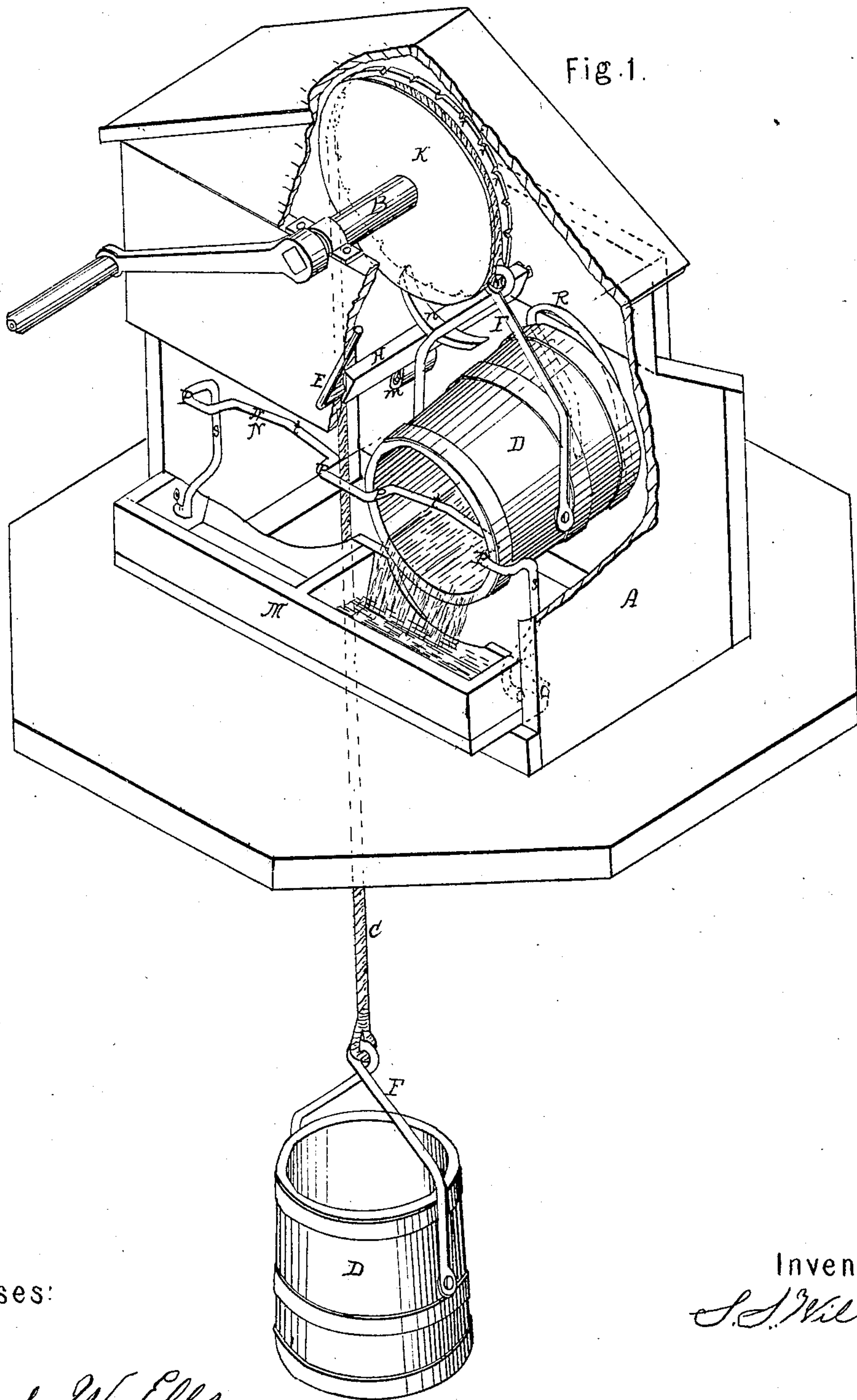


S. S. Williams.
Water Elevator.

No 42,919.

Patented May 24, 1864.



Witnesses:

Isaac W. Ellis.
R. H. Cameron.

Inventor:

S. S. Williams

UNITED STATES PATENT OFFICE.

SAMUEL S. WILLIAMS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
HARRY J. BAILEY, OF SAME PLACE.

IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. 42,919, dated May 24, 1864.

To all whom it may concern:

Be it known that I, SAMUEL S. WILLIAMS, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Water-Elevators; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists of an improvement in that class of water-elevators wherein the buckets are lowered and raised alternately by means of a rope wound around a windlass situated above the well, and so operated as that when the ascending bucket is raised high enough it will be carried forward and tilted, so as to discharge its contents.

In all contrivances heretofore invented for tilting the buckets great difficulty has been experienced in getting the bucket to "right" at the proper time to engage the tilter and pour the water into the trough.

