No. 625,506. Patented May 23, 1899.

H. HONE.

FLOOD GATE.

(Application filed Nov. 21, 1898.)

(No Model.)

Fig. 1

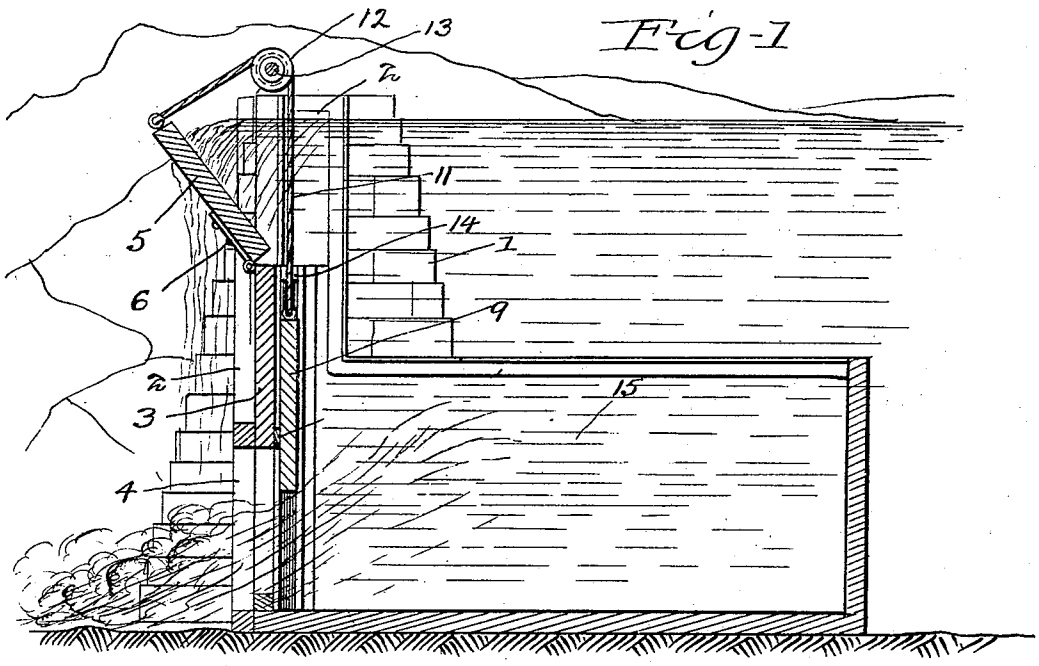


Fig. 2

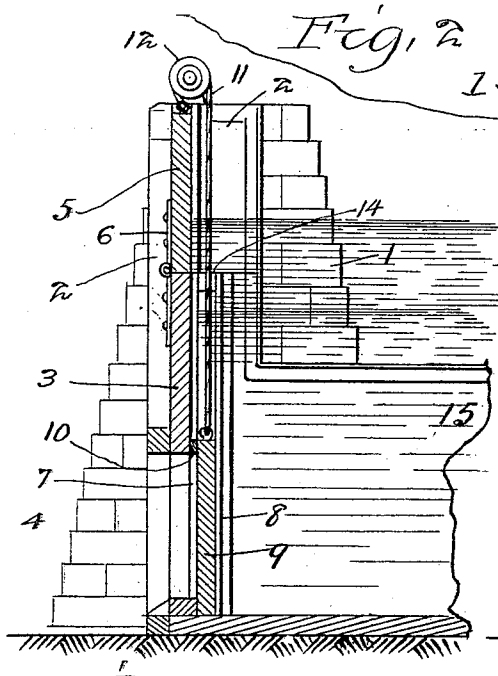
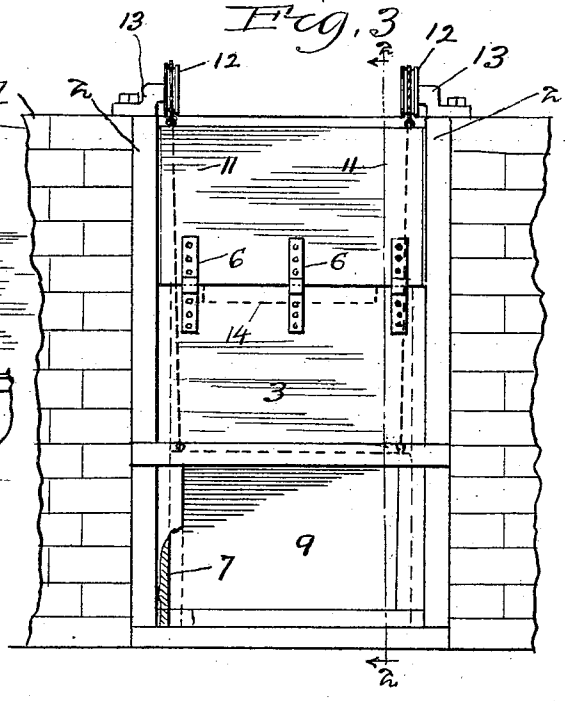


Fig. 3



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY HONE, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO WILLIAM I. REEDY AND JOHN T. REEDY, OF SAME PLACE.

