No. 801,514. PATENTED OCT. 10, 1905.

T. F. DEXTER.

FITTING OR VACUUM VALVE FOR STEAM HEATING SYSTEMS.

APPLICATION FILED OCT. 3, 1904.

FIG. 1.

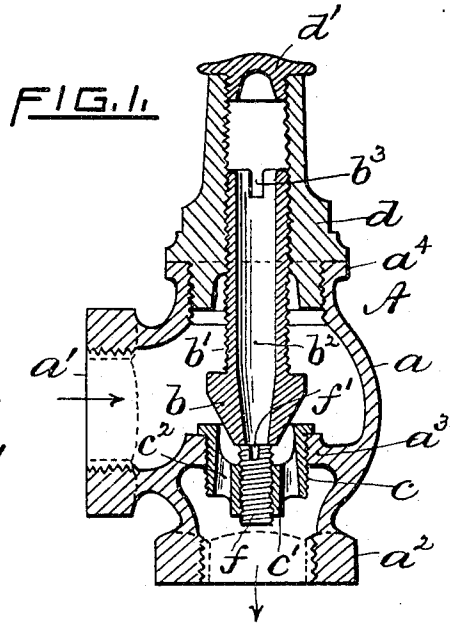


FIG. 2.

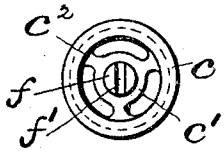
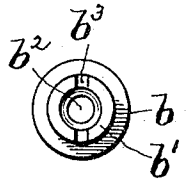


FIG. 3.



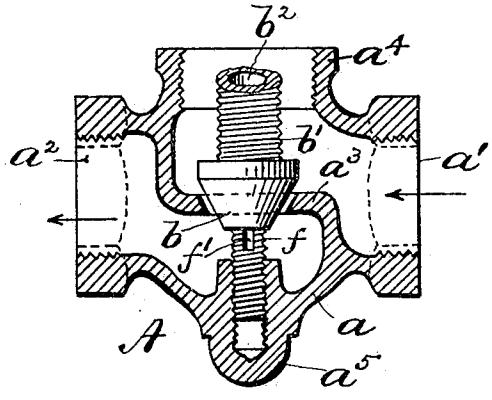


FIG. 4.

WITNESSES.

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FITTING OR VACUUM-VALVE FOR STEAM-HEATING SYSTEMS.

No. 801,514. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed October 3, 1904. Serial No. 226,955.

To all whom it may concern:

Be it known that I, THOMAS F. DEXTER, a citizen of the United States of America, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Fittings or Vacuum-Valves for Steam-Heating Systems, of which the following is a specification.

My present invention relates to certain novel improvements in fittings for steam-heating systems, but more particularly to means for adjustably limiting and controlling the downward or closing movement of the vacuum-valves communicating with the outlet or discharge passages from radiators.

The object I have in view is to provide the vacuum-valves of heating systems of the class above referred to with means capable of being quickly and easily adjusted, so as to insure a more uniform circulation throughout the system.

It is well known that in order to obtain the greatest efficiency in steam-heating systems the several outlet-valves from the radiators must be independently adjusted, so as to control the outflow of the water of condensation while at the same time preventing the loss of steam. This results in the formation of a partial vacuum in the return end of the system. Various instrumentalities or attachments have been employed for controlling the outflow of condensed steam, &c., from the radiators. A device of this character consists in providing the upper end of the valve-stem with an adjustable collar having its under side in engagement with the adjacent end of the cap or stuffing-box nut. When thus adjusted, the valve proper is kept normally open to an extent due to the degree of adjustment, such opening as a rule being a small fraction of an inch. While in such case the valve cannot be further closed, (without readjustment,) it does not prevent a full opening when necessary, as in cleaning or blowing out the valve-passages. A serious objection to this device is that whenever the valve-stem is repacked or set up a readjustment of the collar on the stem becomes necessary, since the collar is adjustably mounted upon and carried by the valve and stem, all the parts moving in unison.

