

D. D. KIMBALL.
VALVE.
APPLICATION FILED MAR. 8, 1913.

1,152,026.

Patented Aug. 31, 1915.

FIG. 1.

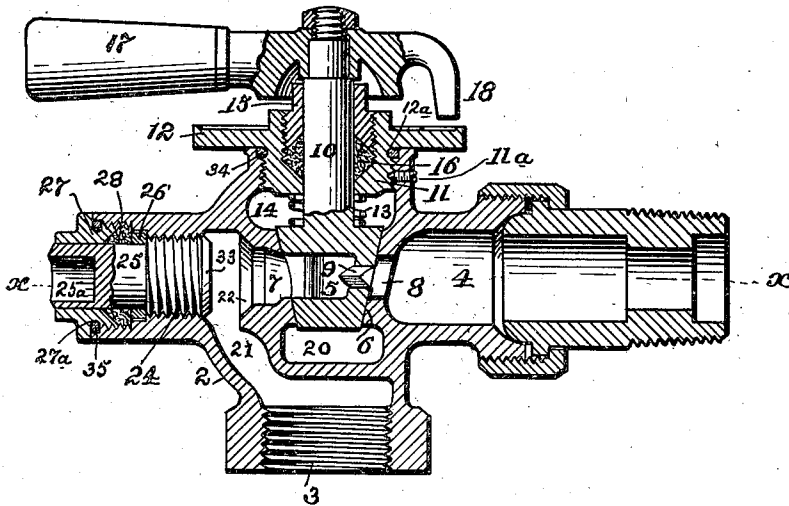


FIG. 3.

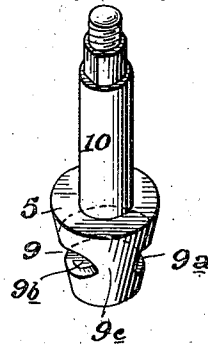


FIG. 2.

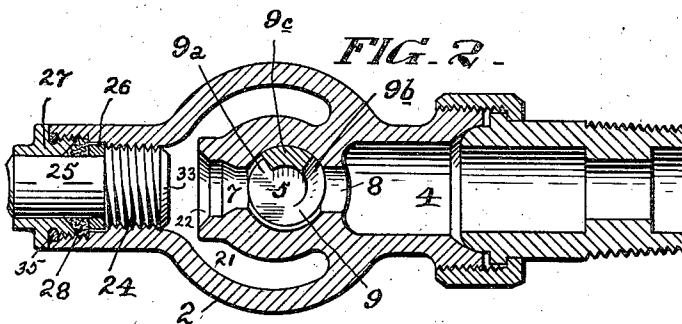


FIG. 5.

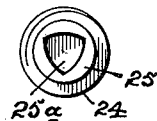
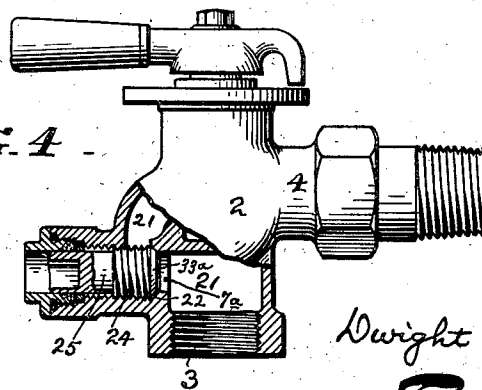


FIG. 4.



Witnesses

A. M. Kelly
E. W. Smith

Inventor
Dwight D. Kimball

384

[Signature]

Attorney

UNITED STATES PATENT OFFICE.

DWIGHT D. KIMBALL, OF MEDFORD, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WARREN WEBSTER & COMPANY, A CORPORATION OF NEW JERSEY.

VALVE.

1,152,026.

Specification of Letters Patent.

Patented Aug. 31, 1915.

Application filed March 8, 1913. Serial No. 752,633.

To all whom it may concern:

Be it known that I, DWIGHT D. KIMBALL, citizen of the United States, and resident of Medford, county of Middlesex, and State of Massachusetts, have invented an Improvement in Valves, of which the following is a specification.

The object of my invention is to provide a construction of valve suitable for supplying steam to radiators of steam heating apparatus and other purposes, in which the thoroughfare of the valve body, between the inlet and regulating or controlling valve piece, is arranged to be shut off by an auxiliary or shut-off valve whose function is to close off the supply of steam or other fluid to enable the regulating valve piece to be removed for repairs, and if desired, to also limit the static maximum opening in the supply passage for the steam or fluid whose flow is to be regulated in passing through the valve. In this manner the steam passing in at the inlet may have its pressure throttled down to that desired, and the steam at reduced pressure may be then regulated by the adjustment of the regulating or controlling valve piece.

My invention consists of certain features of construction and combinations of parts, by which the above specified objects may be attained, the same being fully described hereinafter and more specifically defined in the claims.

My improvements will be better understood by reference to the drawings, in which:—

Figure 1 is a sectional elevation of a valve embodying my improvements; Fig. 2 is a plan view of the same taken on line $x-x$; Fig. 3 is a perspective view of the regulating valve piece removed; Fig. 4 is a sectional elevation of a modified form of my invention; and Fig. 5 is an end view of the auxiliary valve.

