F. P. ANGELL.

VALVE.

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1,223,353. Patented Apr. 24, 1917.

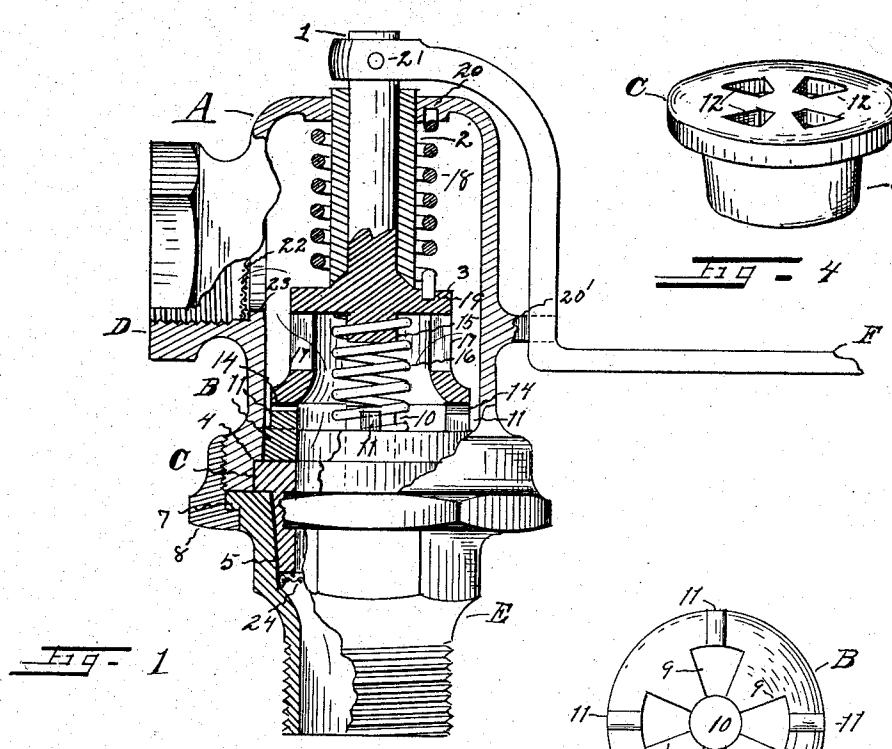


Fig - 1

Fig - 4

Fig - 3

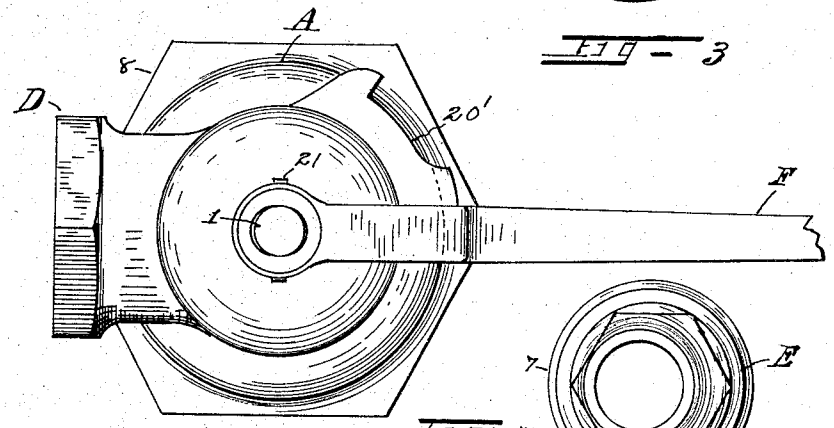


Fig - 2

Fig - 5

WITNESSES.

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VALVE.

1,223,353. Specification of Letters Patent. Patented Apr. 24, 1917.

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To all whom it may concern:

Be it known that I, FRED P. ANGELL, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Valves, of which the following is a specification.

The present invention more particularly relates to valves employed in conjunction with the installation of steam radiators for the control of steam for heating purposes, and it comprises a housing or jacket within which the valve and its seat are arranged, and an exteriorly pivoted handle and locking mechanism by which the valve may be opened and closed at predetermined positions.

Another object of my invention is to provide a valve of the class whereby the same will be self-seating and non-leakable when closed; whereby the noise or clattering of the valve will be eliminated under all conditions of its operation; whereby the valve will be positively opened or closed when actuated; whereby in installing the plumbing to a radiator much inconvenience may be eliminated by the peculiarly arranged coupling of the valve; whereby the same will be neat and tasty in design, economical to manufacture and simple in construction.

Further objects and advantages of my invention will hereinafter appear in the following description of the device.

For the purpose of explaining my improvements in valves of the character set forth, the accompanying drawing illustrates an approved embodiment thereof with the understanding that the invention is not limited to the specific arrangement and organization shown and described.

Figure 1 is a broken side elevation of the assembled valve.

Fig. 2 is an end view opposite the intake.

Fig. 3 is a plan view of the valve.

Fig. 4 is a perspective view of the valve seat.

Fig. 5 is a view of the eccentric nipple looking toward its reduced end.

While I have described the valve with localized exit, it will be understood that in radiator construction the same opening both receives and returns the steam.

In the drawings, like marks of reference refer to corresponding parts throughout the views, in which A is the valve jacket or housing; B, the valve; C, the valve seat; D, the intake to the valve; E, an eccentric shaped exit nipple; and F, the operating handle.

The housing A in the design shown is a cylindrical body open at its exit end, the opposite end forming a head through which the operating valve stem 1 projects, and extending from the housing near the head end a reduced open stem D is formed, the latter being screw-threaded interiorly and exteriorly with a hexagonal or other shaped wrench hold for the purpose of attaching the valve to the end of a threaded intake pipe.

Projecting within the valve housing A from the headed end thereof, the valve-operating stem seat 2 is provided.

