J. H. BLESSING.

Automatic Air Valve.

No. 241,596. Patented May 17, 1881.

Figure 1.

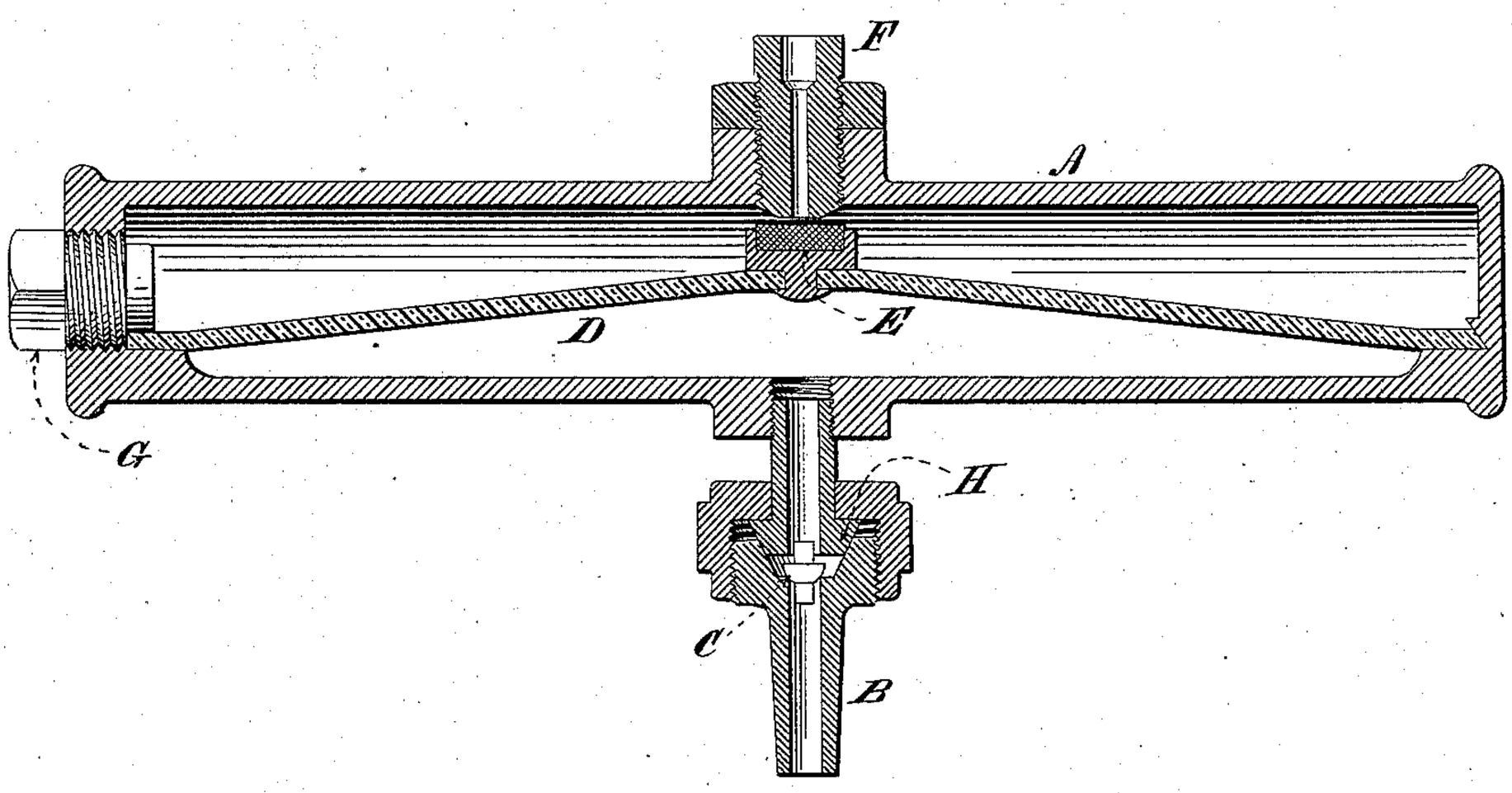

Figure 2.

