(No Model.)

J. J. LÜCK.

Device for Regulating the Head of Water in Mill Dams.

No. 232,284. **Patented Sept. 14, 1880.**

Fig. 1

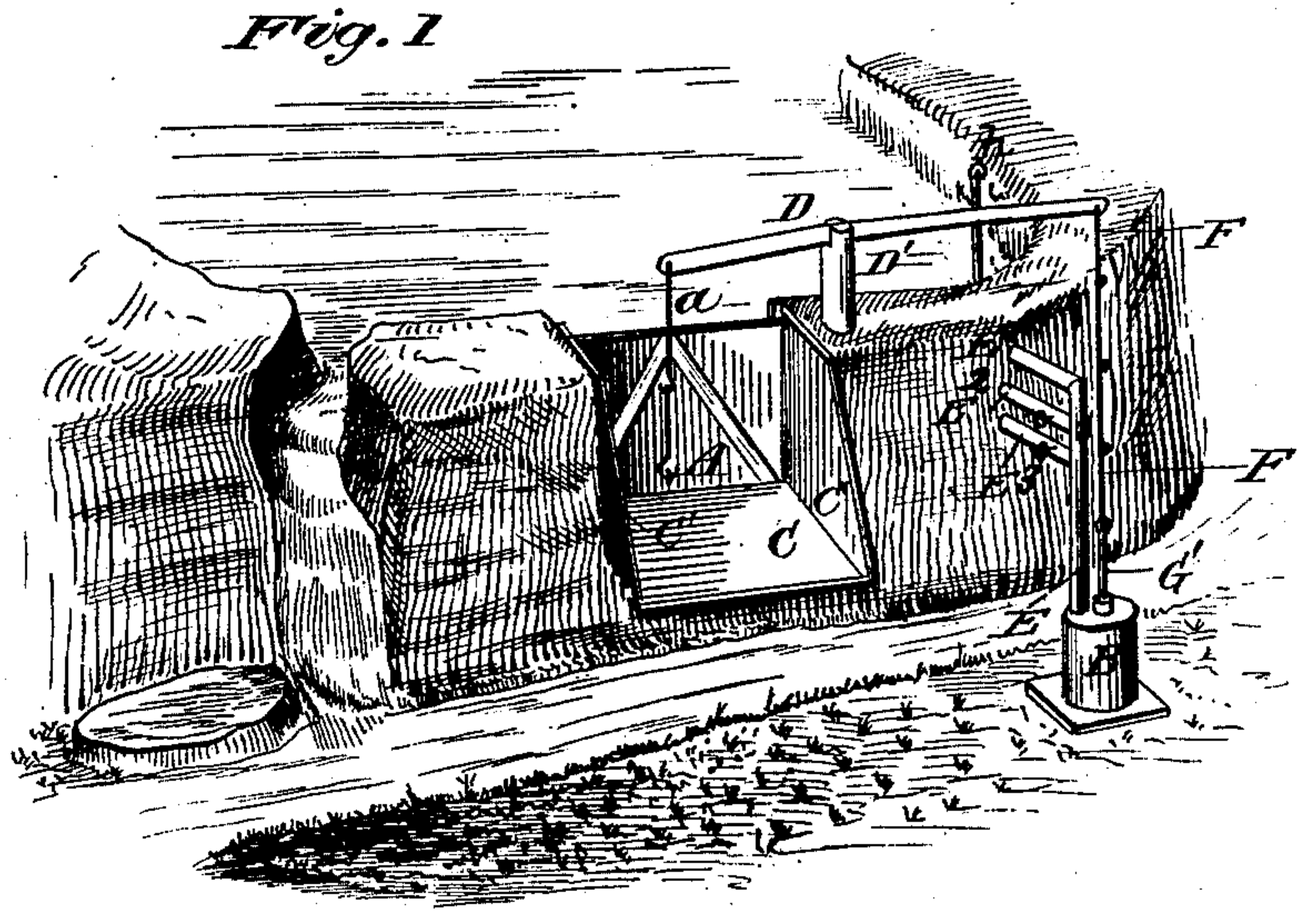


Fig. 2

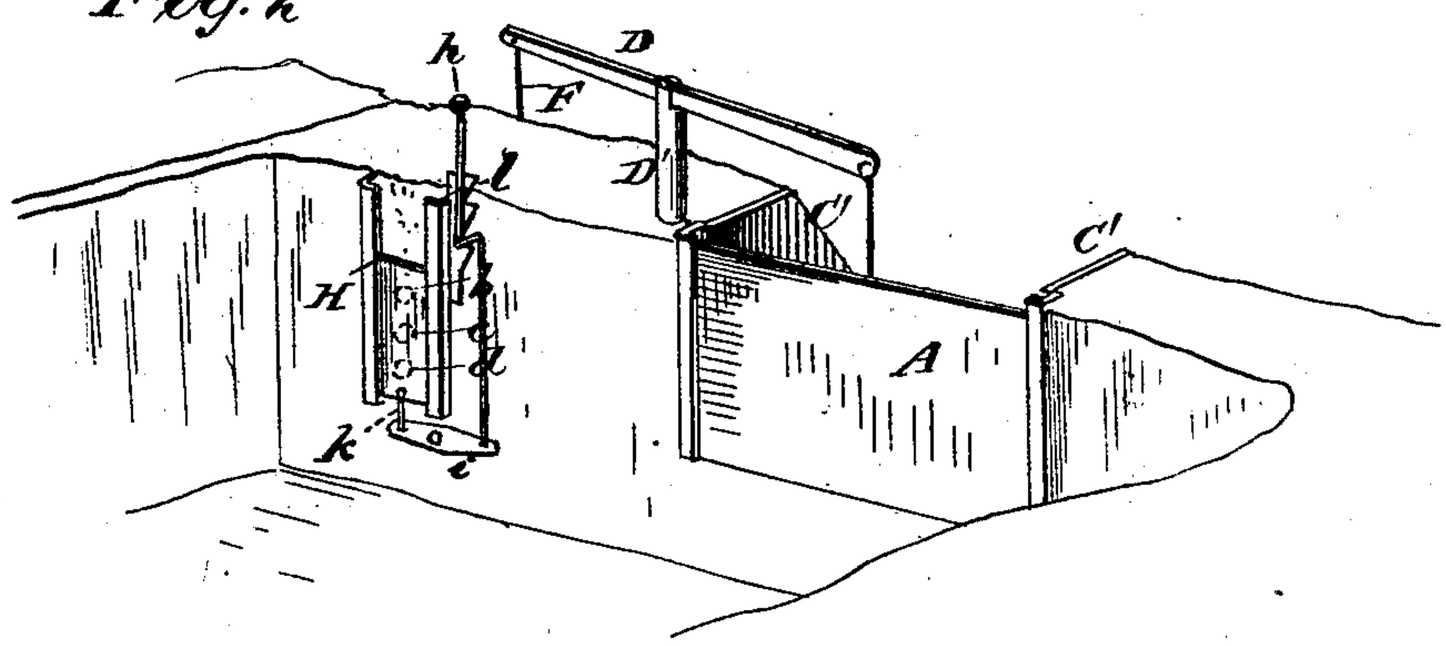
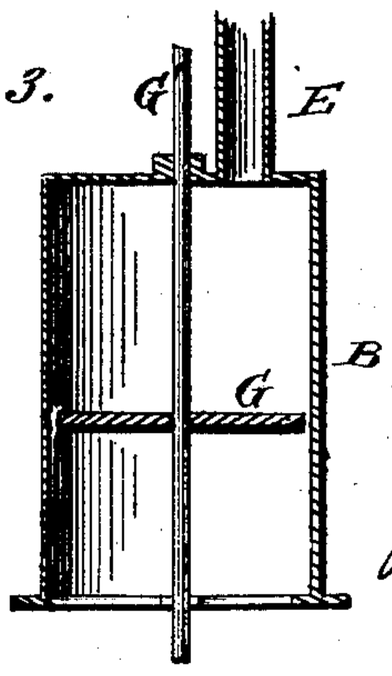


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN J. LÜCK, OF RIPON, WISCONSIN, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO HENRY B. BATEMAN, OF SAME PLACE.

DEVICE FOR REGULATING THE HEAD OF WATER IN MILL-DAMS.

SPECIFICATION forming part of Letters Patent No. 232,284, dated September 14, 1880.

Application filed May 25, 1880. (No model.)

