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SIPHON VALVE.

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1,034,754. Patented Aug. 6, 1912.

Fig. 1.

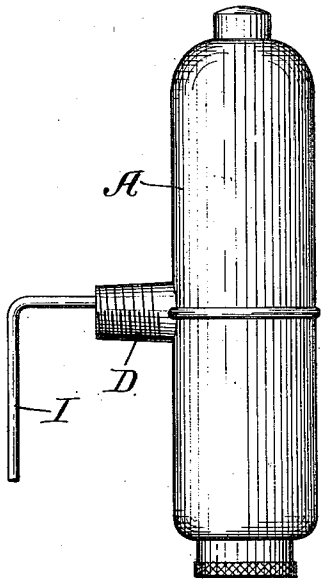
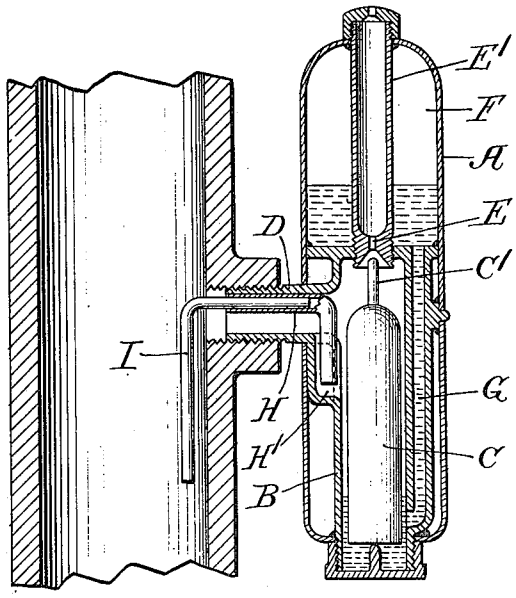


Fig. 2



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UNITED STATES PATENT OFFICE.

EVERETT P. ALLEN, OF CHICAGO, ILLINOIS; MARY A. ALLEN, EXECUTRIX OF SAID EVERETT P. ALLEN, DECEASED, ASSIGNOR TO DOLE VALVE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SIPHON-VALVE.

1,034,754. Specification of Letters Patent. Patented Aug. 6, 1912.

Application filed April 21, 1906, Serial No. 312,960. Renewed December 7, 1911. Serial No. 664,494.

To all whom it may concern:

Be it known that I, EVERETT P. ALLEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Siphon-Valves, of which the following is a specification.

My invention relates to siphon valves, and has for its object to provide a new and improved valve of this description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view of the valve; Fig. 2 is a longitudinal sectional view of the valve of Fig. 1 showing it connected to the radiator.

I have shown my invention as applied to a valve adapted to be used in connection with steam heating systems. As herein shown the valve has an outer casing A. Within said casing is a valve chamber B containing a float valve C. The chamber B is connected by the connecting piece D with the heater. A passageway E leads from the chamber B to the tube E^1, and communicates with the atmosphere. Said tube E^1 passes through the chamber F. The chamber B is connected with the chamber F by the connection G. The valve C is a float valve and is operated by means of water or the like, the parts arranged so that when the water reaches a predetermined height the valve will be floated so as to move the part C^1 so as to stop the passageway E. When the passageway E is open the air from the heater passes out therethrough and through the tube E^1 to the atmosphere. When the steam passes through the tube E^1 it heats the chamber F and the air therein, thus forcing the water down into the chamber B so as to float the valve C and close the passageway E. A siphon device is connected with the valve, said siphon device consisting of two parts H and I. The part H is fastened in position in any desired manner, as by solder, and is preferably arranged at the top of the connecting piece D, one branch projecting down into the chamber B. If desired, an offset, as shown at H^1, may be made in the chamber B for the end of the part H. The part I is inserted in the heater and the end thereof projects below the end of the part H so that a siphon effect is produced. The parts H and I are adjustably connected together so that they may be rotated with relation to each other, and so that the bent ends thereof may be spread apart or moved closer together by sliding one telescoping part within the other. These results may be secured in any desired manner as, for example, by making one of the parts fit into the other with a tight fit which will prevent leakage, but which will yet permit rotation and longitudinal movement.

