

J. B. ERWIN.
Water Elevators.

No. 141,212.

Patented July 29, 1873.

Fig. 1.

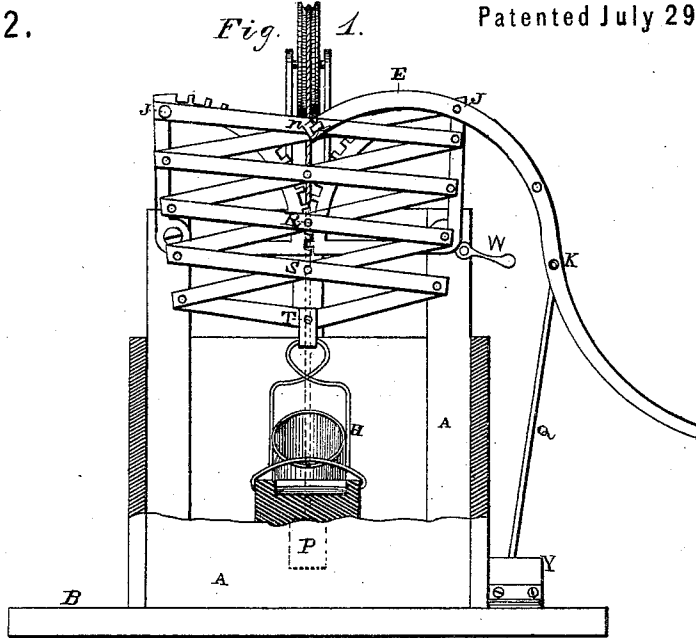
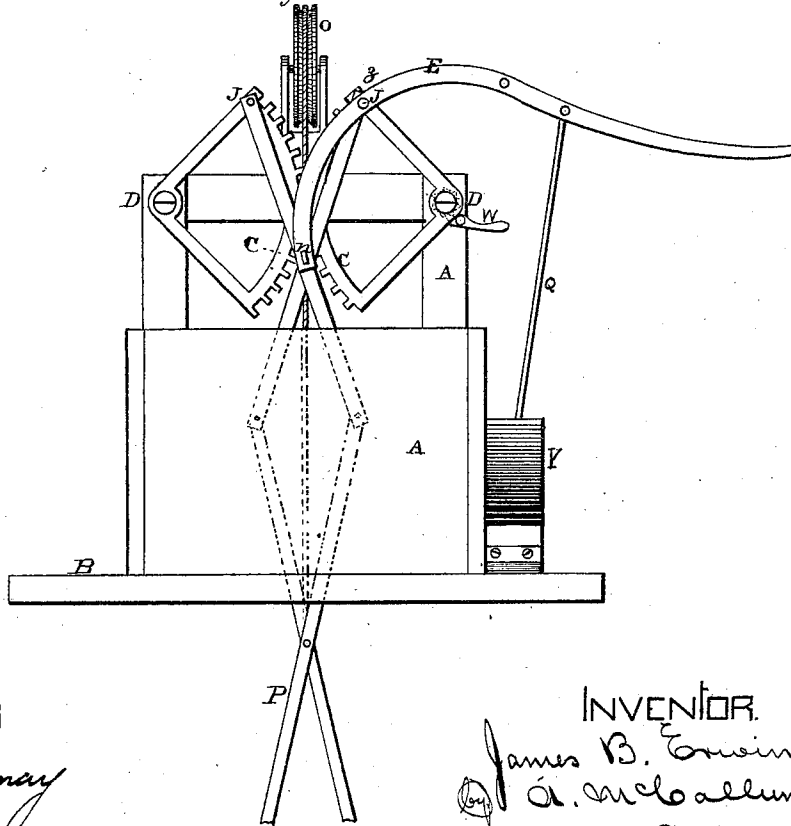


Fig. 2.



