

(No Model.)

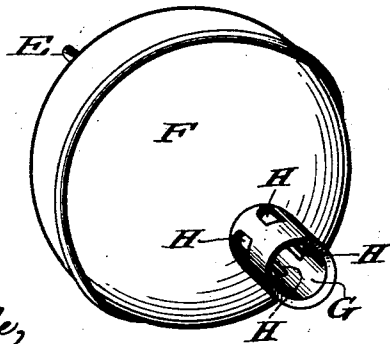
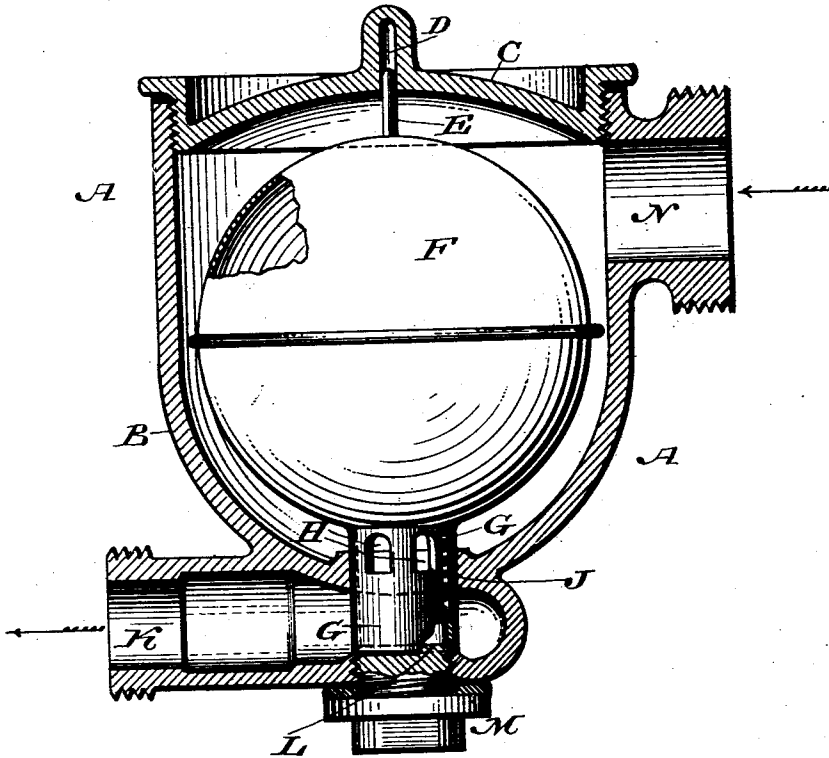
2 Sheets—Sheet 1.

W. P. & R. P. THOMPSON.  
DRAINAGE VALVE FOR RADIATORS.

No. 573,556.

Patented Dec. 22, 1896.

