

F. H. SAUER.
AIR VALVE.

APPLICATION FILED JULY 8, 1909.

950,627.

Patented Mar. 1, 1910.

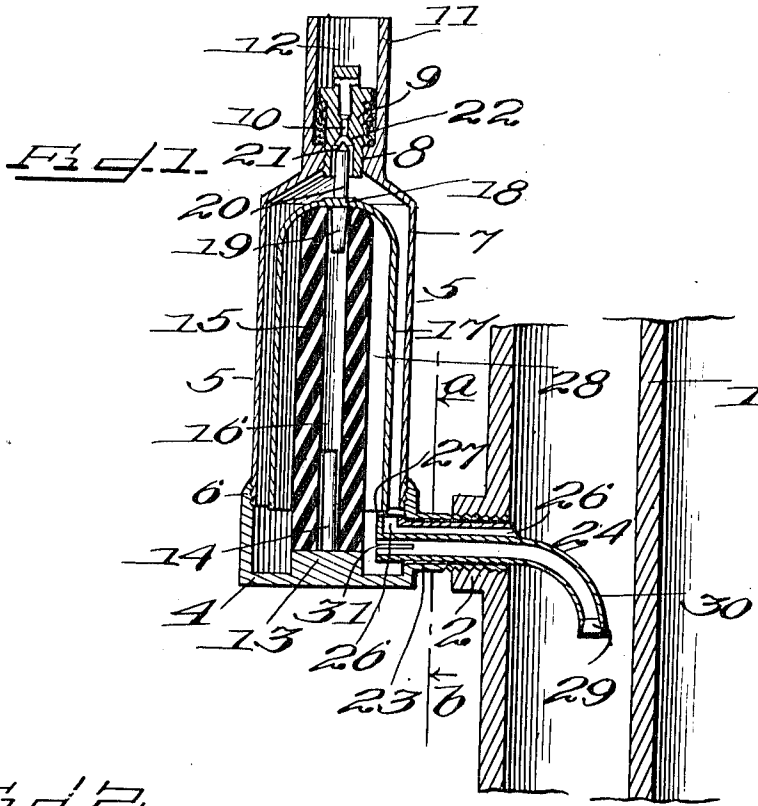


Fig. 1.

Fig. 2.

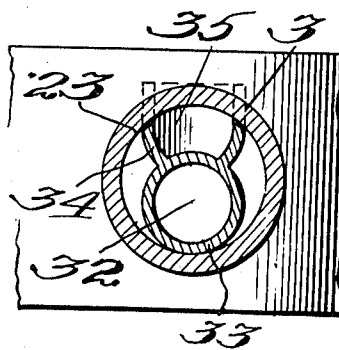
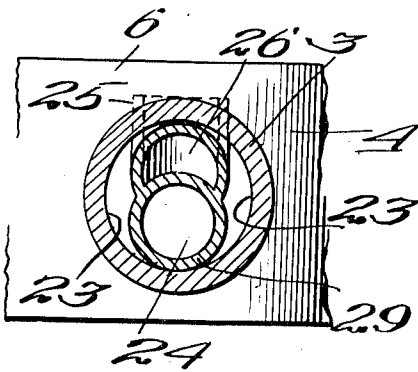
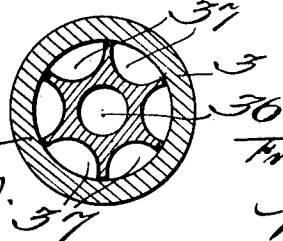


Fig. 3.



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AIR-VALVE.

950,627.

Specification of Letters Patent.

Patented Mar. 1, 1910.

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To all whom it may concern:

Be it known that I, FREDERICK H. SAUER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Air-Valves, of which the following is a specification.

The invention relates to improvements in air valves, and has particular reference to that class of air valves used in connection with stems of steam radiation.

The object of the invention is to provide means associated with the operative parts of the device for siphoning the water of condensation in the interior recesses of the valve structure assisted by capillary attraction.

In the following is described in connection with the accompanying drawings, one embodiment of the invention the features thereof being more particularly pointed out hereinafter in the claim.

In the drawings,—Figure 1 is a vertical sectional view of a radiator column, illustrating in connection therewith the manner in which the valve is mounted thereon; Fig. 2 is a cross sectional view on the line *a-b* of Fig. 1 illustrating specifically the formation of the draining stem; and Fig. 3 is a cross sectional view of a modified form of construction of the draining means. Fig. 4 is a modified form of construction of the draining stem.

Similar numerals of reference indicate similar parts throughout the several views.

