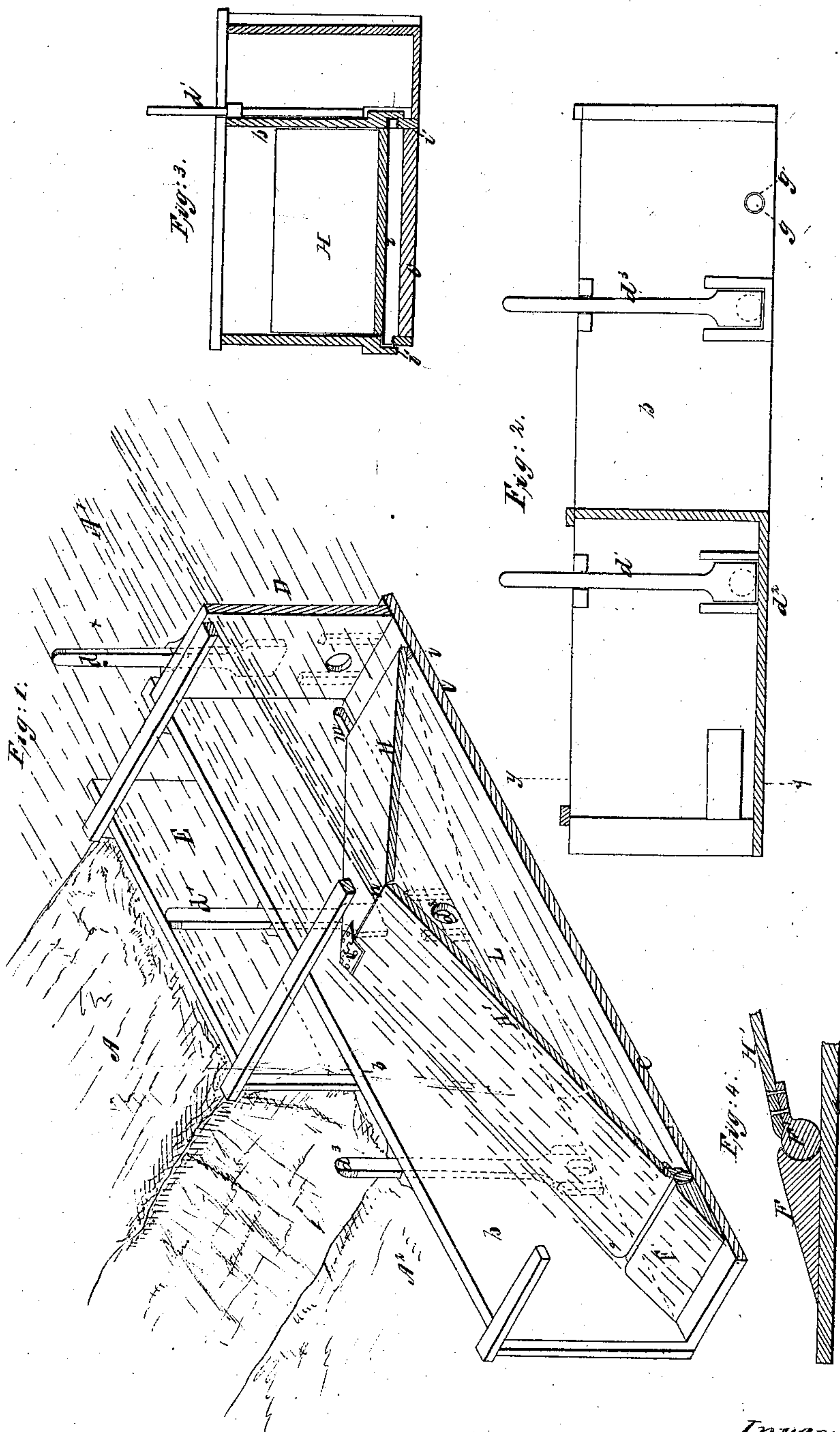


J. Du Bois.

Dam.

N^o 36,342.

Patented Sept. 2, 1862.



Witnesses:

*Gustave D'Almeida,
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UNITED STATES PATENT OFFICE.

JOHN DU BOIS, OF WILLIAMSPORT, PENNSYLVANIA.

IMPROVEMENT IN DAMS.

Specification forming part of Letters Patent No. 36,342, dated September 2, 1862.

To all whom it may concern:

Be it known that I, JOHN DU BOIS, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Improvement in Self-Regulating Chutes for Passing Logs, Rafts, Boats, &c., Through Dams; 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, like letters in the several figures indicating the same or analogous parts, and in which drawings—

Figure 1 is a perspective view of my improved "chute;" Fig. 2, a side view of Fig. 1 in the line *x x*; Fig. 3, a section in the line *y y*, Fig. 2; and Fig. 4, a view showing the jointing of the apron to the forward end of the chute.

