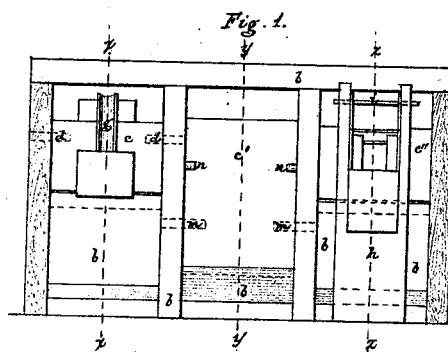
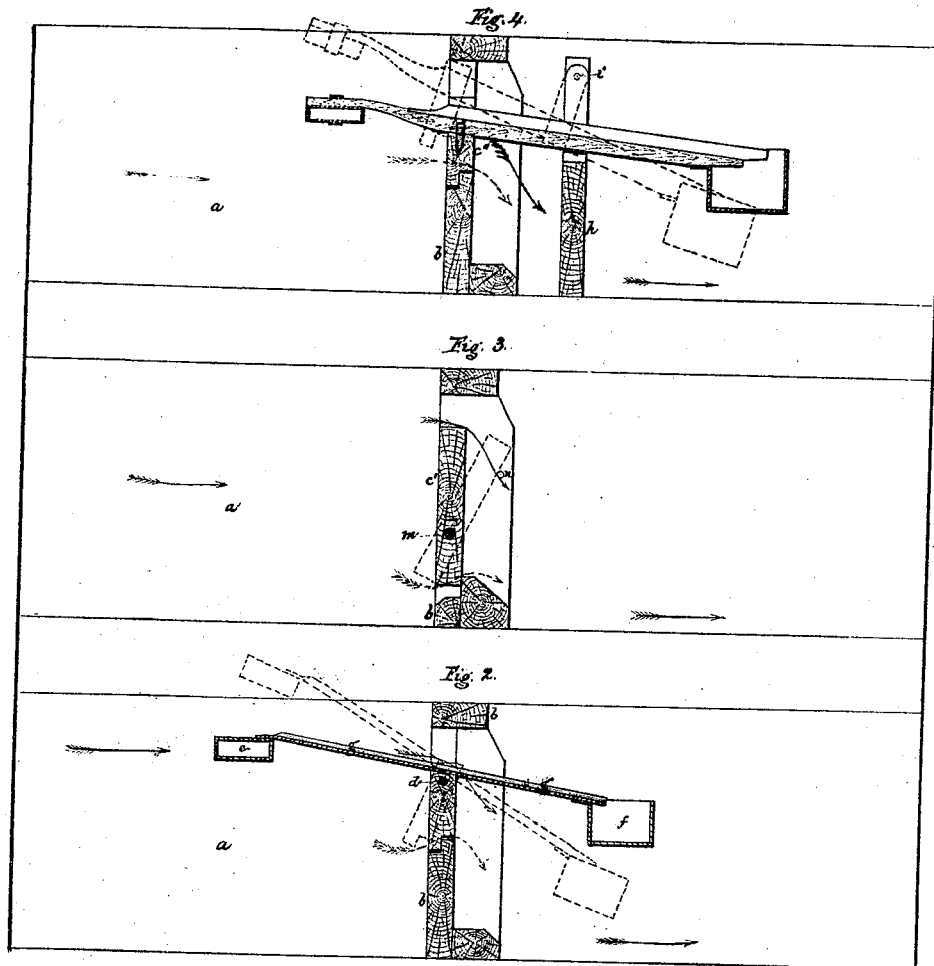


N. Hinchley,

Flood Gate.

No. 102734.

Patented Nov. 29. 1870.



*Nathl. Hinchley
by his attys.
Crosby, Holsten & Gould*

*Witnesses
J. B. Kiddle.
W. W. Frothingham.*

United States Patent Office.

NATHANIEL HINCKLEY, OF MARSTON'S MILLS, MASSACHUSETTS.

Letters Patent No. 109,734, dated November 29, 1870; antedated November 26, 1870

IMPROVEMENT IN FLOOD-GATES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, NATHANIEL HINCKLEY, of Marston's Mills, in the town and county of Barnstable, in the State of Massachusetts, have invented an Improvement in Flood-Gates for Dams as a security against freshets; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The object of my invention is to provide a novel means for automatically opening flood-gates set in dams made across streams, which shall operate to open such gates whenever, by rise of water, the pressure against the dams shall become so great as to endanger their stability.

Gates are usually found in dams, but they are not made automatic in their action, and have to be raised by an attendant or watchman, and it sometimes occurs that, during his absence, or in the night, a heavy rain so swells the stream that the increased pressure against the dam carries it, or a part thereof, away, causing much loss and danger.

Small streams, particularly in lilly districts, are specially liable to sudden rise, and it forms a disagreeable part of the duty or business of the mill-owner or attendant, on stormy and tempestuous nights, to watch the rise of the stream, so as to be ready to raise the flood-gate if necessary, and to close it again to prevent loss of the head of water which it is desirable to maintain.

My invention consists in the combination of devices for automatically opening and closing flood-gates in case of freshets, as hereinafter described.

Figure 1 of the drawing is a front elevation of a dam provided with automatically-opening and closing flood-gates, depending for their action on the rise and fall of water back of the dam or in the mill-pond.

Figure 2 is a vertical section taken on the line $x x$, through the flood-gate shown at the left of fig. 1.

Figure 3 is a vertical section taken on the line $y y$, through the flood-gate shown in the center of fig. 1.

Figure 4 is a vertical section taken on the line $z z$, through the flood-gate seen at the right of fig. 1.

a represents the mill-pond, into which the stream discharges and accumulates.

b represents the dam, which has in its face or width, not shown in the drawing, a waste-way at about the height or level at which, under ordinary circumstances, it is desirable to keep the water, removable and inter-

changeable flush-boards being used at the waste-way to vary the water-level within ordinary ranges, as is the common practice.

The automatically-operating safety-gates $c c' c''$ are hung on pivots, and vibrate in opening from, and in closing upon, the sills and frames of the gate-ways, the lower edge of each gate swinging inward against the confined water in the pond a .

The gate c has pivots in itself fixed near its upper edge, and in the gate-frame at d , and to the top of the gate c is fixed a lever, g , one end of which, that over the pond a , bears a float, e , and the other end a tank, f .

The arm of said lever g , which bears the tank, is made as a spout or trough, so that when the level of the water reaches the edges of the trough, where it is let into and secured to the gate c , the water will flow down the trough into the tank f , and will there act as a weight to open the gate and cause it to assume the position indicated in dotted lines, which opens an aperture through the dam, and relieves it from pressure by lowering the water-head.

The float e is fixed at such a position that the water presses it upward when it reaches a height at which it will flow into the tank f , and so aids the water-weight in the tank in starting open the gate.

The tank f is perforated with a small hole, through which the water in the tank will drain out after the head of water is lowered, so that it ceases to run through the trough into the tank, and when the tank is drained the pressure of the water in the pond a will shut gate c , and keep it closed until such time as the head of water shall rise sufficiently to again act on the float e and run into the tank f , when the result will be as before described.

Thus it will be seen that a gate so arranged is automatic in its operation in both opening and closing, and it follows that the services of a watchman or an attendant to open gates to preserve the dam from being washed away in time of freshets, and to close them to prevent unnecessary waste of water, may be dispensed with.

I claim—

The troughed lever, carrying a float at one end and a tank at the other, and connected to operating the gate at a point between the float and tank, substantially as shown and described.

NATHL. HINCKLEY.

Witnesses:

J. B. CROSBY,
L. H. LATIMER.