In my present invention the device for limiting the downward or closing movement of the valve is not carried by the valve or its stem. Therefore a readjustment of the parts is unnecessary unless a change in the normal opening of the valve is called for. In other words, the lower end or face of the valve is adapted to bear or abut against an end of a suitably-supported stop adjustably mounted in the valve body or casing. In this arrangement the valve may be readily opened to its maximum extent for cleaning, &c., followed by closing it inwardly or downwardly until it again engages the stop, the latter being stationary at all times, except when a variation in the normal valve-opening is desired, as before stated.

In the accompanying sheet of drawings, Figure 1 is a central vertical sectional view of a vacuum-valve or fitting embodying my invention, the valve member being normally open, as in use. Fig. 2 is a plan view of the valve-seat and stop detached from the valve-body. Fig. 3 is a similar view of the valve itself. Fig. 4 is a sectional view showing the device adapted to a straightway or globe valve, that shown in Fig. 1 being an angle-valve.

In the drawings, A designates my improved valve or fitting complete, as adapted for steam-heating systems. The usual body or casing a is provided with inlet and outlet nozzles a' a^2, respectively, and a central nozzle a^4, into which latter is screwed the combined cap and guide d for the valve-stem. The cap d is screw-threaded centrally and has a small removable cover d' at its upper end.

The valve member b is ground or fitted to a seat, as usual. In Fig. 1 the seat c is represented as screwed into the central horizontal bridge or partition a^3. The said member c, which may be termed a "spider," has a central screw-threaded hub c' integral with the rim or annular portion by means of wings or ties c^2. The valve-stem b' is screw-threaded exteriorly to fit that of the said cap d, its upper end being notched transversely at b^3 to receive a screw-driver blade or other suitable analogous implement. A plain central hole b^2 extends throughout the length of the valve and its stem. (See Fig. 1.)

f indicates the limit-stop, the same consisting of a screw-threaded pin fitted to the threaded part of said hub c', its upper end being notched at f' to receive a screw-driver blade.

It is obvious that in order to adjust the stop f so as to provide a normally fixed or limited opening between the valve and its seat the same is effected by simply removing the upper cover d', followed by inserting a screw-driver downwardly through the said hole b^2 in the

valve until it engages the nick f' of the stop. After turning the latter to the right or left to the desired extent, thereby moving it up or down, as the case may require, the screw-driver is withdrawn and the valve itself screwed down until it bears snugly against the upper end of the stop. The cover d' is next replaced, thus completing the operation. As thus arranged the valve and stop also constitute a check upon each other to prevent accidental endwise movement of the parts, thereby at the same time maintaining the contracted normal opening between the valve and seat. Whenever it becomes necessary or advisable to blow out the valve, the cover is first removed and the valve then screwed rearwardly until a full opening is attained. After this is accomplished the valve is made to reengage the stop f, the latter being stationary, followed by replacing the cover in position.

The construction and manner of operation of the device are substantially the same for a globe-valve (see Fig. 4) as just described with respect to the angle-valve shown in Fig. 1. In Fig. 4, however, the spider-seat c may be omitted and the stop-pin f be screwed into a central bottom boss a^5 integral with the valve-body a, the valve b in such case being seated directly in the partition a^3.

I may add that my improved fitting or vacuum-valve A for steam-heating systems is simple in construction, it is light and comparatively inexpensive to manufacture, it is not liable to get out of order or repair, it is readily accessible for adjustment, &c., no springs or loose parts are used in its construction, and the normal minimum opening to which it is adjusted remains fixed and positive, while the valve is subjected to any and all service imposed upon it.

What I claim as new, and desire to secure by United States Letters Patent, is—

In a vacuum-valve for steam-heating systems, a combined valve and stem having a central hole extending longitudinally therethrough, and a limit-stop f mounted below the valve-seat and in alinement with said valve-stem, arranged whereby the adjustment of said stop may be effected by a suitable tool or implement passing through the stem and coacting with the stop, substantially as described.

Signed at Providence, Rhode Island, this 1st day of October, 1904.

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Witnesses:

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