

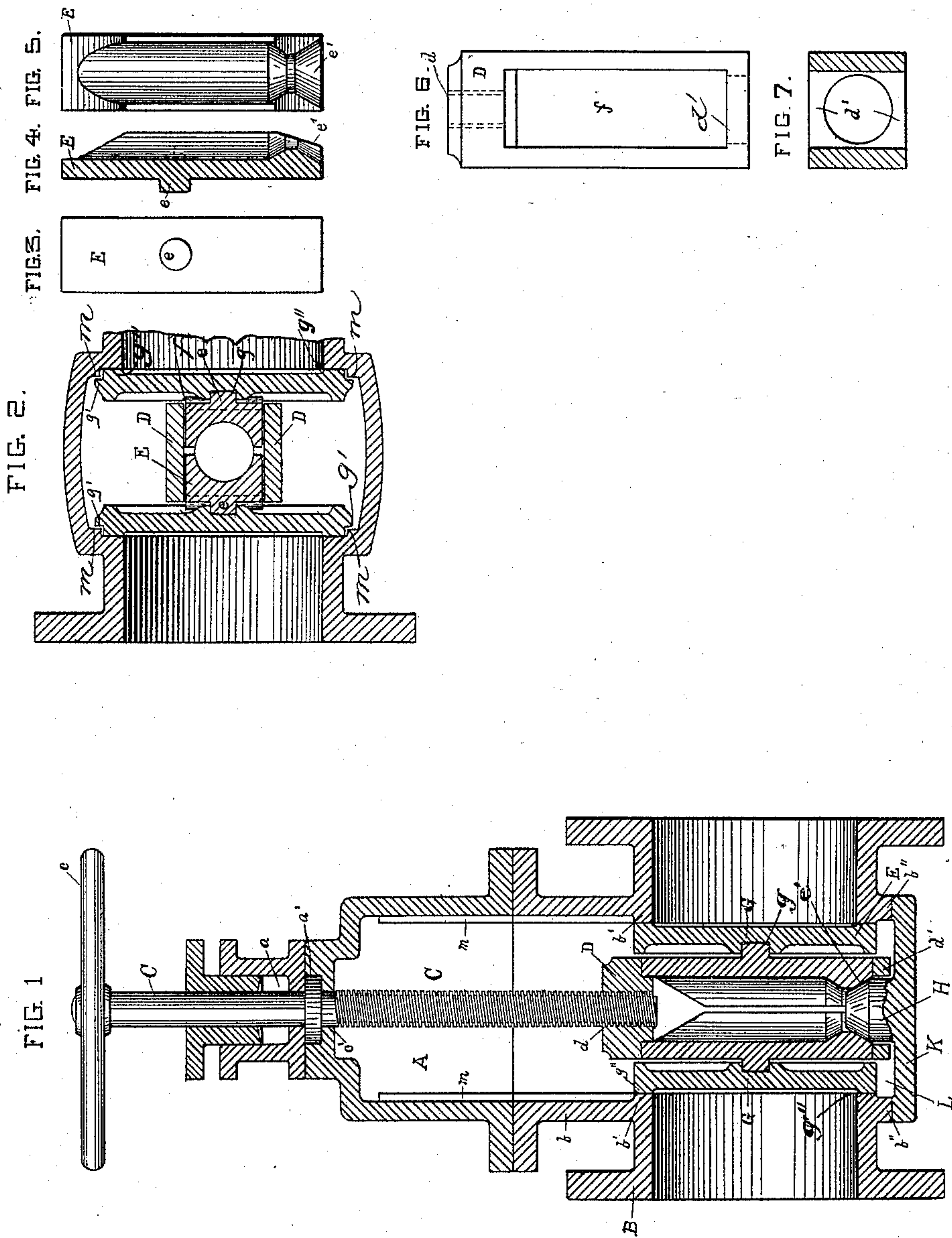
(No Model.)

2 Sheets—Sheet 1.

O. N. GULDLIN.  
GATE VALVE.

No. 585,912.

Patented July 6, 1897.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 8.

