(No Model.)

J. O'MEARA.

VALVE.

No. 594,895. Patented Dec. 7, 1897.

Fig. 1

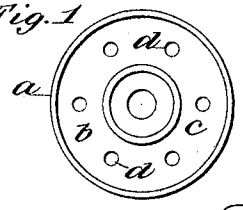


Fig. 2

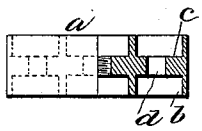


Fig. 3

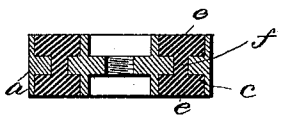


Fig. 4

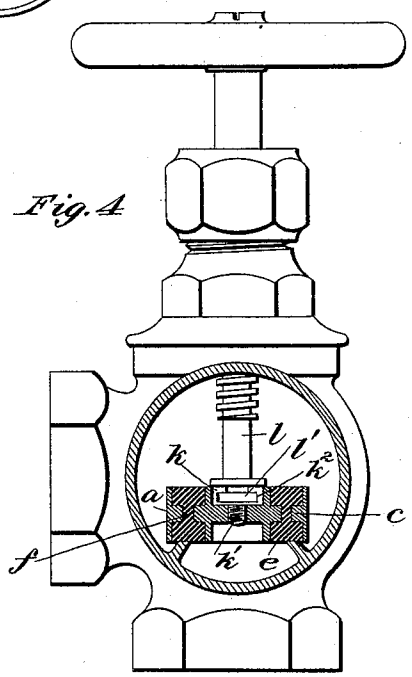


Fig. 5

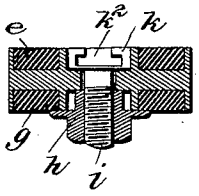


Fig. 6

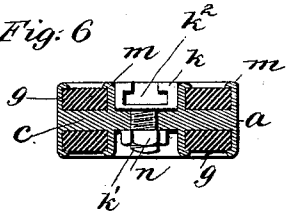
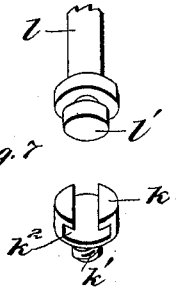


Fig. 7



Witnesses:

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UNITED STATES PATENT OFFICE.

JEREMIAH O'MEARA, OF NEW YORK, N. Y.

VALVE.

SPECIFICATION forming part of Letters Patent No. 594,895, dated December 7, 1897.

Application filed September 28, 1896. Serial No. 607,152. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH O'MEARA, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Valves, of which the following is a full, clear, and exact description.

Heretofore in the manufacture of globe, angle, and similar valves it has been customary to construct a disk with a packed face in such a manner that when the packing is worn away by use it is most economical to replace the entire disk. The disks are packed with material adapted to withstand certain predetermined pressures. Vulcanized rubber, vulcanized asbestos, vulcanized fiber, metallic alloys, and other substances and materials have been used in connection with such disks in accordance with the service to which the valves are to be applied. It has been proposed to prolong the life of a disk by providing it with two faces, either of which may be used by reversal of the disk.

My invention relates to a reversible disk for globe, angle, and other like valves and means for effecting the ready reversal of the disk; and my invention relates, further, to a reversible disk having faces of different quality, whereby the disk may be used for different services or different pressures.

The invention consists in a valve-disk chambered upon opposite sides or faces and provided with suitable packing in such chambers and supplied with means whereby either face may be turned into position for use on the valve-seat and the disk connected with the valve-stem, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating my invention, in the several views of which like parts are similarly designated, Figure 1 is a plan view of one form of my reversible disk. Fig. 2 is a half-section and elevation. Fig. 3 is a cross-section with the disk packed. Fig. 4 is a sectional elevation of an angle-valve with the disk in vertical section. Fig. 5 is a vertical section of another form of reversible disk. Fig. 6 is a vertical section of still another form of reversible disk. Fig. 7 shows in perspective means for swiveling the disk and the valve-stem.

Referring now to Figs. 1, 2, 3, and 4, *a* is a disk having upon opposite faces the cavities *b b*—in this instance annular cavities. These cavities are separated by the partition *c*, which is provided with a number of perforations *d*. The packing *e* may be applied to the disk in a variety of ways. I prefer to use a vulcanizable substance, reduce it to a plastic condition, as by heat, and then force it into the cavities *b b*, so that its substance shall pass through the perforations *d*, as at *f*, Figs. 3 and 4, and thereby the substance on opposite sides be tied or combined together. Thus the packing in one cavity will anchor that in the other.

