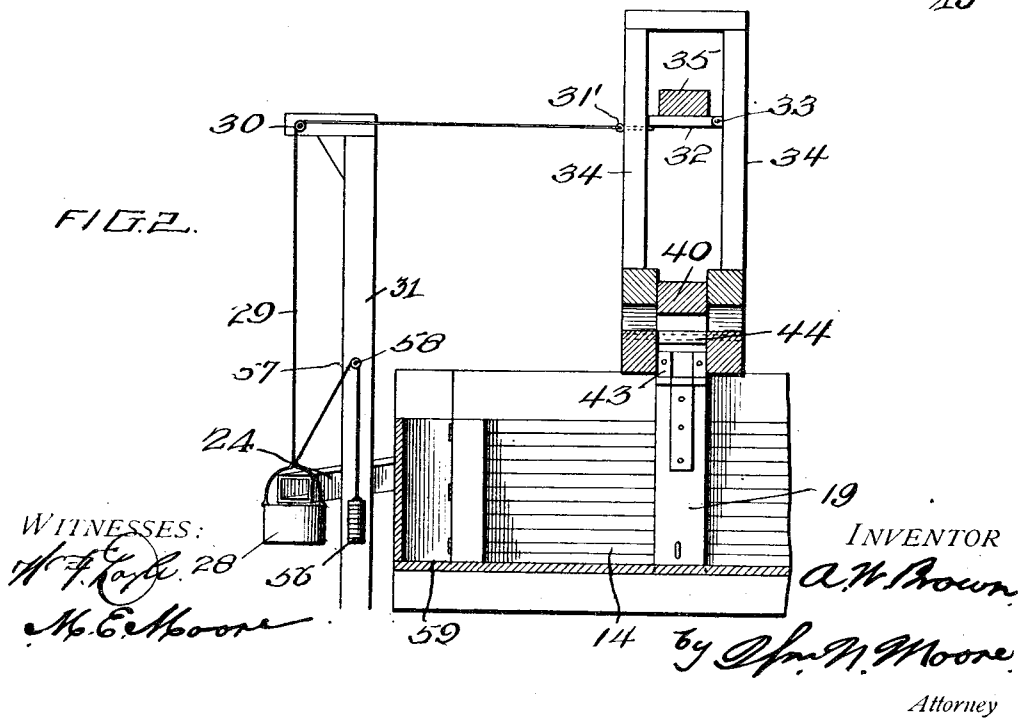
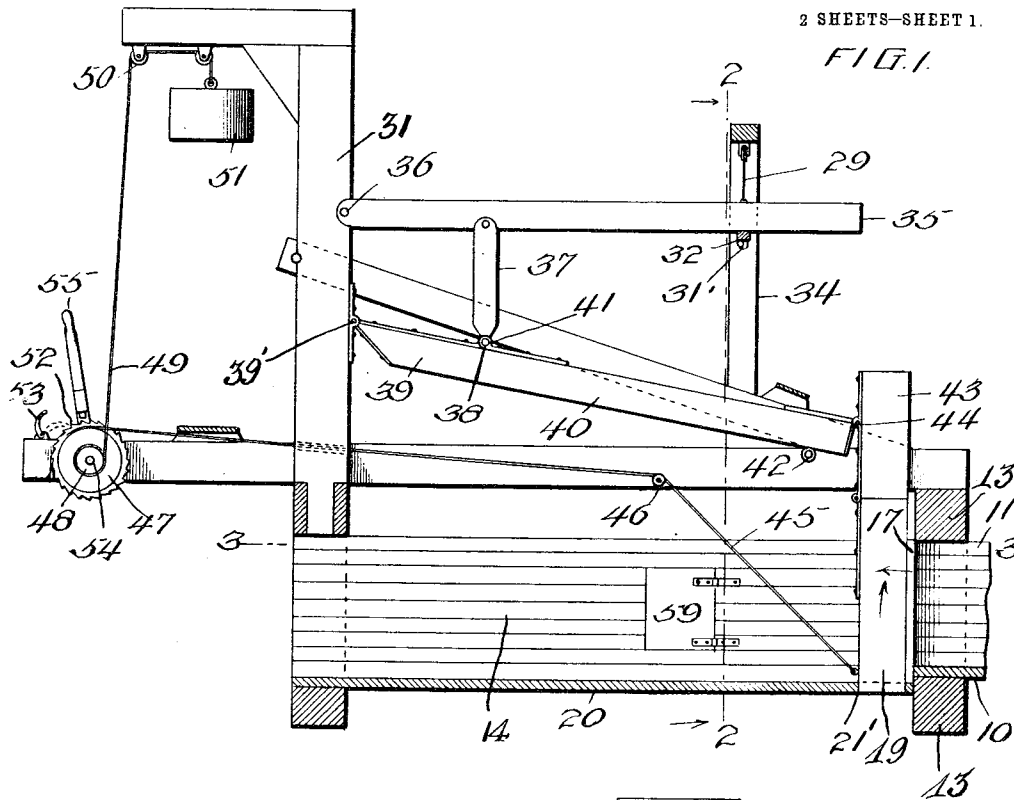