The object of my invention is to obviate this difficulty and insure the proper working of the parts. For the accomplishing of this object I bend the tilter in the form of an obtuse angle at that part directly opposite the center of the bucket, so that the bail, when coming in contact therewith, (instead of sticking fast, as in other machines,) will be slewed around so as to engage the bucket in the proper place. I also construct the tilter in such a shape as to enter the inside of the bucket, whereby all notches and pins heretofore in use are done away with, the bucket righted and tilted, and secured from lateral play. I also use a ratchet and pawl, so constructed and operating as to not only prevent the ascending bucket from running back, but to change its position automatically by the bail of said bucket just before it reaches its highest point of elevation, and hold the next ascending bucket, and operating therewith substantially in the same manner. On the inside of the curb, and just back of each bucket, I place a long spring, fastened at the bottom of said curb, and extending upward and outward, so as to operate against the bottom of the tilting bucket to check its vibration and assist in throwing the tilter forward.

To enable others skilled in the art to under-

stand and make my improvement, I will proceed to describe its construction and operation by reference to the accompanying drawings, in which—

Figure 1 represents a perspective view of my improved water-elevator, a section of the curb being broken away, the better to show the working parts.

All the pieces are lettered, and similar letters denote corresponding parts in the drawings.

I construct my water-elevator with the usual frame and curb, A, to the top of which curb is attached and rotates the windlass B, around which the rope C passes, with a bucket, D, at each end, the length of said rope corresponding to the depth of the well, so that when one bucket is raised and in the act of discharging its contents the other will be filling at the bottom of the well. The bail F of each bucket extends down to near its middle, and is pivoted thereto, sufficient weight being beneath the bail to keep the bucket right end up.

The tilter N is an iron rod extending across the curb in front of the buckets, having two arms, s s, bent at right angles to the rod and pivoted to the trough M, (or they may be attached to the frame of the curb,) and on a line with the said trough, into which the water is to be discharged. As either bucket is raised to the top of the well, it is slewed around by the angular bend t of the rod acting against the incline of the bail, which brings the bucket into position to be engaged by the tilter, which has another bend, P, for that purpose. This bend is at right angles to line of the rod, and of sufficient depth to enter the bucket and extend across its mouth, where it forms another shoulder, which holds the bucket like a hook, and as the bucket is elevated carries it forward and tilts it, and at the same time prevents all swinging or lateral play, the spring R at the back of the curb assisting to carry it forward and prevent the bucket from slipping back so as to disengage itself from the tilter.

On a line with the axis of the windlass B, and a short distance below it, is placed a rock-shaft, H, to which is secured a pawl, n, which catches in the notches r r r on the face of the pulley K. For the purpose operating this rock-shaft and pawl by the action of the ascending bucket, a roller, m, is swung directly be-

neath it, which, as the bucket ascends, is pushed to one side, which changes the position of the pawl with relation to the bucket so ascending. For the purpose of indicating the position of the pawl (and if required to operate it by hand) is a short lever, E, on the outside of the curb, attached to the rock-shaft, and acts as an indicator to the person engaged in raising water.

The operation of the apparatus just described is as follows: As a bucket is raised to the top of the well, it is kept from swinging backward by the spring R. When the top of the bail touches the tilter N, the incline or angle t slews the bucket around, so that the short horizontal part of the tilter may enter the mouth of the bucket, and as the bucket still rises, by turning the windlass a little farther the upper part of the bucket is prevented from going up by reason of the tilter passing a short distance therein. The bail being pivoted near the middle of the bucket, it begins to tilt over, and immediately, by the weight of the bucket being thrown against the tilter, it yields, allowing it to press forward toward the trough, the bucket turning as on a center, and prevents any sudden tilting, and keeps the water from passing out with a splash.

The action of the trip is due to the peculiar arrangement of the parts, the turning points of the tilter being on a line at which the water is discharged, and on a level with the mouth of the bucket when it first comes in contact with it, so that when tilting the bucket the tilter is pressed upward and forward in the arc of a circle as to carry the bucket over the trough and there discharge its contents. The

pawl n , catching in the notches $r r r$ in the K, keeps the ascending bucket from running back into the well until raised to its highest point of elevation, when, as it approaches this point, the incline of the bail F acts against the roller m on the rock-shaft H, forcing it to one side and changing the position of the pawl, throwing it over to the other side of the pulley, so as to hold the next ascending bucket, the short lever E pointing always in the direction of the empty bucket, enabling the operator to tell which way to turn the windlass.

Having thus described my invention, what I claim as new is—

1. Forming the tilting rod N with an obtuse angle, t , at that part directly opposite the center of the bucket, for the purpose of slewing the bucket around, as herein set forth.

2. Bending the tilting rod in such a manner as to engage the bucket on the inside, so as to not only hold the bucket in a line with the trough, but prevent lateral play, as hereinbefore stated.

3. the self-acting brake or pawl operated by the bail of the ascending bucket, when constructed so as to change from one side of the ratchet on the pulley to the other, substantially in the manner and for purposes herein set forth.

4. the curved spring R at the rear of the curb, for the purpose of forcing the bucket toward the tilting rod, and also as a guide to steady the bucket when in the act of tilting.

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Witnesses:

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