G. N. TODD.

Water Gate.

No. 12,421. Patented Feb. 20, 1855.

Fig. 1.

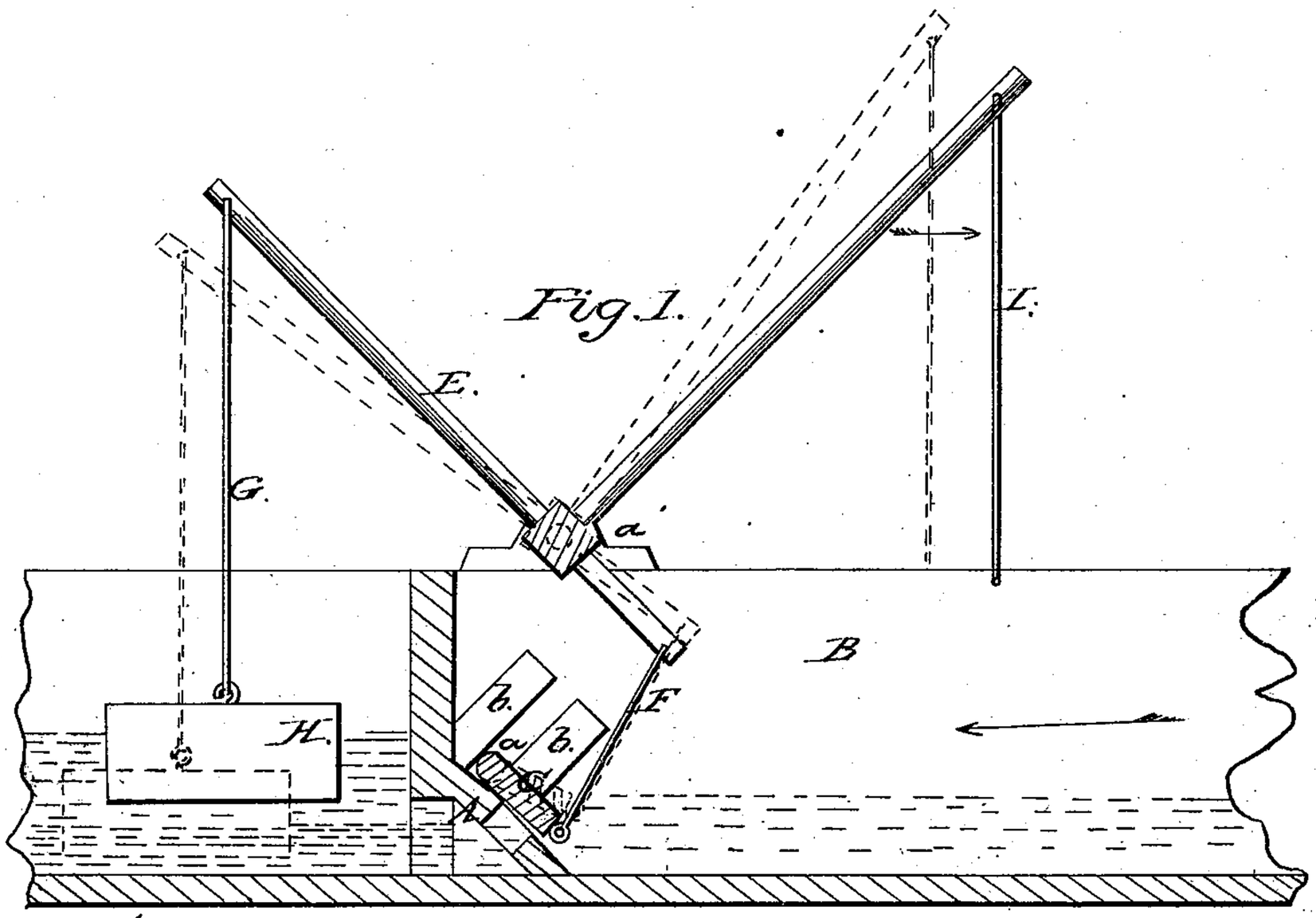
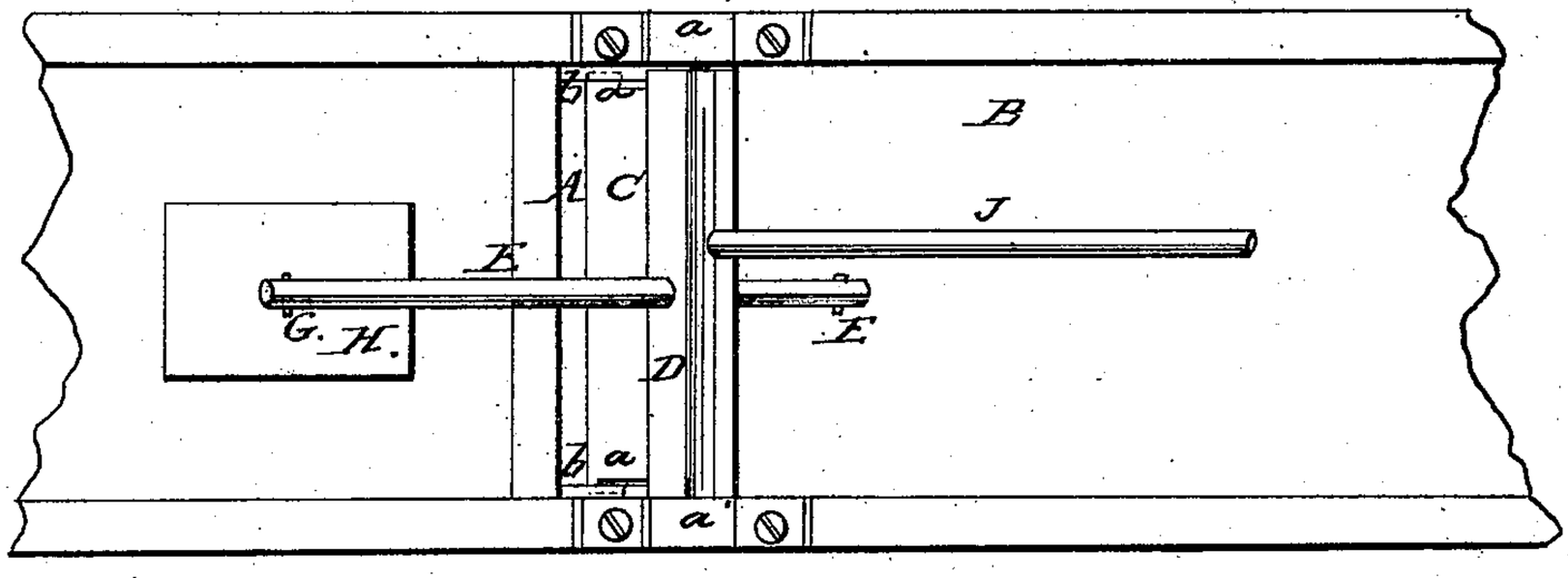