2 SHEETS—SHEET 1.



A. W. BROWN.
FLOOD GATE.
APPLICATION FILED JUNE 26, 1911.

1,033,530.

Patented July 23, 1912.

2 SHEETS-SHEET 2.

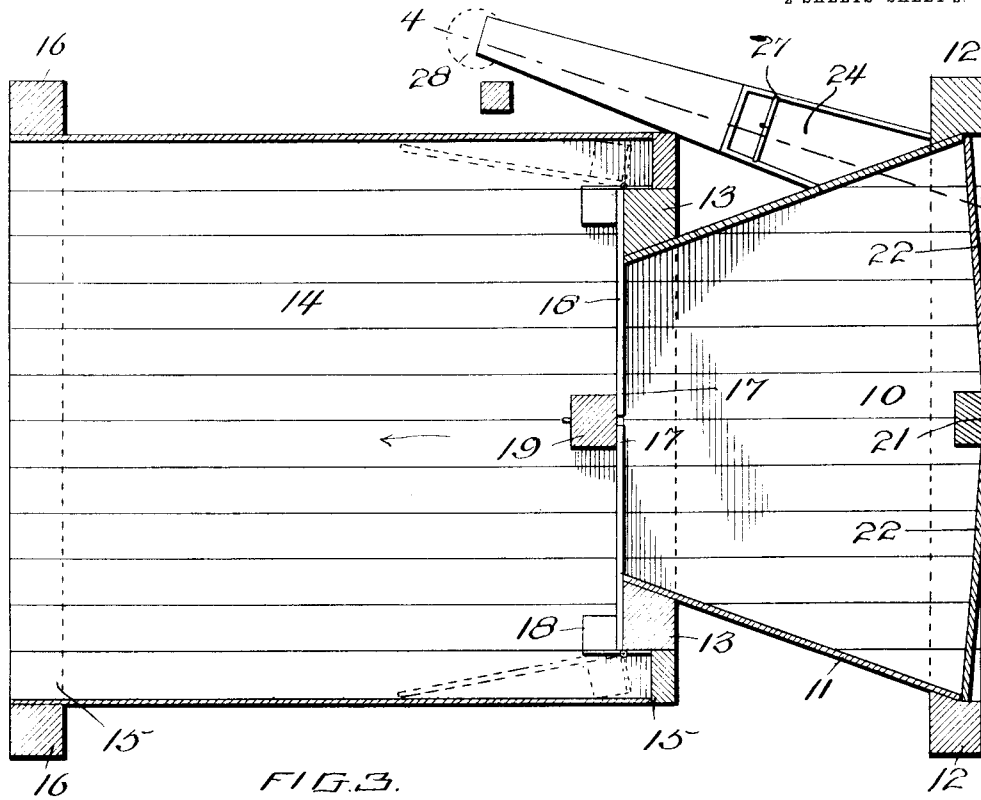


FIG. 3.

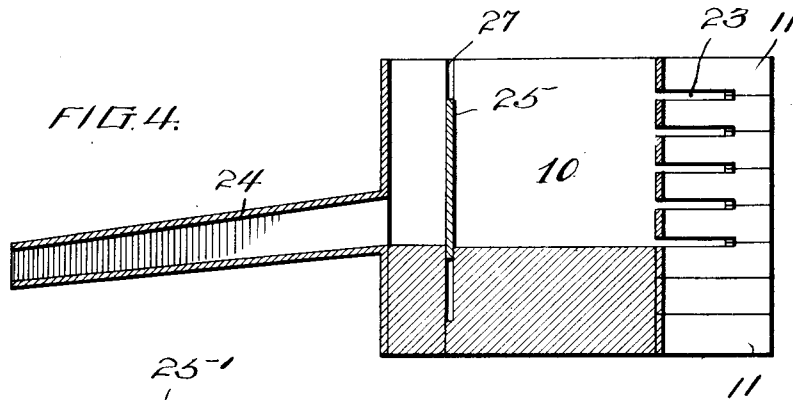


FIG. 4.

