

J. J. Kimball,

Flood Fence.

No. 98,979.

Patented Jan. 18. 1870.

Fig. 3

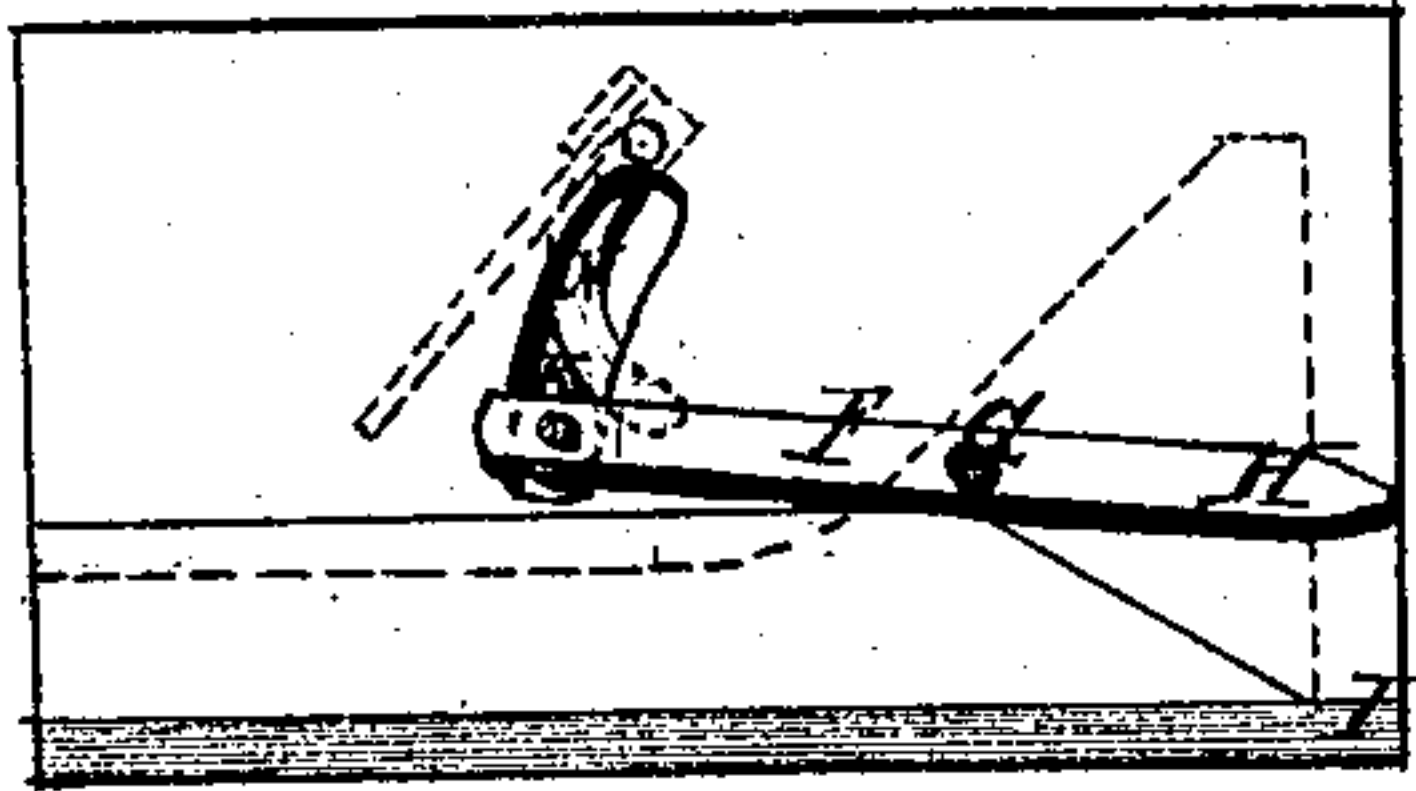


