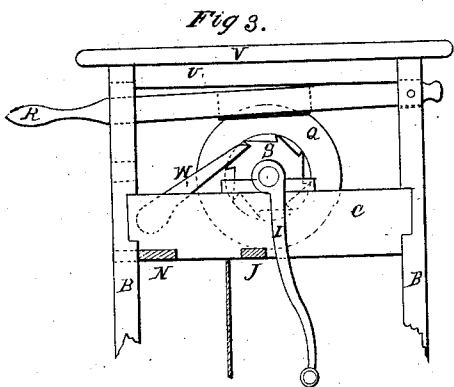
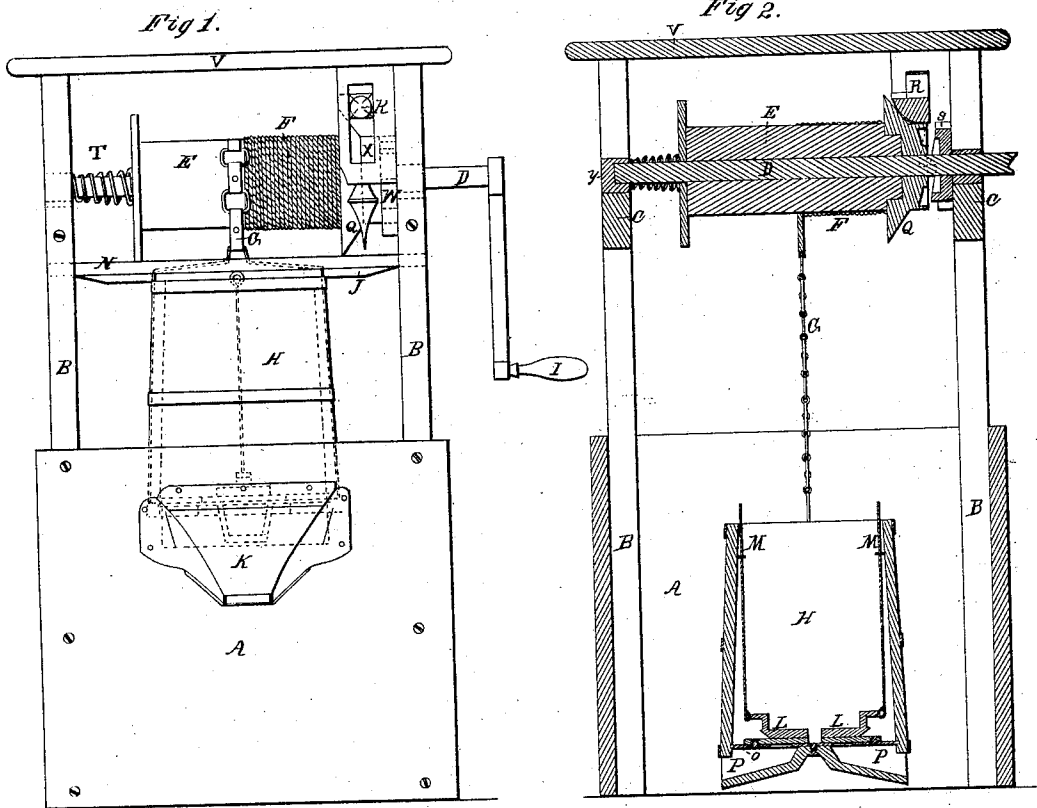


W. E. Pratt,

Windlass Water Elevator,

N^o 1,1639.

Patented Feb. 16, 1864.



Witnesses.

Chas. Moore

Geo. B. Morse

Inventor

Wm. E. Pratt

By D. M. Law
Att'y

UNITED STATES PATENT OFFICE.

WILLIAM E. PRATT, OF IOWA CITY, IOWA.

IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. 41,629, dated February 16, 1864.

To all whom it may concern:

Be it known that I, WILLIAM E. PRATT, of Iowa City, in the county of Johnson and State of Iowa, have invented certain Improvements in Well-Fixtures or Water-Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My improvement relates to that class of well-fixtures in which water is raised by means of a bucket connected with a rope or chain, the other end of the rope or chain being connected with a roller or barrel, the water being raised by means of a crank which revolves the roller or barrel, around which a rope or chain is wound, by which means the bucket and water are raised.

In the drawings, Figure 1 is a side elevation showing the well-fixtures complete, or so far as the operation is concerned. Fig. 2 is a sectional view showing the valves and metallic bottom of the bucket, also the shaft passing through the roller or barrel, also the bevel-head. Fig. 3 is a detail view showing the lever, ratchet-wheel, and pawl or catch.

A is the curb, made in the usual manner, square.

B B are upright posts for the support of beams or cross-pieces C, as shown in Fig. 3, extending across two opposite upright posts for the support of the shaft D, upon which the movable roller or barrel E rests, upon which barrel the rope F is wound, it being connected with the movable roller or barrel at one end, the other end being connected with a flat chain, G. The other end of the chain is connected with the bucket H. The bucket is elevated by means of a crank, I, which is connected with the shaft D, by which means the movable roller or barrel E is revolved, thus winding up the rope F and the flat chain G, thus elevating the bucket H.

J is a cross-piece for the purpose of arresting that side of the bucket nearest to the shaft in its further elevation, and canting the top of it at the same time, thus forcing the bottom of the bucket against the curb directly above the spout K. This spout is for the purpose of conducting the water from the bucket to the vessel to contain it.

