

(No Model.)

J. ETTIEN.
LAND IRRIGATING SYSTEM.

No. 501,245.

Patented July 11, 1893.

Fig. 1.

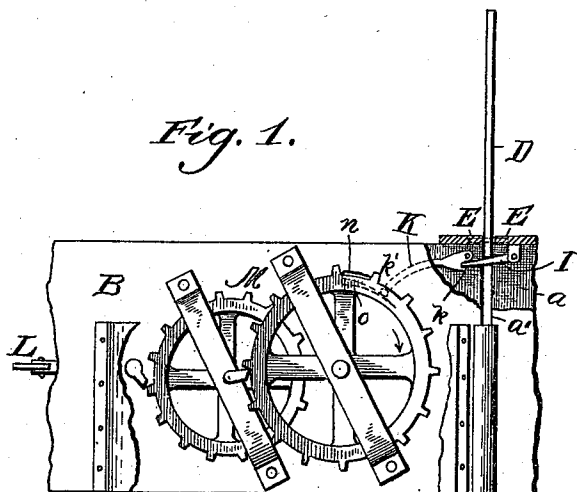


Fig. 4.

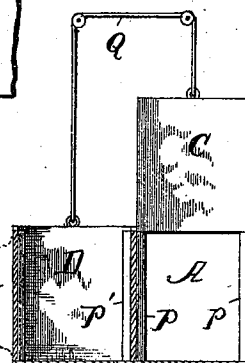


Fig. 2.

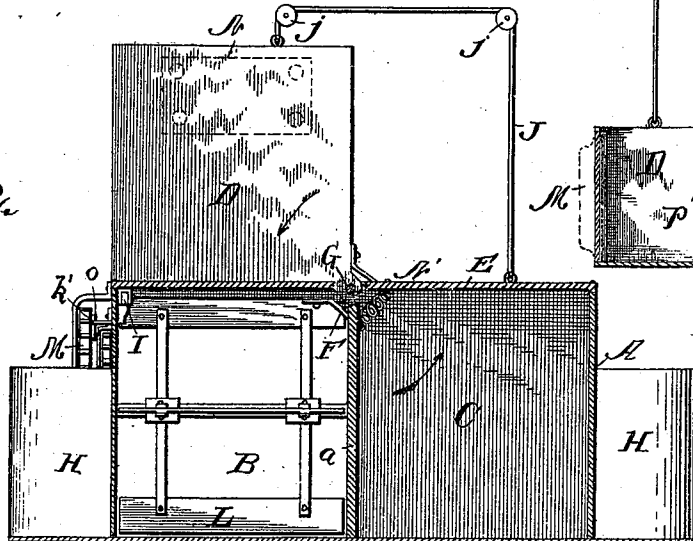
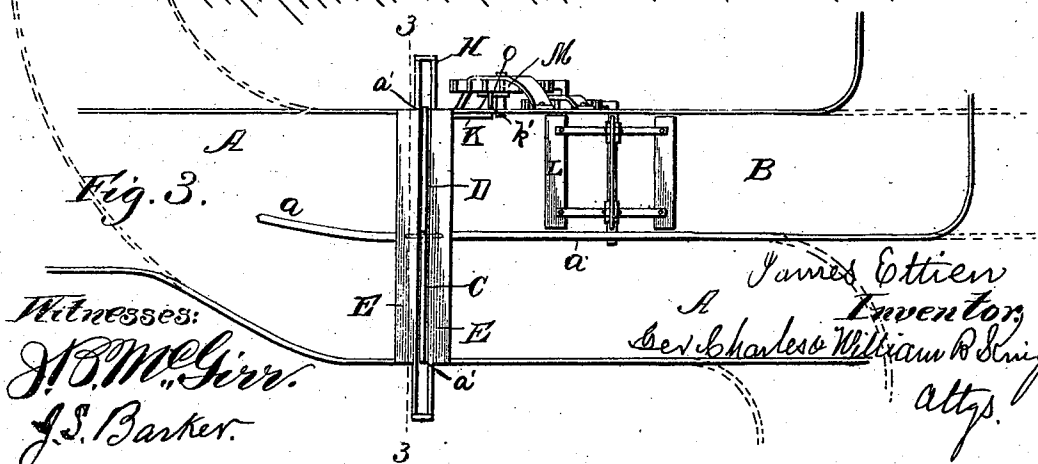


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES ETTIEN, OF UTICA, MONTANA.