Fig. 2

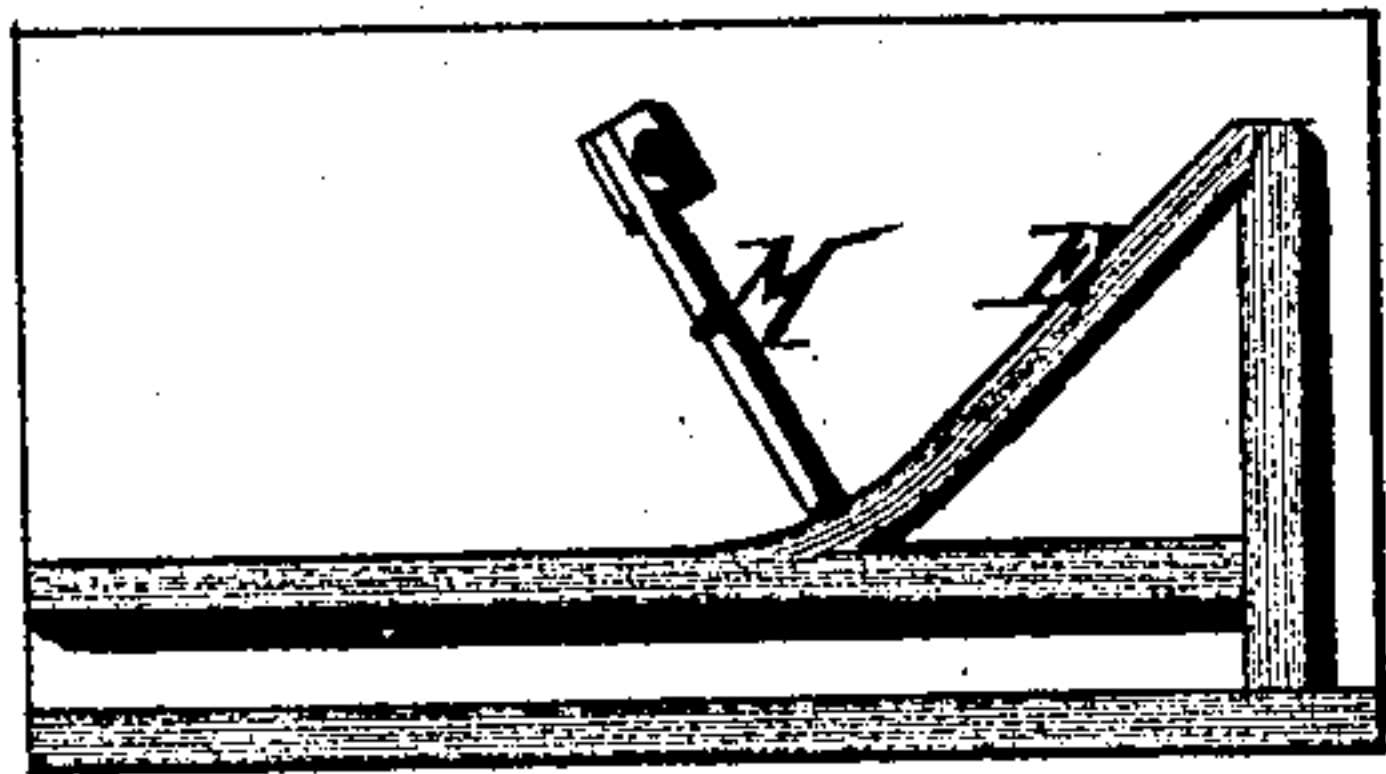
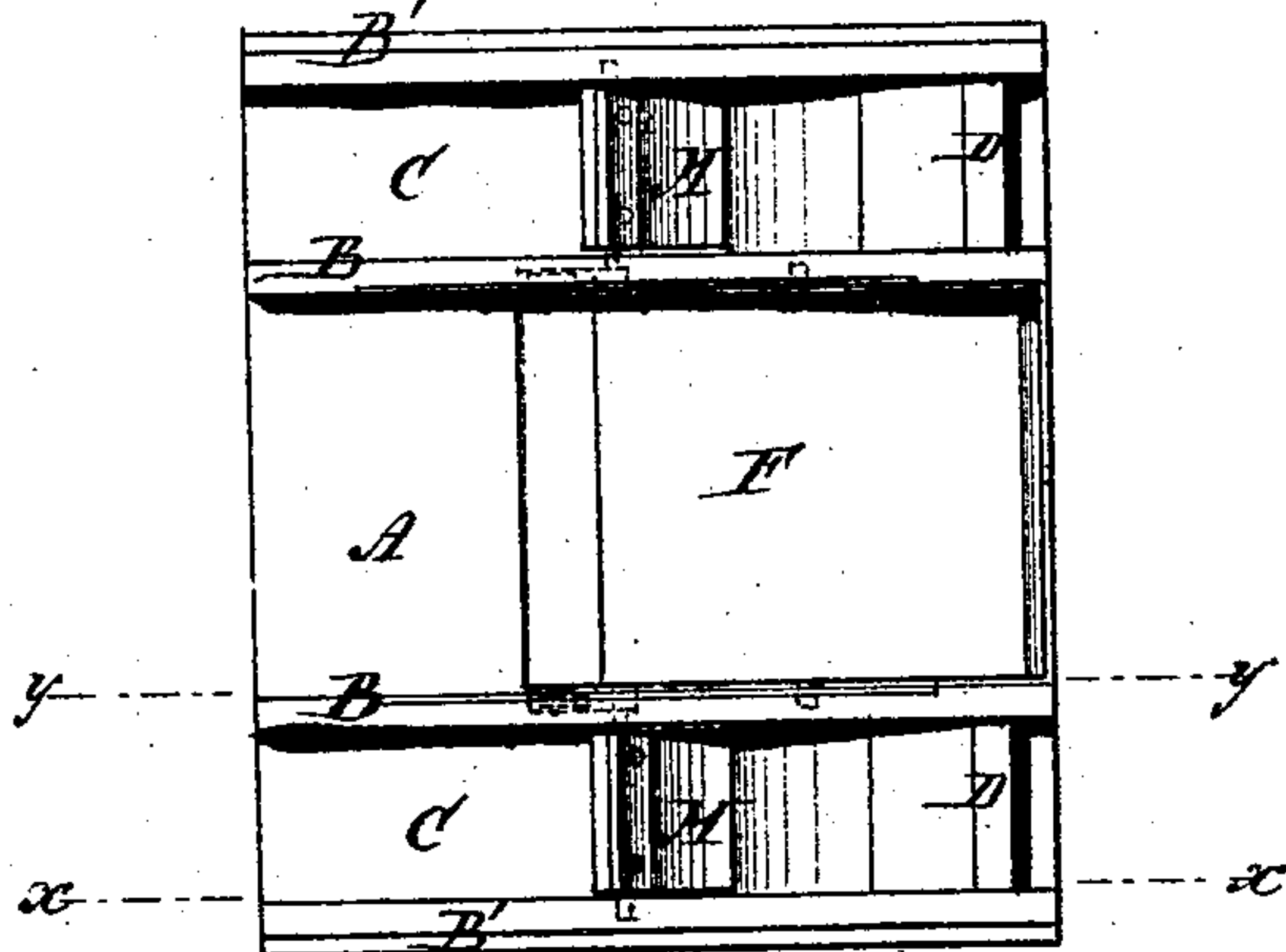


