

No. 635,206.

Patented Oct. 17, 1899.

W. T. TAYLOR.
AUTOMATIC WASTE GATE.

(Application filed May 25, 1899.)

(No Model.)

FIG. 1.

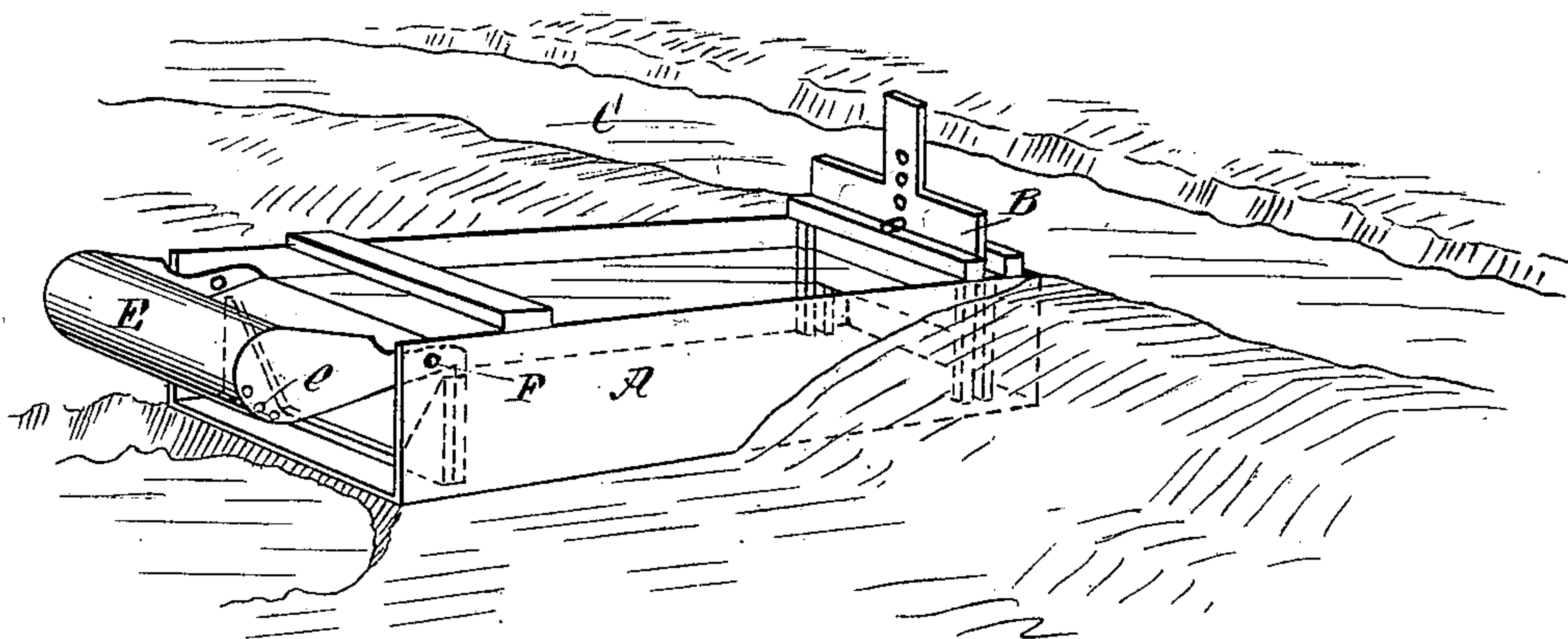


FIG. 2.

