H. H. CRAMER.

VALVE.

APPLICATION FILED JUNE 5, 1905.

907,009. Patented Dec. 15, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

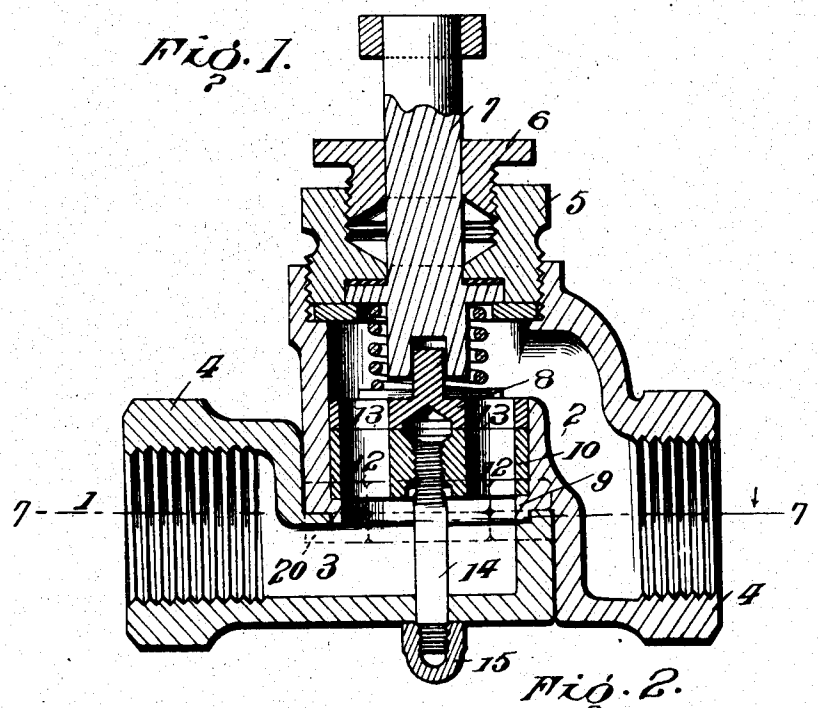


Fig. 2.

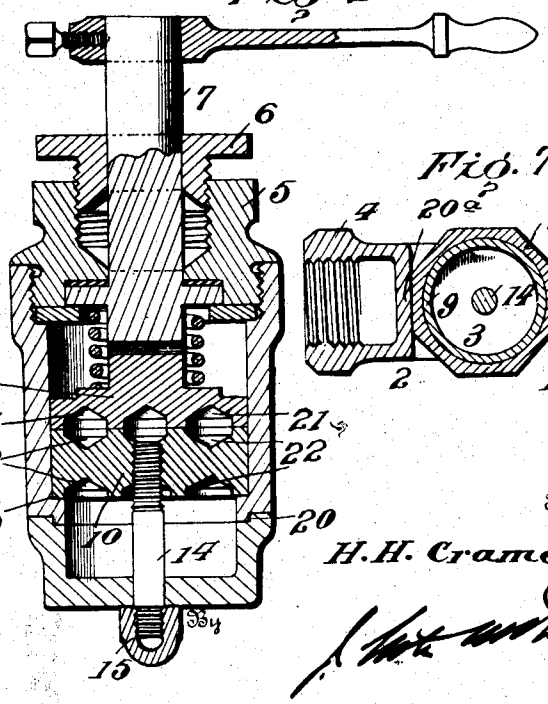


Fig. 8.

