No. 737,414. PATENTED AUG. 25, 1903.

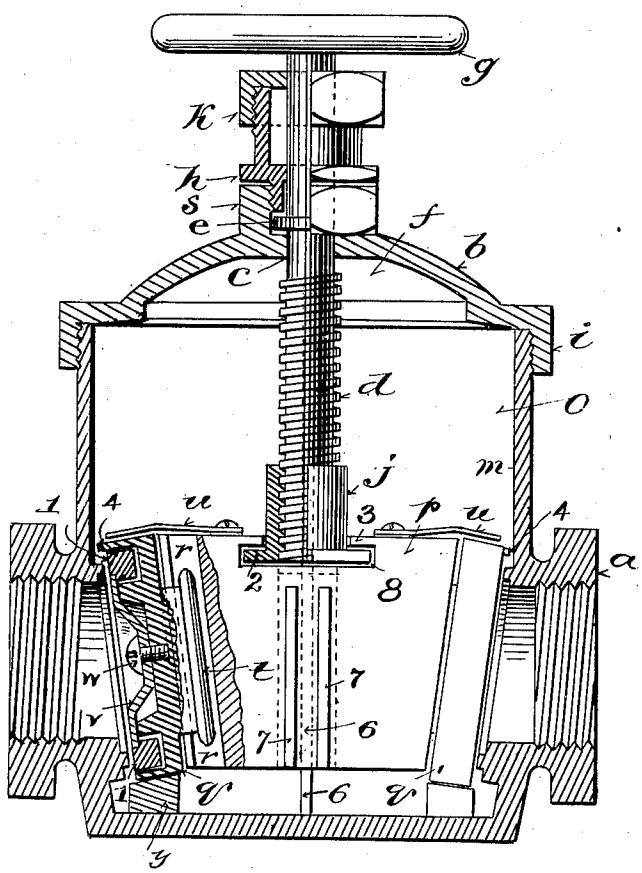
O. M. JONES.

VALVE.

APPLICATION FILED FEB. 17, 1902.

NO MODEL.

Fig. 1.



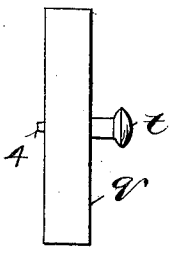


Fig. 2.

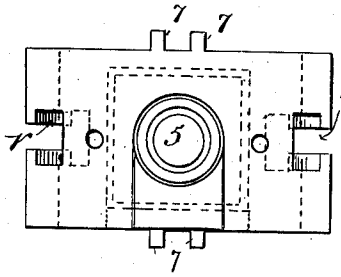


Fig 3.

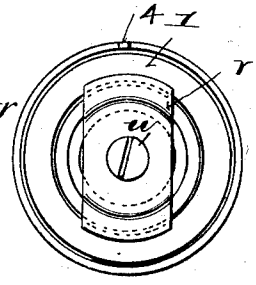


Fig. 4.

Witnesses:
C. M. Benjamin
H. S. Morton.

Inventor:
Owen M. Jones.
by Harold A. Kinney
atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 737,414. Patented August 25, 1903.

UNITED STATES PATENT OFFICE.

OWEN MARSHALL JONES, OF NEW YORK, N. Y.

VALVE.

SPECIFICATION forming part of Letters Patent No. 737,414, dated August 25, 1903.

Application filed February 17, 1902. Serial No. 94,390. (No model.)

To all whom it may concern:

Be it known that I, OWEN MARSHALL JONES, of the borough of Manhattan, city and State of New York, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention relates to valves; and its object is to provide a valve in which the wear between the parts in the operation thereof is greatly reduced and in which the parts may be readily removable or the broken parts easily replaced.

My invention consists in means for carrying out the above objects, and further consists in the construction of parts having the general mode of operation substantially as hereinafter more fully set forth in the accompanying specification and drawings, in which—

Figure 1 is a longitudinal sectional view of my improved valve. Fig. 2 is a plan view of the disk-holder. Fig. 3 is a top view of a valve-wedge, showing the projections thereon; and Fig. 4 is a side view of a disk-holder with a valve-disk in position thereon.

Referring to the drawings, *a* represents a suitable valve-body in which there is a valve-chamber *o*, and a cap *b* is suitably connected, as by screw-threads, to the neck *m* of the body. The cap *b* is provided with a nut-formed hollowed projection *i*, integral with the cap for screwing and unscrewing the same from the neck *m*. While the valve-body may be of any suitable shape, in this instance it is shown of angular cross-section, and the valve-neck *m* is substantially rectangular in section.

Adapted to operate within the valve-chamber *o* is arranged a carriage or valve-wedge *p*, shaped to fit the valve-chamber and which acts as the carriage for the disk-holders. In this instance the end walls of the chamber are shown tapering, and the valve-wedge is made to conform to the taper, as this construction has been found to be convenient and to operate satisfactorily.

The disk-holders *q* are removably attached to the valve-wedge *p*, and while this may be accomplished in several ways according to my invention the ends of the valve wedge are provided with grooves or recesses *r* and the disk-holders *q* are provided with tongues *t*, adapted to the grooves or recesses *r* in the valve-wedge. As shown, the grooves *r* extend in the general direction of the vertical axis of the valve, although I am not to be understood as limiting myself to the grooves of the precise construction shown or extending in the direction shown. The tongues *t* of the disk-holders being inserted in the groove *r*, means should be provided for retaining the disk-holders within the grooves, and in this instance suitable springs *u*, connected to the valve-wedge, bear upon the upper ends of the disk-holders and retain the tongues in the grooves. With this construction it will be seen that the disk-holders are not rigidly connected to the valve-wedge, but have a certain play relative thereto, and by this means the wear between the disks and the valve-casing is reduced.

