

J. H. BUTTORFF.
HEAD GATE.
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976,720.

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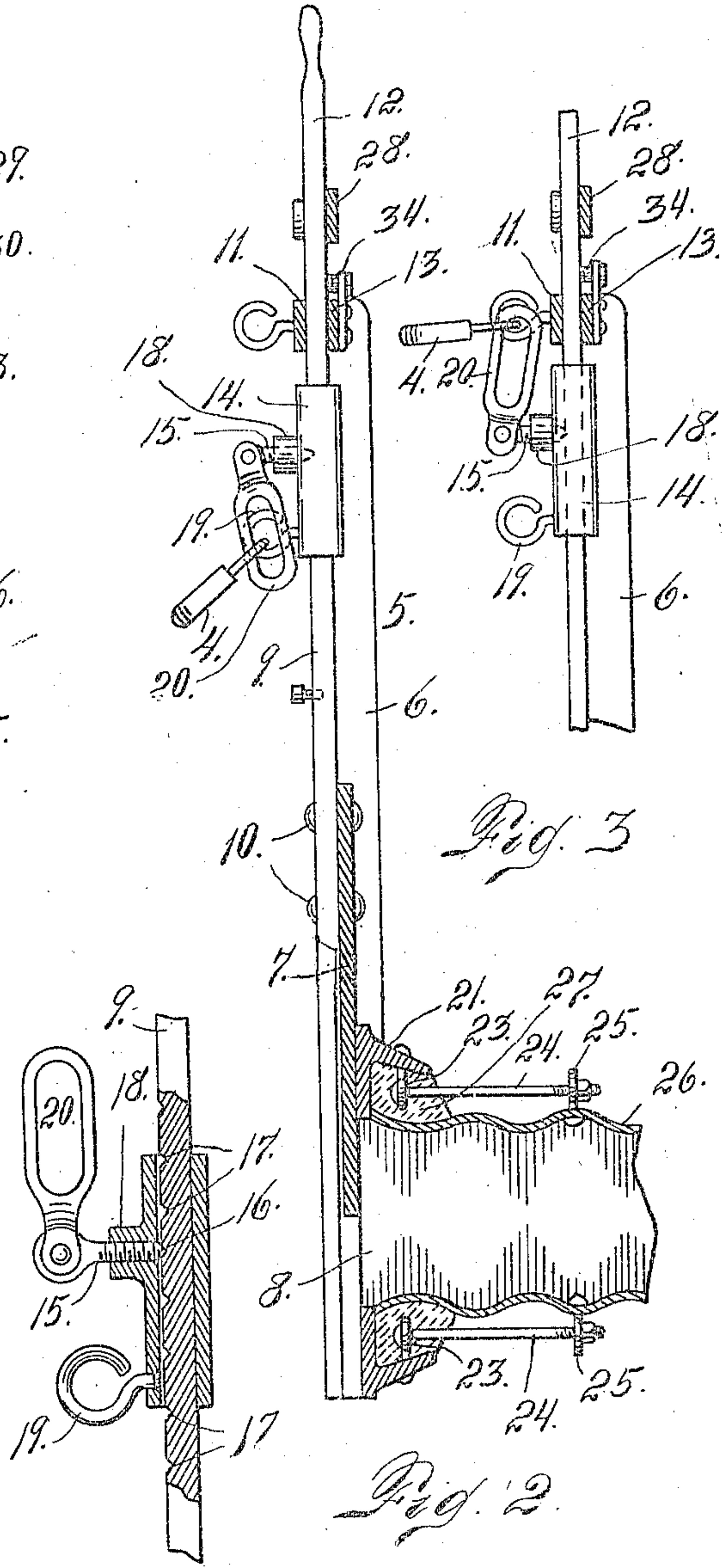
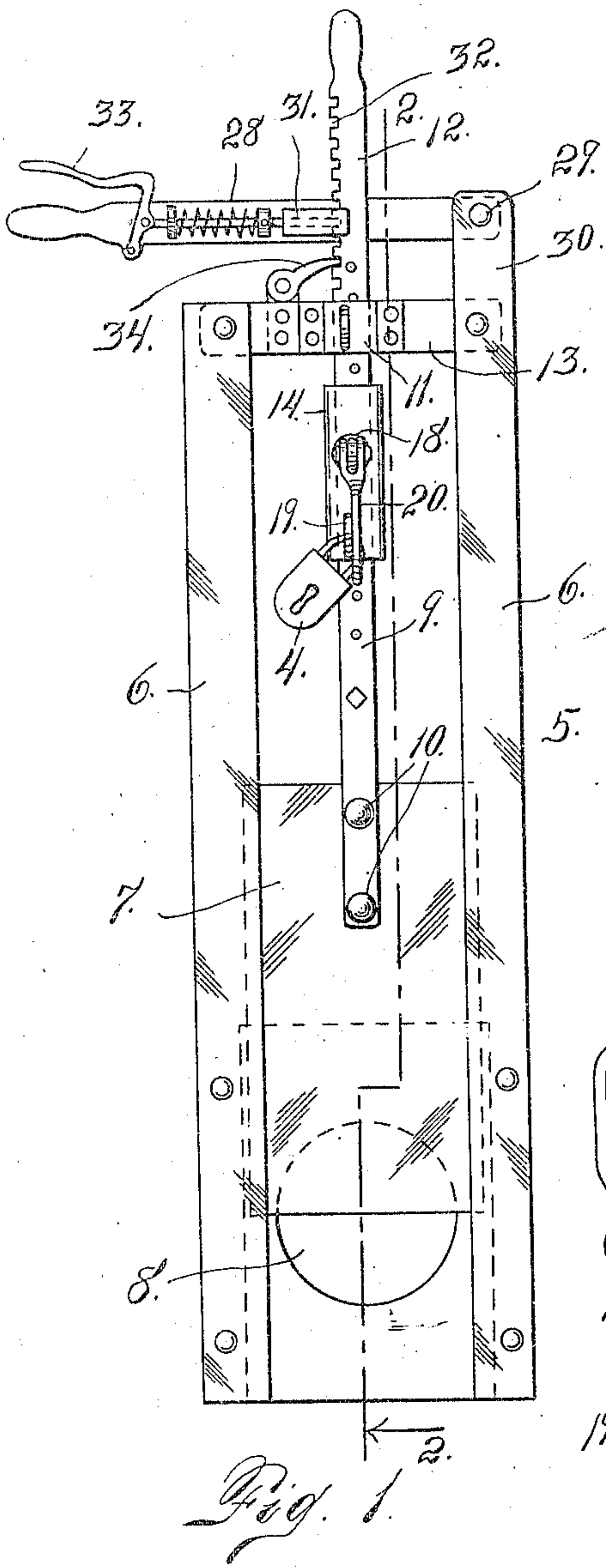