*fig. 1.*



*fig. 2.*

WITNESSES:  
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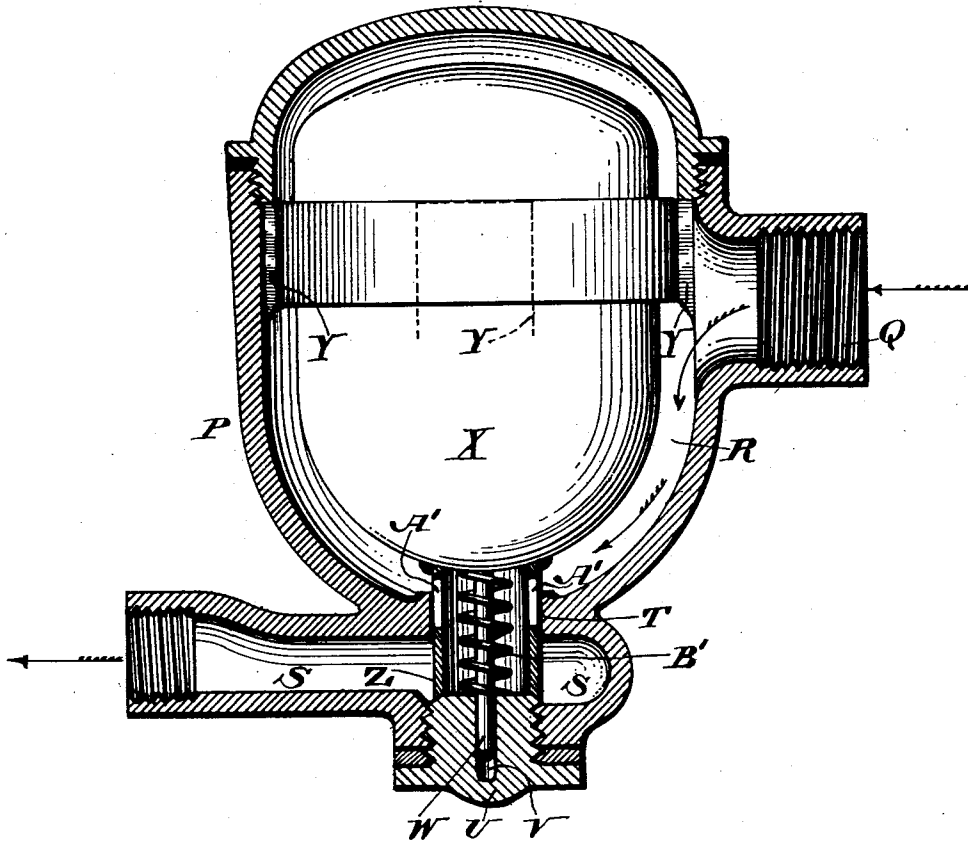
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*fig. 3.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM P. THOMPSON AND ROBERT P. THOMPSON, OF PHILADELPHIA,  
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## DRAINAGE-VALVE FOR RADIATORS.

SPECIFICATION forming part of Letters Patent No. 573,556, dated December 22, 1896.

Application filed July 23, 1896. Serial No. 600,200. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM P. THOMPSON and ROBERT P. THOMPSON, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Drainage-Valves for Radiators, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of a novel construction of valves which are especially adapted to be attached to radiators and to control the exit of the air and water of condensation therefrom, the novel details of which will be hereinafter described, and specifically pointed out in the claims.

Figure 1 represents a vertical sectional view of a radiator-valve embodying our invention. Fig. 2 represents a perspective view of the float employed in detached position, showing the valve attached thereto. Fig. 3 represents a side elevation, partly in section, of another embodiment of the principle of our invention.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a radiator-valve, the same consisting of the casing B, which may be of spherical or other desired shape, and which has in the present instance an open top provided with the cap C.

D designates a recess in said cap, which serves as a guide for the stem E, which is attached to the float F and plays in said recess, whereby said float will be caused to move always in a vertical direction.

G designates a depending shell or tube, which is cylindrical in the present instance and is attached to the lower portion of the float F, and is provided with the ports H, which may be of any desired number, thereby forming a balanced valve, which is in the present instance integral with said float.

J designates a passage through the lower portion of the casing of the valve through which the shell G passes, whereby the egress of the air and water of condensation, &c., to the outlet passage or chamber K is controlled.

L designates an adjustable seat for the valve G, which in the present instance consists of the extremity of the plug M, which is screwed into the lower portion of the outlet-passage K.

N designates the inlet-passage to the interior of the valve-casing, which it will be understood is in communication with a suitable portion of the radiator.

The operation is as follows: The air and water of condensation or other fluid enters the valve through the passage N, and when a sufficient quantity has accumulated within the casing to raise the float F the ports H will be uncovered and the contents of the casing B can be discharged through the outlet K, the direction of movement of the valve being always positively insured by reason of the guiding-stem E.

