

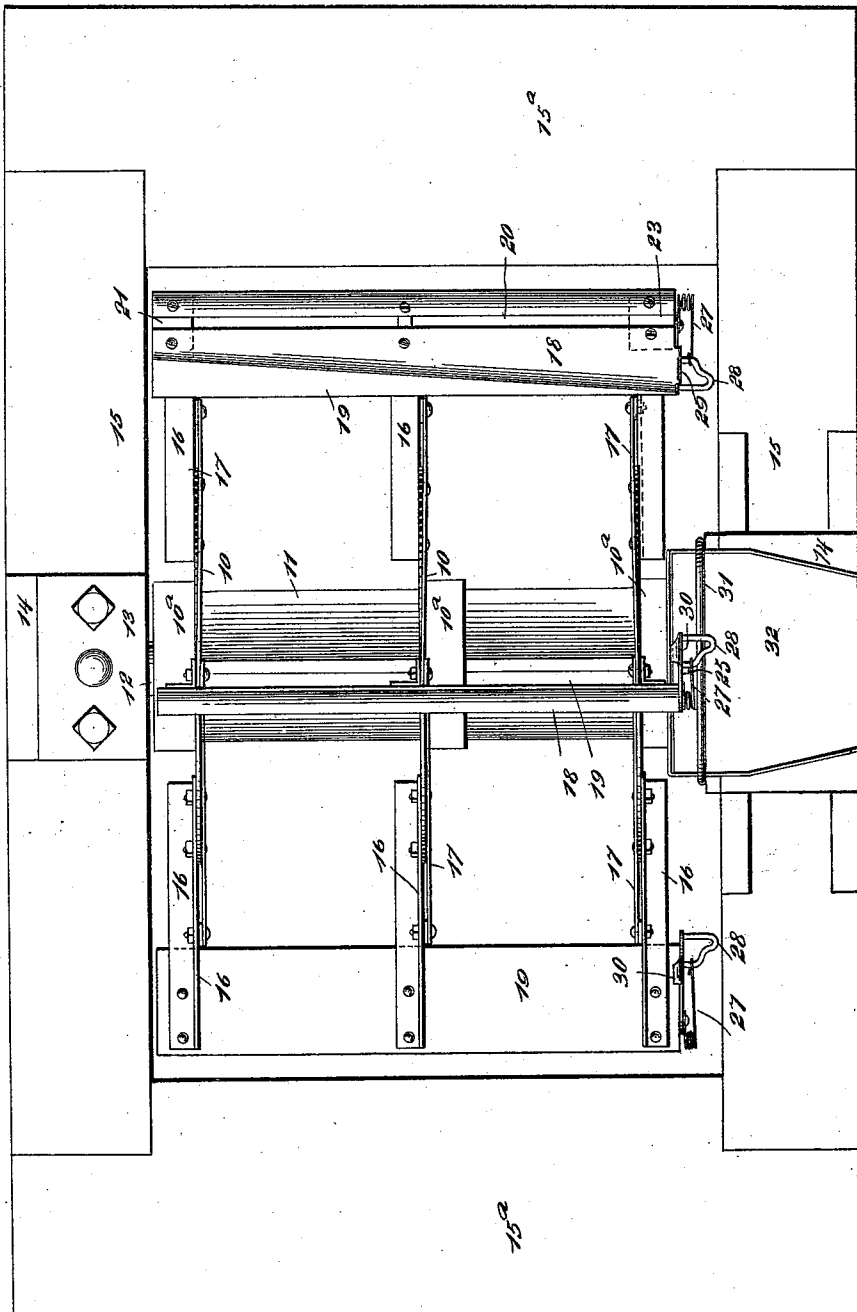
(No Model.)

2 Sheets—Sheet 1.

J. M. TREVETT.
WATER ELEVATOR.

No. 549,862.

Patented Nov. 12, 1895.



WITNESSES:

John A. Rennie
W. P. Hutchinson

INVENTOR

BY *J. M. Brett*

BY

Munn & Co
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

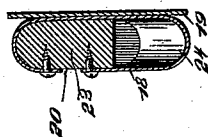


Fig. 2.

