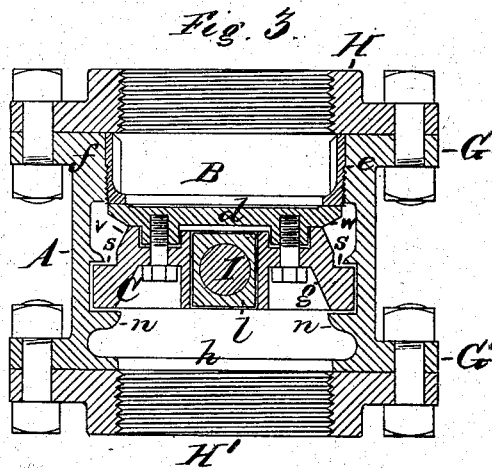
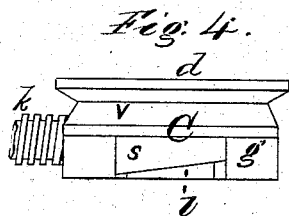
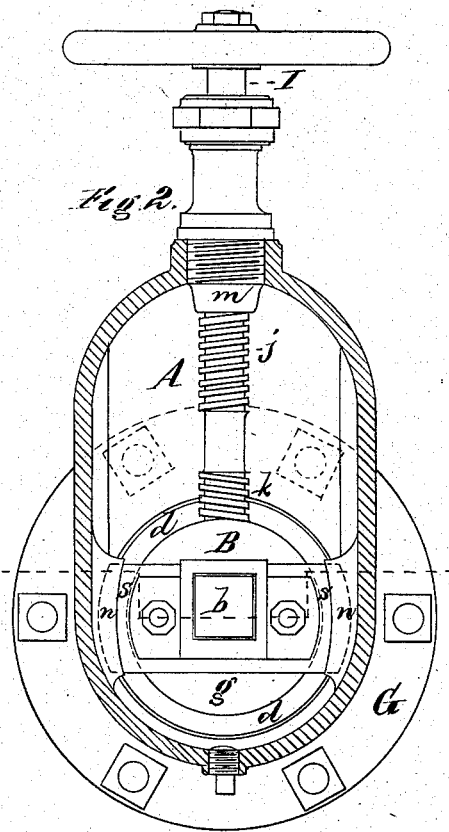
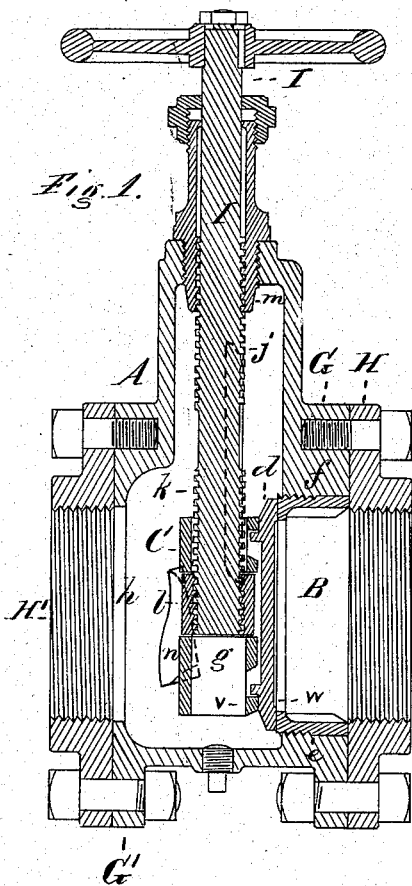


J. O. MORSE.
Stop-Valves.

No. 207,365.

Patented Aug. 27, 1878.



Witnesses
W. L. Bennett.
W. H. Isaacs.

Inventor
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by his Atty.
C. S. Fenwick

UNITED STATES PATENT OFFICE.

JAMES OTIS MORSE, OF ENGLEWOOD, NEW JERSEY.

IMPROVEMENT IN STOP-VALVES.

Specification forming part of Letters Patent No. **207,365**, dated August 27, 1878; application filed December 31, 1877.

To all whom it may concern:

Be it known that I, JAMES OTIS MORSE, of Englewood, in the county of Essex and State of New Jersey, have made an invention of certain new and useful Improvements in Stop-Gates or Stop-Valves; and that the following is a full, clear, and exact description and specification of the same.

This invention relates to that class of stop-gates or stop-valves generally known as "throughway" or "straightway" gates, in which the water-way extends in a straight line directly through the gateway, and in which the water-way is closed by means of a gate or valve constructed to move crosswise of the water-way. So far as my knowledge extends all such stop-gates have hitherto been constructed with the case composed of two parts or pieces, which are secured together by bolts, so that the case may be opened to permit the valve or gate, the valve or gate seat, and other parts to be introduced into the case, the common construction being the division of the case into two parts crosswise of the direction of lift of the valve or gate, so that the upper part constitutes what is commonly known as a "removable bonnet."

The principal objects of the invention which constitutes the subject-matter of this application are to obviate the above defect of preceding stop-gates; and to these ends the invention consists of certain combinations of mechanical devices, which are set forth at the close of this specification.

In order that they may be fully understood, I have represented in the accompanying drawing, and will proceed to describe, a stop-gate embodying my improvements in the best mode in which I have embodied them up to the present date.