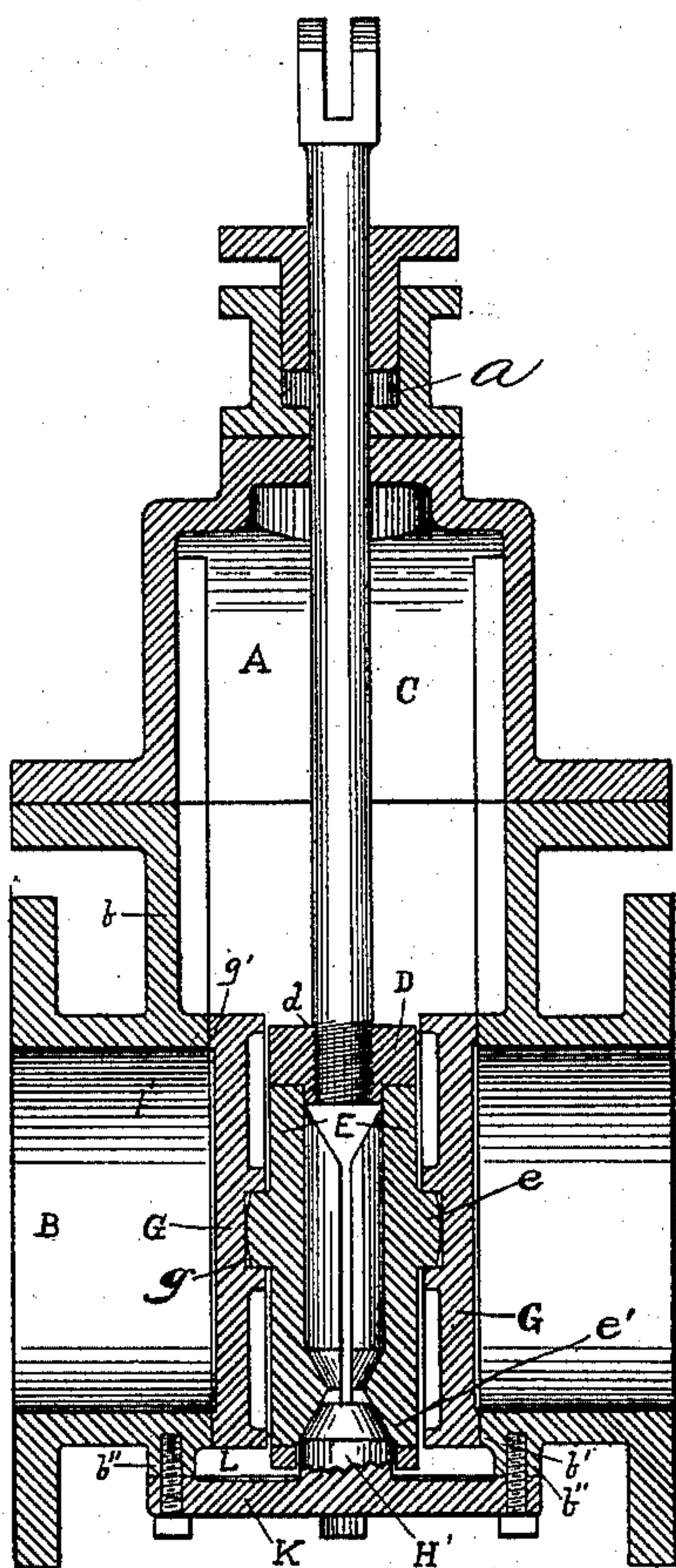


FIG. 9.