Fig. 1



Witnesses:

Two Le Brooks
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United States Patent Office.

JOHN J. KIMBALL, OF NAPERVILLE, ILLINOIS.

Letters Patent No. 98,979, dated January 18, 1870.

IMPROVED FLOOD-GATE.

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, JOHN J. KIMBALL, of Naperville, in the county of Du Page, and State of Illinois, have invented a new and improved Flood-Gate; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in self-opening flood-gates; and consists in the combination with the main gate arranged between the two walls, of a flume, on trunnions, at or about the centre, lengthwise, and to stand in an inclined position when in the normal condition; of one or more auxiliary gates in flumes at the sides, with bulk-heads, over which the water will fall in times of floods, against the lower ends of the said auxiliary gates, journaled at the upper ends, and carrying arms on the said journals, which, working in spaces in the walls of the flume where they will not encounter floating ice or drift wood, will bear upon journals or friction-rollers projecting into the said spaces from the upper end of the main gate, and turn it on its trunnions, to raise the lower end and allow the water to escape under it, all as hereinafter more fully specified.

Figure 1 is a plan view of my improved flood-gate;

Figure 2 is a longitudinal section on the line $x x$ of fig. 1; and

Figure 3 is a longitudinal section on the line $y y$ of fig. 1.

Similar letters of reference indicate corresponding parts.

A is the main flume or sluice-way, and B, the side walls thereof.

C are side sluices or flumes, with bulk-heads, D, at the upper ends, below which are the inclined aprons E.

F is the main gate, placed between the walls B, on trunnions G at about the centre of its length, and resting, in its normal position, with the end H down on the bed I, at the up-stream end of the flume.

The other end of this gate carries friction-rollers, K, on suitable studs projecting into the curved recesses L, in the walls B of the flume.

M represents the auxiliary gates, journaled in suitable bearings in the walls B and corresponding outer walls, B', near their upper edges, and projecting downward to the bottom of the spaces C, so that water falling over the bulk-heads D, and down the aprons

E, will strike against the lower ends, and force them down the stream.

The journals of these gates, projecting into the walls B, carry curved arms, N, which, when they stand in the position represented in fig. 2, and the gates F are in the normal position, bear near their junction with the journals against the friction-rollers K, so that when the water rises high enough to flow over the bulk-heads freely against the said gates M, and force them back, these arms, acting on the said rollers, will force the upper end of the gate F down, and the other end up, as shown in fig. 3, nearly, but not quite to a horizontal line, allowing the water to pass under it.

But when the water falls below the bulk-head D, so that the force on the gates M ceases, the quantity of water on the end H of the gate F being the greatest, will carry it down again to the bed I, and close the space below, restoring it to the low-water position.

It will be seen that the arms N and rollers K, being enclosed in the spaces provided for them in the walls D, are fully protected from floating ice and other objects; also, that the arrangement of the arms N with the rollers K of the gate F is such, that in first starting the gate in motion, when by reason of the greater depth of water and consequent weight on the end H, it offers great resistance to the force of the arms N, they are caused to bear near their junctions with the shafts of the gates M, where they are more effective; but as the gate turns and the weight decreases, the distance of the bearing-points on the arms from the journal increases in about the proportion of the said reduction of the weight, making thereby a uniform action of the one with the other.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The combination, with the gate F, journaled between the walls B, and provided with the studs and friction-rollers K, of one or more gates, M, arranged in sluices C, behind bulk-heads D, and provided with arms N, arranged for action in conjunction with the said gates F, all substantially as specified.

2. The arrangement of the friction-rollers K and arms N, in the spaces in the bulk-heads B, substantially as specified.

Witnesses:

JOHN J. KIMBALL.

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CLEMENT POWELL.