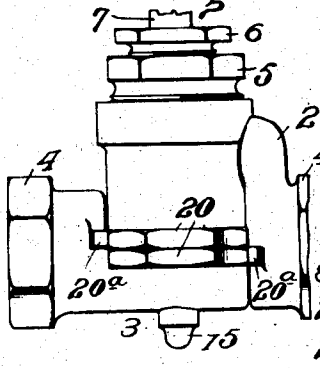


Fig. 7.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

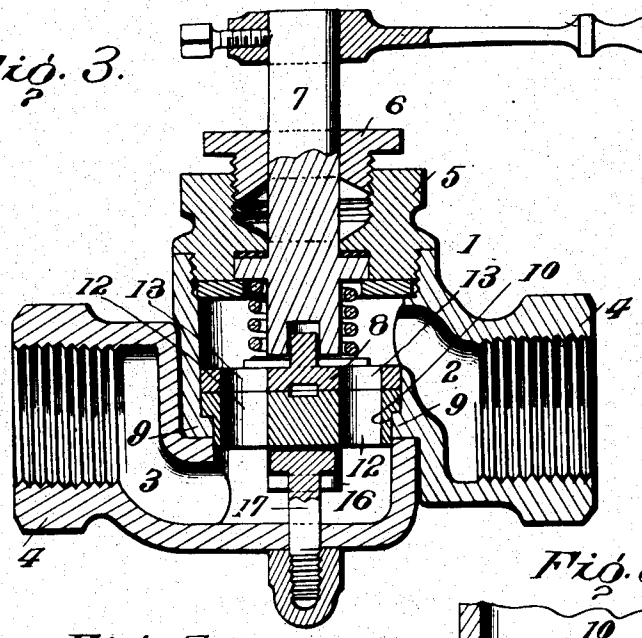


Fig. 4.

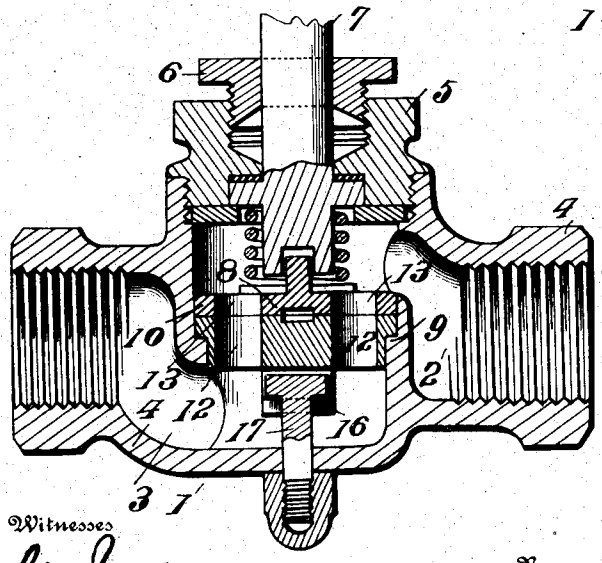


Fig. 5.

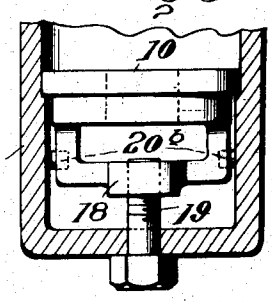
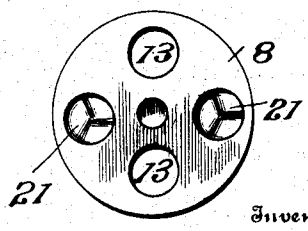


Fig. 6.



Witnesses

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HERBERT H. CRAMER, OF ASPEN, COLORADO.

VALVE.

No. 907,009. Specification of Letters Patent. Patented Dec. 15, 1908.

Application filed June 5, 1905. Serial No. 263,859.

To all whom it may concern:

Be it known that I, HERBERT H. CRAMER, of Aspen, in the county of Pitkin and State of Colorado, have invented certain new and useful Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to provide improved means for removably holding a valve seat in place within its casing; and further objects are to hold such seat by the same means that secures the parts of the casing together; to simplify and cheapen such means; to allow the valve seat to be reversed; to protect the contacting or engaging surfaces of the valve disk and seat from being injured by rust etc.; and to allow the inlets and outlets to be positioned at different angles.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a valve embodying my invention. Fig. 2 is a similar view at right angles. Figs. 3, 4 and 5 show slight modifications. Fig. 6 is a bottom plan view of the valve disk. Fig. 7 is a section on line 7—7, Fig. 1. Fig. 8 is a fragmentary side elevation.

