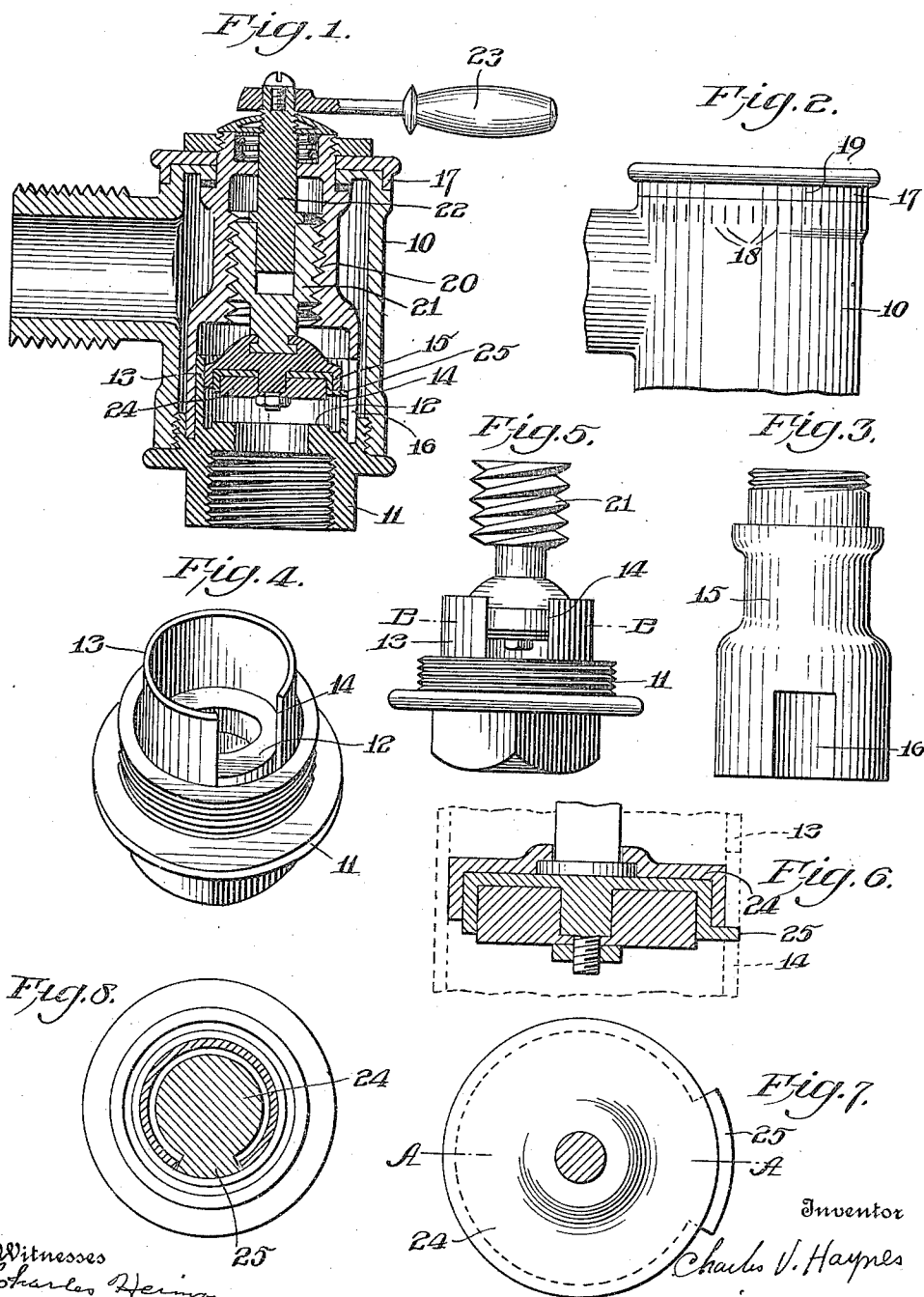


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VALVE.

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1,277,413.

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1,277,413.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES V. HAYNES, a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to improvements in valves and more particularly to improvements in valves for use in connection with any of the several systems of hot water, vapor, vacuum, modulating, or atmospheric heating, and the object of my invention is to furnish a valve which, by means of a fixed adjustment, will be adapted for use with radiators of widely varying radiation surface, and which, after being adjusted for a particular radiator, may be graduated to pass any desired amount of steam, vapor or hot water to the radiator through the adjustable opening, which is permanently set when the radiator and valve are installed.

In the accompanying drawings forming part of this specification and in which similar letters of reference indicate similar parts throughout the several views:

Figure 1, is a central vertical sectional elevation of my improved valve:

Fig. 2, a side elevation of the upper part of the body of the valve showing graduated means for rotating the inner shell of the valve:

Fig. 3, a side elevation of the inner shell of valve:

Fig. 4, a perspective view of the sleeved plug secured to the bottom of the main valve shell:

Fig. 5, a side elevation of the part shown in Fig. 4, and the regulating valve:

Fig. 6, a section of Fig. 7 on line A—A: Fig. 7, a plan view of Fig. 6:

Fig. 8, a section of Fig. 5 on line B—B. 10 is the outer shell or case of the valve;

11 a centrally perforated and threaded plug closing the bottom of case 10. This plug is furnished with a valve seat 12 and a sleeve 13 that is furnished with an opening 14 of large size. Within the outer shell 10 is a rotatable inner shell 15, the lower end of which surrounds the sleeve 13, and which is furnished with an opening 16 which may be brought into register with opening 14 in sleeve 13. By turning the inner shell 15 upon its longitudinal axis the opening 16 may be brought into register

with opening 14 and an opening of any dimensions from the full size of these openings to any part thereof provided for the passage of steam or water.

