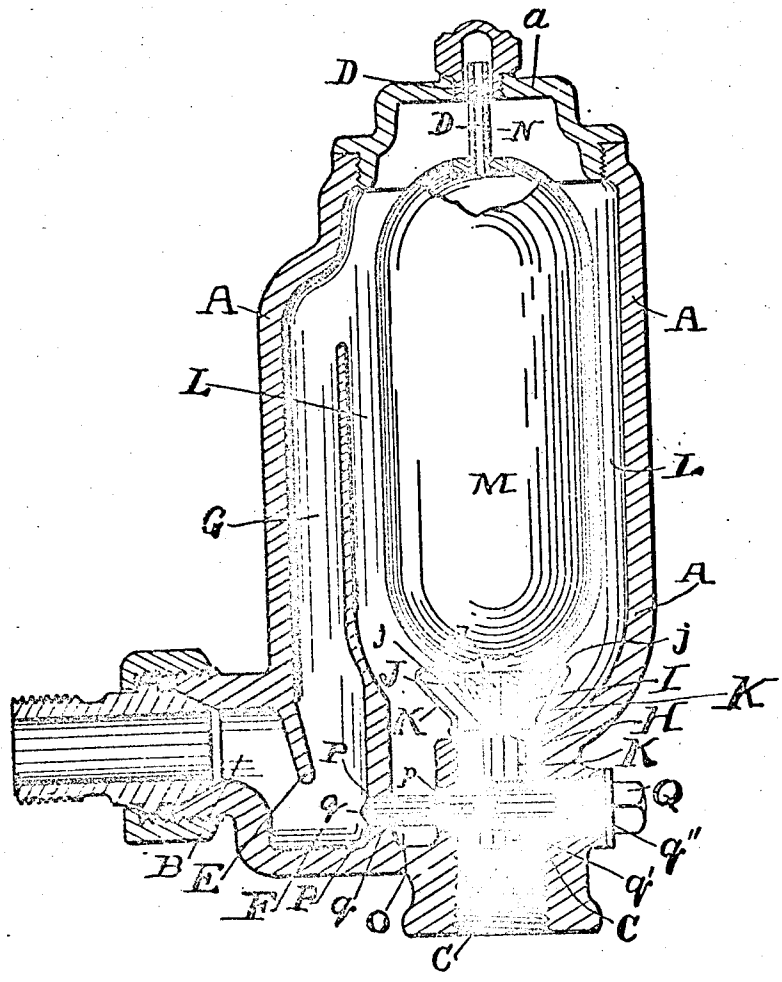
No. 895,517. PATENTED AUG. 11, 1908.

B. E. VAN AUKEN.

VALVE FOR RADIATORS.

APPLICATION FILED JULY 22, 1907.



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VALVE FOR RADIATORS.

No. 895,517. Specification of Letters Patent. Patented Aug. 11, 1908.

Application filed July 22, 1907. Serial No. 384,957.

To all whom it may concern:

Be it known that I, BYRON E. VAN AUKEN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valves for Radiators, of which the following, when taken in connection with the drawing accompanying and forming a part hereof, is a full and complete description sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

This invention relates to valve mechanism for discharging air and water of condensation from steam heating systems by differential pressure and one of the objects of the invention is to provide means whereby the float chamber and the well or sealing chamber may, respectively, be cleaned of any dirt deposited therein by the operation of the device, without materially increasing the cost of construction over the cost thereof when no means are provided for cleaning both the float chamber and the well.

A further object of this invention is to provide a construction wherein the valve seat and valve co-acting therewith which controls the flow of water of condensation from the float chamber, in the automatic operation of the device, together with the float and float guide may be easily and correctly assembled by persons not particularly skilled in mechanics. And a further object is to provide a construction wherein the valve seat and valve co-acting therewith will be maintained clean and in operative condition by the automatic operation of the device.

In the drawing referred to a vertical sectional view of a device embodying these features is shown.

A reference letter applied to designate a given part is used to indicate such part throughout the several figures of the drawing wherever the same appears.

A is the shell or casing of the device.

a is the top thereof.

B is the inlet, C the air and water of condensation outlet, and D a passage way arranged to conduct air from the float chamber L to the interior of the float M, and *d* is a passage way arranged to conduct air from the interior of the float to the passage way C.

E is a weir and F is a well in which well, by the accumulation of water of condensation in the operation of the device, a water seal is obtained.

G is a vertical passage way from well F discharging into the float chamber (L) above the level of the water required in such float chamber to raise the float (M) of the device.

H is a valve seat and I is a valve co-acting therewith to control the admission of water of condensation to outlet C.

J, J, is an outwardly flaring wall, extending upwardly from valve seat H to the rim *j*. A conical recess the upper edge whereof is located above the bottom of the float chamber, with the valve seat at the bottom of such recess is thus obtained. I obtain this upwardly flaring wall J by forming up the construction K out of sheet metal, into the shape shown in the drawing.

L is the float chamber into which the vertical passage way G discharges.