In order to provide an efficiently-operating valve and to further reduce the wear between the parts, ring-disks 1, preferably of composition, as rubber or Babbitt metal or of any other suitable material, are connected to the valve-disk holders in any suitable manner. As shown, the disk-holders are provided with recesses to which the ring-disks are attached, and in this instance retaining-plates *v*, connected to the valve-disks in any suitable manner, as by screws *w*, retain the disks in position.

Since the greatest amount of wear occurs between the valve-disks (and their rings) and the valve-seat on the casing, I provide suitable projecting valve-rings *x* on the valve casing or body, forming seats for the rings 1. *y* represents buffers for the valve and disk-holders when seated.

Means are provided for operating the valve, and in this instance the carriage or valve-wedge *p* is adapted to be raised and lowered within the valve-chamber and the opening *f* within the valve-cap *b*. A valve-stem *d* is suitably connected to the body-piece *p*, as shown. A sleeve *j*, screw-threaded on its interior and surrounding the screw-threaded portion of the stem *d*, is adapted to a recess 8 in the valve-wedge *p*, a flange 2 on the sleeve *j* engaging projections 3 on the body-piece *p*, so that by rotating the valve-stem about its longitudinal axis the sleeve *j* will travel upon the screw-threaded portion of the stem, and

the valve-wedge *p*, with the disk-holders, will be raised and lowered, as desired, to open and close the valve. In the raising and lowering of the valve-wedge *p* and valve-disks to provide against wear between the disk-holders and the valve-neck *m* projections or lugs 4 are formed upon the valve-disks adapted to bear against the valve-neck *m* and take up the wear.

The valve-stem *d* is shown projecting through a perforation *c* in the cap *b*, while a collar *e* allows the stem to be thrust to a certain extent only into the valve-chamber. Means are provided for preventing vertical movement of the valve-stem and preventing leakage through the connection of the valve-stem with the cap *b*. As shown, a gland *h*, outwardly screw-threaded, is adapted to the inward screw-threaded portion of the hollowed projection *s*, while a suitable stuffing-box *k* is arranged above the gland *h*, and *g* represents operating-handle connected to the valve-stem.

In the operation of the valve an aperture 5 in the valve-wedge *p* (shown in dotted lines in Fig. 1) allows the valve-wedge to rise upon the valve-stem as the valve is open, while a projection 6 on the valve-casing, outside of which the projections 7 on the valve-wedge *p* are arranged to slide, forms a guide for the valve-wedge and prevents twisting and rotation thereof.

It will thus be seen that according to my invention I guard against wear in every manner possible, and thus provide a very efficiently-operating valve, in which leakage is reduced to a minimum and which is simple and cheap to make.

It will be seen that according to my invention the recess to which the tongue *t* is adapted is of such depth that when the valve is closed the valve-wedge does not press upon the top of the tongue, but pressure is brought against the back of the valve-disk. This construction is to prevent dishing of the valve-disk and leakage, for it will readily be seen that if pressure is brought upon the top of the tongue only to close the valve tightly the center of the disk will be pressed outwardly more strongly than the sides, causing dishing. According to my construction leakage is prevented and an efficient valve construction provided.

Without limiting myself to the details of construction hereinbefore shown and described, I claim and desire to obtain by Letters Patent—

1. In a valve, the combination with a valve casing or body and chamber of a valve-wedge within the chamber, a stem connected to said valve-wedge for raising and lowering the same, disks and disk-holders on the valve-wedge, and projections on the upper portions of the disk-holders for preventing wear between the disk-holders and valve casing or body in the operation of the valve, substantially as described.

2. In a valve, the combination of a valve-chamber and valve-wedge therein, provided with recesses in its ends, disk-holders also provided with recesses and having tongues adapted to coöperate with said recesses in the valve-wedge, rings or disks carried by said disk-holders in the recesses in the same, retaining-plates connected to the disk-holders for retaining the rings or disks in the recesses, and a valve-stem connected to the valve-wedge, substantially as described.

3. In a valve, the combination of a valve chamber or body, a valve-wedge provided with recesses therein, disk-holders also provided with recesses and having tongues adapted to said recesses in the valve-wedge, rings or disks carried by said disk-holders in the recesses in the same, retaining-plates for retaining the rings or disks in the recesses, and means for raising and lowering the valve-wedge and disk-holders attached thereto, in the valve-chamber, substantially as described.

4. In a valve, the combination of a valve-casing and chamber, a valve-wedge, disk-holders connected thereto and provided with recesses, rings or disks connected to said disk-holders in the recesses, retaining-plates for retaining the rings or disks in the recesses, projecting rings on the casing forming seats for the rings or disks on the disk-holders, and means for raising and lowering the valve-wedge in the valve-chamber, substantially as described.

5. In a valve, the combination with a tapering valve casing or body, of a wedge-shaped piece within the casing, and a valve-disk, one of which is provided with a tongue and the other with a recess to which said tongue is adapted, said recess being of such depth that the wedge-shaped valve-piece bears upon the back of the disk without bearing on the tongue, whereby an even distribution of pressure is obtained upon the valve-disk, substantially as described.

Signed this 15th day of February, 1902, at New York.

OWEN MARSHALL JONES.

Witnesses:

E. VAN ZANDT,

H. S. MORTON.