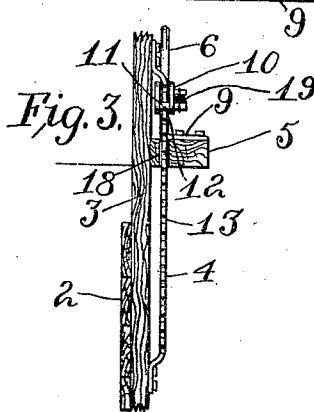
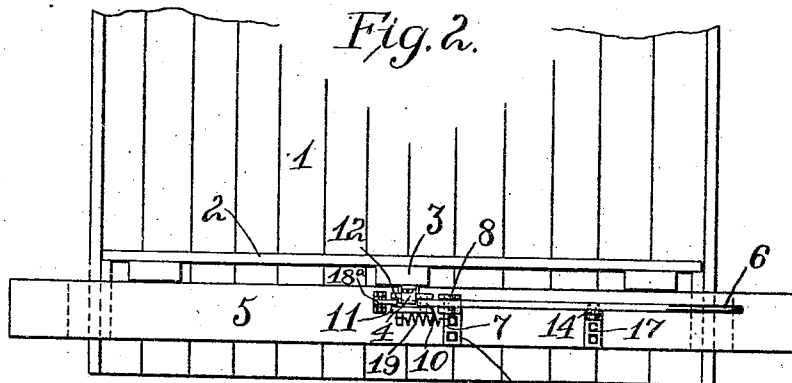
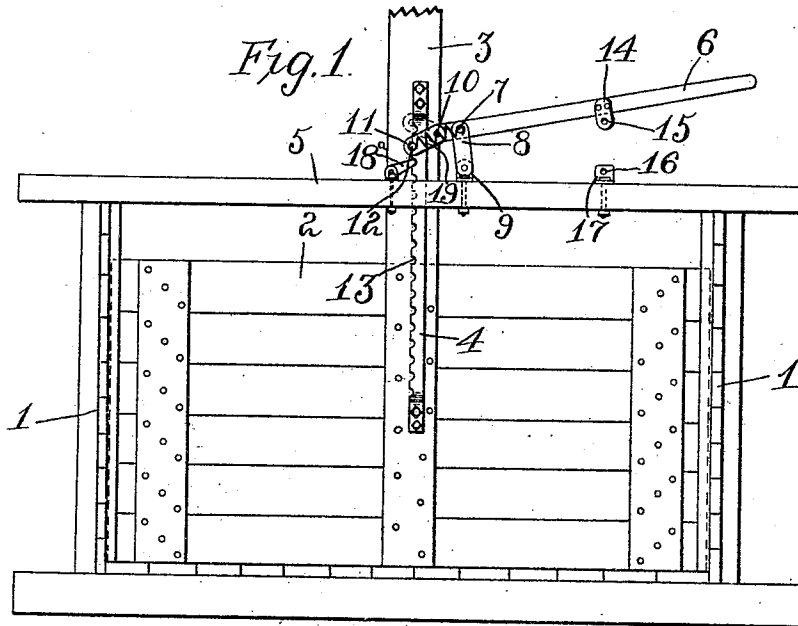


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 DEVICE FOR LOWERING AND HOISTING HEAD GATES FOR DAMS.
 APPLICATION FILED JUNE 22, 1909.

958,401.

Patented May 17, 1910.



ATTEST.
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DEVICE FOR LOWERING AND HOISTING HEAD-GATES FOR DAMS.

958,401.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed June 22, 1909. Serial No. 503,745.

To all whom it may concern:

Be it known that I, NORMAN ISACHSON, citizen of the United States, residing at Mountain Home, Idaho, have invented certain new and useful Improvements in Devices for Hoisting and Lowering Head-Gates for Dams and the Like, of which the following is a specification.

My invention relates to a device for hoisting and lowering head-gates for dams and the like, and has for its object to provide a device of this character which will be positive in operation in either raising or lowering the gate by a step by step movement, simple in construction, and cheap to manufacture.

The accompanying drawings show my device as applied to a head-gate of ordinary construction, in which—

Figure 1 is a front view of the gate with my device applied thereto; Fig. 2 is a top plan view of the same; and Fig. 3 is a sectional detail showing the gate and timbers in section and the device in side elevation.