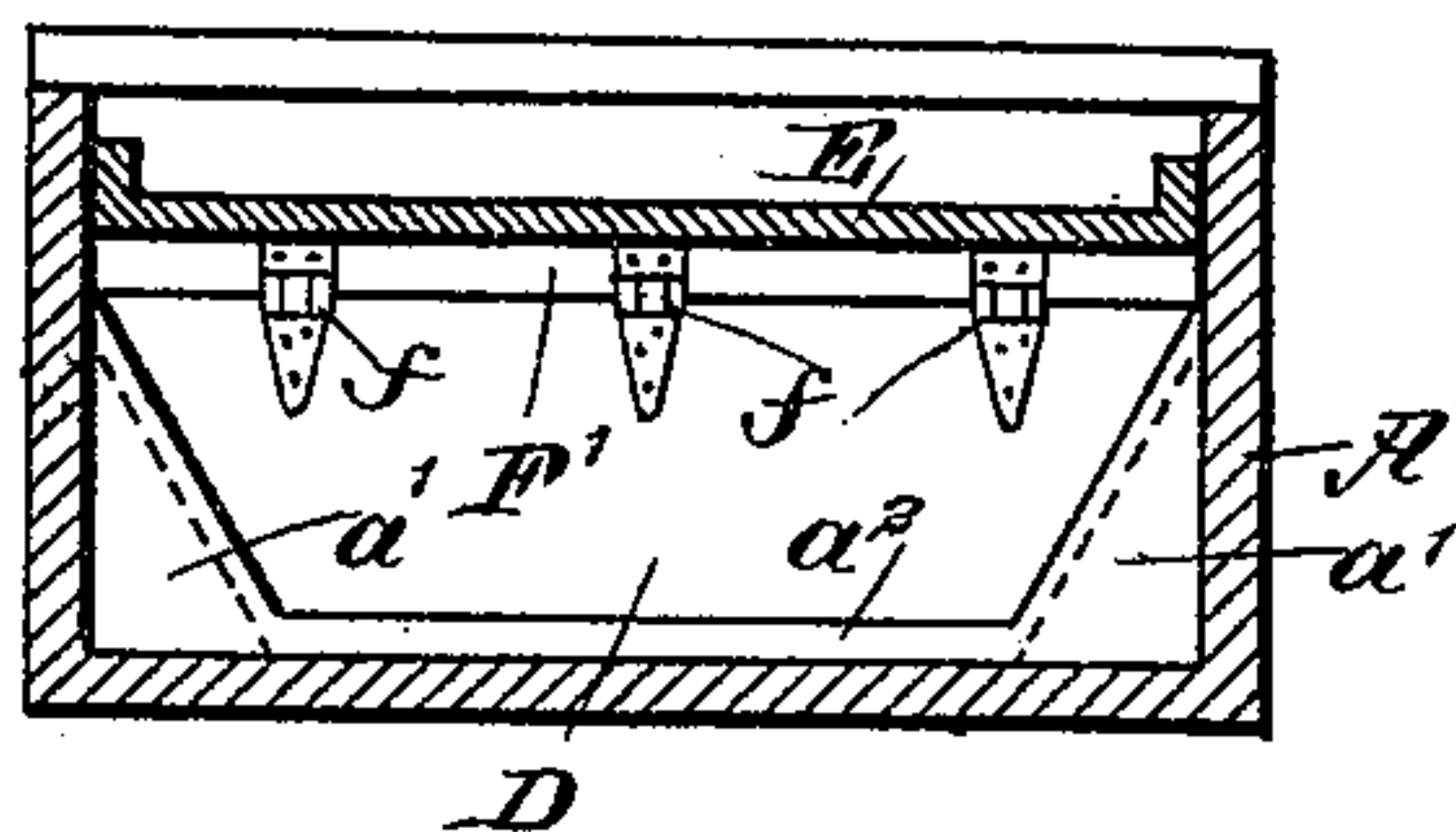


FIG. 3.

