E. RUSSELL.

Gate-Valve.

No. 166,032. Patented July 27, 1875.

Fig. 1.

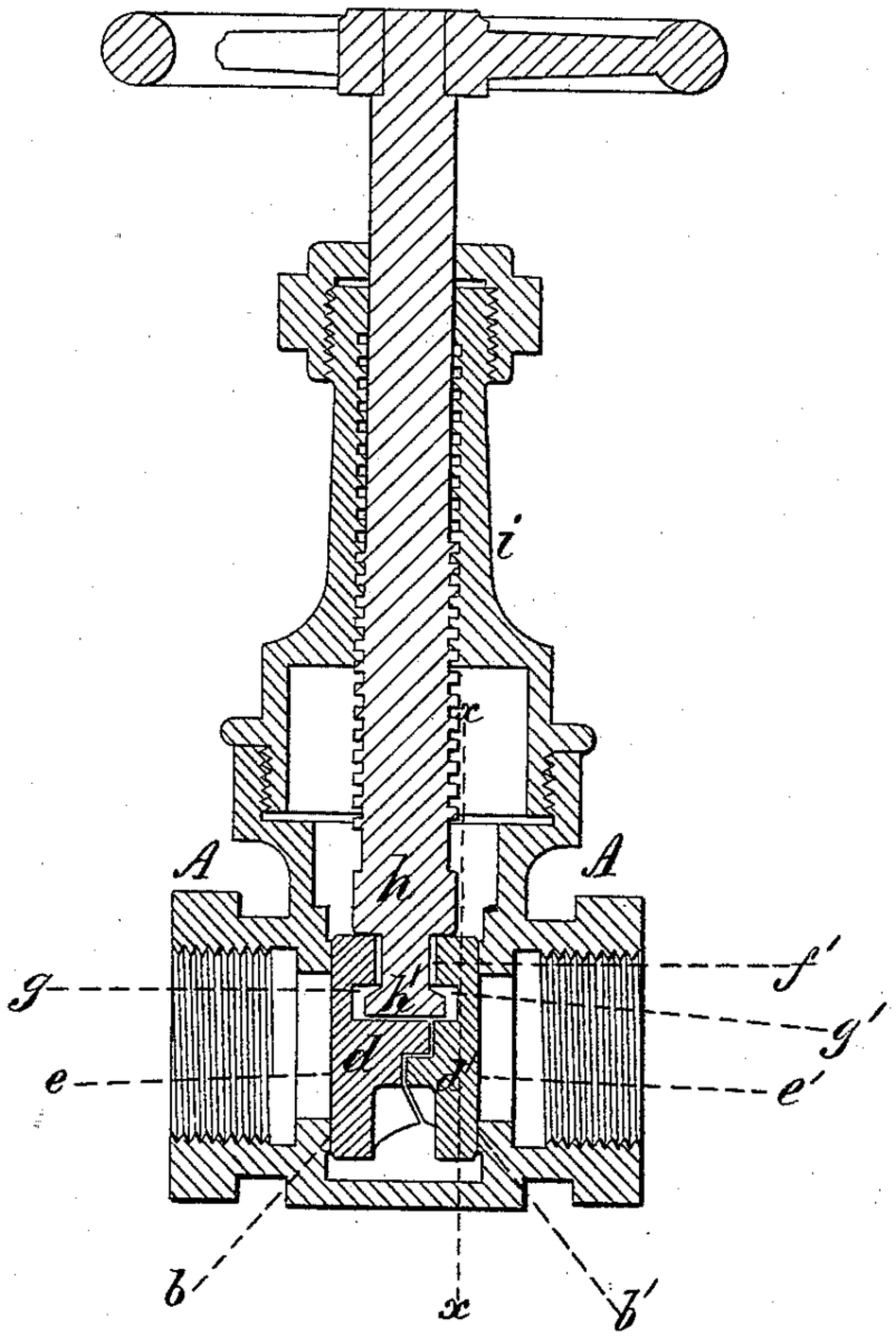


Fig. 2.

