

No. 734,351.

PATENTED JULY 21, 1903.

W. C. McKEOWN.

VALVE.

APPLICATION FILED JAN. 29, 1902.

NO MODEL.

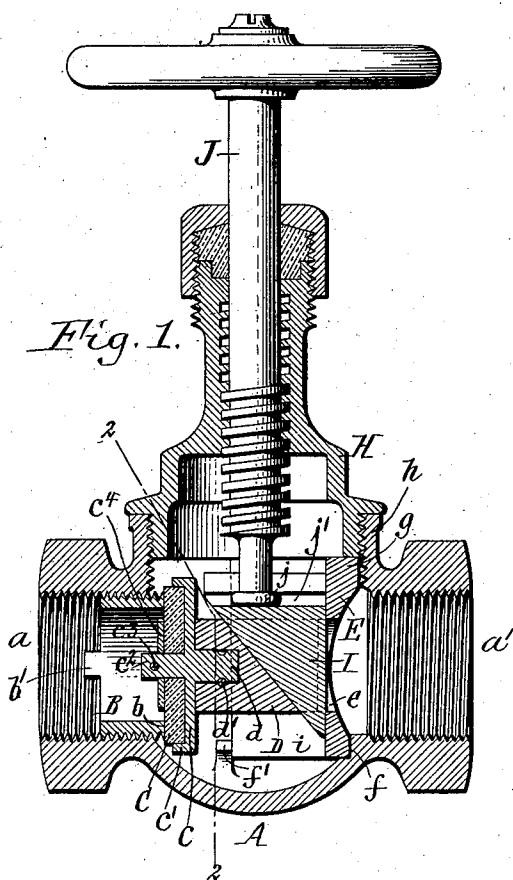


Fig. 1.

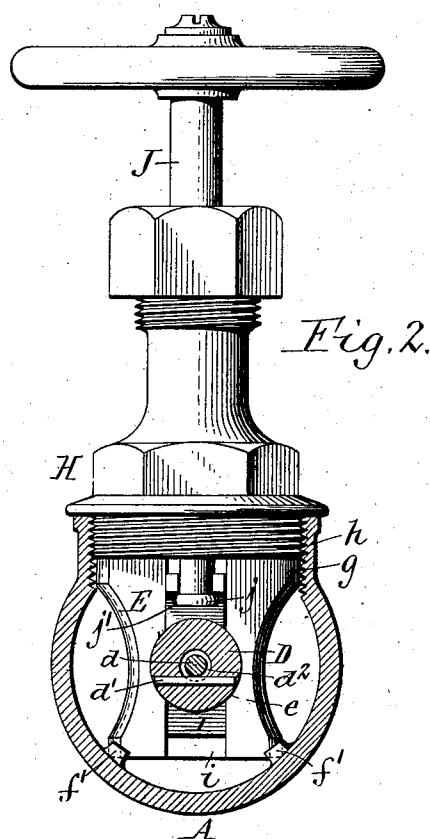


Fig. 2.

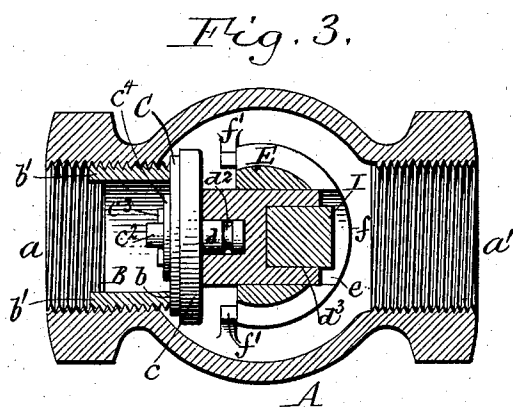


Fig. 3.

Fig. 4.

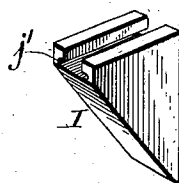


Fig. 5.

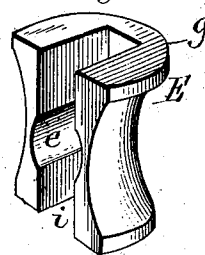
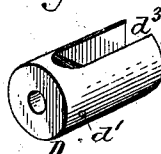


Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM C. McKEOWN, OF UTICA, NEW YORK, ASSIGNOR OF ONE-HALF TO
REUEL HARVEY THAYER, JR., OF BUFFALO, NEW YORK.

VALVE.

SPECIFICATION forming part of Letters Patent No. 734,351, dated July 21, 1903.

Application filed January 29, 1902. Serial No. 91,725. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. McKEOWN, a citizen of the United States, formerly of Buffalo, now residing at Utica, in the county of Oneida and State of New York, have invented new and useful Improvements in Valves, of which the following is a specification.

This invention relates to the general class of stop-cocks known as "globe-valves," and more particularly to valves in which the seat is arranged vertically for preventing scale, grit, and sediment from lodging on the same and causing leakage by cutting the seat and the valve.

The principal object of my invention is to produce an inexpensive valve of this kind which has a practically straight way, which has its valve-head reliably guided in such a manner as to seat squarely and insure a tight closure, and in which all of the parts are easy of access and capable of ready assemblage and dismemberment without the use of special tools.

My invention has the further objects to improve the construction of the valve-head and facilitate the regrinding and renewal of its seat.

In the accompanying drawings, Figure 1 is a sectional elevation of the valve. Fig. 2 is a similar view at right angles to Fig. 1, the plane of the sectional portion being in line 2 2 in said figure. Fig. 3 is a horizontal section of the valve. Fig. 4 is a detached perspective view of the shifting wedge of the valve. Fig. 5 is a similar view of the post in which the wedge and the valve-stem are guided. Fig. 6 is a similar view of the valve-stem.