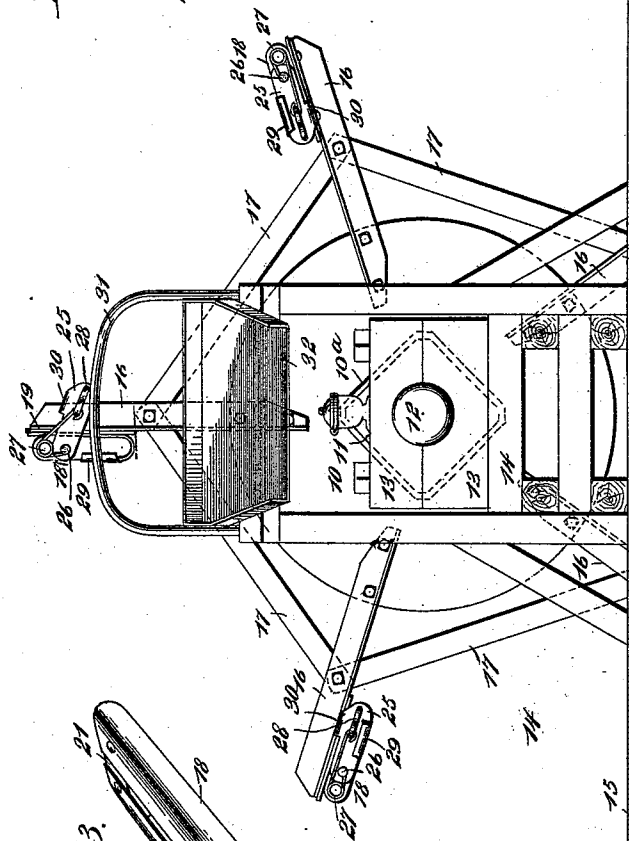
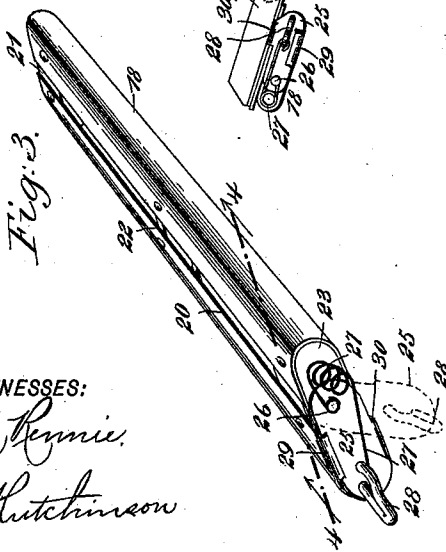


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN M. TREVETT, OF CASPER, ASSIGNOR OF TWO-FIFTHS TO WILLIAM E. DINNEEN AND MAURICE P. DINNEEN, OF CHEYENNE, WYOMING.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 549,862, dated November 12, 1895.

Application filed October 30, 1894. Serial No. 527,433. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. TREVETT, of Casper, in the county of Natrona and State of Wyoming, have invented a new and Improved Water-Elevator; of which the following is a full, clear, and exact description.

My invention relates to improvements in water-elevators which are adapted to raise water from streams for irrigating and other purposes; and the object of my invention is to produce a simple apparatus which may be floated in a running stream and which will elevate and discharge large quantities of water, causing the same to run to a suitable receptacle on the bank of a stream.

A further object of my invention is to produce an apparatus which will run continuously without repair, which has elevating buckets or troughs adapted to lift large quantities of water, which has automatic mechanism for opening and closing the ends of the said buckets, and which, therefore, is adapted to run and discharge its water without attention.

To these ends my invention consists of certain features of construction and combinations of parts, 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 figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the water-elevator embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail perspective view of one of the elongated buckets which is carried by the water-wheel of the elevator, and Fig. 4 is a cross-section on the line 4 4 of Fig. 3.

The water-elevator consists in a general way of a float adapted to be moored in the stream, a large wheel supported on the float, a series of peripheral buckets carried by the wheel, and automatic mechanism for discharging the buckets. The wheel is provided with circular end pieces 10, and, if the wheel is very large, with similar central pieces, as shown in Fig. 1, and these pieces or plates 10 are provided with flanges 10^a, which fit the large axle 11 of the wheel, this axle having cylindrical ends 12, which are journaled in the

boxes 13 mounted on supporting-frames 14, which are carried on flat-bottomed floats 15, which are adapted to float in a running stream and are tied together at the ends by cross-timbers 15^a. The wheel is provided with radial spokes 16, which are preferably of angle-iron and are bolted or otherwise fastened to the plates 10, and the spokes are tied together and braced by the braces 17, as best shown in Fig. 2.

The spokes 16 align longitudinally, and they carry elongated buckets 18, which extend the full length of the wheel and are arranged around its periphery, as shown best in Fig. 2, the buckets being firmly secured to plates 19, which are in turn fastened to the spokes 16. As illustrated, the buckets are made of metal and have slots 20 extending their full length, through which water may enter them, and the slots are placed, preferably, a little above the center, so that the buckets may be of great capacity.

As shown, the buckets are of material which is doubled around the end blocks 21 and 23 and the center brace 22, (see Figs. 3 and 4,) and the end block 21 entirely closes one end of the bucket, while the block 23 closes the upper side only, as shown in Fig. 4, so that when the valve, to be presently described is opened the water may run freely out of the bucket. The open end of each bucket is wider than the closed end, as shown in Fig. 3, so that the bucket-bottom is slightly inclined and the water may run freely from it.