Figure 1 of said drawing represents a central longitudinal section of the stop-gate. Fig. 2 represents a transverse section of the same. Fig. 3 represents a horizontal section of the same. Fig. 4 represents the gate or valve of the same removed from the case.

The case A of the stop-gate represented in the said drawings is cast in one piece, and contains the valve-seat B, the movable gate or valve C, the mechanism for opening and shutting the same, and the appliances for making

the joint of the valve with its seat tight when the valve is shut. In order that the stop-gate may always be in working condition, the valve-seat B and the gate-face *d* should be of incorrodible metal, and in the present example they are made of brass.

The valve-seat B is tubular in form, and is screwed into one of the nozzles *f* of the case, this nozzle being tapped from its exterior for that purpose, and the screw-thread being followed by an enlargement of the bore of the nozzle, so that a narrow rim, *e*, is formed, against which a corresponding shoulder of the valve-seat is screwed up solidly.

The gate or valve C is made of two parts—viz: the disk or face *d* and the disk-carrier *g*—the former being secured to the disk-carrier *g* by screws. In order that such disk may be readily introduced into the case A, the nozzle *h* of the case (back of the valve) is made of sufficient size to admit the disk, thus obviating the necessity of making the body of the case of two parts.

In order that the gate or valve may be raised, the screw-spindle I is provided with reversed threads *j k*. The screw-thread *j* at the upper part of the screw-spindle is right-handed, and is screwed into a fixed nut, *m*, at the head of the valve-case. The screw-thread *k* at the lower part of the screw-spindle is left-handed, and screws into a nut, *l*, inserted in a socket in the disk-carrier. Hence, when the screw-spindle I is turned in one direction the valve is raised by the simultaneous action of the two screw-threads, the right-hand screw-thread raising the screw-spindle and valve, and the left-hand screw-thread raising the valve additionally upon the screw-spindle, so that, if the reversed screw-threads are of the same pitch, the valve is raised twice as far by the same angular movement of the valve-spindle as it would be with either of the old modes of construction. On the other hand, as half of the movement of the valve takes place upon the inner or lower end of the valve-spindle, the upper end of the latter need only rise half as far above the valve-case in order to open the valve to its full extent, and the valve-spindle takes up less space when open and is less liable to accidental injury. The fact that the valve-spindle is raised by open-

ing the valve, and is consequently screwed into the valve-case when the valve is closed, enables a person to know whether the valve is opened or closed from a glance at the position of the valve-screw relatively to the valve-case.

The operation of the valve by a right and left handed screw, although advantageous, does not constitute a part of my present invention.

The joint of the gate or valve is made tight when it is depressed by means of two inclined lugs, *n n*, cast on the sides of cavity of the case, upon which lugs two wedge-formed arms, *s s*, of the disk-carrier slide, so the depression of the valve-carrier wedges the valve-disk home against the face of the valve-seat. The portion *v* of the disk-carrier on which the valve-disk rests and the corresponding portion *w* of the rear of the disk are ring-formed. These portions abutting on each other furnish an even continuous ring bearing around the disk, and insure that it shall be thrust fairly and squarely against the valve-seat at the final closing of the gate.

In order that the stop-gate may be readily connected with wrought-iron pipes with the capacity of ready removal, the nozzles of the valve-case are provided with flanges *G G'*, and a screwed flange, *H H'*, is applied to each nozzle of the valve-case. The ends of the pipes are screwed into these screwed flanges *H H'*. The removal of the bolts which secure the screwed flanges to the valve-case permits the latter to be readily removed and replaced. The flange *H* also performs another function, because if it is made as represented in the drawing, with its screwed opening of less diameter than the exterior of the tubular valve-seat *B*, and if the tubular valve-seat be of the length represented, the butt of said valve-seat abuts against the face of the screwed flange, which thus sustains the valve-seat securely against the thrust of the valve and relieves the screwed thread on the exterior of the valve-seat (or such other fastening thereof as may be used) of excessive strain.

One important practical result attending the construction of the stop-valve, as above described, is that the whole of the fitting may be done by means of a turning-lathe, so that the cost is low. The valve face or disk may also be readily ground to fit the seat, because there are no projections to prevent the disk from rotating when it is ground.

The invention is not restricted to the means of tightening the joint of the valve which are represented in the drawing, or to any particular form of disk or valve face, because there are many modes known of tightening the joint, and different forms of disk, which might be used in embodying my invention.

The portion of my invention which relates to the application of the valve-seat from the exterior also is not restricted to the use of an undivided valve-case, because it is clear that in opening and closing the valve, also that even if the valve-case be divided into parts, the valve-seat may, if preferred, be entered into one of the nozzles thereof from its outer end.

I claim as my invention—

1. The combination, substantially as before set forth, of the undivided valve-case, the valve, and the valve-seat, the last two of less diameter than the interior of one of the nozzles of the valve-case.
2. The combination, substantially as before set forth, of the undivided valve-case, the valve-seat inserted into one of the nozzles thereof, and the removable flange, which forms a bearing which sustains said valve-seat.
3. The combination, substantially as before set forth, of the disk-carrier and disk or valve face, both constructed with ring bearings, which abut against one another.

Witness my hand this 26th day of December, A. D. 1877.

JAMES OTIS MORSE.

Witnesses:

GARDNER D. HISCOX,
MORSE BURTIS.