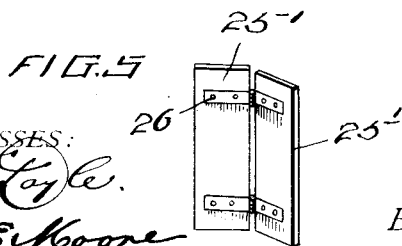


FIG. 5.

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FLOOD-GATE.

1;033,530.

Specification of Letters Patent. Patented July 23, 1912.

Application filed June 26, 1911. Serial No. 635,380.

To all whom it may concern:

Be it known that I, ABIA W. BROWN, a citizen of the United States, residing at Fredonia, in the county of Coconino and State of Arizona, have invented certain new and useful Improvements in Flood-Gates, of which the following is a specification.

My invention relates to improvements in flood gates and particularly to a construction by which the flow therethrough may be controlled and regulated.

The invention has for an object to provide a novel and improved construction of outlet gate with means for operating it automatically, and also a novel structure of such operating means adapted to be actuated by an overflow of water at the head gate.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings: Figure 1 is a central vertical section through the gate. Fig. 2 is a vertical section on line 2—2 of Fig. 1. Fig. 3 is a horizontal section on line 3—3 of Fig. 1. Fig. 4 is a vertical section on line 4—4 of Fig. 3, and Fig. 5 is a detail perspective view of the outlet gate.

Like numerals of reference refer to like parts in the several figures of the drawings.

The numeral 10 indicates the inlet chamber which is provided with inwardly inclined walls 11, which are supported at one end by posts 12 and at the opposite end by posts 13. This chamber is raised above and adapted to discharge into a flume 14 supported at each end by posts 16. At the discharge of the inlet chamber gates 17 are provided integral with posts 18 and pivoted to the posts 13, as shown in Fig. 3. These gates are adapted to swing into the flume, as shown by dotted lines in Fig. 3, and are held in closed position by a slide 19, which when in lowered position extends through the base 20 of the flume 14, as shown at 21.

The inlet chamber 10 may, if desired, be provided at its upper end with a head gate comprising a central support 21 and opposite side panels 22. As many of these panels may be used as is necessary to control the flow of water through the gate. The inlet chamber is also provided at one or both sides with apertures 23, communicating with a sluice way 24, which is provided with a movable gate 25. This is preferably formed in sections 25' joined by a hinge 26, which fa-

cilitates its removal and also placing it in position in the slots 27 formed in the sluice ways, as shown in Fig. 4, as the requirements of water supply demand. The sluice way discharges into a bucket or tank 28, suspended by a rope or cable 29 extending over a pulley 30, upon a standard 31, and thence to a trip bolt 31', coöperating with a supporting arm 32, pivoted at 33, upon the standards 34. This arm supports an operating lever 35, pivoted upon the standard 31 at 36 and connected by a link 37 with the compound lever 38. This compound lever is formed in two sections 39 and 40, connected by the hinged joint 41, section 39 being pivoted to standard 31 as at 39', while the section 40 thereof rests near one end upon a roller bearing 42 and is pivotally connected with the upper portion 43 of the inlet chamber gates 17 by means of the hinged joint 44.

The lower section of the slide 19 is connected to the cable 45 and to open the gates 17 of the inlet chamber 10, the slide 19 is moved through the medium of the lever 35, link 37, and sections 39 and 40 to clear the gates, whereupon they are swung open by the pressure of the oncoming water. The cable 45 extends over the pulley 46 to the drum 47. This drum also carries a smaller drum 48 about which a cable 49 is wound and extends over the guide pulleys 50, where it is provided with an operating weight 51. The drums also have a ratchet wheel 52 thereon adapted to coöperate with a pawl 53, and the shaft 54 thereof has secured thereto an operating lever 55 by which the weight 51 may be raised into operative position and the cables wound and unwound upon their respective drums. The bucket 28 is also provided with a counterbalancing weight 56 connected thereto by a cable 57 extending off a guide pulley 58. The walls of the flume are formed with a door 59 which may be opened to discharge the contents of the bucket 28.

In the operation of the invention when the water collects in the inlet chamber to the height of the gate in the sluice way its overflow discharges into the bucket at the end thereof. This weight causes the trip to be released from the cross bar supporting the inlet gate lever. The upper lever then drops by gravity and breaks the joint in the compound lever through the link connection therewith. This raises the end of the compound lever connected with the retaining

post of the inlet gates and lifts the lower portion thereof out of its seat in the base of the flume, and draws back the upper end of the retaining post. At this time the weight connected by cable and drum with this retaining post acts to throw it upward into substantially horizontal position and the gates being then released are thrown back against the walls of the flume by the pressure of the water, so that a full flow is allowed through the gate. If this flow be too great to prevent the closing of the gates against the pressure the necessary number of the head gates may be placed in position to restrict the pressure against the inlet valves. When these are closed the retaining post is inserted in position to hold them, as shown in full lines in Fig. 1, and the gate in the sluiceway properly closed to maintain the water level.