I wish it understood that instead of making the buckets and the several parts of the wheel of metal, as illustrated, the whole apparatus may be made of wood, and when so constructed the shape of the buckets and certain other parts will of course be altered to suit the nature of the material used.

On the open end of each bucket is a key-valve 25, which is pivoted to the block 23, as shown at 26, and this valve is held normally closed by a spring 27, which is connected to the pivot 26 and also to a striking-arm 28, which projects outward from the free end of the valve; but the spring may be differently arranged, if desired. The valve closes beneath a flange 29 on one side of the bucket

end, as shown in Fig. 3, and the valve has at its opposite edge a flange 30, which overlaps the side of the bucket.

The striking-arms 28, which project from the valves 25, are adapted, as the wheel turns, to strike the curved rail 31, which projects upward from the frame 14, as shown clearly in Figs. 1 and 2, and as the striking-arms pass around over this rail they tilt the valves to one side against the pressure of the spring 27, as shown in Fig. 2, thus opening the buckets and permitting the water to flow out into the inclined spout 32. The spout 32 is supported on the frame 14 and may be made of any desired length so as to carry the water to a suitable receptacle on an adjacent bank.

When the wheel is set in motion, the buckets beneath the water are filled, and the current carries them along until other buckets enter the water, and thus the wheel is kept in constant motion and the full buckets are raised. When a full bucket comes to a point opposite the striking-rail 31, the striking-arm 28 of the valve on the bucket engages and rides over the said rail, thus swinging the valve against the tension of the spring 27 and opening the bucket, as shown in Fig. 2, and the water runs into the spout 32, which is made relatively wide, so that all the water is caught. As soon as the bucket passes the striking-rail 31 the spring 27 closes the valve 25 and the bucket is ready to be filled again.

I have shown my improved water-wheel mounted on floats; but it will of course be understood that the wheel may be supported in any other way without departing from the principle of the invention, although the floats are preferably used.

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

1. A water elevator, comprising a water-wheel having elongated peripheral buckets with side and end openings, a spring-pressed valve to close the end openings of the buckets, and automatic mechanism for moving the valve against the tension of its spring, substantially as described.

2. A water elevator, comprising a water-wheel having peripheral elongated buckets with longitudinal side openings, and each with an open end, said buckets having their bottoms inclined toward the open ends a pivoted and spring-pressed valve to close the open end of each bucket, and mechanism actuated by the rotation of the wheel to open the valves, substantially as described.

3. A water elevator, comprising a revolvable water-wheel having elongated peripheral buckets open on the side and at one end, said buckets having their bottoms inclined toward the open ends spring-pressed valves to close the open ends of the buckets, and provided

with striking arms a stationary spout arranged beneath the upper portion of the wheel, and a striking rail above the spout arranged to successively engage the striking arms of the valves, substantially as described.

4. A water elevator, comprising a water-wheel having elongated peripheral buckets with side openings and each with an open end, the open end being wider than the closed end a pivoted and spring-pressed valve to close the open end of each bucket, limiting flanges to regulate the movement of the valve, striking arms projecting outward from the valves, and an abutment in the path of the arms, substantially as described.

5. In a water elevator, the water-wheel comprising an axle, center plates secured to the axle, projecting spokes fastened to the center plates, buckets secured to the spokes said buckets having inclined bottoms and provided with side and end openings, pivoted and spring-pressed valves to close the end openings of the buckets, and automatic mechanism for opening the valves, substantially as described.

6. A water elevator, comprising supporting floats, a stationary spout on one of the floats, a striking rail above the spout, a water-wheel journaled on the floats and provided with elongated peripheral buckets having side and end openings, the bottoms of the buckets inclining toward the end openings and pivoted and spring-pressed valves to close the ends of the buckets, the valves having striking arms extending outward to engage the striking rail, substantially as described.

7. In a water elevator, the combination with a support, and a striking rail thereon, of a wheel mounted in the support and provided on the outer ends of radial arms with buckets, said buckets extending the length of the wheel and each provided with an inclined bottom a longitudinal opening in one side and an opening in one end, and a valve pivoted to one end of the bucket for closing the said end opening thereof, the valve being spring pressed and provided with an arm at its free end adapted to be engaged by the striking rail of the support, substantially as described.

8. A water elevator, comprising a frame provided with a striking rail, a wheel journaled in the said frame, buckets secured on the wheel, said buckets having a longitudinal slot and an open end, and a valve pivoted on each bucket to swing about an axis approximately parallel to that of the wheel, said valve being constructed to engage the striking rail on the frame to open the end of the bucket, substantially as described.

JOHN M. TREVETT.

Witnesses:

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WM. CARTER.