I have described in detail a particular construction embodying my invention, but it is of course evident that the parts may be varied in form, construction and arrangement, and I therefore do not limit myself to the particular construction shown.

The use and operation of my invention are as follows: In attaching the device to the heater the part I is first inserted in the opening in the heater adapted to receive the connecting piece D. The connecting piece D is then inserted in said opening and the valve is then rotated so as to cause the screw-threaded connecting piece D to be forced into the opening. During this operation the part I being in the radiator cannot rotate, but because of its connection with the part H the valve and the part H can be rotated. In view of the relative longitudinal movement of the parts H and I they can slide longitudinally with relation to each other so as to adjust themselves to the conditions of use. After the device is in position and the system is started up, the air from the radiator passes through the passageway E and tube E^1, and then into the air. When steam passes through the tube E^1 it heats the atmosphere in chamber F and forces the water into chamber B raising the valve to close passageway E. When the radiator is shut or the system shut down the air in the chamber F is cooled and contracts, producing a partial vacuum, thus drawing up the water from the chamber B into the chamber F and causing the float valve to lower so as to open the passageway E, thus bringing the parts into proper position to permit the escape of the air when the radiator is then turned on. The parts are arranged so that the valve C will be floated and raised to its proper position before the level of the water in the chamber B reaches a sufficient height to cause the siphon to act,

If, however, the chamber B becomes filled with water to the height of the horizontal part of the part H, the siphon will act and draw the water off, the water then passing into the radiator. The importance of this siphon arrangement will be seen by considering, for example, the situation where the valve contains such an amount of water that when the chamber F has drawn all that it can draw into it there is still so much water in the chamber B as to cause the valve C to float, thus closing the aperture E. Under these conditions it will be seen that the valve becomes inoperative, for no heat can pass up through the passageway E so as to expand the air in the chamber F and cause it to force water out. This condition would occur, for example, when the radiator becomes flooded or under other conditions which fill the chamber B while the chamber F is cold. The siphon is so adjusted that when the abnormal conditions are present a sufficient amount of the water will be drawn off to put the valve in operative condition.

It will be noted that when the parts are assembled, the two telescoping parts of the siphon may be moved longitudinally so as to vary the distance between the siphon legs. It will further be noted that each leg is provided with an angular piece and that these two angular pieces between the legs are telescoped, and are free not only to rotate but to move longitudinally.

I claim:

1. The combination with an air valve of a siphon for drawing water from said valve under predetermined conditions, said siphon passing through the valve inlet and having two relatively movable parts free to move longitudinally when the parts are assembled so as to vary the distance between the legs of the siphon.

2. The combination with a valve for heating systems of an adjustable siphon passing through the valve inlet adapted to draw water from the valve under predetermined conditions and comprising two telescoping parts between the legs of the siphon, so that they may be spread apart without disconnecting them.

3. The combination with a valve of a siphon passing through the valve inlet adapted to draw water therefrom under predetermined conditions, said siphon comprising two parts adjustably connected together when the parts are assembled in their operative relation so that they may be rotated or moved longitudinally with relation to each other.

4. A valve for steam heating systems comprising a chamber, a float valve therein, a passageway controlled by said float valve, means for introducing liquid into said chamber under predetermined conditions to float the valve, an adjustable siphon passing through the valve inlet connected with said chamber for drawing off the water under predetermined conditions having two telescoping parts by means of which the legs of the siphon are adjustably connected together.

5. A valve for steam heating systems comprising a chamber, a float valve therein, a passageway controlled by said float valve, means for introducing liquid into said chamber under predetermined conditions to float the valve, an adjustable siphon passing through the valve inlet connected with said chamber for drawing off the water under predetermined conditions, said siphon comprising two parts at an angle to the legs of the siphon and connecting them, said parts movably connected together so that they may be rotated and moved longitudinally with relation to each other.

6. The combination with an air valve of a siphon for drawing water therefrom under predetermined conditions, said siphon passing through the valve inlet and having two legs, each leg provided with a part at an angle thereto, said latter parts working the one within the other, so that the distance between the legs may be varied.

7. The combination with an air valve of a siphon for drawing water therefrom under predetermined conditions, said siphon consisting of two pipes bent at right angles and telescopically joined together, said siphon passing through the valve inlet.

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Witnesses:
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