L L are the valves, made with arms, so that the rods M M may pass through them, then

the ends of the rods being bent over, forming a loop, thus preventing them from being detached while in operation. The rods M M are kept in an upright position by means of staples driven into the inside of the bucket, near the top, the rods being allowed to slide up and down through the staples. The rods extend far enough above the top of the bucket to allow them to be pressed down by means of the cross-piece N, which is placed in front of the cross-piece J for the purpose of arresting the rods in their elevation at the same time that the bucket is arrested by the cross-piece J. The cross-piece N is thin, or less thick than the cross-piece J, so that the rods which extend above the top of the bucket may not be pressed down by it until about the same time that the bucket is arrested by the cross-piece J. Thus the bucket is arrested and canted, which forces the bottom of the bucket against the curb above the spout, and at the same time the rod M is pressed down, by which means the valve L is opened for the purpose of discharging the water.

O is a metallic plate, upon which the valves L L operate. The metallic plate also forms the bottom of the bucket.

P P are the conductors riveted to the under side of the metallic plate or bottom, for the purpose of conducting the water from the bucket to the spout.

Q is a beveled head attached to one end of the movable roller or barrel E, as shown in Fig. 3.

R is a lever beveled on one side and connected to one of the upright posts by means of a bolt. The lever then extends across one side of the curb and beyond far enough to form a handle with which to operate it. The lever is kept in its proper place by means of a piece of timber mortised and secured to the upright post, the mortise being wide enough to allow the lever to pass through it, and long enough to allow the lever R to rise high enough to clear the bevel-head Q; also, to be pressed down sufficient to slide the movable roller or barrel E out of gear and to press upon the cylindrical portion of the head of the roller or barrel. The lever R is for the purpose of sliding the movable roller or barrel E out of gear and regulating the descent of the bucket H, which is done by pressing down the lever,

which comes in contact with the bevel-head Q, thus causing it to slide upon the shaft D, by which means it is detached from the ratchet-wheel S. The bucket is then allowed to descend by its own weight, and its velocity is regulated by the pressure of the lever R on the cylindrical portion X of the roller-head.

S is a ratchet-wheel attached firmly to the shaft D for the purpose of holding the shaft and prevent a backward motion of the crank I by means of a pawl or catch, W, which is fastened at one end to the cross-piece C with a bolt, the other end of the pawl resting upon the teeth of the ratchet-wheel.

T is a spiral spring around one end of the shaft D, opposite the crank, one end of the spring pressing against a metallic box, Y, the other end of the spring pressing against the flat head which is attached to the end of the movable roller or barrel E, for the purpose of sliding the roller or barrel into gear when it is relieved from the pressure of the lever.

U is a tie or cross-piece for the support or bracing of the upright posts.

V is a cover or roof resting upon the top of the upright posts for the purpose of protecting the well and machinery.

The bucket H is filled after being lowered to the water by the pressure of the water causing the valves in the bottom of the bucket to open, thus allowing the bucket to sink by its own weight; then by means of the crank I the movable roller or barrel E is revolved, thus winding up the rope F and the chain G, by this means elevating the bucket and water. The instant the bucket is elevated from the water, the valves close by the weight of the water which is in the bucket, thus preventing the escape of the water until the bucket and rod are arrested in their further elevation by the cross-pieces J and N, which cant the bucket and press down the rod, thus forcing the bottom of the bucket against the curb A, directly above the spout K, and also raising the valves L at the same instant, thus discharging the water from the bucket through the conductors P into the spout, which conveys it to the vessel to contain it. The flat chain G is for the purpose of turning or guiding the bucket and rod in a

proper direction to come in contact with the cross-pieces J and N in their elevation.

This well-fixture has advantages over others of this class for the following reasons: First, by the use of a rope for almost the entire distance from the roller or barrel E to the water in the well, the chain G being flat, and only length enough of chain being used next the bucket for the purpose of turning or guiding the bucket in a proper direction, it also prevents the rope F from getting wet, and the rope being thereby, and is, less likely to get out of repair than the metallic strap which is used in some well-fixtures of this class, for the weight of the bucket twists the metallic strap as it ascends and descends, thus making it troublesome in winding up and likely to get out of repair. Second, the movable roller or barrel E revolving on the shaft D, thus preventing the danger from the backward motion of the crank, while at the same time the descent of the bucket is regulated by the pressure of the lever R operating as a brake on the cylindrical portion of the roller-head. Third, in the connection of the rods which extend above the top of the bucket, with the arms of the valves and the loops near the top of the bucket, thus insuring their perfect operation at all times.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of these United States, is—

1. The combination and arrangement of the movable roller or barrel E, the bevel-head Q, the cylindrical portion X, and the spring T with the ratchet-wheel S, the pawl W, the shaft D, the crank I, and the lever R, substantially as and for the purpose set forth.

2. The combination and arrangement of the movable roller or barrel E, the bevel head Q, the cylindrical portion X, and the spring T with the rope F, the flat chain G, the bucket H, the rods M M, the valves L L, and the conductors P P, substantially as and for the purpose set forth.

WILLIAM E. PRATT.

Witnesses:

SAM. H. FAIRALL,
EDWARD P. HALE.