No. 702,878. Patented June 17, 1902.

J. MORRISON.

COMPRESSION VALVE.

(Application filed Jan. 14, 1901.)

(No Model.)

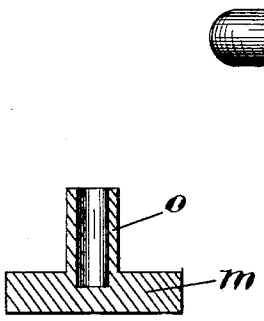


Fig. 4.

Fig. 1.

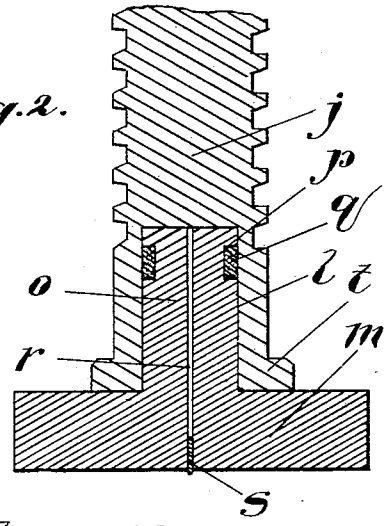


Fig. 2.

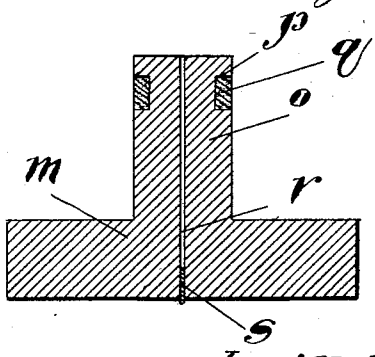


Fig. 3.

Witnesses
Jas. A. Cameron
L. F. Brock

Inventor
James Morrison
by C. Neale
his Atty.

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

UNITED STATES PATENT OFFICE.

JAMES MORRISON, OF TORONTO, CANADA.

COMPRESSION-VALVE.

SPECIFICATION forming part of Letters Patent No. 702,878, dated June 17, 1902.

Application filed January 14, 1901. Serial No. 43,285. (No model.)

To all whom it may concern:

Be it known that I, JAMES MORRISON, manufacturer, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Compression-Valves; and I hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to certain new and useful improvements in compression-valves; and it relates more particularly to the peculiar construction of the valve-stem and the manner in which the valve-disk is connected to it, the object of the invention being to provide the inner end of the valve-stem with an inwardly-extending central recess to receive a pin projecting outwardly from the center of one of the side faces of the valve-disk, the valve-disk and pin being preferably made of soft metal, as hereinafter more fully set forth, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a longitudinal section of the globe-valve. Fig. 2 is an enlarged vertical section of the valve-stem and valve-disk. Fig. 3 is an enlarged section of the valve-disk shown in Figs. 1 and 2. Fig. 4 is a sectional view of a modification of the valve-disk.

Like letters of reference refer to like parts throughout the specification and drawings.

a represents the shell of the valve, which is provided with the usual inlet and outlet ports *b* and *c*, respectively. Within the shell *a* is the usual partition *d*, separating the inlet and outlet ports, and formed in the partition *d* a port *e*, surrounded by a valve-seat *f*. In the shell *a* is a screw-threaded opening *g*, opposed to the port *c*, and closing the opening *g* is a cap *h*, provided with the usual stuffing-box *i*. Passing longitudinally through the stuffing-box *i* and cap *h* is the valve-stem *j*, the outer end of which is fitted with a valve-handle *k*, and extending inwardly from the center of the inner end of the valve-stem is a central recess *l*. The valve-disk *m* is slightly greater in diameter than the diameter of the valve-seat and is preferably made of copper, brass, or other similar soft metal. Projecting outwardly from the center of one of the side faces of the disk *m* is a pin *o*, the diameter of which corresponds to the diameter of the recess *l* and the length of which is substantially the same as that of the recess. In the pin *o* is a circumferential groove *p*, containing a packing *q*. Formed through the center of the disk *m* and pin *o* is a diminutive hole *r*, normally closed by a plug *s*. The inner end of the valve-stem *j* is fitted with a circular flange *t*, which abuts against the adjacent side face of the disk *m*. In assembing the valve-stem and valve-disk the plug *s* is withdrawn from the hole *r* and the pin *o* is inserted in the recess *l*, the pin being forced into the recess until arrested by the engagement of the flange *t* with the disk *m*. As the pin *o* moves into the recess *l* it forces the air out through the diminutive holes *r*, being assisted in the expulsion of the air by the packing *q*. As soon as the pin *o* has been driven completely into the recess *l* the hole *r* is stopped by the plug *s*, and the atmospheric pressure on the disk holds it to the valve-stem, being assisted in this respect by the friction of the packing *q* against the wall of the recess. The disk being loose can remain stationary after reaching its seat, although the turning of the valve-stem may be continued for a partial revolution.

In the use of the invention the valve-disk is normally opposed to the valve-seat *f*, and by turning the valve-stem in the direction indicated by arrow the valve-disk is moved to register with the valve-seat. As soon as the valve-disk engages the valve-seat it remains stationary, and the continued turning of the valve-stem in the direction indicated by arrow is independent of the revolution of the disk. By this means the wear on the valve-disk and valve-seat can be avoided to an appreciable extent. By making the valve-stem and valve-disk as above described the valve-disk can be easily and cheaply manufactured, readily connected to the valve-stems, and interchanged.

In Fig. 4 a modification of the valve-disk and pin is shown in which the pin is provided with a longitudinal recess extending inwardly from its inner end, the pressure on the face of the valve-disk being sufficient to counteract the small air-pressure behind the pin and hold it to the valve-stem, the recess in the construction shown in Fig. 4 receiving the compressed air in the stem.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A valve embracing in its construction a valve-stem having a recess extending inwardly from the center of its inner end, a valve-disk, a shank projecting outwardly from the center of one side face of the valve-disk to register in the recess in the valve-stem, a diminutive passage formed through the valve-disk and shank, substantially as specified.

2. A valve embracing in its construction a valve-stem having a recess extending inwardly from the center of its inner end, a valve-disk, a shank projecting outwardly from the center of one side face of the disk to register with the recess in the valve-stem, a circumferential groove formed in the shank, a packing contained in the groove, a diminutive passage through the valve-disk and shank, and a plug to close the passage, substantially as specified.

3. A valve embracing in its construction a valve-stem having a recess extending inwardly from the center of its inner end, a valve-disk, a shank projecting outwardly from the center of one side face of the valve-disk to register in the recess in the valve-stem, a diminutive passage formed through the valve-disk and shank, and a plug to close the passage, substantially as described.

4. A valve embracing in its construction a valve-stem, a central orifice extending inwardly from the inner end of the valve-stem, a valve-disk, a shank projecting outwardly from the side face of the valve-disk adapted to be contained in the orifice of the valve-stem and a diminutive passage through the valve-disk and shank, substantially as specified.

5. A valve embracing in its construction a valve-stem, a central orifice extending inwardly from the inner end of the valve-stem, a valve-disk, a shank projecting outwardly from the side face of the valve-disk, an annular groove in the shank, a packing contained in the annular groove, and a diminutive passage formed through the shank and valve-disk, substantially as specified.

Toronto, December 18, 1900.

JAMES MORRISON.

In presence of—
C. H. RICHES,
J. E. CAMERON.