F. PRESSER.

VALVE FOR STEAM RADIATORS.

No. 49,918. Patented Sept. 12, 1865.

Fig. 1.

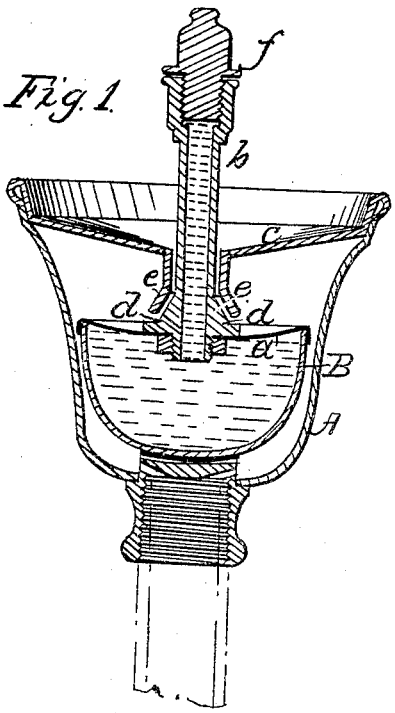
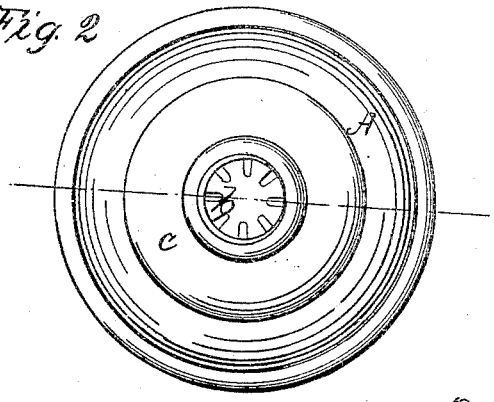


Fig. 2.



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UNITED STATES PATENT OFFICE.

FRED. PRESSER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN VALVES FOR STEAM-RADIATORS.

Specification forming part of Letters Patent No. **49,918**, dated September 12, 1865.

To all whom it may concern:

Be it known that I, F. PRESSER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Valve for Steam-Radiators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a vertical central section of this invention. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to a valve of that class which open and close by the expansion or contraction of water or other liquid in a vessel, one or more sides of which are expansible or flexible, the expansion or contraction of said liquid being dependent upon the heat of the atmosphere surrounding the said vessel.

The invention consists in combining with the vessel containing the expanding-liquid and with the valve and its seat, a tube through which liquid can be introduced into the expanding-vessel while steam is up and without interrupting the operation of any part of the radiator.

It consists, further, in arranging the valve-seat in the upper part or cover of the chamber surrounding the expanding-vessel in such a manner that when the steam in said chamber begins to condense the cold air rushing in has a tendency to open the valve instead of to close it, and the sensitiveness of the valve is thereby materially increased.

It consists, finally, in combining the expanding-vessel, the valve, and its seat in such a manner that the valve can at any moment be refitted or reground, the expanding-vessel being placed loosely in the surrounding-chamber, so that it can be freely turned, together with the valve, in either direction.

A represents a chamber, made of sheet metal or other suitable material, and secured to the end of the pipe of a steam-radiator, as indicated in red outlines in Fig. 1. This chamber surrounds a vessel, B, one or more sides of which are flexible or expansible, and in the expansible side *a* thereof is fastened a tube, *b*, which rises up through the top *c* of the chamber A. That portion of said tube which adjoins the flexible side *a* of the vessel B forms a valve, *d*, which is ground steam-tight in a seat, *e*, formed by the inner end of a tubular projection on the inner surface of the top of the chamber A, as clearly shown in Fig. 1. This projection surrounds the tube *b*, leaving an open space all round, through which steam can escape from the chamber A, or the atmospheric air can pass into said chamber. The tube *b* is closed on top by a plug, *f*, and through said tube the vessel B is filled with water or other liquid. When the temperature of the atmosphere surrounding the vessel B rises beyond a certain point the liquid in said vessel expands and the valve *d* closes up in its seat. As soon as this takes place the steam, having no escape, commences to condense, and the temperature of the radiator and of the atmosphere surrounding the vessel B is reduced, and at the same time a partial vacuum forms in the chamber A. The liquid in the vessel B contracts and the external air has a tendency to rush into the chamber A, and from both causes the valve *d* is forced out of its seat. The steam is thereby allowed to escape through the space surrounding the tube *b*, and the temperature of the radiator rises again, and by this arrangement said temperature is regulated and contracted with the greatest nicety.

If a portion of the liquid in the vessel B should get lost by evaporation or from some other cause, it can be replaced at any moment by unscrewing the plug *f*, and without interrupting the operation of the radiator, and by means of the tube the valve can always be reground whenever the same should get out of order, the vessel B being placed loosely into the chamber A, so that it can be freely turned in either direction.

In order to guide the valve during the operation of grinding, the vessel B may be provided with a foot projecting into a socket in the chamber A.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The application of a tube, *b*, to the ex-

panding-vessel B, substantially as described, so that the liquid in said vessel can be replaced while steam is up and without interrupting the operation of the radiator.

2. So arranging the channel through which the cold air enters the chamber A that said air on rushing in has a tendency to open the valve instead of to close it, as heretofore.

3. Placing the vessel B, which carries the valve *d*, loosely into the chamber which contains the valve-seat, as described, so that the valve can at all times be reground whenever desired.

The above specification of my invention signed by me this 18th day of July, 1865.

FRED PRESSER.

Witnesses:
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