The upper end of the inner body 15 projects through a cap 17, rotatably carried by the top of the shell 10. The cap 17 and the inner shell are so secured that when the former is rotated the latter rotates with it and by turning the cap the inner body is turned so that the opening 14 may be graduated to pass a certain fixed amount of steam or water at a given pressure. In order to facilitate the adjustment of the opening 14 the cap 17 and body 10 carry thereon a mark 19 and a series of marks or graduations 18, respectively, which indicate the size of the opening 14 without taking the valve apart. The opening 14 is sufficiently large, when fully open, to pass steam for the largest size radiator and can be reduced in area, by turning the inner shell 15, so as to pass steam or water for the smallest sized radiator, hence one of my valves is adapted for use with radiators of any ordinary size and it is not necessary to carry in stock some seven or eight sizes of valves as is now necessary.

It will be understood that this adjustment, which I call the "fixed adjustment" is made by the mechanic who installs the radiators; once made the inner body 15 is locked so that the householder cannot well tamper with it.

The upper interior part of the inner shell 15 is threaded at 20 and carries a screw 21, the lower end of which carries a valve 24 which is adapted to be seated upon the seat 12 to cut off all steam or water from the radiator or opened to pass steam or water through opening 14 to the interior of shell 10 and thence to the radiator. The screw 21 is turned by a stem 22, which is operated by a handle 23 without the outer shell, this being a telescopic connection between this stem and the screw so that the latter may be turned and lifted or lowered while the former is turned only.

The valve 24, which is substantially a "Jenkins valve," when being raised from its seat, will permit steam to pass from the opening in the plug 11 to and through the openings 14 and 16 in the sleeve 13 and inner shell 15. Supposing that the valve 24 is perfectly round and that the sleeve 13 and the inner shell 15 are arranged as shown in

the drawings, the former being situated within the latter, and the valve 24 working within sleeve 13; it will be seen that when valve 24 is lifted so as to uncover the lower part of opening 14 there will be a space the thickness of the sleeve 13 above that part of the opening 14 uncovered by the valve through which steam may escape and thus defeat the accurate regulation necessary for the successful operation of my invention. In order to overcome this I furnish my valve with a wing 25, best shown in Figs. 1, 6, 7 and 8, which enters opening 14 and prevents the passage of steam except through that part of the opening 14 that is below the valve 24.

The pitch of the thread of screw 21 is so coarse that the valve 24 may be fully lifted or fully closed by not more than one revolution of operating handle 23.

It will be evident that the wing shown as integral with the valve disk forms a filler for the portion of the slot immediately opposite it in the inner of the two cylindrical members within which the valve moves.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. In a valve of the character set forth, in combination, an outer casing, a perforated plug furnished with a valve seat and carrying a slotted sleeve, closing an end of said casing, a rotatable inner shell, a cylindrical end of which is slotted and surrounds the sleeve carried by said plug, means for rotating said shell, a valve within the sleeve furnished with a wing entering the slot therein, and means for raising and lowering said valve.

2. In a valve of the character set forth, in combination, an outer casing, a perforated plug furnished with a valve seat and carrying a slotted sleeve and closing one end of said casing, a rotatable inner shell having a cylindrical slotted end surrounding said

sleeve on said plug, and passing through and secured to a rotatable cap closing the other end of said outer casing, a screw carried by said inner shell, a telescopically arranged stem for rotating said screw, and a disk valve carried by said screw adapted to be seated upon the seat carried by said plug and furnished with a wing passing from one side to the other of said slot in said sleeve carried by said plug.

3. In a valve of the character set forth, in combination, an outer casing, a perforated plug, a valve seat carried thereby, carrying a slotted sleeve and closing one end of said casing, an angularly adjustable inner shell having a cylindrical longitudinally slotted end surrounding the sleeve on said plug and secured at its upper end to a closure for the casing, an interior thread carried by said inner shell, a screw movable in said thread, a stem for rotating the screw, a disk valve for said seat carried by said screw and a filler member longitudinally movable with the valve and entering and closing the slot in the sleeve at a point opposite the valve.

4. In a valve of the character set forth, in combination, an outer casing having an outlet opening, a perforated plug closing one end of said casing, a valve seat about the perforation, a longitudinally slotted sleeve carried by the plug and coaxial with the seat, an axially adjustable shell longitudinally slotted and surrounding the sleeve, means located at the opposite end of the casing for fixing the shell in its angular positions of adjustment, a disk valve for said seat movable axially with respect to the seat, a filler for the slot of the sleeve carried by the disk valve, and operating means for said disk valve.

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