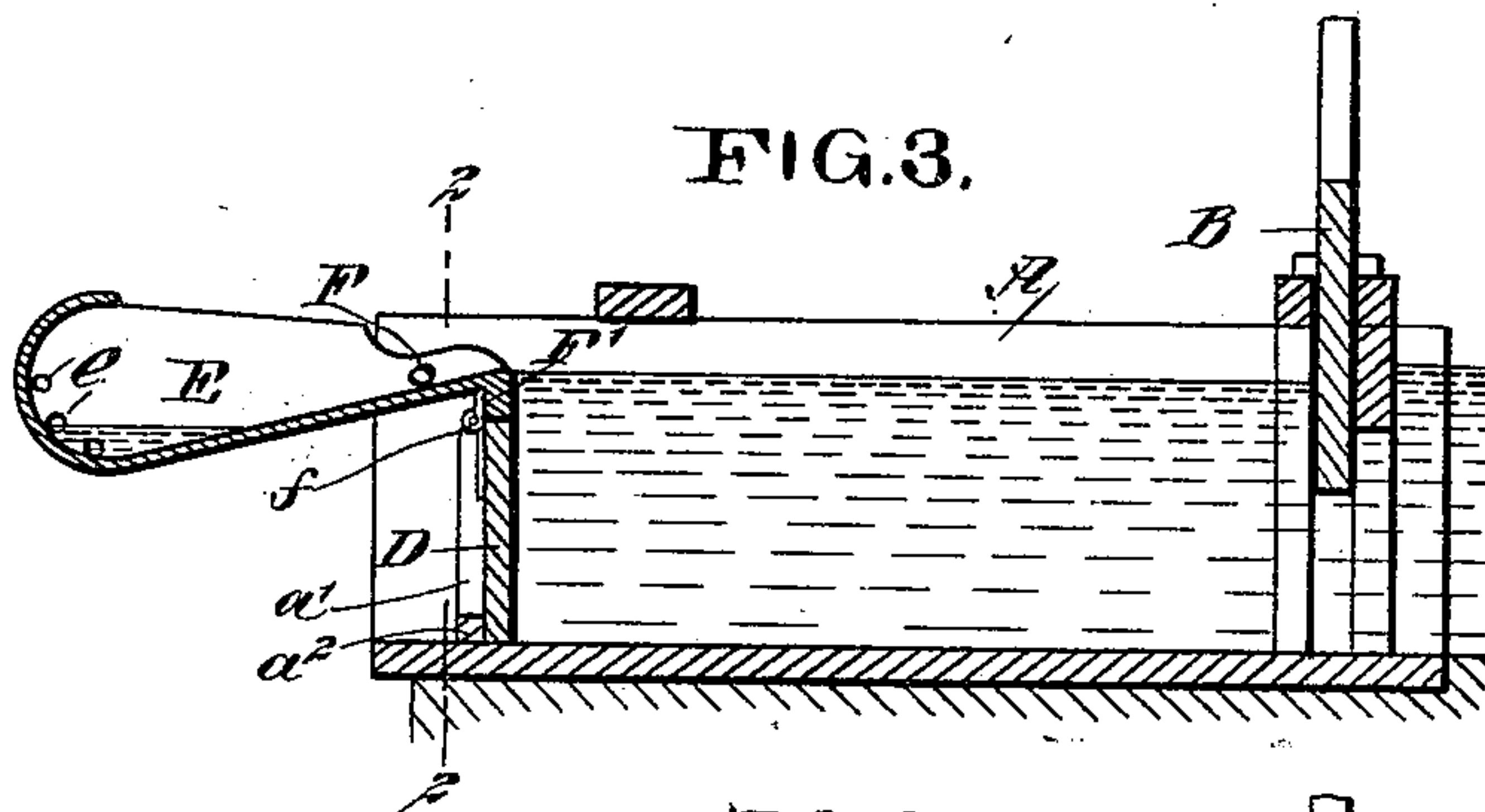


FIG. 4.