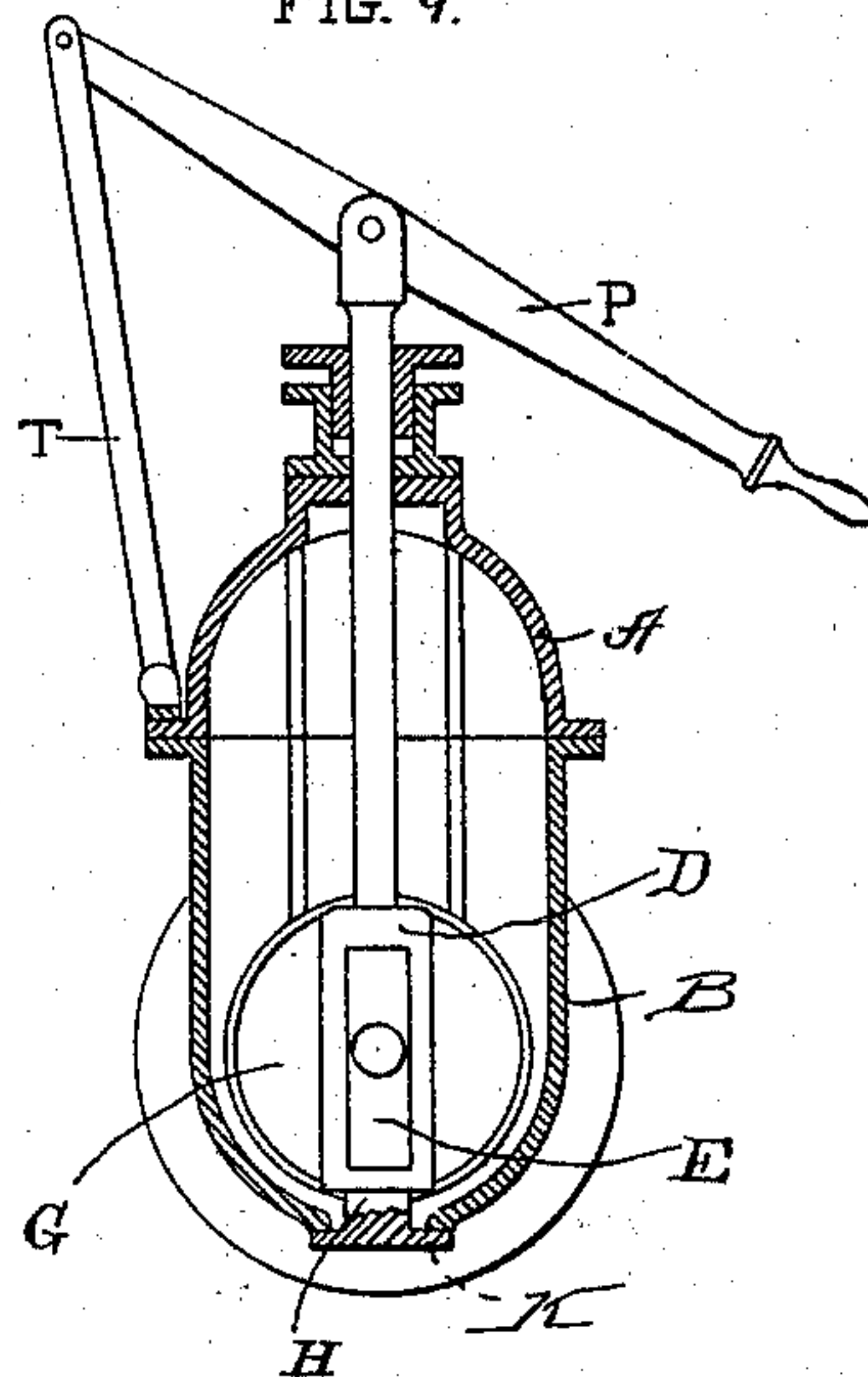
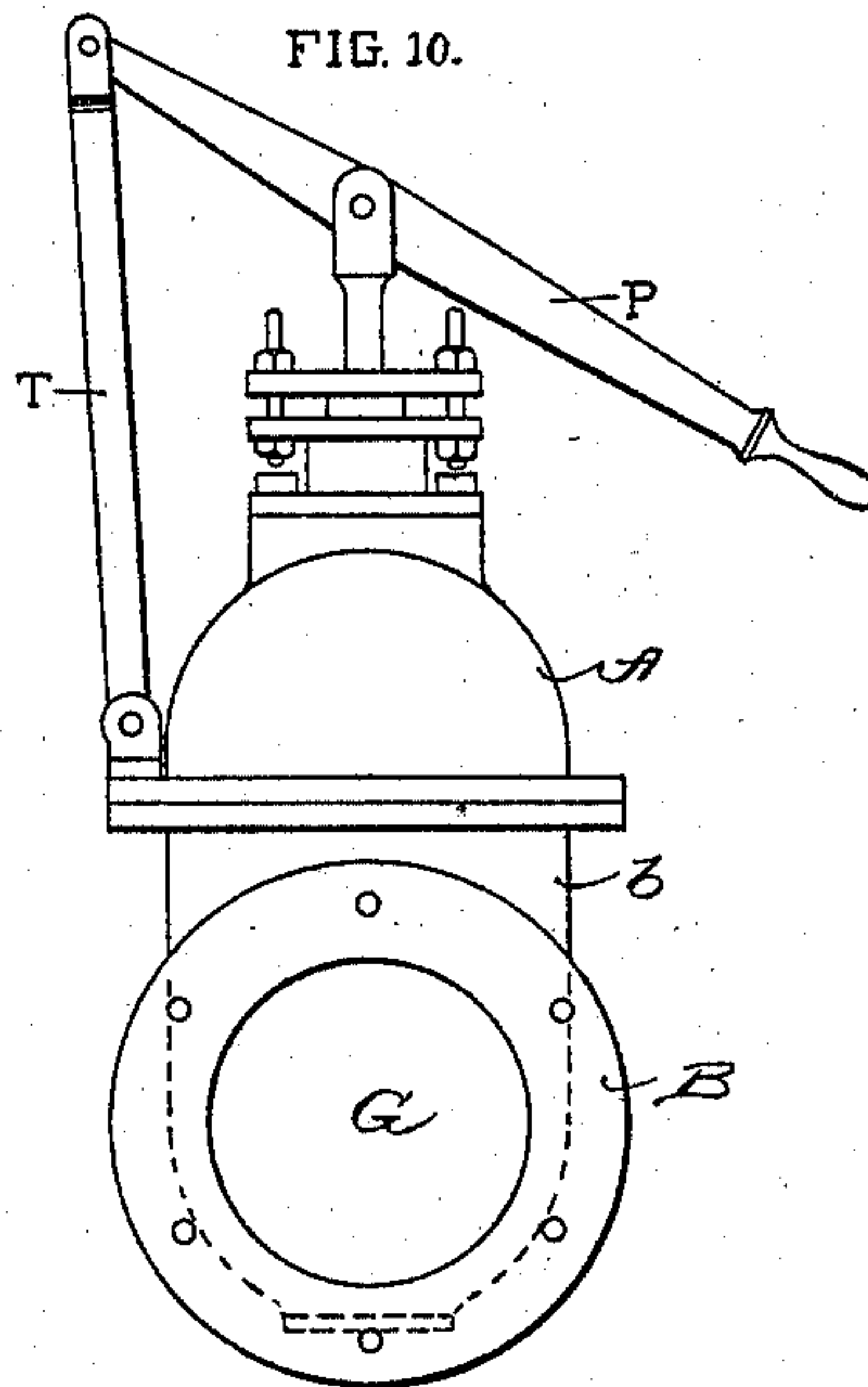