LAND-IRRIGATING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 501,245, dated July 11, 1893.

Application filed August 23, 1892. Renewed June 14, 1893. Serial No. 477,598. (No model.)

To all whom it may concern:

Be it known that I, JAMES ETTIEN, a citizen of the United States, residing at Utica, in the county of Fergus and State of Montana, have
5 invented certain new and useful Improvements in Land-Irrigating Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to
10 which it appertains to make and use the same.

My invention has for its object to improve land irrigating systems in the several particulars to be hereinafter pointed out.

I have heretofore,—on the 10th of May, 1892,—patented certain improvements in water-gates and the devices for automatically operating them, and this invention is in the nature of improvements upon the invention therein patented,—particularly in the construction of the water-ways, the water-gates, and in the devices for automatically operating the gates. For a full and detailed description of those devices which are common to the two inventions I make reference to my
25 patent of May 10, 1892, No. 474,549.

In the drawings Figure 1 is a side view of the invention, parts being broken away. Fig. 2 is an end view looking down the water-way. Fig. 3 is a plan view, and Fig. 4 is an end view
30 showing a different form of the invention from that shown in the other figures.

In the construction heretofore patented by me the gates which control the flow of water through the ditch and the sluice were arranged at substantially right angles to each other. I have found that under many circumstances it is preferable that the gates should be in the same or parallel vertical planes, and my present invention permits the two gates
40 to be thus mounted, and also makes it possible to unite the gates directly together or make them in one piece.

In the drawings, A designates the main ditch from which the water is led off through
45 sluices B and allowed to flow upon the land to be irrigated.

C represents the gate which controls the flow of water through the ditch, and D the gate which controls the flow through the sluice.
50 These two gates are arranged side by side and

are so constructed and mounted that they work alternately, that is to say, when one gate is open the other is closed, and vice versa.

A partition *a* separates the sluice B from the ditch A, which two water-channels are
55 parallel for a short distance. The partition *a* may be substantially parallel to the general direction of the ditch A as indicated in full lines in Fig. 3, the sluice B turning therefrom toward the land to be irrigated,—as indicated
60 at *b*,—a short distance below the water wheel, L; or, the partition may be substantially transverse to the general direction of the ditch, as indicated by the dotted lines in Fig. 3, where the ditch is shown as being bent at the
65 place where the sluice and the water gates are situated. The different arrangements of the ditch and sluice are matters of convenience, however, and do not pertain to my present invention.

E E represent pieces situated across the ditch and the sluice and forming between them a slot *e* in which the gates C and D move.

The preferred construction of gates is that shown in Figs. 1 and 2, where they are shown
75 as being rigidly connected together. The gates are in shape suited to the water ways which each respectively closes. In the drawings they are shown as being square and situated side by side, one above or higher than
80 the other, and connected or rigidly united at their adjacent corners, by braces F or by other means. The gates are hung upon a pivot G mounted in suitable bearings on the cross pieces E or the partition *a*. The pivot G is
85 arranged, preferably, transverse to the gates and passes through them at the place where they are united together at their corners. It will be seen that the gates can be swung upon this pivot in the direction indicated by the
90 arrows in Fig. 2 so that the gate D will close the sluice B and the gate C be raised so as to open the ditch A. The sides of the boxes which form the sluice and the ditch are slotted as at *a'* to permit the turning of the
95 gates, and pockets H are formed opposite these slots to prevent leaking and yet allow room for the gates to turn in.