M is the float of the device. Valve I is mounted on float M and the air discharge passage D from the float chamber L is shown, in this construction, as consisting of the passage way through pipe or tube N into the float and through the passage ways in valve I and valve seat H.

O is a well in float chamber M.

P is a passage way from well F into well O and *p* is a passage way from well O to outlet C.

Q is a manually operated longitudinally movable valve stem provided with valves *q*, *q'*, respectively, and is provided with screw threads *q''* fitting into corresponding screw threads in shell A. When valve stem Q is in the position illustrated in the drawing the valve *q* thereof closes passage way P and valve *q'* closes passage way *p*. When the valve stem Q is moved a determined distance the valve *q'* is withdrawn from its seat and the passage way *p* is opened so that the contents of the well O are discharged into outlet C through such passage way, to clean such well O. Further movement of the valve stem Q withdraws valve *q* from its seat thereby opening passage way P from the well F into the well O, permitting the contents of such well O to flow through such passage P and through well O and passage *p*.

In assembling the several parts of the device the formed up part K is forced into position in the outlet C, the float M is dropped thereinto, the top *a* is secured in place on shell A and valve Q is inserted to close the passage ways P, *p*. The diameter of the upper edge *j* of the conical recess in which the valve seat H is located is so great that

the lateral movement of the float will not carry the valve I over the edge—that is, outside of such conical recess.

The automatic operation of the device is not involved in this invention; except indirectly, that is, when the float rises and unseats valve I the water of condensation contained in float chamber I flows over the flaring table J of the conical recess to and through the outlet of valve seat H, thereby washing away any dirt adjacent to such valve seat; and any matter held in suspension in the water of condensation in the float chamber which is not deposited on the inclined table J settles in the well O. The combined effect of the peculiar construction of the valve seat H and inclined table J and the position of such inclined table above the bottom of the float chamber, in combination with the well O to receive any matter washed into the valve and precipitated to maintain the valve seat and co-acting valve clean, so that a close fit thereof is obtained. Whenever the deposit of matter in the wells F and O demand cleaning of such wells it is done by opening the passage ways P, and p, as hereinbefore described.

Having thus described my invention what I claim is new and desire to secure by Letters Patent is;—

1. A casing provided with a well, with a float chamber, with passage ways constituting, respectively, an inlet to the well and an outlet from the well communicating with the float chamber, with an air and water of condensation passage way, and with a water of condensation outlet from the float chamber communicating with the air and water of condensation passage way, a valve seat to the outlet, an additional well in the float chamber, such casing also provided with passage ways having valve seats thereto, respectively, one of such passage ways communicating with both wells and one with the well in the float chamber and with the air and water of condensation passage way, a manually operated valve stem, valves on the stem, such valves arranged to coact with the valve seats on the passage ways communicating with the wells, a float in the float chamber, a valve controlled by the float arranged to coact with the valve seat on the outlet from the float chamber, and an air passage way communicating with the float chamber and with the air and water of condensation passage way; substantially as described.

2. A casing provided with a well, with a float chamber, with passage ways constituting, respectively, an inlet to the well and an outlet from the well communicating with the float chamber, with an air and water of condensation passage way, and with a water of condensation outlet from the float chamber communicating with the air and water of condensation passage way, a valve seat to the outlet, an additional well in the float chamber, such casing also provided with passage ways of different diameters having valve seats thereto respectively, the one of such passage ways of smaller diameter communicating with both wells and the one of larger diameter communicating with the well in the float chamber and with the air and water of condensation passage way, a manually operated valve stem, valves on the stem, such valves arranged to coact with the valve seats on the passage ways communicating with the wells, to be successively seated and unseated when the stem is actuated, a float in the float chamber, a valve controlled by the float arranged to coact with the valve seat on the outlet from the float chamber, and an air passage way communicating with the float chamber and with the air and water of condensation passage way; substantially as described.

3. A casing provided with a float chamber, a well in the float chamber, an air and water of condensation passage way, a water of condensation outlet to the float chamber communicating with such passage way and a valve seat to such outlet, an upwardly flaring wall from the valve seat to above the top of the well and above the bottom of the float chamber, forming a conical recess with the valve seat at the bottom thereof, and the casing provided also with a passage way arranged to communicate with the well and to discharge into the air and water of condensation passage way on the discharge side of the valve seat of the outlet from the float chamber, such passage way from the well also provided with a valve seat, in combination with a float in the float chamber, a valve on the float to coact with the recessed valve seat on the water of condensation outlet and a manually operated valve to coact with the valve seat on the passage way from the well; substantially as described.

4. A casing provided with a float chamber and provided with an inlet to the float chamber and with a water of condensation outlet from the float chamber, such outlet comprising a conical recess with a valve seat at the bottom thereof and with the upper edge thereof located above the bottom of the float chamber, a float in the chamber and a valve on the float arranged to coact with the valve seat, the upper edge of such conical recess extending laterally beyond the limit of the lateral movement of the float and valve in the chamber, and such recess arranged to guide the valve to its seat; substantially as described.

BYRON E. VAN AUKEN.

In the presence of—
CHARLES TURNER BROWN,
CORA A. ADAMS.