FIG. 10.



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# UNITED STATES PATENT OFFICE.

OLAF N. GULDIN, OF FORT WAYNE, INDIANA.

## GATE-VALVE.

SPECIFICATION forming part of Letters Patent No. 585,912, dated July 6, 1897.

Application filed December 17, 1894. Serial No. 532,042. (No model.)

*To all whom it may concern:*

Be it known that I, OLAF N. GULDIN, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Gate-Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to sliding gate-valves having a pair of movable valve-disks and means for thrusting such disks apart and holding them on their seats, so as to make tight joints in the pipe.

The object of my invention is to simplify the construction of sliding valves and their operating mechanism and to make them more effective and reliable in operation.

The details of construction of my improved valve are illustrated in the accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of the valve-casing, pipe-section, valve-disks, and their operating mechanism. Fig. 2 represents a horizontal section through the valve-casing, valve-disks, their yoke and gibs. Fig. 3 represents an outer face view of one of the gibs. Fig. 4 represents a vertical section of the same. Fig. 5 represents an inside face view of the same. Fig. 6 represents a side elevation of the yoke for receiving the gibs, and Fig. 7 represents a horizontal section thereof. Fig. 8 represents a vertical longitudinal section of a quick-opening valve and plain valve-stem. Fig. 9 represents a vertical transverse sectional view of the valve-casing, taken at right angles to the view in Fig. 8, showing a plain stem and lever connection. Fig. 10 represents a side elevation of the valve and its casing.

The valve-casing is constructed of a cap A, having a stuffing-box *a* and a gland in the usual manner, and pipe-section B, having a lateral branch *b*, to which the cap A is connected and forming therewith a part of the casing.

A recess *a'* is formed at the top of the cap A for receiving the collar *c'* of the valve-stem C. The pipe-section B of the casing is provided internally with two annular valve-seats

*b'*, having ground faces for receiving the valve-disks, and also with a downwardly-projecting annular flange *b''* around the hand-hole or opening L. The faces of the flanges *b''* are ground for making a tight joint with the hand-hole cover K.

The valve-stem C may be screw-threaded, as shown in Fig. 1, or left plain, as shown in Fig. 8. When screw-threaded, as shown in Fig. 1, it is provided at the top with a hand-wheel *c* and with a collar *c'*, fitting in the recess *a'* of the cap A, and at its lower end works through the screw-threaded opening *d* of the yoke D.