After the packing has hardened in the disk the faces of the disk are leveled off in any usual manner, and as these faces are worn they may be ground down until the packing is exhausted. By this construction when one face of the disk is worn beyond repair the disk may be detached from the valve-stem, reversed, and again applied to the valve-stem in this reversed position and the fresh face used until exhausted. Obviously such a disk has practically double the lifetime of a single-face disk.

The packing may be applied in a variety of ways and a variety of packing also may be used. As shown in Fig. 5, the packing *e* may be of rubber or other substance which may be pressed into the cavity of the disk while in a plastic condition, and the packing *g* may be of an entirely different character and may be placed within the cavity of the disk in a loose manner or by simple manual pressure or may be cut as a ring from a body of material, and in any case the said packing may be held in the cavity by means of a nut *h*, which is applied to the stem *i* of the coupling or swiveling device *k*, which is used to connect the disk with the valve-stem *l*. A further modification in the manner of applying packing either of the same or of different kind to the opposite cavities of the disk is shown in Fig. 6, wherein the flanges *m* of the disk are shown as spun down over upon the packing.

By my invention, as already intimated, packing of the same or different kind may be used on the two faces of the disk, and by this construction it is possible to unite in one disk

a valve adapted for service with low-pressure steam or very high pressure steam, one face of the disk being packed for low pressure and the other for high pressure; or one face of the disk may be packed with a textile, fibrous, or mineral or vegetable packing or composition, while the other may have a metallic packing.

In Figs. 4 and 7 the swiveling connection between the valve-stem l and the disk is shown as a socket-piece k, having a screw-threaded stem k', which engages a screw-thread in the center of the wall or partition c, and this socket is made with an undercut slot k^2, which receives the inverted T l' of the stem l, and inasmuch as the socket member k is within the circumference of the disk it is obvious that there is no chance for lateral disengagement or longitudinal disconnection of the disk and stem while they are so united and no necessity for pins and like connections. As shown in Fig. 6, the stem k' may be extended below the partition c and be provided with a check-nut n.

Whenever it is desired to reverse the disk, the said disk is unscrewed from the coupling member and turned upside down and again screwed onto the coupling member.

It is within my invention to use the swiveling connection hereinabove described in conjunction with a reversible valve made wholly of metal, and it is also within my invention to use such swiveling connection on a non-reversible valve.

What I claim is—

1. A reversible disk for valves, composed of a body chambered on opposite sides and having such chambers packed with a suitable packing material, such chambers being separated by a partition, a socket-piece arranged in said partition, and a valve-stem fitted to such socket-piece and held in place in such socket-piece within the disk by the walls of the disk, to swivel the disk upon such stem, substantially as described.

2. A valve-disk, chambered on opposite sides, and provided with packing material, the chambers being separated horizontally by a partition, a socket-piece secured in such partition and having an undercut slot, combined with the valve-stem terminating in an inverted T, and fitted to such slot, the socket-piece and the end of the valve-stem being arranged within the walls of the disk, substantially as and for the purpose described.

3. A reversible disk for valves, having cavities or chambers in opposite faces, and having material of different quality or character arranged in such cavities or chambers, one chamber containing, for example, a packing material adapted for use with low-pressure steam, and the other chamber containing packing material adapted for high-pressure steam, so that the disk may be used for either class of service, combined with a stem and a swiveling connection for the stem and disk, the said stem and swiveling connection being joined within the disk and held together by the walls of the disk, substantially as and for the purpose described.

4. A reversible valve-disk, having sunk within its center a socket-piece having an undercut slot, combined with a valve-stem terminating in an inverted T which is connected with the undercut slot of the socket-piece, substantially as and for the purpose described.

5. A reversible valve-disk, a socket-piece screwed into the same and sunk within its top, combined with a valve-stem having its end arranged within said socket-piece and held from displacement therefrom by the walls of the disk, the disk being swiveled thereby upon the stem, substantially as described.

In testimony whereof I have hereunto set my hand this 26th day of September, A. D. 1896.

JEREMIAH O'MEARA.

Witnesses:
EDWARD L. PURDY,
RICHARD KENWORTHY.