

No. 685,396.

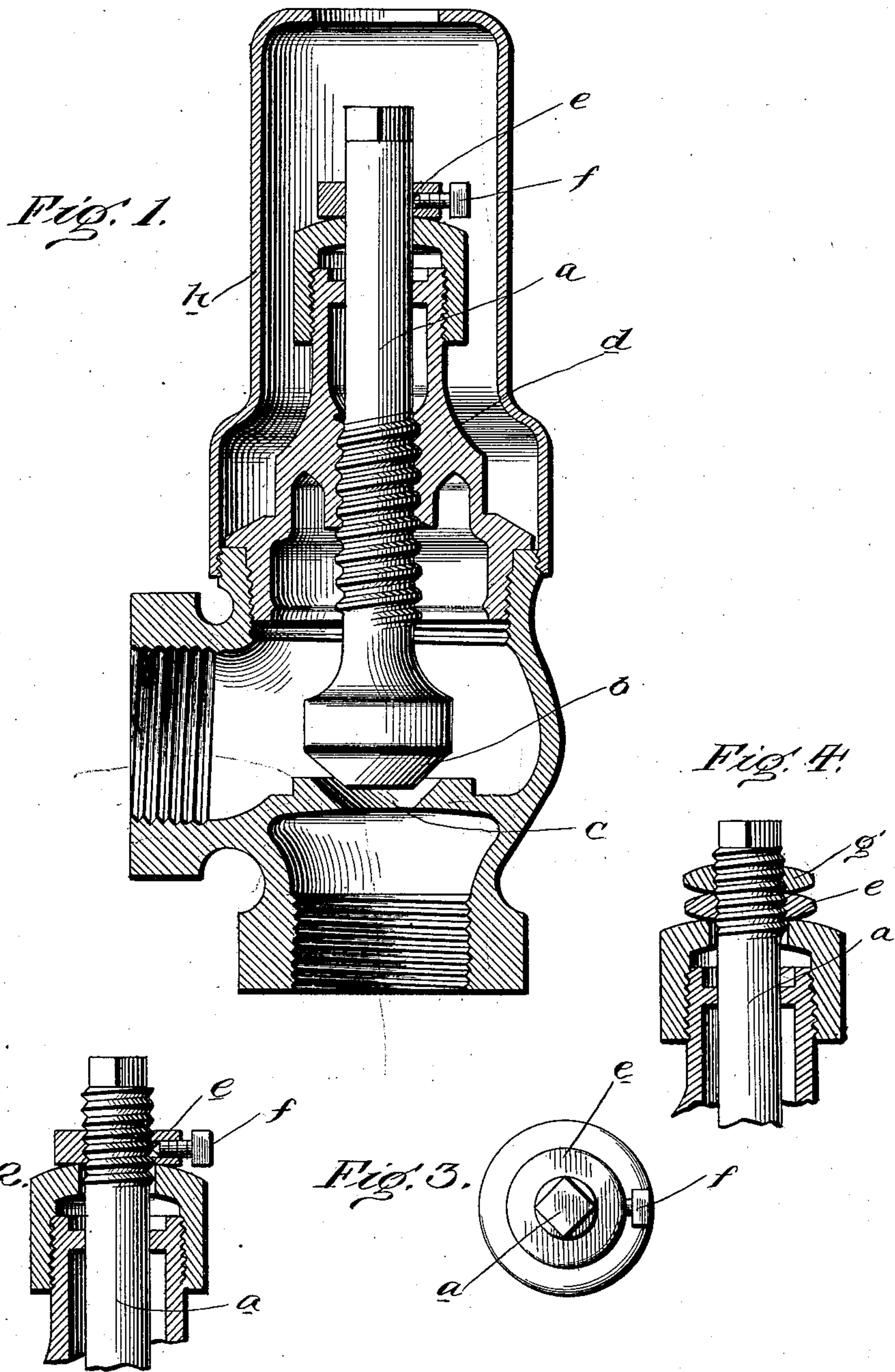
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T. F. DEXTER.

