J. Porrell,

Globe Valve,

No. 61,758, Patented Feb. 5, 1867.

Fig: 1.

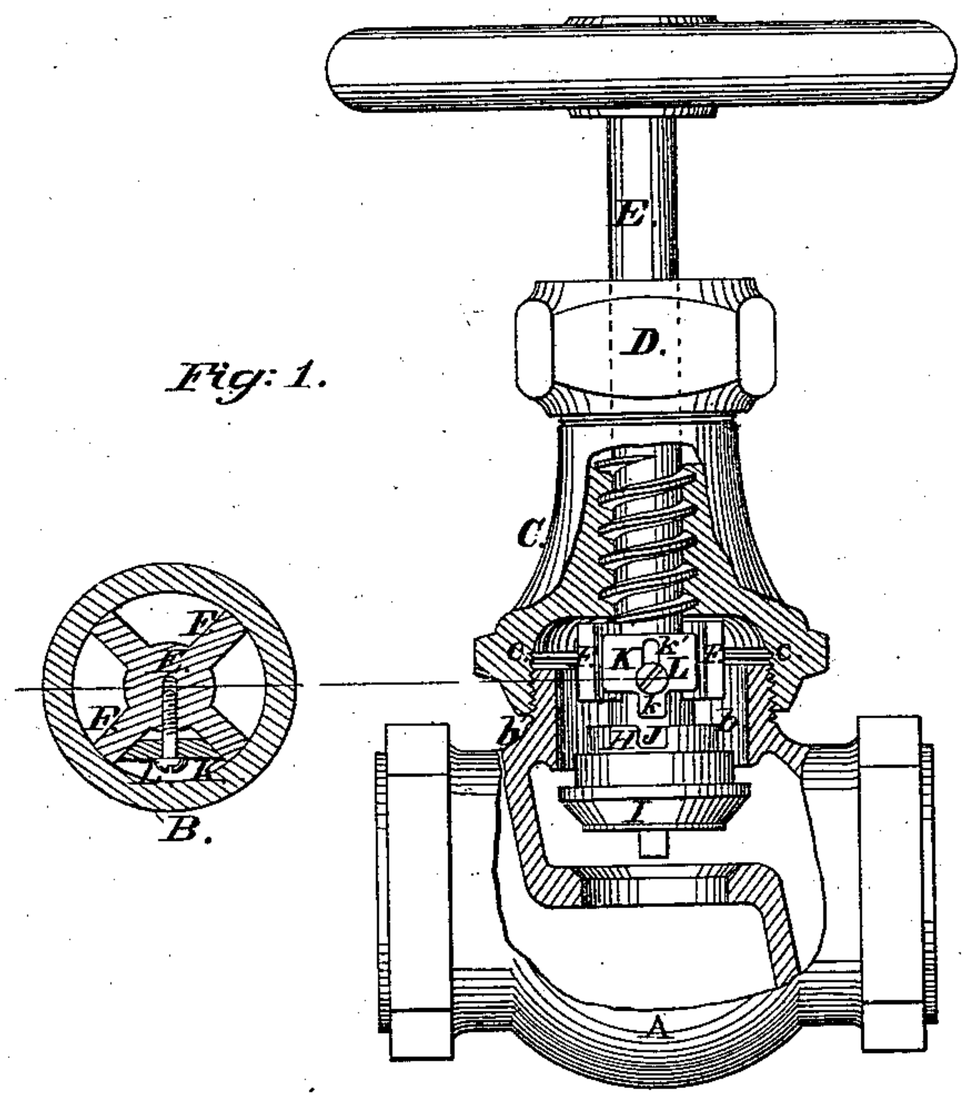


Fig: 2.

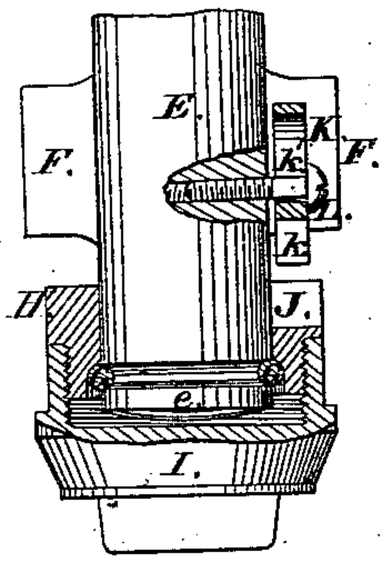


Fig: 3.

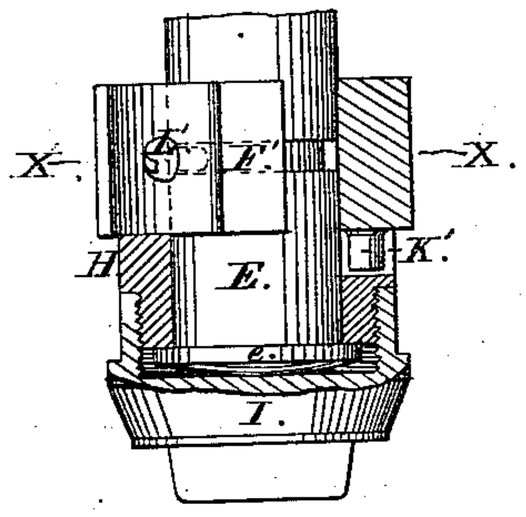
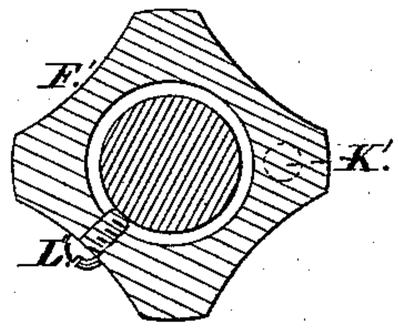


Fig: 4.