The gates may be operated manually and I have shown a device for so operating them
100

which consists of a rope J connected at its ends to the gates C and D and passing over pulleys *j* arranged above the water channels. This device can also be used when the gates 5 are arranged to operate automatically for the purpose of setting the gates in the position shown in Fig. 2.

The mechanism for operating the gates automatically is substantially like that heretofore 10 patented by me and consists of a water wheel L situated in the sluice below the gate D, a train of gearing M operated thereby, and mounted, preferably, upon the outside of the boxing which constitutes the sluice B, a trip 15 K operated by said gearing, and a latch I for holding the gates, operated by the trip.

When the gates are to be operated automatically the gate D should have a tendency to close and in so doing open the gate C. 20 This may be secured by making the gate D the heavier of the two, as by constructing it of metal while the gate C is made of wood, or by attaching a weight to the gate D, as indicated by dotted lines at N in Fig. 2, or by 25 means of a spring N' secured at one end to the gate C and at the other to one of the cross-pieces E and tending to move the gates in the direction indicated by the arrows.

The latch I consists of a pivoted bar or finger adapted to be swung under the edge of 30 the gate D when raised and to catch in a notch *k* in the trip K. The trip is pivoted, by preference, to the inner face of the box constituting the sluice B, and has an arm *k'* projecting therefrom through a slot *n* in the box. Upon the last wheel of the gear train 35 M there is a projection in the form of a cam surface *o*, which, as the wheel turns in the direction of the arrow, comes in contact with 40 the arm *k'* of the trip, moving the latter so as to release the catch I, and permit the gate D to close and the gate C to be opened.

While, as I have said, I prefer that the gates should be connected together and be both 45 mounted so as turn upon a common pivot, as greater certainty of action and ease of operation are thereby attained, yet the gates might be separate from each other and arranged to slide vertically instead of turning upon a 50 pivot. Such a construction is shown in Fig. 4 where the gates are mounted side by side and slide vertically in ways formed by the cleats *p* and *p'*. In this construction the gates are connected by a cord or rope Q so that as 55 one gate falls the other rises and vice versa. It will be understood that the gate D in this construction is the heavier of the two so that

when not positively held up it will fall and close the sluice and open the gate C.

The same automatic operating mechanism 60 which has been described and shown in connection with the form of gates shown in Figs. 1 and 2 can be used in connection with the gates shown in Fig. 4.

Without limiting myself to the precise construction and arrangement of the parts shown, 65 what I claim is—

1. Gates for alternately controlling the flow of water through two adjacent channels, mounted side by side and connected together 70 at their corners, and mounted upon a single pivot, whereby as the gates are turned one will be opened and the other closed and vice versa, substantially as set forth.

2. The combination, with a water-way divided by a partition into two substantially 75 parallel channels, the gates C and D for closing respectively the said channels they being united together at their corners, whereby when one gate is in position to close one 80 channel the other opens the opposite channel, and vice versa, and a pivotal support for the gates having its axis transverse to the gates, and arranged near the place where the gates are connected together, substantially as set 85 forth.

3. The combination of the channels A and B separated by a partition, the pockets H communicating respectively with the said channels 90 through slots, the gates which close respectively the said channels rigidly connected with each other as shown whereby one gate stands open when the other is closed and vice versa, and the pivot G upon which the gates are mounted, substantially as set forth. 95

4. The combination of two adjacent water channels arranged side by side, two gates for closing the said channels respectively arranged to move in the same or in parallel vertical planes, one of the gates being heavier 100 than the other, connections between the gates whereby they move in opposite directions, a catch for holding the gates in position with the heavier one raised or open, and automatic trip mechanism operated by the flow of water 105 for moving the said catch and releasing the gates, substantially as set forth.

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

JAMES ETTIEN.

Witnesses:

A. J. SPEER,
W. M. HOCKENBERRY.