Like letters of reference refer to like parts in the several figures.

A indicates the body or case of the valve, which is preferably of globular form and provided with the usual inlet and outlet branches *a a'*.

B is a removable ring screwed into the inner end of the inlet branch *a* and having its inner end extended a short distance into the main chamber of the valve to form a vertical valve-seat *b*, this seat being ground perfectly flat and smooth. The ring forming the valve-seat is screwed into place from the outer end of the inlet branch and may be provided with

lugs *b'* or other means adapted to receive a suitable wrench for turning the ring. By this construction the ring can be readily removed for regrinding or renewing the valve-seat when necessary.

C indicates the valve proper, which preferably consists of a flat disk of vulcanite or similar material secured to the front side of a head *c*. This head has a marginal flange *c'*, which incloses the valve-disk and prevents spreading of the same, and an axial stud *c²*, which passes through a central opening of the disk and upon which the disk is confined by a cross-pin *c³* and a washer *c⁴*. The valve-head *c* is carried by a main horizontal stem *D*, and in order to permit the valve to turn on this stem for changing its bearing-points the head *c* is provided on its rear side with a cylindrical stud *d*, which rotates in a corresponding socket formed in the front end of the main stem *D*. In the construction shown in the drawings this rotary stud is confined in its socket by a transverse pin *d'*, intersecting one side of the socket and interlocking with an annular groove *d²* of said stud; but any other suitable means may be employed for this purpose. The valve-stem *D* is guided in a horizontal socket *e*, formed in a post or standard *E*, which is removably seated in the central portion of the globular main chamber of the valve-case. This post rests upon the bottom of the valve-case and is confined against forward and backward displacement between a shoulder *f* and stops or lugs *f'*, arranged on the bottom of the case. The post preferably has the form of a spool flattened on its front side and grooved around its back and sides to form an ample way or steam-passage between its sides and the opposing walls of the valve-case, as shown in Figs. 1, 2, and 3. At its upper end the post has a projecting rim *g*, which fits snugly into the upper branch *h* of the valve-case, as seen in Fig. 2. The post is held down in place by the lower end of the usual bonnet *H*, screwed into said branch.

I indicates a wedge for closing the valve, which is guided in a vertical slot *i*, formed in the front side of the post *E* and intersecting the stem-socket *e*. The inclined front face of this wedge recedes downwardly and bears against the rear end of the valve-stem

D, which is correspondingly inclined, as shown in Fig. 1, so that upon depressing the wedge the same is caused to force the valve against its seat. The valve-stem D is provided with a longitudinal slot or recess d^3 , which receives the wedge, and the front end of this slot is sloped to form the incline of the stem, as seen in Fig. 1. The wedge is operated by an upright screw-spindle J engaging with an internal thread of the bonnet H, like the spindle of an ordinary globe-valve, and provided at its lower end with a head j , which engages in an undercut groove j' in the top of the wedge. This connection allows the spindle to turn on the wedge and permits it to be readily attached to and removed from the same.

In order to close the valve, the spindle J is turned forwardly to lower the wedge, and as the latter is held against backward movement by the guide-post E it is compelled to force the valve against its seat, the screw-threaded spindle in connection with the wedge affording a powerful leverage, which enables the valve to be tightly closed with comparatively little effort. To open the valve, the spindle is simply turned in the reverse direction for raising the wedge clear of the valve-stem D and allowing the valve to open under the pressure against its face. The post E forms a reliable guide for the valve-stem D, which causes the valve to seat squarely, and it likewise guides the wedge and insures a smooth action of the same. At the same time the post is so arranged as to leave a nearly straight or direct way through the valve. As the guide-post is removably seated in the valve-case and as the valve-stem D and the wedge I are detachable from each other and the post, all of the parts of the valve, as well as the inclosing case, are accessible and can be made without special tools or machinery and quickly assembled and as readily removed for repairing or renewing any parts.

If desired, my improved valve may be used as a check-valve as well as a globe-valve by removing the wedge I and the spindle J and substituting a closed cap for the stuffing-box of the spindle. It may also be used as a combined globe and check valve, in which case when it is to serve as a check-valve the

wedge I is simply raised clear of the valve-stem D by means of the spindle and retained in its elevated position. This combination feature of the valve renders the same desirable on a feed-line, where it takes the place of the separate check and globe valves ordinarily employed.

I claim as my invention—

1. The combination of a valve-case having inlet and outlet branches and a valve-seat, the case being provided in its bottom with stops or shoulders and opposite the latter with an opening or branch for the introduction of the parts of the valve, a guide post or standard removably seated on the bottom of the case between said stops or shoulders and having its upper end arranged in the opposing branch of the case, and a valve guided in said post, substantially as set forth.

2. The combination of a valve-case having inlet and outlet branches and a vertical valve-seat, a post or standard removably seated in the valve-case and provided with a horizontal guide-socket and a vertical guide-slot which intersects said socket, a valve having its stem arranged to slide in said socket and provided with an inclined face, a vertically-movable wedge sliding in said vertical guide-slot and bearing with its inclined face against the corresponding face of said valve-stem, and means for operating said wedge, substantially as set forth.

3. The combination of a valve-case having inlet and outlet branches and a vertical valve-seat, a post or standard removably seated in the valve-case and provided with a horizontal guide-socket and a vertical guide-slot which intersects said socket, a valve having its stem arranged to slide in said socket and provided with an inclined face, a vertically-movable wedge sliding in said vertical guide-slot and bearing with its inclined face against the corresponding face of said valve-stem, and a rotary spindle for raising and lowering said wedge, substantially as set forth.

Witness my hand this 15th day of January, 1902.

WM. C. McKEOWN.

Witnesses:

W. C. J. DOOLITTLE,
R. H. THAYER, Jr.