FITTING FOR STEAM HEATING APPARATUS.

(Application filed July 17, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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FITTING FOR STEAM HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 685,396, dated October 29, 1901.

Application filed July 17, 1901. Serial No. 68,567. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. DEXTER, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Fittings for Steam Heating Apparatus, of which the following is a specification.

My invention relates to fittings for steam heating apparatus, and is fully set forth in the following specification and shown in the accompanying drawings.

In steam-heating systems in which the water of condensation and air are drawn into the returns by a partial vacuum or lower pressure therein much difficulty has been experienced in properly controlling the outlets from the radiators to produce an even and satisfactory circulation throughout all parts of the system. If the outlets are all open to the same extent, there is liability of "short-circuiting" of portions of the system or the drawing of an excess of steam through the shorter lines without condensation in the radiators, with a deficiency of circulation in the longer lines. To overcome this difficulty, automatic or thermostatic valves have been employed in the outlets from the radiators, which permit the air and water of condensation to escape, but close wholly or partially to the escape of uncondensed steam. With hand-valves, however, much difficulty is experienced, and it has been necessary to adjust each valve to suit the particular conditions existing at the radiating device or portion of the system which it controls. While such adjustments can be made by a skilled engineer, there is difficulty in restoring the adjustment when the valve has been subsequently opened for the purpose of cleaning or blowing out.

It is the object of my invention to provide a hand-operated or static valve device or fitting adapted for use in systems of the character described to control the discharge of air and water of condensation which may be readily adjusted to provide a minimum outlet or thoroughfare for normal operation without interfering with the full opening of the valve for purposes of cleaning or blowing out and in which the adjustment shall be preserved, so that the normal opening may be

readily and quickly restored without the necessity of readjustment of the parts. This object I accomplish by providing an adjustable limit-stop between the movable valve-stem and the body of the fitting, which, while permitting the valve to be opened to its maximum extent for cleaning, &c., limits the extent to which the valve may be closed to the required area of thoroughfare. In my preferred construction this limit-stop consists of a longitudinally-adjustable collar on the valve-stem adapted to abut against a fixed portion of the fitting and is secured in adjusted position by a suitable locking device.

In the drawings, Figure 1 is a vertical sectional view of my improved fitting. Fig. 2 is a similar view of part of the same, illustrating a modification. Fig. 3 is a plan view of so much of the fitting as is shown in Fig. 2; and Fig. 4 is a view similar to Fig. 2, illustrating a further modification.

a is the usual stem carrying the valve *b*, which controls the thoroughfare *c* in the valve-body. As shown, the stem *a* is threaded in a bonnet *d* and may be adjusted longitudinally therein to open or close the thoroughfare. Between the stem *a* and the body of the fitting I arrange an adjustable limit-stop *e*, which limits the downward movement of the stem. As shown, the upper projecting end of the stem *a* carries a longitudinally-adjustable stop *e*, which is preferably formed as a small collar encircling the stem, with provision for adjustment thereon. In the construction shown in Fig. 1 the collar *e* loosely encircles the stem and carries a set-screw *f*, by which it may be secured in adjusted position. In the construction shown in Fig. 2 the collar *e* is threaded on the stem and the set-screw *f* locks it on the threads of the stem. In the construction shown in Fig. 4 the collar *e* is locked in position by a small lock-nut *g* upon the stem.