Fig. 4

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HEAD-GATE.

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To all whom it may concern:

Be it known that I, JOHN H. BUTTORFF, a citizen of the United States, residing at the city of Fort Collins, county of Larimer, and State of Colorado, have invented certain new and useful Improvements in Head-Gates; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates, generally speaking, to improvements in head gates, adapted to control the flow of water from an irrigating ditch or canal to a lateral or branch ditch which supplies the consumer with a predetermined quantity of water. This gate belongs to that class of gates which are adapted to be locked in such a manner that they cannot be opened wider than a predetermined limit, whereby the consumer is prevented from using more water than he is entitled to. Where these gates are employed, there is a ditch rider or superintendent who adjusts the gate and secures it in such a manner that the consumer cannot use more water than a predetermined quantity for which he has agreed to pay.

In my improved construction the stem of the gate is equipped with a vertically adjustable block into which is threaded on one side a set bolt to the outer extremity of which is pivotally connected a slotted arm or link which after the set bolt is tightened to secure the block in-place on the stem, is adjusted so that its slot shall register with the eye bolt also carried by the block. The hasp of a padlock is then passed through the opening in the link and also the eye of the bolt, after which the hasp is inserted in the lock and secured against removal except by a person holding the key to the lock. When this block is thus secured, it forms a stop to prevent the upward movement of the stem farther than the stop will allow. In other words, when the upper extremity of the stop engages a cross bar at the top of the head gate frame, the gate is open to allow the flow of the quantity of water to which the consumer is entitled, to pass through, but no more. Provision is also made whereby the link attached to the adjustable stop may be connected with the eye

of a bolt riveted to the top of the frame, the link and bolt being secured together by passing the hasp of a padlock through the opening of the link and the eye of the bolt. In this event the gate is prevented from being opened farther than the stop will allow, while at the same time it cannot be closed except by a person holding the key to the lock.

It sometimes happens that it is important to prevent the consumer from closing the gate, since if this is done the accumulation of water in the ditch or canal may result in an overflow. Under these circumstances the gate is locked to prevent both opening and closing.

In my improved construction the stem of the head gate is toothed or notched on one side and a lever is fulcrumed on the frame and equipped with a spring-actuated dog adapted to engage the notches of the stem. By means of this lever the head gate is raised. By the employment of a lever for this purpose, the vertical manipulation of the head gate may be quickly and easily accomplished, thus giving an advantage in this respect over a nut for raising and lowering the gate.

In my improved construction I prefer to employ a corrugated iron pipe or conduit which is connected with the head gate frame by suitable means. As shown in the drawing, the head gate frame on the canal side is provided with a collar which is inclined inwardly as it extends rearwardly, the said collar being equipped with interiorly projecting eyes or apertured lugs. The heads of the bolts are connected with these lugs, the bolts extending rearwardly and passing through eyes or apertured lugs with which the conduit is provided. The heads of the bolts in addition to being anchored by the apertured lugs, are further secured in place by a body of cement which is placed between the collar and the inner extremity of the corrugated pipe or conduit.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a front view of a head gate equipped with my improvements. Fig. 2 is a section taken through the gate on the line 2-2, Fig. 1. Fig. 3 is a side elevation of the upper part of the head

gate frame, the stem and the locking devices, illustrating the manner of locking the gate to prevent closing. Fig. 4 is a sectional detail view of the locking device mounted on the stem of the head gate, the parts being shown on a larger scale.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the head gate frame consisting of upright bars 6 having grooved ways adapted to receive the opposite edges of a head gate 7, which is adapted to close an opening 8 either partially or wholly, through which the water flows from the canal to the lateral, first passing through the conduit or pipe section connected with the frame as hereinafter described in detail.

The stem 9 is secured to the gate in any suitable manner as by rivets or other suitable fastening devices 10. This stem passes through an opening 11 formed in the top bar 13 of the head gate frame and protrudes above the same as shown at 12.

Mounted on the stem below the cross bar 13 of the head gate frame is a block 14 which is adjustable by means of a set bolt 15, whose inner extremity is pointed as shown at 16 to enter recesses 17 with which one side of the stem is provided. The block 14 is reinforced as shown at 18 and interiorly threaded to receive the set bolt 15.

Made fast to the block or stop 18 is an eye 19, which is preferably located below the set bolt. To the outer extremity of the set bolt is pivotally connected a link 20 which when turned downwardly, may be caused to register with the eye 19. Then by locking the link to the eye 19 by means of a padlock 4, the stem cannot be moved upwardly farther than is desired in order to allow the requisite quantity of water to pass through the gate. Now if it is desired to lock the gate against closing as well as against opening, the block 14 is first properly adjusted to permit the required opening movement. The gate is then raised until this block on the stem strikes the cross bar 13, after which the link is thrown to the position shown in Fig. 3, whereby the gate is locked against closing as well as against opening.

The rear surface of the head gate frame is provided with a collar 21 forming an inwardly flared rearwardly extending member. The inner surface of this collar is equipped with apertured lugs 23, which form an anchorage for the heads of the bolts 24, the threaded extremities of the bolts passing through apertured lugs or eyes 25, secured to a corrugated conduit member 26. The space between the collar 21 and the conduit 26, is filled with cement or concrete 27, whereby the heads of the bolts are completely buried.