In the modification seen in Fig. 3, P designates a valve-casing having an inlet Q, which leads to the interior of the chamber R. S designates the outlet-passage for the valve, which is in communication with the chamber R by means of the throat T. U designates a plug which is in engagement with the adjacent passage S, said plug being provided with a socket or seat V, in which the pin or stem W, which is attached to the float Q, freely plays. Y designates wings attached to the interior of the casing P, whereby the float is always properly guided and caused to move in one direction. Z designates a tube which depends from the float and passes through the throat T, said tube being provided with ports A' A', by means of which communication is had from the chambers R to the interior of said tube. B' designates a spring which is contained within the tube Z, one end of said spring abutting against the plug U, while its other end is in contact with the float X, it being noted that we preferably provide the inner extremity of the tubular valve in each instance with a beveled or chamfered edge which corresponds to the beveled seat of the plug U.

The above-described valve is especially applicable for high pressures in which the excessive weight of metal due the necessary strength of the float is partially taken up or balanced upon the spring, thus enabling the smaller-sized float to be more readily operated than would be the case were the float to raise all the weight.

It will thus be seen that in each instance the tube employed, which is actuated by the

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float, has the function of a balanced valve, and that, furthermore, when the upper chamber fills with water the interior of the tubular valve is also filled, and when the float  
 5 raises it lifts the tubular valve off its seat, the contents of the tube flowing out through the conduit or passage S and K and being followed by the contents of the upper chamber, which flows through the ports of the  
 10 walls of the tube down its interior and thence out through the lower conduit until the upper chamber sufficiently empties to permit the float and tubular valve to sink until the latter is seated, it being of course understood  
 15 that the valve-casing in each instance is to be so placed with reference to the line of flotation that the bottom of the radiator is kept free from water.

It will be understood that other means may  
 20 be employed for guiding the floats than those shown, and that changes may be made by those skilled in the art in the manner of constructing and assembling the above parts which will come within the scope of our in-  
 25 vention, and we do not therefore desire to be restricted in every instance to the exact construction we have herein shown and described.

Having thus described our invention, what  
 30 we claim as new, and desire to secure by Letters Patent, is—

1. In a radiator-valve, a casing, an inlet therefor, a discharge-chamber in the lower  
 35 portion of said casing, a passage through the lower portion of said casing leading into said chamber, a float in said casing having a tubular valve of substantially uniform diameter attached directly thereto, said valve being adapted to pass through and be guided in said  
 40 passage an adjustable seat for said valve in said chamber, ports in said valve located in proximity to said float, and means for guiding the latter.

2. In a radiator-valve, a casing, an inlet therefor, a float contained in said casing, a  
 45 tubular valve attached to said float and provided with ports, an outlet-passage leading from said casing, a seat for said valve, a spring located intermediate said valve-seat and float, and means for guiding the latter. 50

3. A radiator-valve consisting of a casing, a float therein, a tubular valve depending from said float and having ports therein, an  
 55 outlet from said casing, a seat for said valve, a pin depending from said float within said valve and adapted to play in a suitable socket and a spring intermediate with said float and valve-seat, substantially as described.

4. A radiator-valve consisting of a casing, a float therein, a tubular valve depending  
 60 from said float and having ports therein, an outlet from said casing, a seat for said valve in said outlet a pin connected with said float within said valve and adapted to play in a suitable socket, and a spring encircling said  
 65 pin for assisting the unseating of said valve.

5. In a radiator-valve, a casing, an inlet therefor, a discharge-chamber in the lower  
 70 portion of said casing, a passage leading into said chamber from the interior of said casing, a float in the latter having a tubular valve of substantially uniform diameter, depending therefrom, said valve passing through and being guided in said passage, a plug in alignment with said valve and passing through the  
 75 base of said chamber into the latter and having its extremity adapted to serve as a seat for said valve, ports in the latter located in proximity to said float, and means for guiding the latter.

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Witnesses:

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