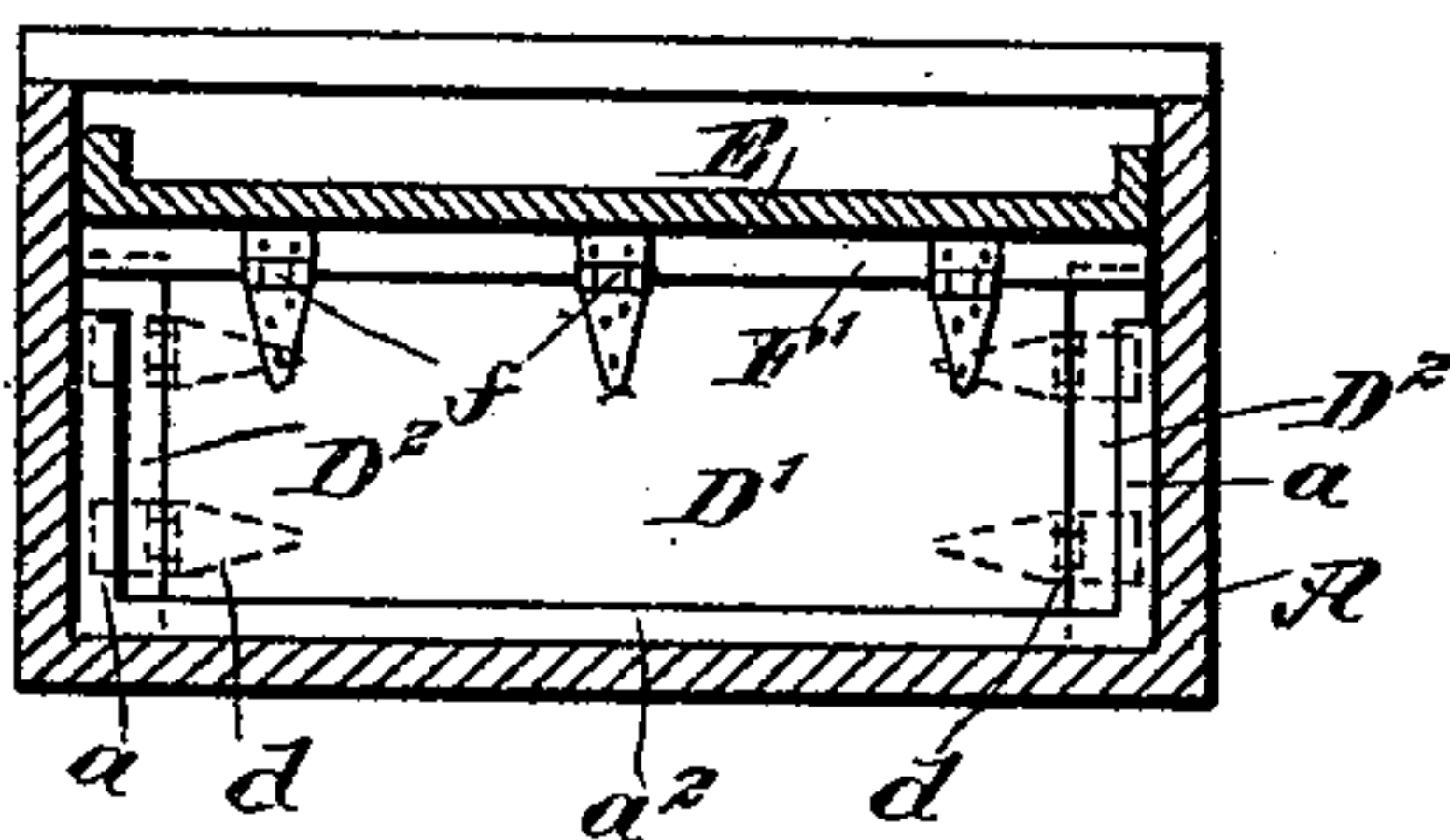


FIG. 5.