The lifting movement of the gate is accomplished through the instrumentality of a lever 28 fulcrumed as shown at 29 on an

extension 30, with which one of the side members 5 of the head gate frame is provided. Between the fulcrum and the extremity of the lever, the latter crosses the portion 12 of the head gate stem above the cross bar 13 and a spring-actuated dog 31 with which the lever is provided, is adapted to enter notches 32 formed in one edge of the stem. This dog is controlled by a hand piece 33 connected with the lever in the usual way. When the dog of the lever is interlocked with the toothed edge of the stem, as shown in Fig. 1, in order to raise the gate it is only necessary to lift on the free extremity of the lever, and a gravity pawl 34 will engage a notch 32 and support the gate to the height raised, by this movement of the lever. If a further opening movement of the gate is required, the dog 31 is withdrawn from its notch, and the handle extremity of the lever lowered and the dog 31 allowed to engage a lower notch, after which the lifting operation is repeated. This may be done as often as necessary in order to give the gate the required opening movement. This movement, however, is limited by the stop block 14, which it is assumed is properly adjusted and locked as heretofore explained.

Having thus described my invention, what I claim is:

1. The combination with a head gate having a stem, of a stop block slidably mounted on the stem, a set bolt threaded in the block for securing the block in place on the stem, and means for locking the set bolt against movement, substantially as described.

2. The combination with a head gate having a stem, a frame in which the head gate is movable, the frame having a cross bar provided with an opening through which the stem of the gate passes, a stop block mounted on the stem below the cross bar of the frame, a set bolt threaded in the block, and means for locking the set bolt against turning, substantially as described.

3. The combination with a frame, a head gate movable in the frame, and having a stem passing through an opening formed in a cross bar with which the frame is provided, a stop block slidably mounted on the stem below the cross bar, a set bolt threaded in the stop block and having its inner extremity pointed to enter recesses with which the stem is provided, a link pivotally connected with the set bolt, and means cooperating with the link for locking the set bolt against turning movement, substantially as described.

4. The combination with a head gate having a stem, of a stop block slidably mounted on the stem, a set bolt threaded in the stop block, a link connected with the set bolt, and means cooperating with the link for locking the set bolt against turning and for

simultaneously locking the gate against downward movement.

5 5. The combination with a head gate frame, and a head gate having a stem, of a stop block adjustably mounted on the stem, a set bolt carried by the stop block, a slotted link connected with the outer extremity of the set bolt, an eye mounted on a top cross bar with which the head gate frame is
10 equipped, and arranged to register with the slot of the link, and a padlock for securing the link to said eye, substantially as described.

15 6. The combination with a head gate frame, of a gate slidably mounted in the frame and provided with a toothed stem, and a lever fulcrumed on the frame at one side thereof and crossing the stem, the said lever having a spring-actuated dog adapted
20 to engage the toothed edge of the stem for manipulating the gate, substantially as described.

25 7. The combination with a head gate frame, of a gate slidable in the frame and having a stem toothed on one edge, a lever fulcrumed on the frame at one side thereof

and crossing the stem, the said lever carrying a spring actuated dog adapted to enter the notches of the stem, and a gravity pawl mounted on the frame and also adapted to
30 engage the notches of the stem, substantially as described.

8. The combination with a head gate frame having an opening and a gate for controlling the said opening, of a corru-
35 gated pipe section extending rearwardly from the head gate frame and registering with the opening therein, a collar secured to the head gate frame and having inwardly projecting apertured lugs, the pipe section
40 also being equipped with apertured lugs, bolts connecting the two sets of apertured lugs, and means for anchoring the bolts in the space between the collar and the forward
45 extremity of the corrugated pipe section, substantially as described.

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

JOHN H. BUTTORFF.

Witnesses:

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HORTENSE UHLRICH.