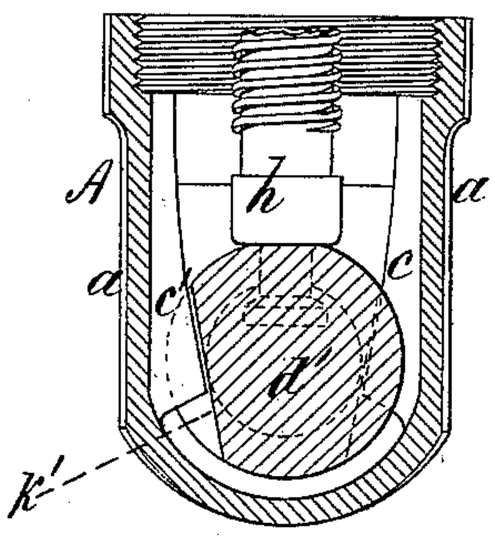
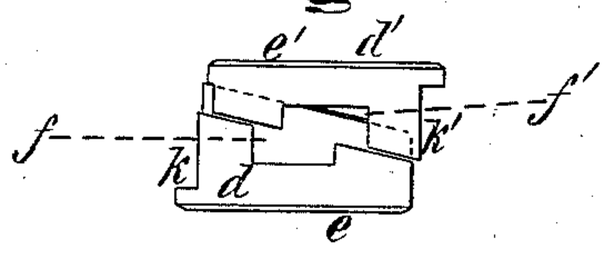


Fig. 3.



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UNITED STATES PATENT OFFICE

EDMUND RUSSELL, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN GATE-VALVES.

Specification forming part of Letters Patent No. **166,032**, dated July 27, 1875; application filed June 21, 1875.

To all whom it may concern:

Be it known that I, EDMUND RUSSELL, of Brooklyn, Kings county, New York, have invented a certain Improvement in Gate-Valves, of which the following is a specification:

My improvement relates to that class of gate-valves in which the valve is closed by wedge motion; and my invention consists in constructing the gate in two parts, halved together upon a vertical plane inclined to the faces of the gate, and in arranging upon the opposite side walls of the gate-chamber two vertical wedge-guides, which respectively engage the two halves of the gate as they are forced down by the action of the screw-stem, and impart to the two halves a transverse motion, thus sliding one upon the other, and projecting their faces in opposite directions against the annular seats surrounding the openings into the gate-chamber, so as to close the valve.

The accompanying drawings are as follows:

Figure 1 is a vertical longitudinal section of my gate-valve, showing the mode of engagement of the valve-stem with the two-parted gate and showing the valve closed. Fig. 2 is a transverse vertical section through the line *x x*, on Fig. 1, showing the wedge-guides for imparting transverse motion to the gate-pieces in opposite directions. Fig. 3 is a top view of the two-parted gate, showing the opening for admitting the valve-stem, and the angle upon which the gate-pieces are halved or tongued and grooved together; also the upper edges of the flat bearings for engaging the wedge-guides.

Referring to the drawings, A represents the shell of the valve, and *a a* the side walls of the gate-chamber. *b b'* are the ground annular seats for engaging the opposite faces of the gate when the valve is closed. Two vertical wedge-guides, *c c'*, project from the inner walls of the gate-chamber, and respectively engage flat seats formed in the peripheries of the gate-pieces.

The gate is formed of two pieces, *d d'*, which are tongued and grooved together upon an angle. The gate-faces *e e'* are parallel planes, which are made to approach or recede from each other as they slide back and forth upon each other. The gate-pieces *d d'* have the recesses *f g* and *f' g'* formed upon their inner opposed faces to admit the valve-stem *h*, and loosely engage the collar *h'* on the lower end of the valve-stem. The valve-stem is a screw-bolt engaging a female thread upon the inside of the cap *i*. As the valve-stem is screwed in and out the gate is depressed or elevated, as the case may be. In the downward movement of the gate the wedge-guide *c* engages the flat seat *k* in the periphery of the gate-piece *d*, while, at the same time, the wedge-guide *c'* engages the flat seat *k'* in the periphery of the gate-piece *d'*.

It will be seen that each part of the gate constitutes a wedge, and that as the valve-stem is screwed in and the gate lowered the two wedges are driven transversely in opposite directions, so as to crowd their faces against their respective seats *b b'*. The inclination of the wedge-guides, and the arrangement of the parts, are such that the opposite faces of the gate closely engage their respective seats at the instant when the gate-pieces are depressed, so as to fully close the water-way openings into the gate-chamber.

I claim as my invention—

1. In a gate-valve, the combination of a gate composed of two pieces, respectively, having oppositely inclined backs, with wedge-guides upon the side walls of the gate-chamber, for the purpose of imparting transverse motion, in opposite directions, to the two gate-pieces as the gate is depressed, substantially as described.

2. The combination of a screw-stem, provided with a collar upon its lower extremity, and a gate composed of two parts obliquely halved, or tongued and grooved together, and vertical wedge-guides for imparting transverse motion to the two parts of the gate in opposite directions, with annular seats surrounding the water-way openings into the gate-chamber, substantially as shown and described.

EDMUND RUSSELL.

Witnesses:
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