2 Sheets—Sheet 1.

W. REED.

CANAL-LOCK.

No. 176,055. Patented April 11, 1876.

Fig: 1.

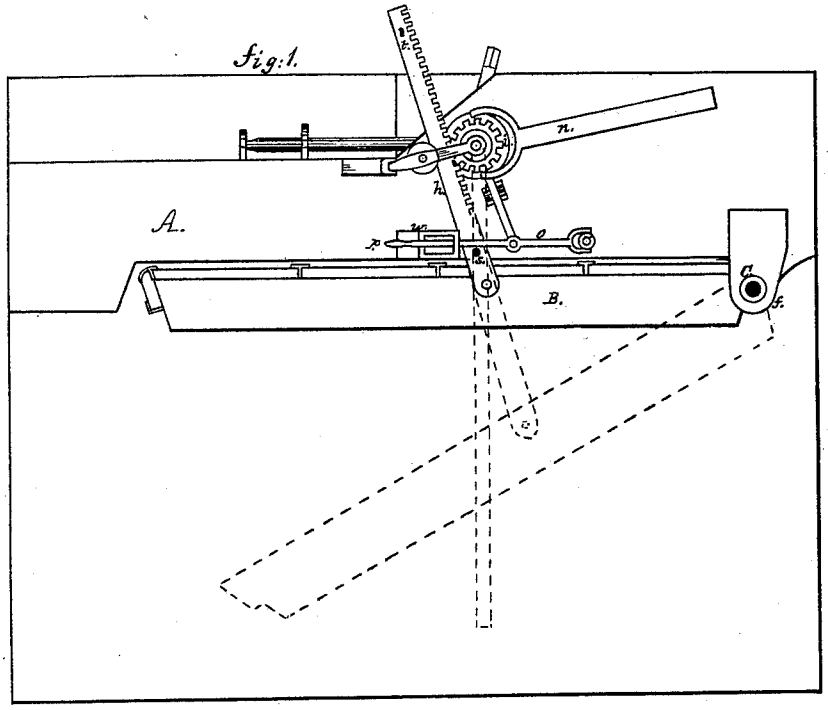
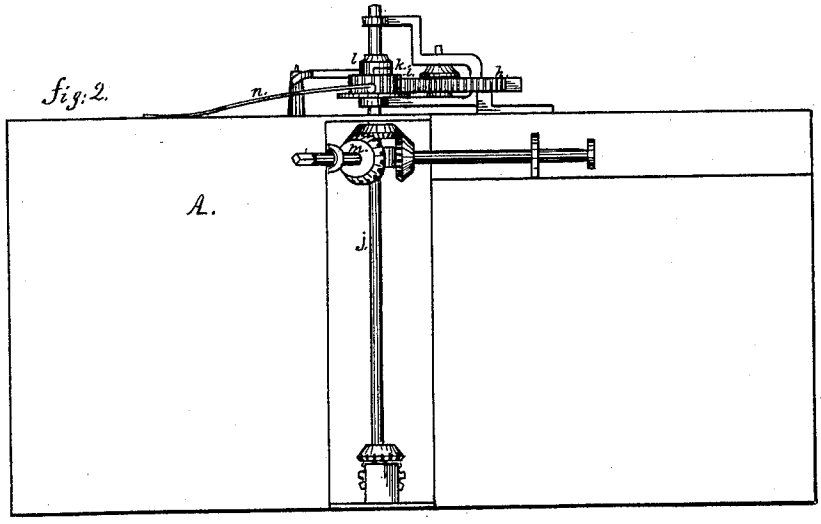


Fig: 2.



WITNESSES,

A. de Johnston

James L. Johnston

INVENTOR,

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2 Sheets—Sheet 2.

W. REED.

CANAL-LOCK.

No. 176,055. Patented April 11, 1876.

Fig: 3.

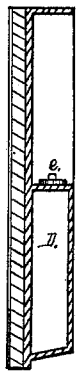


Fig: 4.

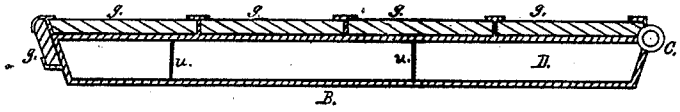


Fig: 5.

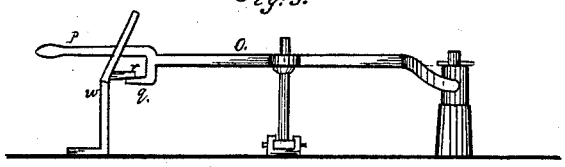
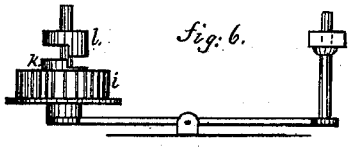


Fig: 6.



WITNESSES,

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UNITED STATES PATENT OFFICE.

WILLIAM REED, OF SEWICKLY, PENNSYLVANIA.