Witnesses:

James H Layman

H. J. Webber

Inventor:

James Powell

By Knight Bro

Attorneys.

United States Patent Office.

JAMES POWELL, OF CINCINNATI, OHIO.

Letters Patent No. 61,758, *dated February* 5, 1867.

IMPROVEMENT IN GLOBE-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, JAMES POWELL, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Globe-Valves; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

My improvement relates to that class of cocks known as globe-valves, in which the valve proper has a flexible attachment to its stem, so as to be capable of self-adjustment to the seat, and my invention consists in a provision whereby such valve, when worn unequally, can be reground to its seat, through the instrumentality of its stem. In the ordinary globe-valve or cock, employing a self-adjusting valve, no provision has been made for grinding or regrinding it in connection with the stem, and when such a valve has required regrinding, it has been customary to separate the valve-disk from the stem by unscrewing it, and to attach it rigidly to a temporary handle or plug, so as to enable the operator to clumsily grind it to a bearing. It is obvious that such construction of the valve and stem necessarily involves imperfect workmanship, and great difficulty in preserving the common axis of the valve and stem so as to insure a tight joint, and to prevent the leakage of steam or other fluid. Whereas globe-valves made on my plan are readily ground or reground to a perfectly accurate bearing, without the trouble and delay of separating the valve from its stem. In the accompanying drawing—

Figure 1 is an axial section of a globe-valve, embodying my improvement.

Figure 2 is an axial section of the valve proper, at right angles to the above.

Figure 3 shows by side elevation a modification of my improvement; and

Figure 4 is a horizontal section of the same at the line X X.

The body A, fig. 1, of the cock has a neck, B, having a smooth cylindrical interior, *b*, and a screw-threaded exterior, *b'*, which exterior receives the interiorly screw-threaded hub, cup, or chamber C *c*, which hub is surmounted by a customary stuffing-box, D. The valve-stem E is provided with guide-wings or bearings, F, adapted to fit and slide within the cylindrical interior of the neck, as described in the patent granted to me on the second of May, 1865. The lower end of the stem E is so constructed that a shoulder or enlargement is formed by a ring, G, sprung into an encircling groove in the stem, which engages with the diminished or contracted opening of the plug H, and prevents the plug from slipping off. The plug H is screwed into the upper face of the disk or valve proper I, just so far as, while permitting free vibration of the disk with reference to the stem, and unobstructed rotation of the latter, to at the same time preserve the disk from undue looseness or lateral play. The under side of the plug H is chambered out, of sufficient depth and diameter to enclose the spring-collar G, and thus prevent the possibility of the displacement of the collar. The stem terminates in a swell, *e*, which, when the said stem is depressed, bears solidly upon the upper side or back of the disk. The plug H has a notch or cavity, J, which, when it is desired to unite the stem and valve so as to revolve together, receives the tongue *k* of the lock-piece K, which piece has a slot, *k'*, to receive a set-screw, L, by which the piece K is secured, either in or out of lock with the valve. The lock-piece K is of such width as just to fill the space between two of the guide-wings, so that it may be braced securely while performing its office. The end of the pin or tongue is diminished at its lower end, so as to readily drop into the cavity or opening in the valve; and the set-screw being tightened, the lock-piece carries the valve around with the stem. When it is desired to grind the valve to its seat, the cap is unscrewed as in the drawing, and the valve is momentarily withdrawn; the set-screw L, being then loosened so as to allow the tongue of the lock-piece to drop into the cavity of the valve, is again tightened. Sand, powdered glass, or other suitable abradant being then applied, the stem and valve are restored to their places and rotated alternately to the right and left with a downward pressure. The grinding having been accomplished, the valve is withdrawn once more, to restore the lock-piece to its upper or inactive position, and then returned to its place in the body, and the cap screwed home again, when it is again fit for use; but I do not confine myself to the precise arrangement here selected for illustration, as a lock-piece substantially as above may be employed in various ways; for example, the guide-wings may form part of a loose collar, F', (see figs. 3 and 4,) which collar may have a tongue, K', which permanently occupies the cavity of the valve. In this form, the locking and unlocking are accomplished by simply tightening and loosening of the set-screw L. The point of said set-screw entering a circumferential groove in the stem, serves the twofold purpose of tightening, as above, and being slackened; of holding the collar F to its place when out of lock. I

am aware that it is common to construct valves having a loose disk, but I know of no instance in which a loose disk valve has ever been constructed with a provision for rigid attachment of the valve-stem, so as to be carried around with the latter in the act of grinding.

I claim herein as new, and of my invention—

1. In the described combination with a valve-stem adapted to maintain an axial position, independently of its screw, and provided with a self-adjusting valve, I claim the locking-piece K, or its equivalent, adapted to operate as set forth.

2. I claim, in the described combination, the following elements, to wit: a valve-stem, having guides for preserving its axial position when released from the screw-cap; a self-adjusting valve, and the tongued and adjustable piece K, adapted to enter the cavity J in the valve, and to be secured either in or out of lock, substantially as and for the purpose set forth.

3. The loose guide-collar F′ and K′ which permanently occupies a cavity in the valve, and is secured in or out of lock by a set-screw, *b*, in the manner described.

In testimony of which invention I hereunto set my hand.

JAMES POWELL.

Witnesses:

GEO. H. KNIGHT,

JAMES H. LAYMAN.