In these drawings, the numeral 1 designates the sluice box or casing, 2 the head-gate, which is provided with a central, upright timber or stem 3 to which the rack or comb 4 is securely fastened. Transversely of the sluice box 1 and substantially over the head-gate 2 is secured a suitable timber 5 which serves as a support for the lever 6 and, at the same time, reinforces the dam at this point. The lever 6 is fulcrumed at 7 by the toggle links 8 which allow sufficient movement of the lever in its raising or lowering operation, to accommodate itself to the vertical movement of the stem 3. These links 8 are pivoted to the lever 6 at one end, and at the other are pivoted to an angle plate 9 which is secured to the timber 5 in a suitable manner. At the end 10 of the lever is pivoted another pair of toggle links 11, similar to those before described, which embrace the comb 4, and at their other end are riveted together by the pin 12. This pin 12 is designed to engage with the semicircular openings 13 spaced along the edge of the comb 4, and by the continued movement of the lever 6 a step by step movement is imparted to the head-gate 2 whereby the opening of the gate is effected.

In order to close the gate it is only necessary to elevate the toggle links 11 to a position indicated in dotted lines in Fig. 1, and by reversing the operation of the lever the

gate may be forced down against the pressure of the water.

In order to hold the gate in any desired position, I provide means by which this may be effected. On the lever 6 intermediate of its length I secure a plate 14 having a hole 15 therein, adapted to receive a padlock or other suitable means not shown, when brought into alinement with the hole 16 in the angle plate 17 secured to the timber 5, it being understood that the padlock passes through both openings. This secures the gate in any desired position, and prevents unauthorized persons from tampering therewith.

The timber 5 is recessed at 18 to provide passage for the comb 4, which allows the stem 3 and other suitable braces to have a more substantial bearing thereagainst.

It will be understood that the comb might be blocked up in position instead of as shown, and the openings 13 are representative of any suitable recess for their purpose, and I do not wish to limit myself to this specific form.

A pawl 18^a may be provided for engaging the notches of the comb or notched bar during the lifting action, should the gate slide freely, and a spring 19 may extend between the end of the link 11 and the handle bar 6 to cause it to occupy an inclined position above or below the plane of the handle according to whether the gate is lowered or raised.

What I claim is:—

1. In combination with a head-gate, means for operating the gate vertically with a step by step movement, said means comprising a comb, a lever movably fulcrumed, toggle links pivoted to one end of said lever and embracing the comb, means carried by the said toggle links for engaging recesses in the comb, and means for securing the gate in any desired position, substantially as described.

2. In a device for raising and lowering head-gates and the like requiring a leverage to move them, a comb carried by the gate, means for operating the comb up or down, positioned parallel thereto, comprising a lever, movably fulcrumed near one end by toggle links, said links being pivoted at one end to the lever and at the other end pivotally secured to a stationary member, the short end of the lever carrying a second pair of toggle links, said links embracing the

comb, and being pivoted at their one end to the lever and having riveted through their other end a pin, said pin engaging recesses on the opposite edge of the comb from the lever, and means for locking the whole against movement, substantially as described.

3. In a device of the class described, a lever movably fulcrumed, toggle links pivotally secured to one end thereof, said links embracing a comb carried by a head-gate or other object, and designed to drop by gravity to secure a fresh engagement with the comb in a hoisting action, and lifted by hand to secure this effect in a lowering action, and means for securing the parts in any desired position, comprising a plate fastened to the other end of the lever and having a hole therein designed to come in alignment with a similar hole provided in an angle plate secured to a stationary member when the lever is brought to its lowermost position, and a padlock to secure these parts when desired.

4. In combination with a head-gate, means for operating the gate vertically with

a step by step movement, said means comprising a comb, a pawl for engaging the comb, a lever movably fulcrumed, toggle links pivoted to one end of said lever and embracing the comb, means carried by the said toggle links for engaging recesses in the comb, and means for securing the gate in any desired position, substantially as described.

5. In combination with a head-gate, means for operating the gate vertically with a step by step movement, said means comprising a comb, a lever movably fulcrumed, toggle links pivoted to one end of said lever and embracing the comb, means carried by the said toggle links for engaging recesses in the comb, a spring tending to incline said links with relation to the handle, and means for securing the gate in any desired position, substantially as described.

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

NORMAN ISACHSON.

Witnesses:

FRANK RIBLETT,
E. RAY GUYMON.