In the drawings shown, this seat is a separate part from the housing. This seat is a barrel with a longitudinal opening, one end of the same being hermetically and forcibly fitted within a correspondingly-formed aperture in the head of the valve housing, from the latter of which it may slightly project, the interior or free end of the seat being interiorly tapered to form a more perfect union with the valve rocker 3 hereinafter described.

It would be apparent that the seat 2 might be formed integral with the housing A, but for the purposes of machining the method of fitting the seat within the housing as hereinbefore described is a very economical and satisfactory method.

Exteriorly the open end of the housing A is screw threaded and interiorly is formed with an annular seat 4 within which the valve seat C is fitted. The valve seat C preferably has a depending tapering concentric extension 5 over which a correspondingly-formed opening of the exit nipple E is adapted to tightly fit when in operative position.

The nipple E is formed with an encircling flange 7 about its upper end, over which the indrawn end of the attaching nut 8 engages; the nut itself being screw-threaded, as shown, and screwed to the threaded free end of the valve housing A. The arrangement of the aforesaid parts is such that leakage between surfaces will be entirely eliminated.

The valve B is a circular flattened body having radially-disposed equally-spaced openings 9 formed therein and is formed with a central upright post 10 and rim lugs 11, the latter of which lie outside of the

valve openings. The valve is adapted to fit closely within the lower end of the housing A and its face is seated upon the valve seat C, said valve seat having apertures 12 which are coincident with, and are adapted to operate in conjunction with, the valve apertures 9, in operating the valve.

The valve rocker comprises a stem I which is closely fitted to operate through the seat 2, and an enlarged cup-shaped interior head 3 lying within the housing A between the valve B and the free end of the valve seat 2.

The valve rocker-head 3 at its lower end is formed with indentations or seats 14 within which the lugs 11 of the valve are received, a depending central lug 15 of the rocker-head forming a stud in conjunction with the post 10 of the valve, over which a pressure or valve-seating spring 16 is fitted, the indentures 14 of the rocker head intermeshing with the lugs 11 of the valve, operating said valve when the handle F is moved in a path therewith.

That steam and condensation may freely pass from the intake D through the valve and out of the exit B, peripheral openings 17 are formed in the rocker head 3.

Encompassing the valve stem seat 2, a torsion coil spring 18 is fitted. This spring at one end is fitted within a pocket 19 within the head of the valve rocker 3, and at its opposite end within a recess or pocket 20 in the closed end of the housing A.

Pivoted at the exterior free end of the stem the valve-operating handle F is fitted. This handle is curved to extend over the valve housing A, about which it is concentrically adapted to operate, and is held in locked connection with said housing by means of a quadrant 20′ formed on the periphery thereof, from which point said handle extends axially to form a handle grip. This quadrant by preference is fitted with but two stops, one stop to open the valve the other to close the same, the quadrant or some portion of the valve-housing having some designating mark by which a person can positively determine when the valve is opened or closed. In opening or closing the valve the handle F is moved in an arc concentric with the pivotal point 21 that will release the same from the quadrant 20′, the spring 18 thereafter operating to hold the valve stem in some predetermined direction together with said handle, until relieved by an operator at said handle.

In the drawings I have introduced a screen 22 within the intake D, which screen is fitted against an internally-formed rib 23 against which it is held in place by the fitting of an intake pipe within the valve housing, and within the opposite end of the valve I have shown a screen 24 fitted between the tapering end of the valve seat C and a shoulder of the nipple E, the screen affording means to prevent foreign matter from interfering with the operation of the valve.

The nipple E has by preference its threaded exit extremity set to one side of the center of its flanged connection with the housing A, for the purpose of affording a variable connection between the intake D and a radiator to which the valve may be attached.

It very often happens that in fitting a radiator to the steam connections much inconvenience is experienced through the necessity of cutting and refitting the piping, nipples and connections generally to have the parts properly join, whereas by the arrangement of a concentric nipple as disclosed, a slight shifting of the nipple or the nipple and radiator is all that will be necessary to bring the parts in alinement for connection.

From the foregoing description taken in connection with the drawings, it is believed that a more extended explanation of the working and advantages of my improved valve will not be necessary.

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

1. In a valve, a housing having an opening therethrough and an apertured valve seat fitted over one end of said housing, of a nipple fitted over and bearing against said valve seat, a nut fitted about said nipple and screw-threaded to said housing to hold said valve seat and nipple intact with said housing, a valve rocker fitted within said housing end thereof engaging with said valve, its opposite end extending from said housing, a recoil spring fitted about said valve rocker, one end connecting with said valve rocker and at its opposite end with said housing, a coil spring fitted between said valve rocker and said valve to hold said valve in contact with said valve seat, an operating handle pivoted to the free end of said valve rocker, and a quadrant fitted to said housing whereby said operating handle may be locked in the operation of said valve.

2. In a valve, a housing having an opening therethrough, a valve seat having apertures therethrough fitted over one end of said housing, a pipe nipple fitted over said valve seat and connected with said housing, a valve fitted within said housing and bearing on said valve seat, said valve having coincident openings with the openings of said valve seat whereby by the moving of said valve said opening may be opened and closed, of a valve rocker adapted to engage with said valve at one end, its opposite end extending through an aperture in said housing, a recoil spring fitted about said rocker, one end of which engages with said valve

rocker and the opposite end with said housing, said spring adapted to actuate said valve rocker to hold said valve in open contact with said valve seat until acted upon, an operating handle pivoted at the free end of said valve rocker adapted to be moved in an arc concentric with said valve to open and close the same and in a path transverse to said valve to hold said valve in an open or closed position, and a guard to hold said handle in operative connection with said valve rocker.

FRED P. ANGELL.

Witnesses:
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F. H. WINGATE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."