To all whom it may concern:

Be it known that I, J. J. LÜCK, of Ripon, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Devices for Regulating the Head of Water in Mill-Dams; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of a pond or mill-dam the embankment of which is provided with my automatically-operating safety-gate. Fig. 2 is a similar view of the inside of the embankment; and Fig. 3 is an axial section of the cylinder containing the piston by means of which the gate is operated.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to devices for preventing the breaking through or overflowing of the dams or embankments of ponds, streams, or other inclosures of water; and it consists in the construction and arrangement of parts of an automatically-operating gate adapted to let the water pass off when it shall reach a certain head or certain designated level, substantially as hereinafter more fully set forth.

In the accompanying drawings, A represents the gate, which may be arranged at any suitable point in the dam or embankment, on the inside thereof.

C′ designates the walls or sides, and C the inclined bottom, of the chute or outlet through which the water escapes when the gate is raised. This gate may be of any desired construction giving it the requisite strength to resist the pressure from within, and must be weighted so as to work easily in vertical ways or grooves in the sides C′, in which it slides. It is suspended by a rod or chain, *a*, from one end of a lever, D, having its fulcrum in a post, D′, or other suitable support.

The long arm of lever D is connected by a chain, F, with the piston-rod G′ of a piston or plunger, G, which works in an open-bottomed cylinder, B, with a surrounding or annular space between it and the cylinder just of sufficient size to permit the escape of the water contained in the cylinder above the piston to the under side of this, where it may pass off through the open bottom of the cylinder.

E is a pipe, the upper end of which is made with any desired number of branch pipes or elbows E′ E² E³, which open up into the dam or pond through its embankment at different elevations, their inside mouths or openings *b c d* being covered by a slide or valve, H, which may be conveniently operated by a rod, *h*, the lower end of which is hinged in a lever, *i*, the opposite end of which is connected by a short rod, *k*, with the lower end of the slide or valve H, so that this may be adjusted in reference to the outlets *b c d* from the top of the mill-dam or embankment by raising or lowering rod *h*, which may be held in any given position by means of a rack, *l*, as shown in Fig. 2 of the drawings; or, if preferred, pipe E may be curved at its upper end, so as to reach through the embankment, with its curved end extending down into the water below the freezing-point, that part of the pipe which extends down into the dam being provided at different intervals up its height with a series of apertures, which may be closed by a slide or valve constructed and operating substantially in the same manner as the slide-valve H. In either case pipe E should be provided with a vent-hole at its upper end to permit the water to flow through it freely when the slide is opened.

From the foregoing description, taken in connection with the drawings, the operation of my invention will readily be understood.

The water rising in the dam, pond, or stream, as the case may be, is prevented from overflowing its banks by opening one or more of the inlets to pipe E, according to the head of water desired in the dam. The surplus of water will flow through these inlets, down through pipe E, into the cylinder B at its lower end, outside the embankment, pressing by its weight upon the piston within the cylinder, which, with its descent or downward stroke, will pull upon chain F and the outer end of the gate-lever D, which raises its inner end, and with it rod *a* and the gate A attached thereto, thus permitting a sufficient quantity of water to escape under the gate to bring the head of water in the dam down to its proper level, when the

gate will again close and remain closed until the water shall rise to a sufficient height to repeat the operation. The water within the cylinder is discharged between the annular space surrounding the piston down into the lower part of the cylinder and out through its bottom.

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

1. A device for automatically controlling or regulating the level or head of water in a water-course or mill-pond, composed of an outflow-pipe having a series of inlets from the pond arranged at different elevations and closed by a suitably-constructed slide or valve at its upper end, and connected at its lower end with a hollow drum or cylinder provided with a loosely-fitting piston, which said piston is connected by a rod or chain with the long arm of a lever having a vertically-sliding weighted gate suspended from its opposite end, substantially as and for the purpose herein shown and set forth.

2. The combination of the weighted gate A, sliding in vertical grooves or ways in the chute C C′, chain *a*, lever D, connecting rod or chain F, piston G, working in the hollow drum or cylinder B, and branched pipe E E′ E^2 E^3, provided with the slide-valve H, all constructed and combined to operate substantially in the manner and for the purpose herein shown and specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN JULIUS LÜCK.

Witnesses:

L. E. NOHL,

FRED NOHL, Jr.