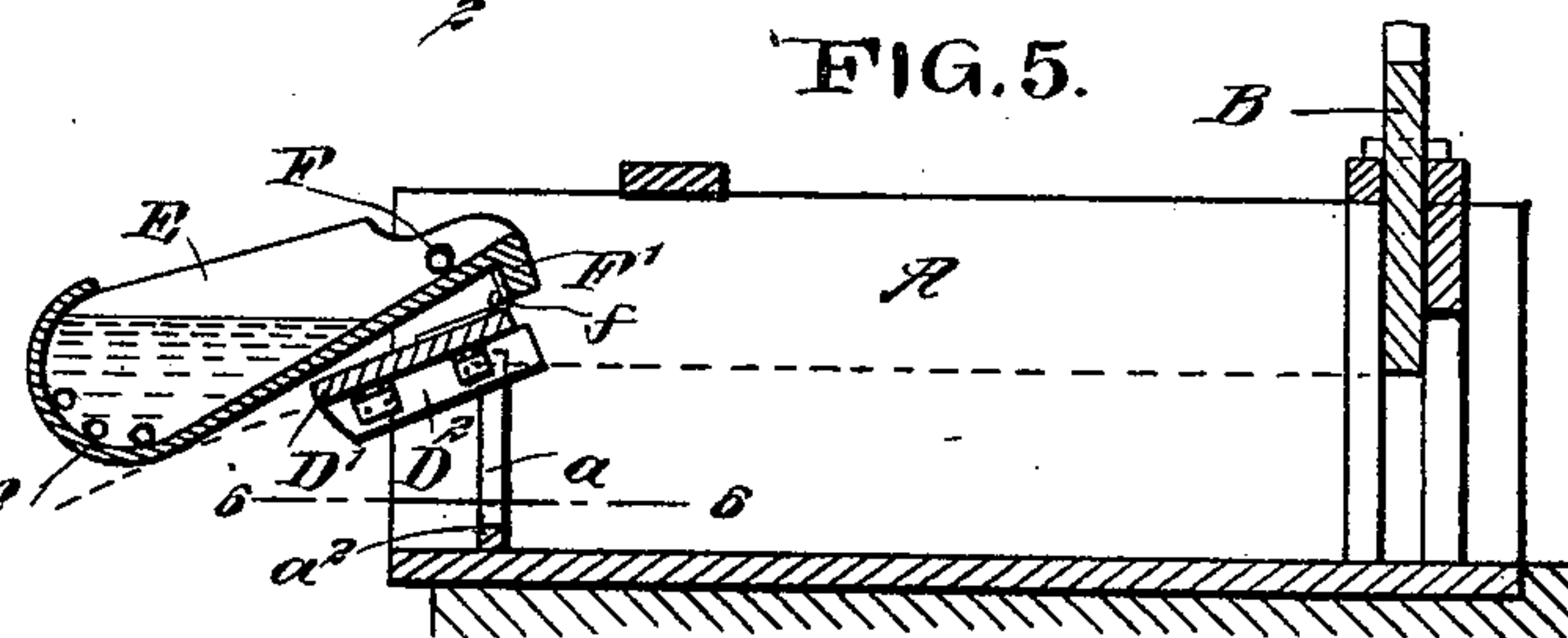


FIG. 6.