Fig. 2.



UNITED STATES PATENT OFFICE.

GEORGE N. TODD, OF DUNDAFF, PENNSYLVANIA.

SELF-REGULATING WATER-GATE.

Specification of Letters Patent No. 12,421, dated February 20, 1855.

To all whom it may concern:

Be it known that I, GEORGE N. TODD, of Dundaff, in the county of Susquehanna and State of Pennsylvania, have invented a new and Improved Gate for Water-Wheels, Tide Mill-Ponds, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of my improved gate. Fig. 2, is a plan or top view of my improved gate.

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

The nature of my invention consists in the peculiar construction of the gate as will be hereafter fully shown, whereby the gate may be made to close perfectly water tight and adjust itself so as to open more or less, and allow only the requisite quantity of water to pass.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the gate seat or the surface against which the gate shuts, and which is at the end of the flume or penstock B. This seat has the necessary discharge orifice for the water to pass through when the gate is open. The seat is represented as being inclined in the drawings, which is perhaps the most preferable position, still it may be in a vertical or even in a horizontal position.

C is the gate, which, as well as the seat may be constructed of either wood or iron. The gate is of rectangular form and somewhat larger than the discharge orifice, and has at each end of its upper part a gudgeon (*a*) both gudgeons work or are fitted between cleats (*b*) (*b*) at each side of the flume or penstock B.

D is a shaft which runs transversely across the upper part of the flume or penstock B and works in suitable bearings (*a'*) (*a'*) thereon.

E is the lever which is secured to the shaft D, said lever passing entirely through the shaft and having a chain F secured to its lower end, said chain being also attached to the lower end of the gate C. To the outer end of the lever E there is attached a chain or rod G having a float H at its lower end.

J is a lever also attached to the shaft D and having a rod I secured to its upper end.

Operation: If the rod J is drawn in the direction of arrow 1, the pressure of the water will keep the gate C closed, for the chain F will be slack. When it is designed to open the gate the rod J is left free to move and the float H will draw down upon the upper part of the lever E and open the gate a distance corresponding to the volume of water that passes through the discharge orifice in the gate seat A for the float is buoyed up or rests upon this water. Now if the volume of water that passes through the gate fluctuates, the gate will be raised or lowered in a corresponding degree, because the float rests upon this water and rises and falls with it as it increases or diminishes, consequently if the float is made of the proper capacity or has the desired buoyant power and weight the gate will be raised or lowered according as the height of the water fluctuates and a given amount only allowed to pass through.

It will be understood that the water passes through the gate or rather through the discharge orifice with a greater or less force according to the head in the penstock B, and were the gate C not self adjustable a greater quantity of water would pass through the discharge orifice under a full head, than under a small head, and as the head is variable the float H by rising or falling with the water that passes through the discharge orifice adjusts the gate so as to allow an equal quantity to pass through under a variable head.

I do not claim the employment or use of a float for operating the gate or regulating the amount of water supplied irrespective of the special mechanism herein described and used for effecting the above purpose, for floats have been previously used in various ways.

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

Having the float H, attached by a chain or rod G, to the outer end of a lever E, which passes transversely through a shaft D, on the upper part of the flume or penstock B, the inner or opposite end of said lever E, being attached to the gate C, by a chain F, by which the gate C, is raised or lowered to admit the requisite quantity of water to pass through under a variable head as herein shown and described.

GEORGE N. TODD.

Witnesses:

ABEL FLYNT,

B. LEVI DECKER.