2 is the body of the valve and is provided with an inlet 3 and an outlet 4, the same being connected by a thoroughfare 21 having a valve seat 6 for the regulating valve piece 5 and a valve seat 22 for the shut-off or auxiliary valve piece 33. The valve seat 6 communicates with the valve seat 22 by the port 7 and with the outlet 4 by a port 8. The valve piece 5 is tapered like a plug valve, and has an upwardly extending stem spindle 10 which is fitted at the top with a

handle 17 having a pointer 18. The spindle 10 extends through a stuffing-box consisting of a bushing 11 screwed into the opening at the top of the body which leads down into the spring chamber 14 and valve seat 6, a packing 16 therein around the spindle and a gland 15 screwed into the bushing to compress the packing. This bushing makes a tight joint with the upper edge of the body by a lead packing 12^a. This lead packing 12^a seats within a circumferential groove 34 provided for the purpose in the abutting face of the disk 12 of the bushing 11. The bushing 11 is provided with a disk 12, which provides means for rotating the bushing and for furnishing a scale over which the pointer 18 moves for indicating the degree of opening of the valve port, and the bushing is held against turning by means of the set screw 11^a when once screwed into place. The tapered valve piece 5 is held down to its seat by a spring 13, which surrounds the spindle 10 and is interposed between the bushing 11 and the valve piece. The valve piece 5 is provided with a port 9 through its side, said port having a maximum opening at 9^a and terminating at its other circumferential end 9^b in a point (Fig. 3). The blank space 9^c is somewhat more in width than will close the port 8 leading to the outlet 4. By this construction of valve piece the size of the opening through its wall in alignment may be gradually increased or decreased from maximum to nothing. This port 9 is more or less rectangular at the end 9^a and tapering or pointed at the end 9^b, but I do not confine myself to this character of port, nor to any particular form of regulating valve piece and seat. The body below the valve seat 6 and the valve piece is provided with a closed well 20 into which any dirt, rust, etc., may find its way to relieve the valve piece in fitting to its seat.

The auxiliary valve 33 screws into a lateral guideway in the body at 24 and is provided with a spindle 25 which may have a key socket 25^a on its end by which a key may be inserted for screwing the valve 33 tightly upon its seat 22, or to a position fully open. This adjustment of the valve 33 may be to throttle the steam passing through the thoroughfare 21 before it reaches the regulating valve, whereby more easy regulation of the actual steam passing through the valve may be more readily ac-

complished. The spindle 25 of the auxiliary valve extends through a stuffing-box comprising the packing 28, a collar 26 on one side of the packing and seated on the valve body, and a compressing gland or bushing 27 for compressing the packing. This bushing 27 may be made liquid-tight by the use of a packing 27^a, though in this case there is very little possibility of leakage owing to the presence of the packing 28. The packing 27^a is seated within a groove 35 provided for the purpose in one of the members. By employing the annular collar 26, the guide hole may be tapped to provide the screw threads for the valve piece, the collar acts as an abutment or limit stop to restrict the outward adjustment of the valve piece and also acts to take the thrust of the packing. It provides a simple and effective construction for these purposes.

In the construction shown in Fig. 4, I have shown the valve modified to the extent that the auxiliary or shut-off valve 33^a seats upon a valve seat 7^a at the juncture of the thoroughfare 21 and inlet 3. This does not change the general construction, as it is manifest that the auxiliary valve may control the thoroughfare at any place between the regulating valve piece 5 and the inlet.

I have shown my improved valve in the form which I prefer in practice, but I do not limit myself to the details so long as the valve body is provided with the auxiliary valve piece and seat and the regulating valve piece and seat, these two valve pieces being arranged to act upon the same steam or fluid in succession, and in which the auxiliary valve piece and its seat is arranged between the regulating valve piece and the inlet port of the body.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a body having an inlet and an outlet, a tapered valve seat transversely disposed of said outlet, an auxiliary valve seat transversely disposed of said inlet and having its axial line at right angles to the axial line of said tapered valve seat, said auxiliary valve seat

being between said tapered valve seat and said inlet, a tapered valve plug for said tapered valve seat having a transverse passage of decreasing width formed therein to regulate the flow of fluid from said inlet to said outlet, a stem for said plug projecting exterior of said body, a bushing encircling said stem and adjustably secured to said body, a spring between said bushing and said plug to maintain said plug in operative position, and an auxiliary valve plug threaded into said body and adapted to co-operate with said auxiliary valve seat whereby said tapered valve plug and its adjuncts may be removed for purpose of repair or the like by closing said auxiliary valve plug.

2. In a device of the character stated, a body having an inlet and an outlet, a tapered valve seat transversely disposed of said outlet and having its axis in alinement with said inlet, an auxiliary valve seat transversely disposed of said inlet and having its axial line at right angles to the axial line of said tapered valve seat, said auxiliary valve seat being between said tapered valve seat and said inlet, and also having its axis alined with said outlet, a tapered valve plug for said tapered valve seat having a transverse passage of decreasing width formed therein to regulate the flow of liquid from said inlet to said outlet, a stem for said plug projecting exterior of said casing, means to maintain said plug in operative position upon its seat, an auxiliary valve plug guided into said body and adapted to co-operate with said auxiliary valve seat, said parts being so arranged that communication between the passages controlled by said tapered valve plug is only established by way of said auxiliary valve seat whereby said tapered valve plug and its adjuncts may be removed for purpose of repair or the like by closing said auxiliary valve plug.

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

DWIGHT D. KIMBALL.

Witnesses:

CHARLES SCHWEFEL,
PAUL WUNDERLICH.