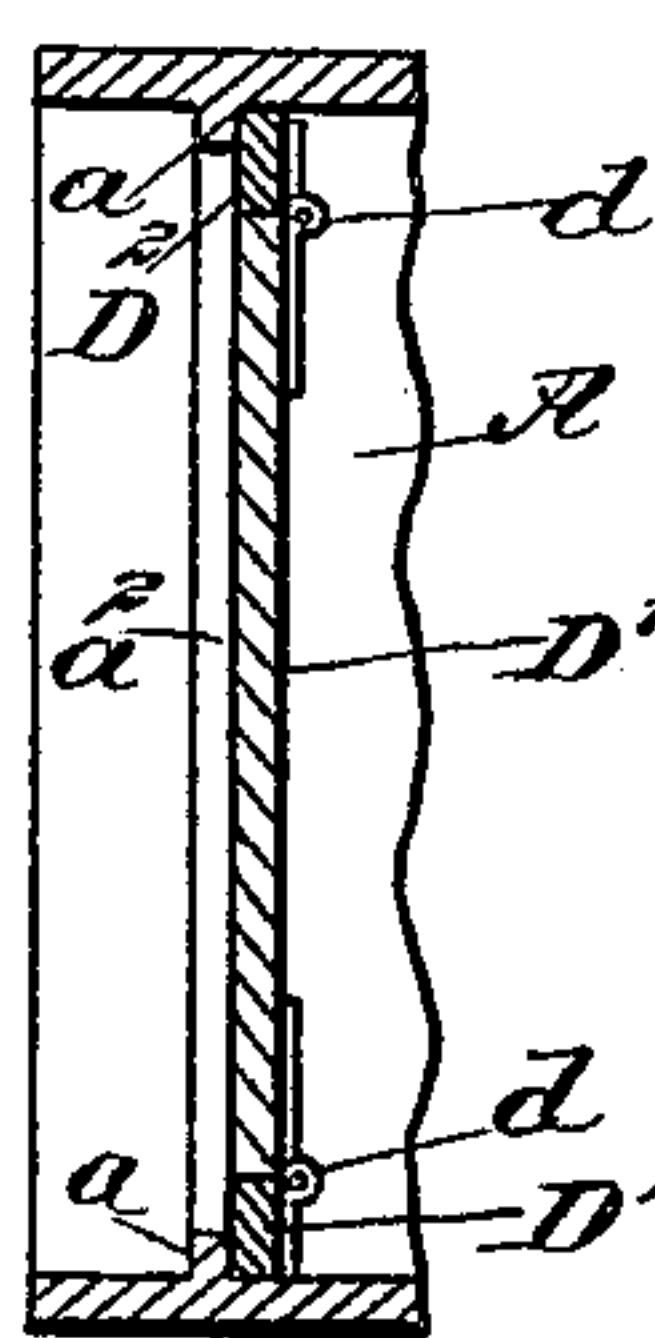
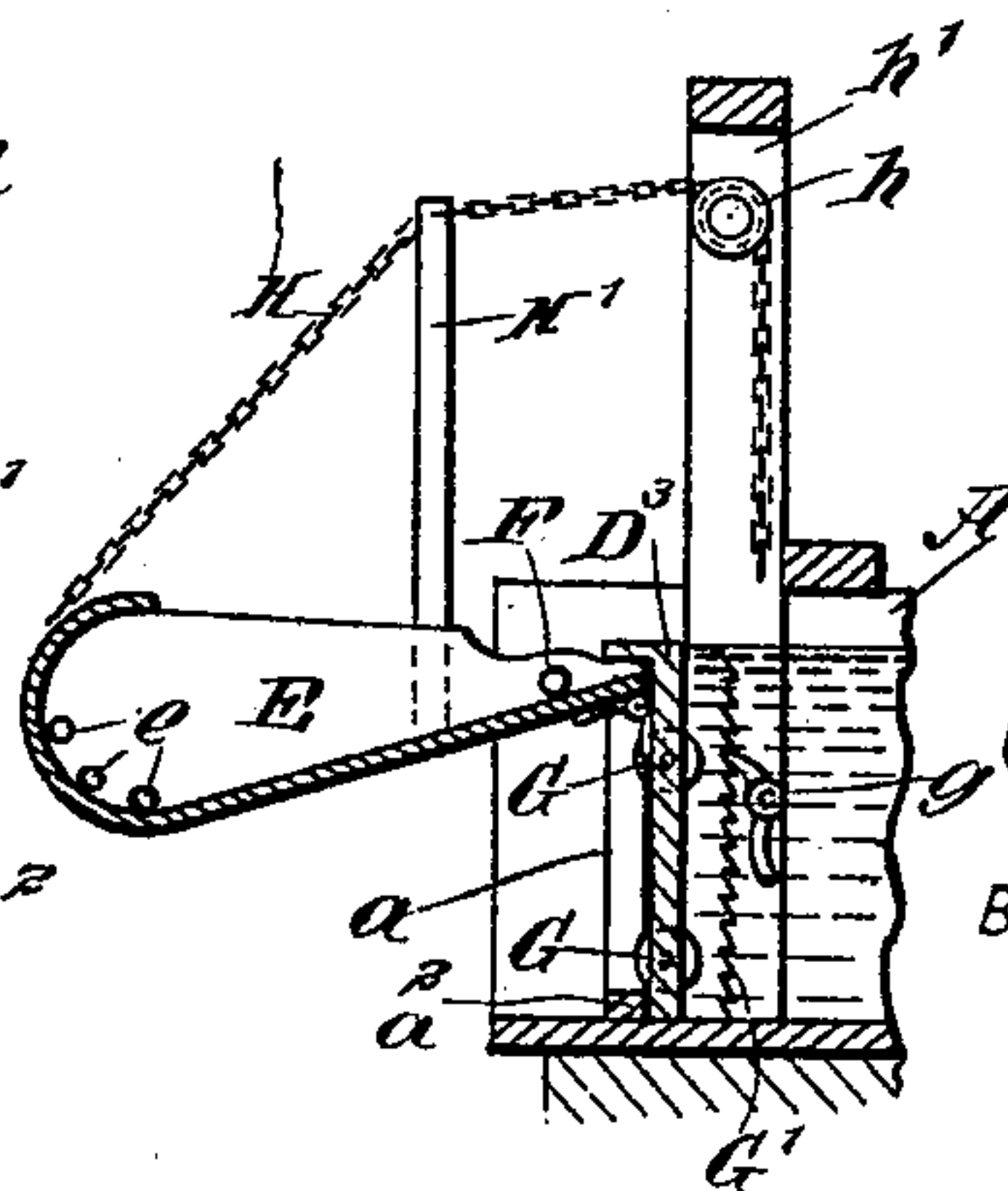


FIG. 7.



WITNESSES:

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WILLIAM THOMAS TAYLOR, OF EVANS, COLORADO.

