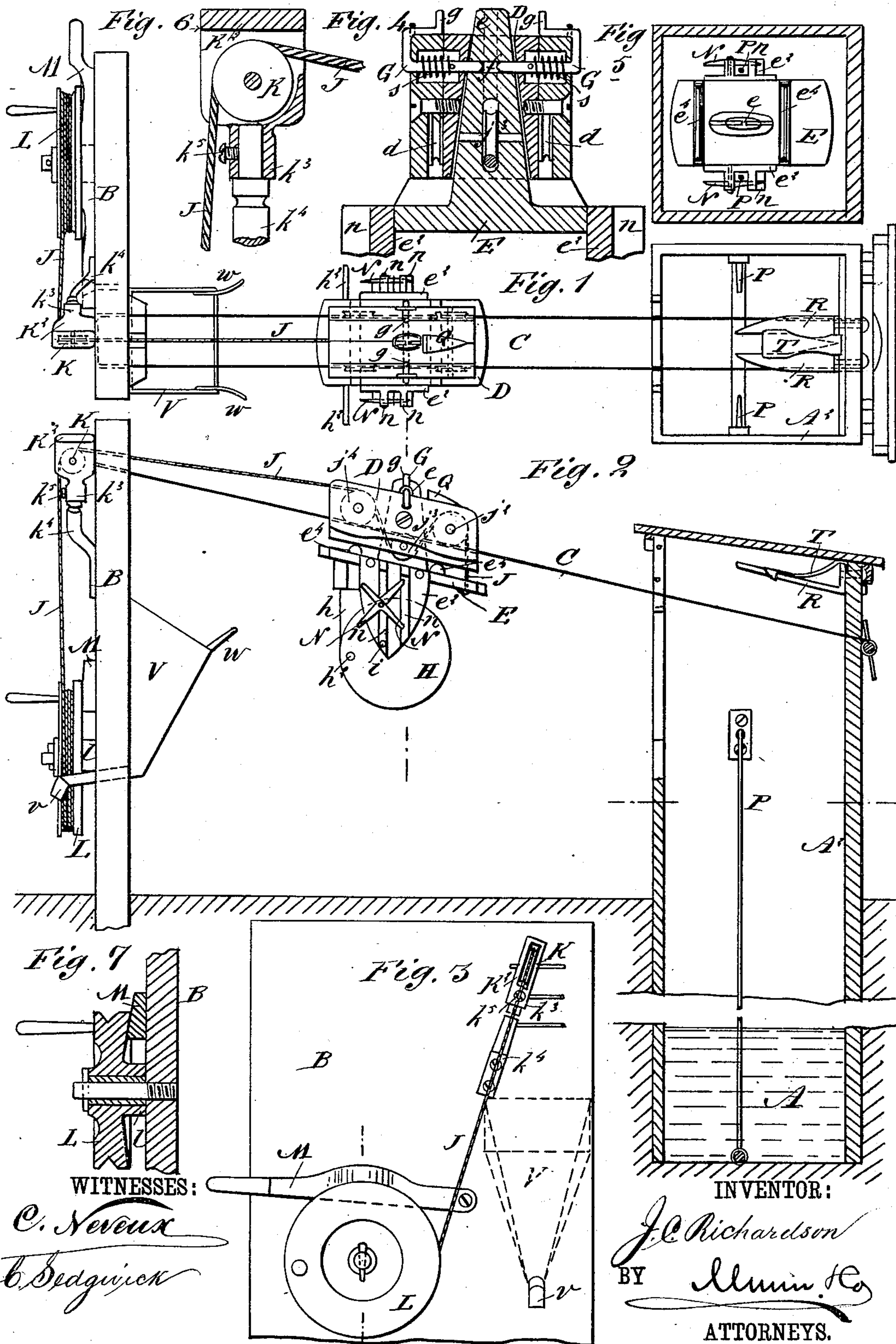


(Model.)

J. C. RICHARDSON.
WATER ELEVATOR.

No. 247,111.

Patented Sept. 13, 1881.



UNITED STATES PATENT OFFICE.

JAMES C. RICHARDSON, OF BOSCOBEL, WISCONSIN.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 247,111, dated September 13, 1881.

Application filed May 17, 1881. (Model.)

To all whom it may concern:

Be it known that I, JAMES C. RICHARDSON, of Boscobel, in the county of Grant and State of Wisconsin, have invented certain Improvements in Water-Elevators, of which the following is a specification.

My invention relates to a means for raising water from a well, cistern, or other receptacle, and conveying it to a point at a distance therefrom and there discharging it.

The invention consists in certain novel details of construction, arrangement, and combination of devices for automatically lowering and raising the bucket, conveying it to the point of discharge, and there discharging the contents, as hereinafter more particularly described.

In the accompanying drawings, Figure 1 is a top view of an apparatus embodying my improvements. Fig. 2 is a longitudinal vertical section of the same. Figs. 3, 4, 5, 6, and 7 are detail views.

Similar letters of reference indicate corresponding parts.

A represents a well, cistern, or other receptacle containing water, and A² the curb attached thereto.

B represents a wall, fence, or frame of any suitable description, located at the point where it is desired to discharge the water after raising it from the well or cistern.

From the wall or frame B to the curb A² extends an inclined track, C, consisting of either two wires or of a single wire bent midway of its length, and passed through the frame, and having its ends secured outside of the rear wall of the curb.

On the track C runs a carriage, consisting of a block, D, provided with grooved wheels *d*, fitting the wire of the track. This carriage D is arranged to carry the bucket by means of devices constructed as follows:

E represents a plate or board, from the center of the upper side of which a tapering tongue, *e*, extends upward, and from two opposite sides of which two hangers, *e*², extend downward.