The yoke D is constructed with large rectangular openings *f* in two of its opposite faces, as shown in Figs. 2 and 6, and has at the top a vertical screw-threaded opening *d* and at the bottom the cross-bars *d'* or a plate containing a central opening. The rectangular gibs E are adapted to fit into the rectangular openings *f* of the yoke D, and said gibs are provided on their outer faces with bosses or short journals *e* and at their inner faces are formed with semicircular grooves, as shown in Fig. 2.

The gibs may be constructed at the lower ends of their internal faces with inclined or semiconical surfaces *e'*, as shown in Figs. 4 and 5, the said inclined surfaces being adapted to fit against the cone or wedge H, projecting upward from the hand-hole plate K, as shown in Fig. 1. At the top the gibs fit against the interior shoulders in the top of yoke D.

The gibs constructed with the inclined or conical bearing-surfaces *e'* at the bottom are adapted particularly for use with the conical wedge H, which is preferably cast with the hand-hole plate K, and the plate is secured to its seat by screw-bolts, as shown in Fig. 8.

The valve-disks G are constructed with central hubs on their interior surfaces, having circular sockets or recesses *g* for receiving the bosses or journals *e*, and are provided with circumferential flanges *g'*, as shown in Fig. 2, for bearing against the vertical guideways *m*, which are placed in the corners of the valve-casings. With this construction the flanges *g'* engage with the guideways and prevent the faces of the valve-disks from rub-



bing against any surface as they are raised and lowered, so that their true ground surfaces are preserved from injury.

When the valve-stem C is made with a simple screw-threaded end, as in Fig. 1, and the disks are closed on their seats, it may be readily disengaged from the yoke D and removed with the cap A when desired. This ease of removal is often quite advantageous in practice, for the purpose of cleaning the valve-casing or inserting a new stem.

The faces of the valve-disks are provided near their peripheries with annular rims or bearing-surfaces  $g''$ , which bear upon the annular seats  $b'$ .

In some cases the valve-stem C may be left plain, as in Figs. 8, 9, and 10, and be pivotally connected at the top to a hand-lever P, which at its rear end is pivotally connected to a link or standard T, thus forming a quick-opening valve.

The parts of my valve being few and of simple construction, they can be quickly assembled and put into operative position, as follows: The internal gibs E are inserted into the rectangular openings  $f$  in the yoke D, and then the disks G are engaged at their sockets  $g$  with the bosses or journals  $e$  on the gibs, and then the yoke, gibs, and disk are placed in position in the pipe-section and casing B, and the hand-hole plate K is then secured in place. The valve-stem and cap A having been properly secured in position, the valve-disks may be readily raised by properly turning the screw-stem C or raising it by the hand-lever P. When the yoke and disks are lowered by the screw-stem C, in the form shown in Fig. 1, the gibs E are spread apart by the conical wedge H on plate K, and thereby force the disks against their seats  $b'$ . The same operation is performed when the yoke and disks are forced down by the hand-lever P, as

shown in Figs. 8, 9, and 10. The valve-disks being down and forced to their seats, a very slight upward movement of the yoke, either by means of the screw-threaded stem or of the hand-lever, releases the pressure from the disks, so that they may be readily raised from their seats, and they can at all times be quickly raised for opening the pipe or lowered for closing it and shutting off the flow of fluid.

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

1. In a gate-valve, the combination with a yoke having openings or sockets in its opposite faces, of gibs loosely fitting in the outer faces of said yoke and each having a portion projecting through said openings into the interior of the yoke, the said projecting portion being provided with inclined faces on the interior thereof, a wedge secured to the valve-casing and adapted to engage the said inclined faces of the gibs and force them outward, and a valve-disk connected to each gib by a central journal-and-socket connection, substantially as and for the purpose set forth.

2. In a gate-valve, a yoke having openings in its opposite faces and a stem connecting with the yoke, in combination with lateral movable gibs loosely fitting in the openings of the yoke and having interior inclined surfaces at their lower ends, a removable bottom plate having a conical wedge adapted to bear upon the inclined surfaces of the gibs, and valve-disks loosely connecting with the gibs, by journal-and-socket connections, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

OLAF N. GULDIN.

Witnesses:

PERRY A. RANDALL,  
CHAS. E. READ.