IMPROVEMENT IN CANAL-LOCKS.

Specification forming part of Letters Patent No. **176,055**, dated April 11, 1876; application filed February 29, 1876.

To all whom it may concern:

Be it known that I, WILLIAM REED, of Sewickly, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Locks for Canals and Streams; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in locks for canals and streams; and consists in the peculiar arrangement of mechanism for manipulating the gates through the medium of steam or water power; and also consists in the manner of constructing the gates so that they may be buoyed or loaded at the will of the operator, in such manner that said gates may be swung on their pivots with ease and facility.

To enable others skilled in the art with which my invention is most nearly connected to construct and use the same, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a top view or plan of my improvement in locks for canals and streams. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section of the gate. Fig. 4 is a transverse section of the gate. Fig. 5 is a detached view of the mechanism used in connection with the gate. Fig. 6 is a detached view of a part of the driving-gear.

In the accompanying drawings, A represents the masonry of the lock. B represents one of the gates, which is constructed of sheet metal, which may be of any desirable thickness, and furnished with chamber D, having, at *e*, openings for the purpose of entrance to the chamber D, which openings are usually called "manholes." The object of these openings is for the purpose of admitting the operator into the chamber D, for the purpose of painting the inner walls of the chamber D, to protect them from the action of the water and atmosphere, thereby avoiding oxidization of the iron. The gate B is provided with a hollow pintle or shaft, C, which communicates with the chamber D, and is pivoted at *f* at its upper and lower ends, and is connected to an air-pump or other device, for supplying air to and exhausting air from the chamber D. The pintle or shaft should be furnished with a valve for allowing water to flow into or out from the chamber D, as may be desired. The chamber D should be provided with braces, as at *u*. The faces and miter-edge of the gate B are furnished with grooves, as indicated at *g*, for the reception of planking for furnishing a protection to the gate, and resisting the action of moving boats or other things against the gate. When the operator desires to buoy the gate he opens a valve in chamber D, and forces air through the hollow shaft or spindle *c* into chamber D, which forces the water out of the chamber until the desired buoyancy of the gate is obtained.

The gate herein described may also be applied to "dry docks," used in connection with boats and ships for raising them out of the water; the application of which gates to dry docks will readily suggest itself to the mind of the skillful mechanic.

To the top edge of the gate B is attached a rack, *h*, which gears into a wheel, *i*, on the upper end of the shaft *j*. The wheel *i* is furnished with a clutch, *k*, which couples with a clutch, *l*, on the upper end of the shaft *j*, the wheel *i* and its clutch *k* moving on the shaft. The shaft *j* is provided with beveled wheels, which gear into other bevel-gear on shafts, which may lead to gates above or below or on the opposite side of the lock or locks. The bevel-wheel *m* is the driving-wheel of the operating mechanism. The wheel *i* is raised or lowered, for the purpose of bringing it into or out of gear with the rack *h*, by means of a spring, *n*, and trip *o*. The operator, when he desires to move the gate, presses on the end *p* of the trip *o*, which will raise the wheel *i* on shaft *j*, thereby coupling the clutch *k* of the wheel *i* with the clutch *l* of the revolving shaft *j*, and wheel *i* will cause the rack *h* to move the gate, so as to open or close it, as may be desired, and in accordance with the motion of the driving-wheel *m*, the trip *o* is held down by the trigger *q*, placed under the projection *r* of the guide *w*, so that when the vertical projections *s* and *t* on the upper part of the rack *h* come in contact with the trip *o* it will be moved slightly sidewise, so as to unship the trigger *q* from the projection *r*, and the spring *n* will

then lower the wheel *l*, so as to throw it out of gear with the rack *h*, allowing the driving mechanism to continue its motion without injury to the gate or driving-gear.

The wicket-gates I propose placing under the mud-sills of the lock; but they may be arranged in the walls or gates of the locks, if desired, preference, however, being given to the former arrangement, as such an arrangement will clean the sills from any accumulation of matter that may gather about them and the bottom of the gate.

Another arrangement of the driving mechanism than that herein described may be used; therefore I do not confine myself to this particular arrangement of mechanism for manipulating the gates, but to the principle of operation set forth.

Having thus described the nature, construction, and operation of my improvement, what I claim as my invention is—

1. A gate for locks, having a chamber for buoying or loading it by introducing air or water therein, and pivoted through the medium of a hollow pintle or shaft, substantially as herein described, and for the purpose set forth.

2. A metallic gate for locks, having a chamber for buoying or loading it by introducing therein water or air, provided with grooves for the reception of planking for facing it, substantially as herein described, and for the purpose set forth.

3. The rack *h*, wheel *i*, spring *n*, and trip *o*, in combination with the gate B, substantially as herein described, and for the purpose set forth.

WILLIAM REED.

Witnesses:
A. C. JOHNSTON,
JAMES J. JOHNSTON.