

No. 649,519.

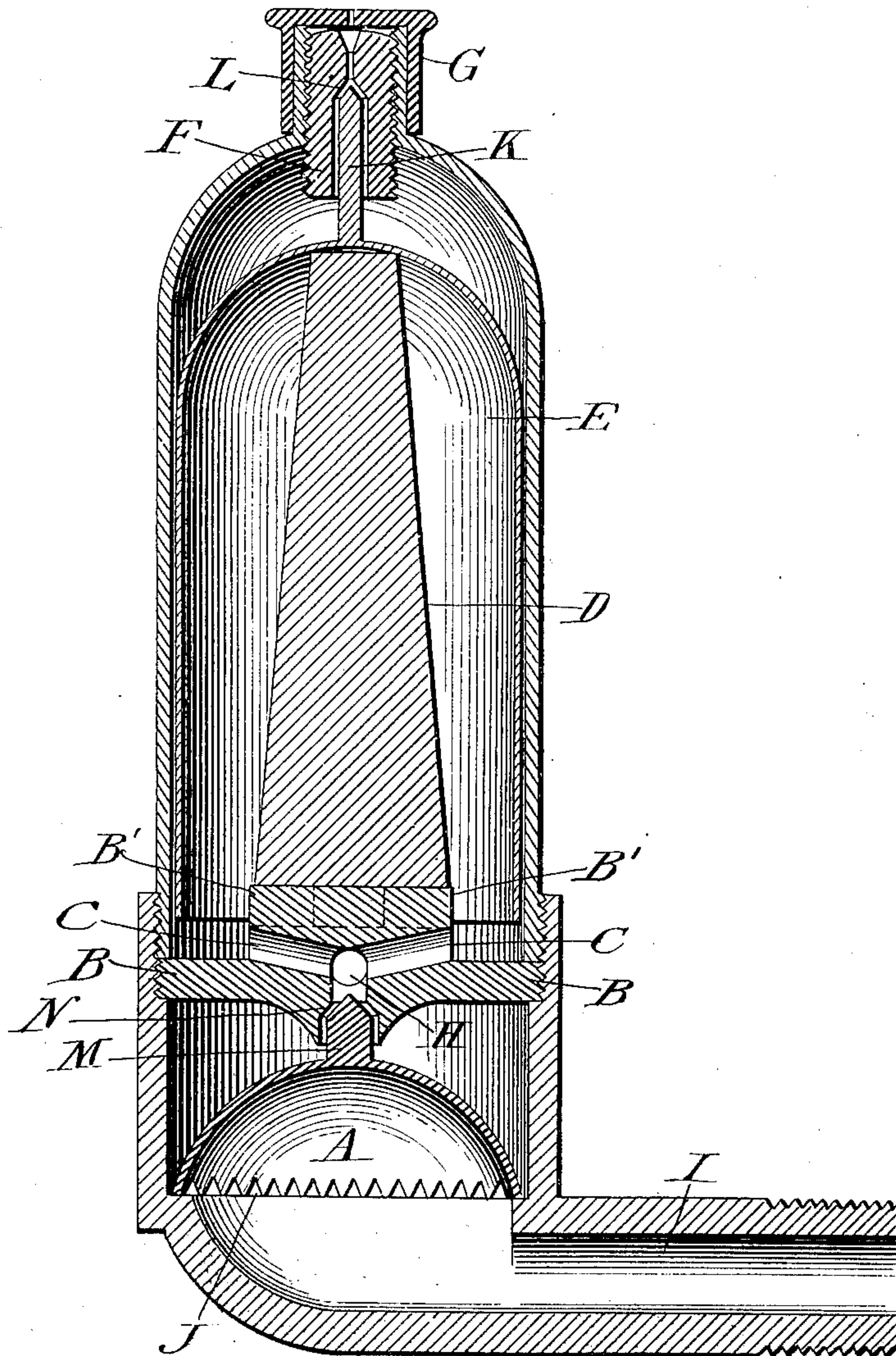
Patented May 15, 1900.

H. C. KINNISON.

AIR VALVE FOR STEAM HEATING RADIATORS.

(Application filed May 2, 1899.)

(No Model.)



Witnesses:

Sophia Kinnison
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UNITED STATES PATENT OFFICE.

HALLAH C. KINNISON, OF LOUISVILLE, KENTUCKY.

AIR-VALVE FOR STEAM-HEATING RADIATORS.