Witnesses:

L. F. Sullivan

Geo. W. Miatt

Inventor:

James H. Blessing

By his Attorney

E N Dickerson Jr

UNITED STATES PATENT OFFICE.

JAMES H. BLESSING, OF ALBANY, NEW YORK, ASSIGNOR TO THE ALBANY STEAM TRAP COMPANY, OF SAME PLACE.

AUTOMATIC AIR-VALVE.

SPECIFICATION forming part of Letters Patent No. 241,596, dated May 17, 1881.

Application filed December 22, 1879.

To all whom it may concern:

Be it known that I, JAMES H. BLESSING, of the city of Albany and State of New York, have invented a new and useful Improvement in Automatic Air-Valves, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

The object of my invention is to produce an air-valve which will automatically relieve a steam-trap or steam-coil or equivalent apparatus of any air which it may contain, while at the same time it will prevent the escape of the steam, and will also prevent any return of the outside air into the coil should the pressure there become less than that of the atmosphere. This result I accomplish by having independent check and air valves.

My invention will be clearly understood from the accompanying drawings, of which—

Figure 1 represents a section of my apparatus; Fig. 2 a detached view of the valve.

A represents, generally, a tubular casting.

B represents the tube connecting with the trap or other vessel to be cleared. This tube contains the check-valve C, of which an upper view is shown in Fig. 2. The upper surface of this valve is cut into corrugations or channels. These channels are cut radially from the center spindle of the valve toward the circumference in the upper shoulder or surface of said valve, and are shown clearly in Fig. 2 surrounding the central spindle. The valve seats on the lower seat.

Within the tube A is a strip of expansible metal, D, or any other suitable material may be employed. This supports the air-valve E, which should be made of some soft material, plumbago composition being very good for the purpose. This valve seats against the adjustable tube F. The strip of metal D is firmly held in a mortise at one end of the tube, and by means of the screw G at the other. This metal strip is wide enough to firmly support the valve, but is narrow enough to move freely within the tube without coming in contact with its sides.

The operation of my valve can now be understood. Whenever the vessel connected with the pipe B contains air under pressure such air will be forced upward past the check-valve C, which will thereupon rest against its upper seat, H. The air will flow around the upper part of the said valve through the little channels shown in Fig. 2. The object of this is to prevent the wearing of the lower seat of the check-valve C, by forcing the air through a narrow space between said valve and seat, which is a prolific cause of trouble in all air-valves.

It is eminently desirable that the valve itself should be entirely raised free of the current of escaping air, so as not to have its surface cut. The cold air striking against the expansible strip D causes the said strip to assume the position shown in Fig. 1, and allows a clear passage for the air through the tube F. Of course the strip D does not fill the tube A, but is so arranged as to operate freely on its central plane. As soon, however, as steam follows the strip D is expanded and the valve E is closed. Should, now, the pressure within the coil become reduced below that of the atmosphere the valve C will immediately seat on its lower seat, and thereby prevent any return of the air into the coils, which is of the utmost importance in the practical operation of steam-heating.

I do not claim, broadly, the idea of an automatic air-valve which is operated by means of an expansible strip adapted to expand laterally and to seat a valve attached to it, such an apparatus being shown in the patent to M. P. Breckinridge, December 8, 1868.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an automatic air-valve, of a valve which is caused to seat and close by the expansion due to heat, and an independent check-valve located in a passage connecting with the chamber in which the expansion-valve is placed, and operating to prevent the return of air, substantially as described.

2. In an automatic air valve, the combination of a tube or pipe containing a strip of expansible material carrying a valve which is arranged to seat against the side of said tube,

and an independent check-valve located in a passage connecting with the chamber in which the expansion-valve is placed, substantially as described.

3. An automatic air-valve provided with an independent check-valve having a slot or slots upon its upper surface, whereby the air is enabled to escape through such slots without wearing the lower surface of the valve, substantially as described.

JAMES H. BLESSING.

Witnesses:
S. F. SULLIVAN,
WM. A. POLLOCK.