After the stem has been adjusted to afford a thoroughfare of the desired minimum size the collar *e* is adjusted and fixed in contact with the bonnet or its cap or some fixed portion of the valve-body, as shown, so that it will prevent further movement of the stem to close the valve, but will leave the stem free

to be moved in the opposite direction to open the valve to the maximum for cleaning or blowing out. The collar *e* thus constitutes an adjustable limit-stop to prevent the closing of the valve beyond the prescribed limit, while permitting the opening of the valve to any extent that may be desired. Thus the valves in the different portions of the system may be adjusted to suit the conditions and will require no further care and attention, since each valve may be closed down to the extent permitted by its limit-stop, and when any valve has been opened to its maximum extent for cleaning or blowing out the valve may be closed again to the required extent by simply moving the valve-stem to the extent permitted by the limit-stop. A system once properly adjusted will therefore require no further adjustment under normal conditions, and an even and regular circulation can be obtained throughout.

To prevent the limit-stop being tampered with by unauthorized persons, the fitting may be provided with an outer casing *h*, inclosing the exposed end of the valve-stem and its limit-stop. This casing may be provided with an opening *i* at the top to permit the key to be inserted for turning the valve-stem.

The details of construction shown may be varied without departing from the invention.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a fitting for steam heating apparatus, the combination with an adjustable valve-stem to control the valve-piece and valve-thoroughfare, of an adjustable collar carried by said valve-stem and adapted to abut against a fixed portion of the fitting to limit the movement of the valve-stem in one direction and maintain a thoroughfare of determined minimum, and a set-screw carried by said collar and locking it on the valve-stem in adjusted position, said stem being free to be moved in the opposite direction to open the thoroughfare to its maximum for cleaning or blowing out.

2. In a fitting for steam heating apparatus, the combination with an adjustable valve-stem to control the valve-piece and valve-thoroughfare, of an adjustable collar carried by said valve-stem and adapted to abut against a fixed portion of the fitting to limit the movement of the valve-stem in one direction and maintain a thoroughfare of determined minimum, and a locking device to lock said collar on the valve-stem in adjusted position, said stem being free to be moved in the opposite direction to open the thoroughfare to its maximum for cleaning or blowing out.

3. In a fitting for steam heating apparatus,

the combination with an adjustable valve-stem to control the valve-piece and valve-thoroughfare, of an adjustable limit-stop carried by said valve-stem and adjustable longitudinally thereon and adapted to abut against a fixed portion of the fitting to limit the movement of the valve-stem in one direction and maintain a thoroughfare of determined minimum, said stem being free to be moved in the opposite direction to open the thoroughfare to its maximum for cleaning or blowing out.

4. In a fitting for steam heating apparatus, the combination with an adjustable valve-stem to control the valve-piece and valve-thoroughfare, of an adjustable limit-stop carried by said valve-stem and adjustable longitudinally thereon and adapted to abut against a fixed portion of the fitting to limit the movement of the valve-stem in one direction and maintain a thoroughfare of determined minimum, and a locking device to lock said collar on the valve-stem in adjustable position, said stem being free to be moved in the opposite direction to open the thoroughfare to its maximum for cleaning or blowing out.

5. In a fitting for steam heating apparatus, the combination with an adjustable valve-stem to control the valve-piece and valve-thoroughfare, of an adjustable limit-stop carried by said valve-stem and adjustable longitudinally thereon and adapted to abut against a fixed portion of the fitting to limit the movement of the valve-stem in one direction and maintain a thoroughfare of determined minimum, said stem being free to be moved in the opposite direction to open the thoroughfare to its maximum for cleaning or blowing out and an outer casing carried by the body of the fitting and inclosing the end of said valve-stem and its limit-stop.

6. In a fitting for steam heating apparatus, the combination with the body of the fitting, of an adjustable valve-stem to control the valve-piece and valve-thoroughfare, of an adjustable limit-stop between the stem and valve-body carried by one of said parts and adapted to abut against the other to limit the movement of the valve-stem in one direction and maintain a thoroughfare of minimum area, without preventing the valve-stem being moved in the opposite direction to open the thoroughfare to its maximum extent for cleaning or blowing out.

In testimony of which invention I have hereunto set my hand.

THOMAS F. DEXTER.

Witnesses:

GUY H. HOLLIDAY,
WM. C. SERRELL.