The nature of my invention consists in so constructing a chute for passing boats, logs, rafts, and the like through a "dam" that the available working depth of water within the chute shall remain the same, notwithstanding the depth of the water above the dam may vary and "draw down" during the act of so passing boats, logs, and rafts. To this end I secure permanently in the dam A a main flume having sides *b b* (one of them not shown in the drawings) and flooring *c*, the lower end of the flume being left at all times open, and the upper end having a head-gate, D, with a small flood-gate, *d*, applied thereto, as shown in Fig. 1. To the main flume a side flume, E, is applied, as shown, the latter being "framed" into the former so as to hold both permanently together, the width of the side flume being, say, one-half of the main flume, but of the same height, and both having their bottoms on the same horizontal plane. From the flume E communication is made with the main flume by means of a gate, *d'*, through an opening, *d''*, in the side *b* of the main flume.

Near or quite at the lower end of the main flume, and fitting against the sides *b b* thereof, I permanently attach a chute-piece, F, to the floor *c*. This chute-piece F, as will be clearly seen in Fig. 4, affords a bearing for a hinge, F', clear across the floor *c* of the main flume, the bearings *g* of said hinge being secured in circular openings *g'*, cut through the sides *b b* of the main flume, as indicated in Fig. 2.

Within the main flume, as represented, I apply an apron of peculiar construction, its forward portion, H, being attached to its rear portion, H', by hinges *i*, and in such manner as to allow the rise and fall of the apron, the rear end of the portion H' of the apron being securely attached to the hinge F', as indicated in Figs. 1 and 4. To the under side of the part H of the apron, as shown in Figs. 1 and 3, a cleat, *l*, is secured, having bearings *l'* to engage with and slide in horizontal slots or "ways" *m*, cut in the sides *b b* of the main flume. It will thus be seen that the apron H H' in its rise and fall will articulate upon the hinge F', and that the length of the ways *m* will govern the height at which the apex *n* of the apron can rise within the main flume. In other words, the ways *m* are of such length as to allow the apron to be drawn down flat upon the floor of the main flume, or have its apex *n* thrown up to its greatest desirable height, as indicated in Fig. 1. We will suppose that it is desired to pass a raft from the pond A' above the dam A to the water A² below, and that the head-gate D is in proper position in the main flume with its small flood-gate *d* closed, and that the small gate *d'* of the side flume, E, is closed also. We will further suppose that the water L, as shown in Fig. 1, beneath the apron H H', has also been drawn off into the stream A² through the gate *d'*, and consequently that the apron has fallen flatly, or nearly so, upon the bottom *c* of the main floor. Such being the condition of the chute, the operator will first proceed to elevate the gate *d'*, which act will permit the water from the side flume, E, to enter the main flume beneath the apron through the opening *d''*, thus raising the apron from its flat position upon the floor *c* into the position, say, as shown in red line in Fig. 1. From such position it is evident that the apron may still be further elevated until it has attained its maximum height within the main flume. But the desired elevation of the apron, between its extremes of elevation and depression, will depend altogether upon the depth of water required above its apex *n* for the passage of the raft without striking or touching the apron at such point. Supposing such depth to be one foot, the operator will allow the water to flow into the main flume from the side flume, E, and beneath the apron, until the point *n* of the

apron is elevated to a point one foot below the head of water A' above the dam. He will thereupon open the gate d until the water from the pond flows through the main flume and over the apex of the apron, after which the flood-gate D may be entirely removed, or elevated out of the way of the passage of the raft by any proper means. Under such condition of the chute it is evident that so long as the head of water in the pond above the dam remains the same, the depth of water will be one foot above the highest point of the apron; and, further, that as the water A' draws down, the pressure above and beneath the apron will be such as to permit it to fall in exact ratio with the fall of the head of water A' , but meantime always maintaining the specified depth of water above the point n of the apron. Of course after the apron has fallen down to its extreme limit a continued decrease of head of water in the pond would in like manner decrease the depth of water above the apron.

I would here state that after the apron is once made to assume the position shown in Fig. 1, the flood-gate D may be dispensed with, in which case the part H of the apron will of itself act as a main gate to the main flume.

By constructing a chute as described, I am enabled to pass logs, lumber, rafts, boats, or other floating material from a point above the dam to a point below it without subjecting them to a perpendicular fall of water between the two points during their passage, at the same time maintaining a given depth of water above the apron, while the pond above the dam is being drawn down.

In the course of the operation of the chute, if there should be any hesitancy of the apron to become depressed as the head of water draws down above the dam, the depression of the apron may be accelerated, either by slightly depressing the gate d' or by slightly opening the gate d'' .

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

1. In a dam-chute which is operated by hydrostatic pressure beneath an apron, a divided apron having its parts hinged at the point of junction, substantially as and for the purpose described.

2. In a dam-chute having a divided apron, a fixed articulating joint at one extremity of the apron, in combination with a sliding joint at the opposite extremity of the apron, for the purpose set forth.

3. A dam-chute having an apron made in sections II II' , hinged together at their junction, as at i , the lower section, II' , articulating upon a fixed hinge, and the upper end of the section II traveling in a horizontal slot at the bottom of the flume, the whole being operated substantially in the manner and for the purpose described.

Witness my hand and seal in the matter of my application for a patent for an improved chute for passing logs, rafts, boats, &c., through dams, this 29th day of July, A. D. 1862.

JOHN DU BOIS. [L. S.]

Witnesses:

GUSTAVUS DIETERICH,
EDWIN S. JACOB.