In the drawings, 1 indicates the conventional outline of a single or series of radiator columns, having suitably formed therein a bore 2 adapted to receive thereat a nipple 3 formed on the body or base casing 4 of valve 5. Said body 4 has formed thereon a threaded shoulder 6 and has mounted therein casing 7 inclosing the operative parts of said valve. Said casing 7 has formed on its upper end an internally threaded opening 8 adapted to receive adjusting screw 9 which has formed therein an air-duct 10 said air-duct 10 comprising the means of forming a passage or means of communication with atmosphere, and the interior recesses of said valve 5. The upper exterior end of said casing 7 is formed into an elongated neck 11 provided with an open mouth portion 12 forming a means of direct communication with said air-duct 10. Said base casing 4

has centrally formed thereon a shoulder 13 having also formed therewith an upwardly extending lug 14, the object of said lug 14 being hereinafter described. 15 indicates a stem of any suitable material such as vulcanite, hardened rubber or other material having the qualities of expensibility and has suitably cut therein a central longitudinal bore 16, the lower end of which rests on shoulder 13 and surrounds said lug 14. The upper end of said stem 15 is formed in any suitable shape and has mounted thereon an inverted float 17 having mounted therein at its upper end as at 18 a depending conical shaped pin 19 and on its extreme upper surface an appending pin or lug 20 provided with a needle valve surface 21 adapted to seat itself within valve seat 22 in said air-duct 10, when the parts of said valve have expanded a predetermined distance to close the passage from the atmosphere to the interior recesses of said valve. Said nipple 3 or inlet connection may be of any suitable length and may project within the column of the radiator any suitable distance and is provided with an internal bore 23 having mounted therein a draining stem 24. Said stem 24 comprises a horizontal tube having formed therewith at its inner end an enlarged lug 25 provided with an air-port or passageway 26 running horizontally there-through and extending upwardly in draining stem head 27 communicating with the interior recesses 28 of said valve 5. Said draining stem 24 as above described comprises a horizontally extending tube 29 having its outer end bent downwardly as at 30. The horizontal portion of said stem 24 comprises a tube provided with preferably a clean-bore and is slotted as at 31, the object of said slot being to provide means for withdrawing and inserting the same within said nipple 3. The passageway 26 is formed preferably of a semi-circular tube and when properly soldered or brazed on the horizontal body of the tube 29 forms an independent air-port between the radiator column and the interior recesses of valve 5. The draining stem as a whole comprising the independent air-port 26 and the draining tube 24 is free to move radially and laterally within said nipple 3, the object of the same being to provide means to prevent possible rupture to said draining stem while the same is being inserted within said radiator column 1 and valve 5.

Referring to Fig. 3 of the drawings 32 indicates the horizontal portion of a tubular draining stem 33 which has formed therewith preferably on its upper outer surface a channel member 34, the space between the outer periphery of said stem 32 and the interior bore 23 of nipple 3 forming an independent air-port 35 which communicates with the interior recesses of valve 5 and said radiator column 1. The independent air-port may be made of a plain horizontal tube obviating the vertical communicating port.

Referring to Fig. 4 the draining stem comprises a centrally located bore 36 having formed thereon a plurality of independent air-ports 37 for the purpose specified.

The operation of the device is as follows: The exhausting from the valve of the water of condensation is assisted by capillary attraction and also by means of a gravity drain assisted by the principle of siphoning, as when the valve head is open to the atmosphere and when the fluids enter the valve body from the radiator, said stem 24 will start to sweat or moisture will accumulate thereon and assist in the means of collecting and draining all water of condensation from said valve, thus rendering the operative parts of said valve inapt to become choked or sealed. Stem 24 as shown and described provides separate and independent passageways from the fluids entering from the means of radiation and atmosphere in the draining of said valve.

What I claim and desire to secure by Letters Patent of the United States is:

An automatic air valve for radiators comprising a casing, radiating means, said casing having a passage in the lower portion thereof forming communication with said radiating means, said casing also having a vent port therein, a valve controlling said port, a float mounted in said casing adapted to control said valve, an expansion column in said float, and a hollow draining stem free to move radially and laterally in said communicating passage, and a semicircular shell mounted on said stem in said communicating passage forming an independent air-port between the interior recesses of said valve casing and said radiating means, said stem and semicircular shell also forming an auxiliary fluid passageway within said communicating passage, said hollow stem having formed thereon a gooseneck adapted to assist the draining of said valve of the water of condensation by capillary attraction and also to assist the draining of said valve of the water of condensation by a natural siphon created within said hollow stem.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

FREDERICK H. SAUER.

Witnesses:

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