AUTOMATIC WASTE-GATE.

SPECIFICATION forming part of Letters Patent No. 635,206, dated October 17, 1899.

Application filed May 25, 1899. Serial No. 718,219. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM THOMAS TAYLOR, of Evans, in the county of Weld and State of Colorado, have invented a new and Improved Automatic Waste-Gate, of which the following is a full, clear, and exact description.

My invention relates to an improvement in waste-gates to be used for relieving surplus water in flumes and ditches, and thus to prevent them overflowing their banks and causing damage to the ditch and other property.

My invention comprises novel features, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view showing my device in place alongside of a ditch. Fig. 2 is a sectional elevation taken upon the line 2 2 of Fig. 3. Fig. 3 is a longitudinal sectional elevation of the gate. Figs. 4 and 5 are cross-sectional and longitudinal elevations of a slightly-modified form of the gate, the gate being shown open in Fig. 5. Fig. 6 is a sectional plan showing the gate closed, taken on the line 6 6 of Fig. 5; and Fig. 7 is a longitudinal sectional elevation of a modified construction.

In flumes and ditches used for mining or irrigating purposes it often happens that the supply of water is greatly increased or the consumption is greatly reduced, so that the ditch will fill and overflow its banks, washing away the bank of the ditch and doing damage to other property.

The object of my invention is to provide an automatic waste-gate which will let off the water from the ditch when the water has reached a dangerous level. With this end in view a box or flume A is inserted in one bank of the ditch at a convenient point where the water may be discharged without causing any damage. This box is provided at the end next to the ditch with a head-gate B of any desired kind or usual construction, by which the box may be connected with the ditch or cut off therefrom, as desired. At the other

end of the box is placed the automatic gate and the mechanism for operating the same.

In the form shown in Figs. 1, 2, and 3 a bottom cleat or cheek a^2 is provided and two end cleats or cheeks a' , which are of triangular shape, sloping from the bottom upwardly and outwardly. The gate D on its bottom and end edges is shaped to correspond with the shape of the opening within said cleats, so that if the gate is raised a short distance it will clear the cleats or cheeks and will then be forced outward by the pressure of the water behind it.

The gate is hinged at its upper edge by means of hinges f to a cross bar or beam F' , which is secured to or formed as a part of the pivoted reservoir or bucket E. This bucket is provided with a pivot F , supporting it upon the sides of the flume or box A. The bottom of this bucket slopes from its flume end outwardly and downwardly, thus forming a reservoir or bucket of considerable size, the greatest depth, therefore, being at the end farthest from the pivot. The level of the inner or receiving end of this bucket corresponds with the maximum desired level of the water in the flume or ditch.

When the device is put into use, the gate D is forced downwardly and into engagement with the forward surface of the cheeks or cleats, in which place it is held by having the gate counterweighted, if necessary, so as to balance the ordinary weight of the reservoir or bucket E. The outer end of the bucket E is provided with small drainage-openings e , so that any water which may enter the bucket by rain or in very small quantities may drain out without causing the gate to open, and so that when the gate has been opened by overflow of water the bucket may empty itself ready to be replaced.

When the automatic or safety gate D has been placed in position, the head-gate B is opened, so as to admit water to the box or flume A. So long as the water in this box does not rise above the upper edge of the bucket E the gate remains inoperative. As soon as the water rises above this level it flows into the bucket E and fills the same, thus largely increasing the weight of the

bucket and causing it to lift the gate D until it clears the cleats or cheeks a' and a^2 . As soon as it is clear of the cleats the pressure of water forces the gate outward and the water is allowed to escape from the flume. It is thus impossible for the water in the flume or ditch to rise above the danger-point when this device is set for operation.

In Figs. 4 and 5 a slightly-modified form of the gate is shown. In this form the end cleats a are parallel with the side of the box or flume, and the gate D' is provided with hinged sections D^2 at each end, which engage the cleats a . To free this gate it is necessary to lift it so that it will clear the lower cleat a^2 , when the gate will be forced outward by the pressure of the water, the hinged sections D^2 swinging inward to pass the cleats a .