It will therefore be seen that this invention presents a novel, simple and economically constructed flood gate adapted to automatically control the flow therethrough and to wash out mud or other sediment which may collect in any part thereof. It also provides an additional discharge for the water flowing through the gate and permits a greater discharge of the water during the flood season. The automatic device also regulates the feed to the canal under varying conditions of water and by its novel construction prevents the collection of silt or debris which would interfere with the operation of its gate.

Having described my invention and set forth its merits what I claim and desire to secure by Letters Patent is:—

1. In a flood gate, swinging gates, means for retaining said gates in closed position, a sluice way, and a bucket having a cable connection to release said retaining means.

2. In a flood gate, swinging gates, a sliding pivoted bar for retaining said gates in closed position, a drum and cable connection with said sliding bar, means for operating said drum, a compound lever connected to the sliding bar, and means for operating said compound lever.

3. In a flood gate, swinging gates, a sliding pivoted bar for retaining said gates in closed position, a drum and cable connection with said sliding bar, means for operating said drum, a lever connected to the sliding bar, and means for automatically operating said lever.

4. In a flood gate, swinging gates, means for retaining said gates in closed position, a compound lever connected to said retaining means, a second lever having a link connected with the compound lever, and weight-operated means connected with said second-named lever for automatically raising said retaining means.

5. In a flood gate, swinging gates, means

for retaining said gates in closed position, and a weight operated drum having a cable connection with said retaining means for said gates.

6. In a flood gate, swinging gates, means for retaining said gates in closed position, an inlet chamber, a sluice way communicating with said inlet chamber at one end and a weight-operated receptacle at the other end, and means operated by said receptacle for automatically raising said retaining means for the swinging gates.

7. In a flood gate, swinging gates, a pivoted sliding bar mounted to retain said gates in closed position, said bar being formed in pivoted sections, means for reciprocating said bar, and means for swinging the lower section thereof.

8. In a flood gate, swinging gates, a pivoted sliding bar mounted to retain said gates in closed position, said bar being formed in pivoted sections, means for reciprocating said bar, a winding drum connected to the lower section of said bar, a tension connection for maintaining said drum under pressure, and means for restoring said connection.

9. In a flood gate, an inlet chamber having an outlet at one side, a sluiceway communicating with said outlet and provided with a gate valve, swinging gates pivoted at the lower end of said inlet chamber, a post for retaining the free ends of said gates, means for swinging said post outwardly therefrom, a flume having a seat for said post, and means for releasing said post from said seat.

10. In a flood gate, an inlet chamber having an outlet at one side, a sluiceway communicating with said outlet and provided with a gate valve, swinging gates pivoted at the lower end of said inlet chamber, a post for retaining the free ends of said gates, means for swinging said post outwardly therefrom, and a liquid receptacle disposed at the discharge from said sluiceway and connected to release said post from its seat.

11. In a flood gate, an inlet chamber having an outlet at one side, a sluiceway communicating with said outlet and provided with a gate valve, swinging gates pivoted at the lower end of said inlet chamber, a post for retaining the free ends of said gates, means for swinging said post outwardly therefrom, a lever having connections for releasing said post, a support pivoted beneath said lever, a releasing bolt for said support, and means controlled from said sluiceway for automatically operating said bolt.

12. In a flood gate, an inlet chamber having an outlet at one side, a sluiceway communicating with said outlet and provided with a gate valve, swinging gates pivoted

at the lower end of said inlet chamber, a post for retaining the free ends of said gates, means for swinging said post outwardly therefrom, a lever having connection for releasing said post, a support pivoted beneath said lever, a releasing bolt for said support, a receptacle disposed at the discharge from said sluiceway, and a weight connected to counterbalance said receptacle.

10 13. In a flood gate, an inlet chamber having an outlet on one side, a sluiceway communicating with said outlet, a gate valve

formed of pivoted sections and adapted to enter grooves in said sluiceway, gates mounted at the lower end of said inlet chamber, means for retaining said gates in closed position, and means controlled by said sluiceway for automatically releasing said gates.

In testimony whereof I affix my signature in presence of two witnesses.

ABIA W. BROWN.

Witnesses:

R. W. RIDER,
F. J. RIDER.