Referring to the drawings, 1 designates a casing which in Figs. 1, 2 and 3 I have shown as being composed of two parts 2 and 3, each having a lateral branch 4, one serving as the inlet and the other as the outlet. The part 2 of the casing is formed at its top with a large threaded opening to accommodate a nut 5 and packing gland 6 through which the operating stem 7 of the valve-disk 8 is passed. The said threaded opening is of diameter about corresponding to the diameter of the chamber of casing part 2. In this latter part is formed, near the lower edge thereof, an inner annular shoulder 9 to accommodate valve-seat 10. This valve seat is of circular formation and is formed with two ports 12 with which are designed to coincide two corresponding ports 13 of valve disk 8. The valve seat 10 is shown in Figs. 1 and 2 as formed with a central threaded opening, the ends of which are flared, and into which opening screws one end of a bolt 14, the other end thereof being projected through an opening in casing part 3 at the axial center of the valve, a nut 15 being screwed on the outer projecting end of such bolt. By this means the valve seat and the two parts of the casing are held in place by the same agency, to wit: the single nutted bolt engaging the valve seat and projected through the valve casing. When the face of the valve-seat becomes worn it may be readily removed and filed, or immediately reversed and secured in place in the same manner as before. This is of decided advantage especially when it is not feasible to immediately file the worn face of the valve seat. It is not necessary, however, that in all instances the valve seat should be reversible, nor is it necessary that the casing be formed in two parts. In Fig. 4 I have shown the casing as formed in one part, and the valve-seat as having depending angular lugs 16 to engage with the head of a nutted bolt 17, which bolt will, as in the former instance, removably hold the valve seat in place. In Fig. 5 I have shown a further modification in the form of a centrally threaded hub 18, depending from the underside of the valve seat, and with which engages the inner threaded end of a bolt 19 projected inwardly through the opening in the bottom of the casing. In this latter instance the valve-seat is not reversible, but it is held in place by the single nutted bolt, and although the casing is shown as formed in one part, yet it is manifest that any of the means shown may be employed in conjunction with a two-part casing, the parts of which will be firmly held together by the same means which retains the valve-seat in place.

I preferably form the interlocking edges of the two parts of the valve casing with squared portions 20, such squared portions by engaging straight walls 20^a serving to prevent any accidental turning of the two parts of the valve casing, and yet allow the parts to be turned so as to place the inlet and outlet branches at different angles. While I prefer to employ a single bolt engaging the valve seat and extending through an opening in the casing, yet it is manifest that, if desired or necessary, additional bolts may be employed for engaging with the valve seat, such bolts being likewise extended through the casing. The valve-seat may be held as against turning by lugs 20^b engaging some depending part thereof, as shown in Fig. 5.

I have shown the valve-disk 8 as formed in its working face with countersunk circular

recesses 21, the diameter of each of which equals that of the ports 12 in the valve seat, and I have also shown corresponding countersunk recesses 22 in the working face of the valve-seat with which the recesses 21 of the valve-disk are designed to coincide and should any rust form on the surface of the countersunk recesses 21 when the valve is not in use such rust will not affect the face of the valve disk or seat when the valve is again opened. The same is also true when the valve has been long in use, the contacting or engaging surfaces of the two parts being always protected one by the other.

The advantages of my invention will be apparent. From what has been said it will be seen that by locating the securing means axially of the valve the parts of the casing may be turned so that their laterals will be presented at different angles, that is to say, they may be located at right angles or face in opposite directions, as shown in the drawings, or at points intermediate these two positions. It will also be noted that the parts of the casing are held together by the same means that retains the valve seat in place; and also that by securing the valve seat by means readily accessible from the outside of the casing the valve seat may be readily removed for the purpose of filing, and, in some instances, reversed so as to present its unused face to the valve disk.

I claim as my invention:

1. A valve casing having an internal annular shoulder, a removable valve seat located wholly within the casing resting against such shoulder and constructed so as to be capable of being reversed, and means for securing such valve seat in place comprising a bolt extended through the valve casing.

2. A valve comprising a casing formed in two parts, a valve seat designed to fit in one of said parts, and a single agency for engaging said valve seat and projecting through one of said parts for holding the seat and the two parts of the casing together.

3. A valve comprising a casing formed in two parts, one part having an annular shoulder, a valve seat designed to fit against such shoulder, and a bolt engaging the valve seat and projecting through one of the parts of the casing for holding the seat and the parts of the casing together.

4. A valve comprising a casing having an internal annular shoulder, a valve seat having a threaded opening at its center extending therethrough, said valve seat being reversible, and a threaded bolt engaging said valve seat and extended through the casing.

5. A valve comprising a casing formed in two parts, each of the parts having interlocking squared portions, one part having an inner annular shoulder, a valve seat designed to rest against said shoulder, and means for securing said valve seat and the parts of the casing comprising a bolt projecting through one of the parts of the casing.

6. A valve comprising a valve-seat having ports extending therethrough and countersunk recesses in its face of a diameter equal to said ports, and a valve-disk having ports designed to coincide with those of the valve seat and also having countersunk recesses corresponding to those of the valve seat.

7. A valve comprising a valve-seat having opposite arranged ports and countersunk recesses in its face on the same circumference as the said ports and midway thereof, and a valve-disk having ports corresponding to those of the valve seat, and on its face formed with countersunk recesses designed to coincide with the ports of the valve-seat when the valve is closed, and with the countersunk recesses of the valve seat when the valve is opened.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HERBERT H. CRAMER.

Witnesses:

FRANCIS S. MAGUIRE,

VERNON E. WEST.