FLOOD-GATE.

SPECIFICATION forming part of Letters Patent No. 625,506, dated May 23, 1899.

Application filed November 21, 1898. Serial No. 697,001. (No model.)

To all whom it may concern:

Be it known that I, HENRY HONE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Flood-Gates, of which the following is a full, clear, and exact specification.

My invention relates to flood-gates for use in dams where the level of the water is liable to rise suddenly and, if not relieved, destroy the dam; and it has for its primary object to automatically discharge the surplus water as soon as the level rises above a predetermined height and to cause the discharge to take place at or near the bottom without draining the dam, whereby a greater quantity in a given time and size of discharge-opening will run out than when the discharge takes place near the upper end of the column.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claim.

In the said drawings, Figure 1 is a vertical sectional view of my improved flood-gate in action, the section being taken transversely of the dam. Fig. 2 is a similar section showing the valve of the gate closed, the section being taken on the line 2 2, Fig. 3; and Fig. 3 is a front view thereof, looking from the outside of the dam.

1 represents the dam-wall, which may be of masonry or any other suitable construction, and 2 is a casing or frame, resembling a window-frame, set in a breach formed in the dam from top to bottom. This casing 2 is closed at about midway of its height by a permanent partition 3, leaving an open port 4 below, and which port is situated, preferably, at the bottom of the dam. Above this fixed partition 3 the casing 2 is closed by a door or portion 5, hinged at 6 to the upper edge of the partition 3, so as to open outwardly and downwardly, as indicated in Fig. 1, the inner side of the door or portion 5 being continually exposed to the pressure of the water should the latter rise on a level with it. Arranged at the inner side of the partition 3, between suitable guide-strips 7 8, is a vertically-sliding valve 9, which closes the port 4 and, together with the partition 3 and door 5, completely closes the opening of the frame 2, the space between the partition 3 and the valve 9 produced by the guide-strips 7 being closed by a cross-strip 10. The upper edge of the door or portion 5 is attached to a cable 11, preferably at each end, and these cables pass upwardly over idlers 12, mounted upon a side bracket 13, and thence downwardly and are secured to the upper edge of the valve 9.

The hinged door or portion 5 is supposed to be arranged above the normal level of the dam, and hence under normal conditions the valve 9 will remain closed and substantially all leakage prevented; but when the flood comes and the level rises as high as the door or portion 5 the pressure of the water against the latter will deflect it outwardly and downwardly, as indicated in Fig. 1, and this movement will lift the valve 9 and throw open a large port at the bottom of the lake, where the pressure is greatest, thus allowing the surplus to escape with great rapidity. As the level lowers, reducing the pressure on the door or portion 5, the latter will gradually resume its normal upright position, permitting the valve 9 to gravitate across the discharge-port.

In order that the hinged door or portion 5 may not descend so far as to enable the weight of the water running over it to prevent its return to a normal position, its downward movement may be limited by a stop consisting of a cross-bar 14, secured to the back of the partition 3, between the cables 11, and in a position to be engaged by the valve 9.

In thus locating the discharge flood-port at the bottom of the dam there is of course danger of drift-wood and other obstructions clogging the hinged door or portion 5 and thus preventing the same from permitting the valve to resume a closed position, thereby allowing the dam to drain, and in order that this contingency may be guarded against I locate at the bottom of the dam a box or wall 15, having an open top, but standing around the port 4, so that all the water that discharges through the latter must pass over the box or wall 15,

and hence the dam can never drain below the top of such wall or box. This box 15 serves a further useful purpose in shielding the valve 9 from the force of the direct current, which would increase its friction against the guide-strips and require a correspondingly greater power to open it.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

A flood-gate having in combination the dam, a movable portion exposed to the pressure of the water at high-water level, a port located below said movable portion, a valve for closing said port having operative connection with said movable portion and a box or wall inside the dam standing around said port, substantially as set forth.

HENRY HONE.

Witnesses:
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