SPECIFICATION forming part of Letters Patent No. 649,519, dated May 15, 1900.

Application filed May 2, 1899. Serial No. 715,381. (No model.)

To all whom it may concern:

Be it known that I, HALLAH C. KINNISON, a citizen of the United States, and a resident of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Air-Valve for Steam-Heating Radiators, of which the specification is given below.

My invention relates to a contrivance for preventing the escape of water and steam through the air-valve, of which contrivances many have already been patented in this and other countries; but I seek this end by means wholly different from any used heretofore.

I attain my object by a mechanism shown in the accompanying drawing:

The only figure of the drawing is a vertical section of the valve and of the short pipe which connects it with the radiator. The pipe is marked I.

A is a float shaped like a half-globe, with its lower rim indented, as shown at J. It is surmounted by a round pin ending in a pointed cone, (marked M,) so as to fit into the seat (marked N) in the brass disk B B, which, except for the opening, closes the valve at this level. The central part of this disk is made of greater thickness than its outer rim, as shown by the letters B' B', and this thicker part is pierced by four cylindrical channels C C, &c., two of which are shown in the drawing, all of them sloping toward the middle, where they run into a cavity shaped somewhat like a sphere H. The truncated cone D, resting on the disk, is an expansion-piece of the ordinary composition.

The letter E denotes the upper float, the introduction of two floats being the feature of my invention. It is just high enough to rest on the top of the expansion-piece. It ends in the pin K, of the same nature as M, but preferably thinner and longer.

F F show an adjusting-screw, with a bore or cylindrical duct, which at L takes the shape known as a "seat" which is closed by the pin K when this is lifted into it.

G is a cap which is slipped down tightly over the valve, but has a small opening in the middle.

The working of the valve is as follows: The air-valve being connected with a radiator which is full of steam, the steam rushes in through the connecting-pipe and forces the

air through the notched openings around the bottom float A and upward through H and C, around between float E and the wall of the valve, and out through the opening in the adjusting-screw F. The air being expelled, the steam would follow in the same path but for the expansion-piece D, which under the temperature of steam expands, so as to push the pin K at the top of float E into the seat L. There is often water in the radiator, which would follow over the same path as the air and steam but for the appliance made by me to prevent the water from escaping. When the water rushes in through the pipe I, it strikes under the float A and causes it to lift the seating-pin M, attached to the top of the float, into the seat N, which prevents the water from entering the upper chamber of the valve; but if during the meeting of the pin and its seat some water escapes into the upper chamber it will be but little and can rise but slowly, giving to the upper float E ample time to confine it while it rises and presses the upper pin K into its seat L. Thus the combination of the floats A and E will prevent any leaking of water from the valve, though air will freely pass through the seat in the adjusting-screw and hole in the cap.

The office of the four cylindrical channels C C, &c., in the disk which divides the valve into two chambers is to lead any water that may have made its way into the upper chamber back through the spherical cavity H into the lower chamber.

Air-valves operating by means of an expansion-piece and of a float lifted by expansion under the heat of steam are old, and I do not claim the invention thereof, nor do I claim in a general way the use of two floats in an air-valve without regard to particular arrangement; but

What I claim as my invention, and desire therefor the protection of Letters Patent, is—

1. In an air-valve attachment for a steam-heating radiator, the combination of a float open on its under side in a lower chamber of the valve and bearing a pin at its top, with a metal disk separating this chamber from the upper one, the disk being thickest at its middle and pierced by nearly-horizontal channels meeting in a cavity, also pierced for a seat to receive the pin, and with another float

resting on an expansion-piece in the chamber
above the disk, this upper float carrying at
its top a pin which fits in an adjusting-screw
at the top of the valve, substantially as speci-
5 fied above.

2. In an air-valve attachment for a steam-
heating radiator, the combination of a float
open on its under side in a lower chamber of
the valve and bearing a pin at its top, with
10 a metal disk separating this chamber from
the upper one, the disk pierced by nearly-

horizontal channels meeting in a cavity, also
pierced for a seat to receive the pin, and with
another float resting on an expansion-piece
in the chamber above the disk, this upper 15
float carrying at its top a pin which fits in an
adjusting-screw at the top of the valve, sub-
stantially as specified above.

HALLAH C. KINNISON.

Witnesses:

SOPHIA KURN,

A. LINCOLN DEMBITZ.