In the upper part of the tongue *e* are recesses *f*, for engagement with spring bolts or catches carried by the block or carriage D. Each of these spring bolts or catches consists

of a bar, G, working in a recess in the carriage D, and provided with a spring, *s*, having a tendency to keep it pressed inward toward the center of the block. The portion of the bar outside of the block is bent upward, then inward, and then upward again, so as to form a lug, *g*. When the tongue *e* is in place in a slot in the center of the block or carriage D the bolts or catches G engage with the recesses *f*, and hold the bucket-carrier in a suspended position, as shown in Figs. 2 and 4. The upper side of the plate or board E is provided with convex beads or ribs *e*⁴, which prevent the possibility of the board freezing to the carriage when wet in cold weather.

The bucket consists of a cylindrical vessel, H, provided with a spout, *h*, extending tangentially from its periphery. The bucket is suspended between the hangers *e*² by means of gudgeons or trunnions *i*, arranged eccentrically at the ends of the cylinder, so that the greatest weight is below and in rear of said trunnions, and the spout *h* is always upright, except when the bucket is tilted, as hereinafter described. From the ends of the bucket two arms, *h*², extend laterally in opposite directions.

A rope or chain, J, has one end attached to the rear portion of the plate or board E, from which it passes upward and over a pulley, *j*², in the block or carriage D; thence downward and under a pulley, *j*³, in the tongue *e*; thence upward and over a pulley, *j*⁴, in the block or carriage D; thence outward from said carriage and over a pulley, K, attached to the wall or frame B, and thence downward to a windlass or grooved wheel, L, to which its other end is secured.

The pulley K is carried by a pulley-block, K², which is provided with a hollow neck or socket, *k*³. This neck or socket fits on a shank or stem extending from a bracket, *k*⁴, attached to the wall or frame B, and is held in place by a set-screw, *k*⁵, by which means provision is made for placing and holding the pulley in different positions, so as to guide the rope J in different directions, as desired.

The windlass or grooved wheel L may be arranged in any suitable manner and at any desired point. As here shown it is arranged to turn on a shaft attached to the wall or frame

B. The side of the wheel toward the wall or frame is concave from the periphery to near the center, where it is provided with a hub, *l*.

Between the wheel and the frame is a brake, consisting of a beveled bar or lever, *M*, having one end pivoted to the wall or frame. By pressing the brake *M* on the hub *l*, the speed of rotation of the wheel is slackened, and by raising the brake to the position shown in Figs. 2 and 7 it acts as a wedge and prevents the wheel from turning at all.

On the outer side of each of the hangers *e* are two vertical ribs or beads, *n*, forming a groove between them. To one of these ribs or beads a sprocket-wheel, *N*, is attached in such a position that as it turns on its axis one or more of its spokes will cover the groove between the ribs *n*.

On the inner sides of the curb *A*², and extending down into the well or cistern *A*, are two guides, consisting of rods or wires *P P*, having their upper and lower ends bent and secured to the curb and the wall of the well or cistern, so as to leave a space between said curb and wall and the main portion of the rod or wire.

On the top of the block or carriage *D* is secured a wedge or inclined plane, *Q*. To the rear wall of the curb are secured the rear ends of two bars, *R R*, which extend forward parallel with the line of the inclined track *C* to a point about corresponding with the center of the curb. The inner sides or edges of these bars form straight lines parallel with the track; but their outer sides are inclined toward the center, so as to form wedges. Over the space between these bars is a spring-latch, *T*, the rear end of which is secured to the rear wall of the curb.

To the wall or frame *B*, or at any other suitable point, is attached a trough or hopper, *V*, which is preferably in the form of a pyramid, and has its bottom provided with a spout, *v*. From its upper end extend two horns, *w*, which may be slightly curved outward.

The operation of my invention is as follows: When the carriage descends on the track *C* and enters the curb the inclined plane *Q* is engaged by the latch *T*, and the spring bolts or

catches *G* are forced outward by the wedge-shaped bars *R*, so as to disengage the bucket-carrier from the carriage *D* and allow it to descend into the well. As it descends the grooves between the ribs or beads *n* engage with the guide-wires *P*, and the sprocket-wheels *N* confine the wires in the grooves, so as to prevent lateral vibration of the bucket and its carrier. The bucket being filled and the windlass being turned to wind up the rope, as the tongue *e* enters the slot in the carriage *D* and protrudes above the top thereof it raises the latch *T* from the inclined plane *Q*, so as to allow the rope to draw the carriage up the track and the bolts or catches *G* to engage with the sockets *f* and hold the bucket-carrier. On reaching the trough or hopper *V* the arms *h*² on the bucket strike the horns *w* on the hopper, so as to tilt the bucket and discharge the water through the spout *h* into the hopper *V*.

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

1. The combination, with the carriage *D*, of the plate or board *E*, having the ribs or beads *e*⁴ on its upper surface, as shown and described, for the purpose specified.

2. The combination, with the carrier *D* and the upward and inward bent spring bolts or catches *G*, having lugs *g g*, of the wedge-shaped bars *R R*, having their outer sides inclined toward the center attached to the curb *A*², substantially as and for the purpose herein described.

3. The combination of the hangers *e*², the ribs or beads *n*, the sprocket-wheels *N*, having their spokes covering the grooves between said ribs, and the guide rods or wires *P* in the curb *A*², substantially as and for the purpose herein described.

4. The combination of the windlass or grooved wheel *L*, having the concave inner side and the central hub, *l*, and the brake consisting of the beveled lever or bar *M*, as shown and described, for the purpose specified.

JAMES CARNAHAN RICHARDSON.

Witnesses:

IRA D. CADY,
WM. NELSON.