surrounded with a suitable valve-seat formed with a leakage-channel, and a float-valve adapted to rest on said valve-seat, whereby 20 when the valve is seated the channel provides an outlet for the passage of air and water of condensation during the normal operation of the device and the flotation of the valve opens the entire area of the outlet upon an abnormal

accumulation of water in the casing, substan- 25 tially as specified.

2. In a fitting for steam-heating systems, the combination of a casing provided with inlet and outlet ports adapted for connection 30 in the system, said outlet-port being surrounded with a suitable valve-seat formed with a leakage-channel, a float-valve adapted to rest on said valve-seat, whereby when the valve is seated the channel provides an out- 35 let for the passage of air and water of condensation during the normal operation of the device and the flotation of the valve opens the entire area of the outlet upon an abnormal accumulation of water in the casing, and 40 a device for automatically cleaning the said outlet-port by the movement of said float, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT B. CROWDER.

Witnesses:

JOHN D. RIPPEY,  
JOHN C. HIGDON.