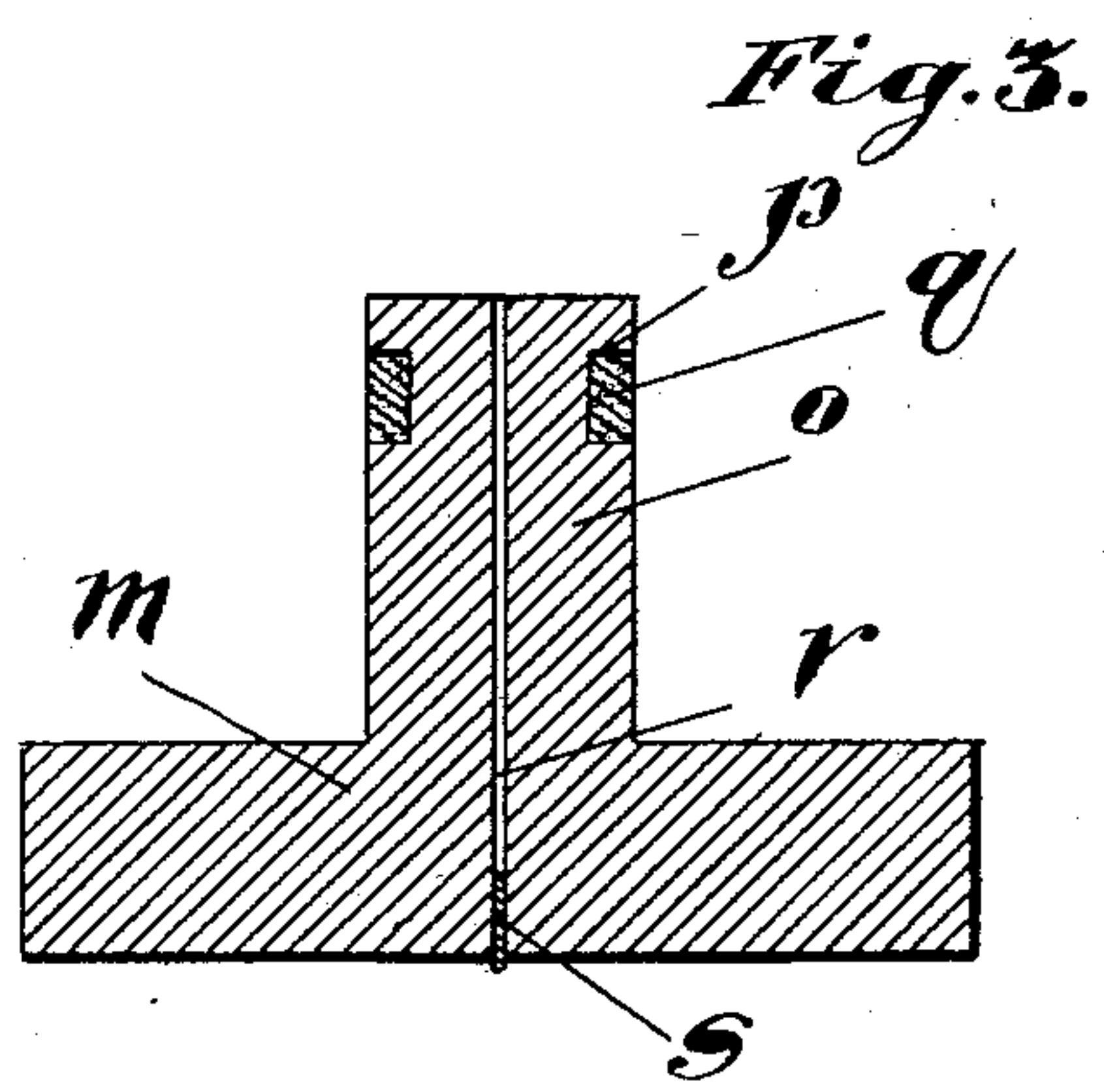
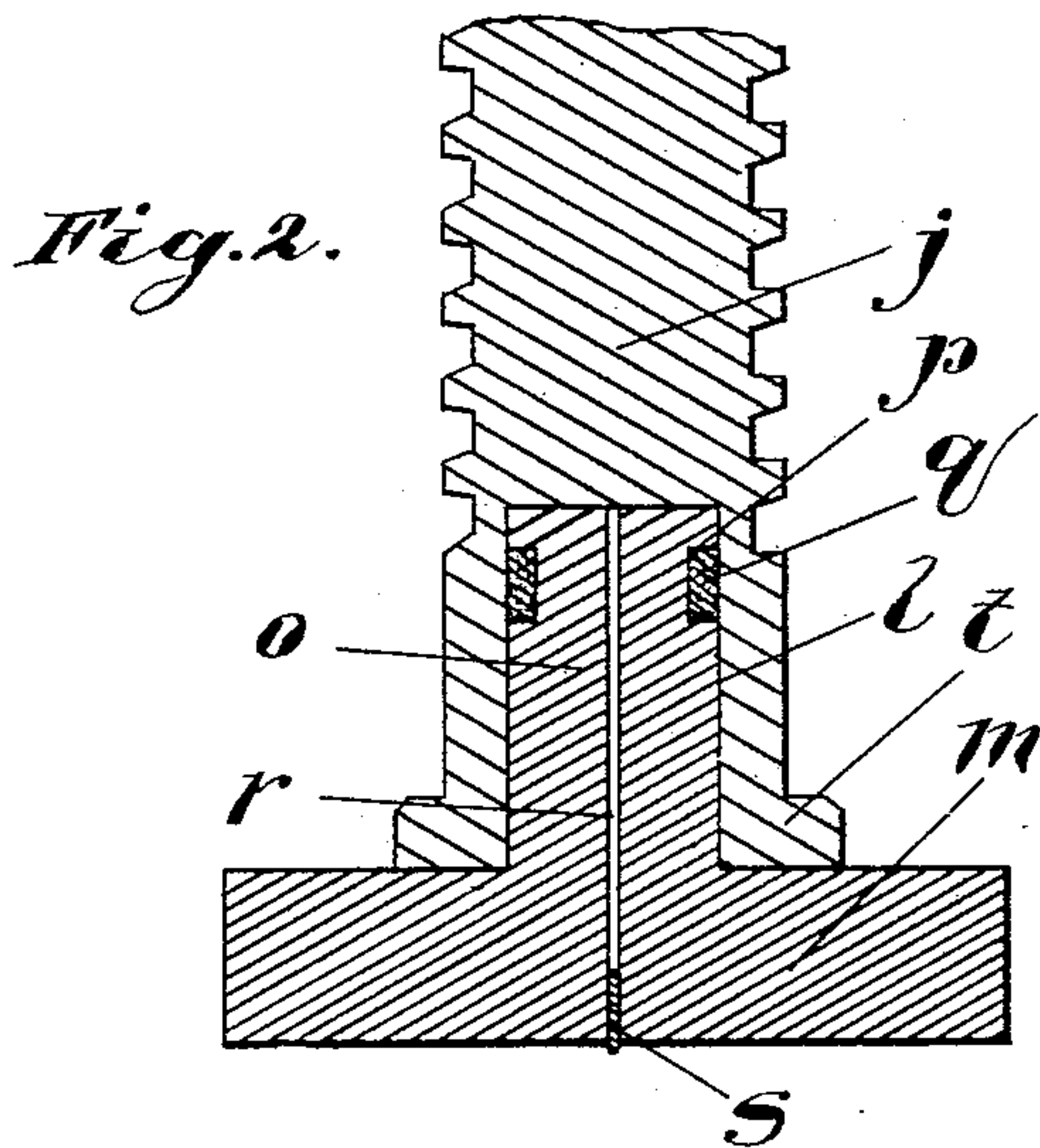
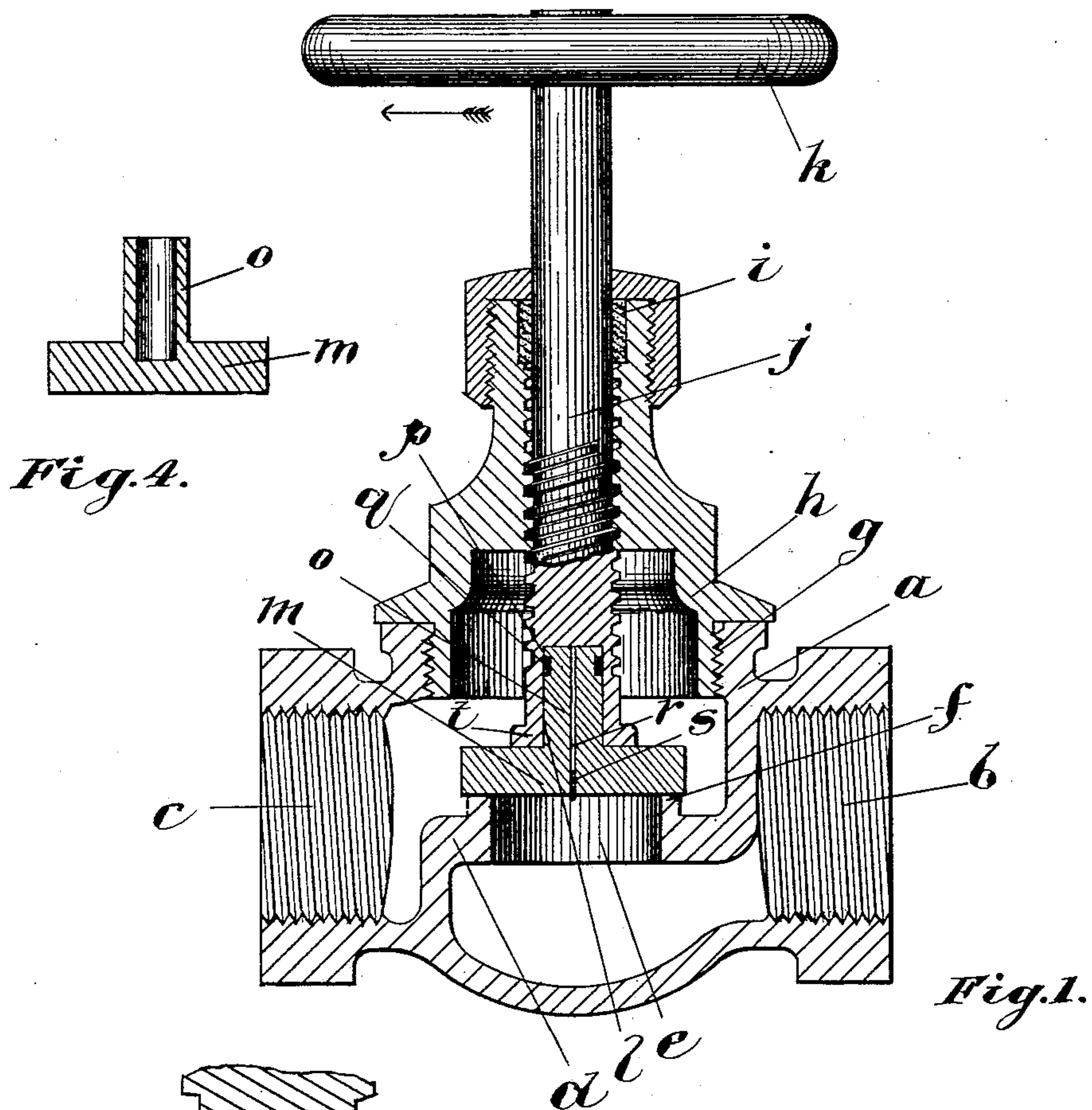


No. 702,878.

Patented June 17, 1902.

J. MORRISON.
COMPRESSION VALVE.
(Application filed Jan. 14, 1901.)

(No Model.)



Witnesses
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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 re-

cess *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 assembling 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.