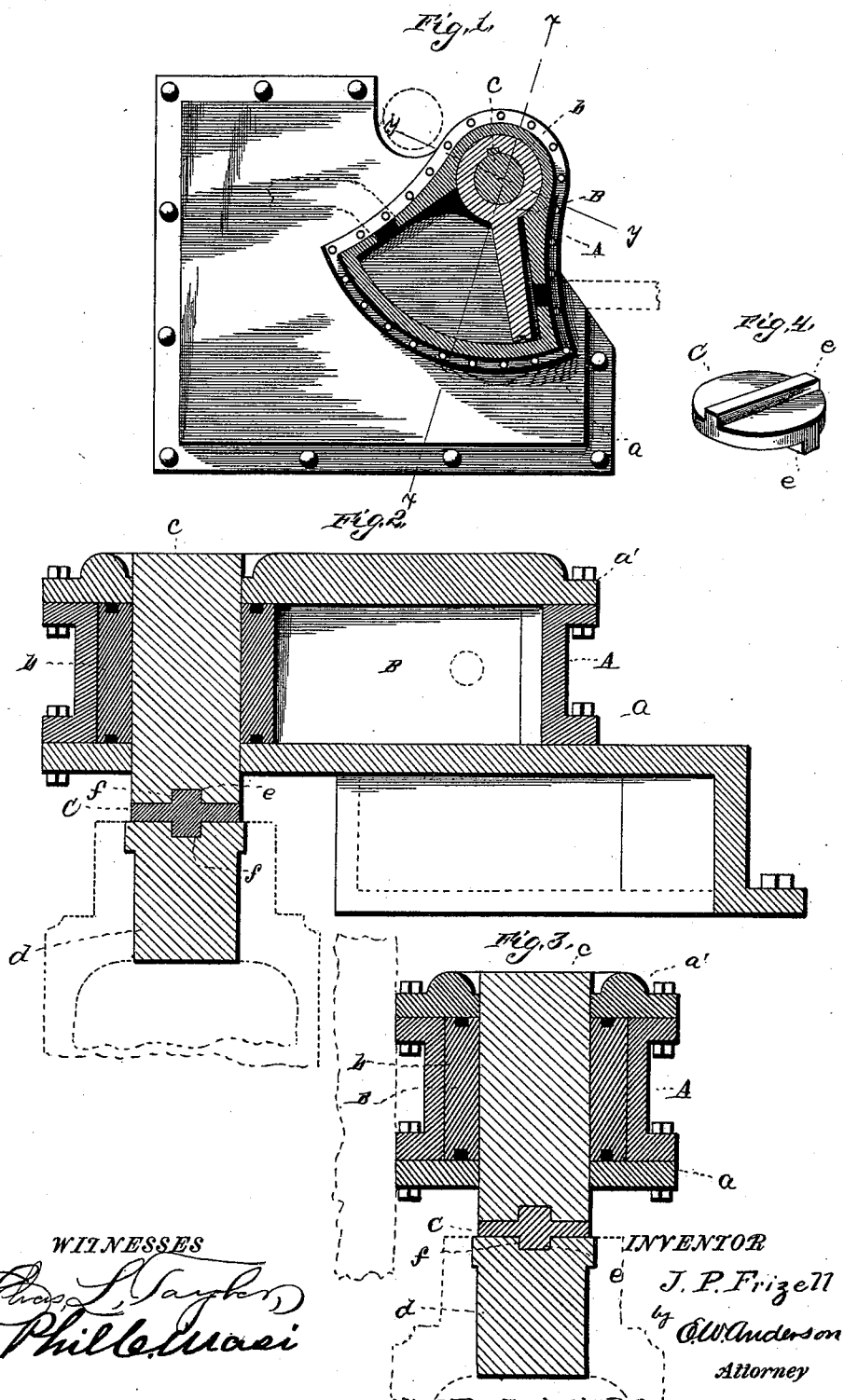


(No Model.)

J. P. FRIZELL.
PIVOTED HYDRAULIC GATE.

No. 434,386.

Patented Aug. 12, 1890.



UNITED STATES PATENT OFFICE.

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PIVOTED HYDRAULIC GATE.

SPECIFICATION forming part of Letters Patent No. 434,886, dated August 12, 1890.

Application filed February 26, 1890. Serial No. 341,861. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. FRIZELL, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pivoted Hydraulic Gates; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a horizontal section. Fig. 2 is a vertical section on line *x x*, Fig. 1. Fig. 3 is a vertical section on line *y y*, Fig. 1; and Fig. 4 is a detail view.

This invention relates to improvements in means for opening and closing hydraulic gates, generally applicable to all gates which turn on an axis, more especially designed for the operation of the main or miter gates of canal and river locks; and it consists of the novel construction and combination of parts, as will appear from the following description and accompanying drawings.

In the drawings, A refers to the water box or chest, which is preferably sector shape, having a curved or arc-shaped larger end and a semi-cylindric narrow end. The bottom edge of the box or chest A is extended laterally, forming a flange *a*, bolted to the support or masonry. A strong cover *a'* is bolted to the top of the box or chest A.

B is a wing-piston, which is arranged in the chest or box A and provided with a tubular portion or hub *b*, which fits the semi-cylindric portion or end of the chest A. The hub *b* is fitted upon and has a key or feather connection with the journal *c*, engaging, as presently described, the shaft or stem *d* of the water-gate of the lock. This wing-piston is designed to have a parted circular mortise from side to side in the chest. The feather or key connection between the hub *b* and journal *c* permits the vertical or endwise move-

ment of said journal, and yet causes the latter to turn as the wing-piston B is operated by the pressure of water admitted through suitable ports to the water box or chest A alternately at opposite sides of said wing-piston.

C is a coupling, which consists of a splicing or joint plate, which is used to connect the journal *c* to the shaft *d* of the water-gate, and is provided upon opposite sides with ribs or splines *ee*. The ribs or splines *e* are arranged at right angles to each other and engage correspondingly-arranged sockets or grooves *f*—one in the lower end of said journal and the other in the upper end of said shaft. This arrangement provides for the ready connection or coupling of the journal *c* to the gate-shaft *d*, even though they should be out of alignment with each other—a difficulty which is apt to occur in placing parts of large extent in position.

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

1. In a water-gate-operating device, the combination, with the water chest or box and its opposite water-ports, of the wing-piston having a partial rotary motion, and the journal having an independent vertical movement, and at the same time a limited motion of rotation, substantially as set forth.

2. In a water-gate-operating device, the combination, with the journal of the wing-piston and the water-gate shaft or stem, of the coupling having ribs upon its opposite sides arranged at right angles to each other and engaging correspondingly-arranged sockets or grooves, one in the upper end of said shaft or stem and the other in the lower end of said journal, substantially as set forth.

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

JOSEPH P. FRIZELL.

Witnesses:

A. CHURCHILL,
F. TROUPLAISIR.