In Fig. 7 another form of the gate is shown. In this case the gate D^3 is made solid, reaching entirely across the box and does not swing between the cleats a or over the cleat a^2 . The gate is provided with rollers or wheels G , which engage the end cleats a , and is also provided with a toothed or ratchet bar G' , which is engaged by pawls g to hold the gate in its raised position. In this form of gate the gate is raised by the reservoir or bucket E and the gate is held in its raised position by means of the pawls g , which engage the ratchet-teeth upon the bar G' . The ratchet-bar G' and pawls g may be omitted or fastened temporarily so that they are inoperative, in which case the gate will be raised by the water flowing over the upper edge thereof and into the bucket or reservoir E and will not be lowered until the water is drained out of the box. If, however, the water in the ditch or flume maintains an excessive level, the water will immediately flow over the upper edge of the gate and fill the bucket E , causing the gate to be again raised. This device may thus be made automatic both in its opening and closing, as the gate D^3 would be made of such a weight that it will raise the bucket E when the same is free of the water. It will be noticed that when the gate is down the rollers G (shown in Fig. 7) rest in notches in the cleats or cheeks a . This will cause a certain amount of initial resistance to the raising of the gate; but when this is overcome the gate will be fully raised at once. While the rollers rest in the notches the gate is rendered water-tight. If the notches were not provided, the gate might rise a little distance when the bucket E has received only a comparatively small amount of water and remain in such position by pressure against it and not give free outlet of water from the ditch.

A device may be applied by which the gate may be readily raised when desired. The gate may be replaced at any time after the water has drained from the bucket E by first lowering the head-check in the flume to cut off the flow of water.

In the case of large heavy gates they may

be brought to place again by the device shown in Fig. 7 and consisting of a chain or rope H , secured to the outer end of the bucket and which passes over the arm H' , secured to the bucket, and then over a pulley h , supported upon a framework h' . The arm H' acts as a crank-arm for better application of power, and the chain may be attached to a windlass or directly engaged by the hand.

When the gate is replaced, the head-check in the flume is again raised to the desired height, and the gate then stands ready to drain the ditch whenever emergency calls for it. The use of my device will prevent the water in ditches or flumes from reaching the danger-level, and thus keep the banks of the ditch from being washed away.

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

1. A waste-gate for ditches and flumes, comprising a gate formed in two parts, an upper cross-bar and a main section hinged to the cross-bar and releasable by lifting slightly, and a pivoted reservoir or bucket secured to said cross-bar to lift the gate and having its inlet at the maximum desired water-level, substantially as described.

2. A waste device for ditches and flumes, comprising a box having a head-gate connecting with the ditch or flume and a safety-gate beyond the head-gate and releasable by slightly lifting, said safety-gate being composed of two sections, consisting of an upper cross-bar and a main section hinged thereto, and a pivoted reservoir or bucket secured to said cross-bar and having its inlet at the maximum desired water-level, substantially as described.

3. A waste device for ditches and flumes, comprising a safety-gate bearing at its lower edge against a fixed cleat and having a cross-bar hinged to its upper edge, and a pivoted reservoir or bucket secured to said cross-bar, the reservoir having its inlet at the maximum desired water-level, substantially as described.

4. A waste device for ditches and flumes, comprising a gate releasable by lifting slightly and composed of two sections, a cross-bar and a main section hinged to and depending from the cross-bar, and a pivoted reservoir or bucket secured to said cross-bar to lift the gate, the bucket receiving the overflow of said gate, said bucket also having drainage-openings, substantially as described.

5. A waste device for ditches and flumes, comprising a safety-gate provided with means for tripping and opening the same operated by lifting the gate and composed of an upper cross-bar and a main section hinged thereto by its upper edge, and a pivoted reservoir or bucket connected with said cross-bar to lift the gate, the bucket receiving the overflow of said gate, and also having drainage-openings, substantially as described.

6. A waste device for ditches and flumes,

comprising a box having a head-gate, cheeks
for a safety-gate located beyond the head-gate
and a safety-gate bearing against said cheeks
and releasable therefrom when slightly raised,
5 said gate consisting of a cross-bar at its upper
edge and a main section hinged to and de-
pending from said cross-bar, and a pivoted
bucket hinged to said cross-bar of the safety-

gate to raise it, the inlet for said bucket being
over the top of the cross-bar, substantially as 10
described.

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Witnesses:

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JONATHAN HENDERSON.