WITNESSES

P. H. Conway
D. G. Stuart

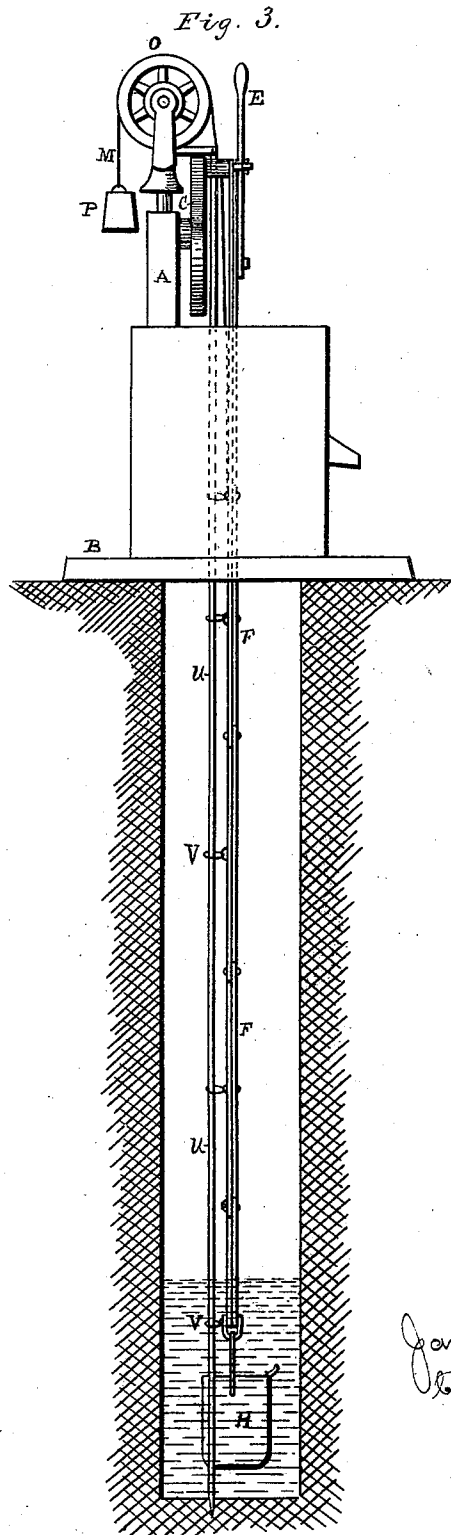
INVENTOR.

James B. Erwin
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UNITED STATES PATENT OFFICE.

JAMES B. ERWIN, OF BATAVIA, NEW YORK.

IMPROVEMENT IN WATER-ELEVATORS.

Specification forming part of Letters Patent No. **141,212**, dated July 29, 1873; application filed June 23, 1873.

To all whom it may concern:

Be it known that I, JAMES B. ERWIN, of Batavia, in the county of Genesee and State of New York, have invented certain new and useful Improvements in Machines for Drawing Water; 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 which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to certain improvements in the construction and operation of apparatus for raising water without pumping; and the invention consists in certain improvements whereby the mechanical devices are more easily operated and rendered more effective, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is an elevation of my improved apparatus, showing the position of the parts when the bucket is raised. Fig. 2 is a similar view, showing the position of the parts when the bucket is lowered. Fig. 3 is a side elevation, showing the guide-rod for the lazy-tongs.

A A represent the frame-work which supports the apparatus, made of any strong, durable material suitable for the purpose. B is the platform at the top of the well. C C are two quadrant or segmental gears, which are pivoted to the frame A by bolts D, respectively. E is a curved handle, secured to one of the gears C at *z* by a bolt, which passes through the upper or right-hand arm of the lazy-tongs. The forward end of the handle is secured to the pivot-bolt of the upper set of levers of the lazy-tongs, as shown at *n*. F represents that combination of pivoted levers technically known as lazy-tongs. The upper series of these levers F are secured to the gears C by bolts J. The lower series of the levers are made smaller, or with shorter arms, than the upper, and to the lowest set a bucket, H, is suspended. M is a rope or chain, one end of which is attached to the levers F at either of the points R, S, or T, preferably the latter. This rope or chain is passed over a pulley, O, which is secured to the top of the frame A, and to its other end is attached a

hanging weight, P. Q is a metal rod or chain, which is attached to the handle E at K, and connected with a foot-lever, Y. U is a metallic rod extending from the top of the frame A down to the bottom of the well, where it is securely anchored. V is a rod or staple attached to the lower set of levers F, and loosely clasping the rod U, for the purpose of steadying the bucket and preventing any swinging motion of the lazy-tongs when ascending or descending. These staples may be attached to each of the series of levers. W is a pawl, pivoted to the frame, and arranged to operate with a ratchet-wheel formed on one of the gears C.

The operation of my improved apparatus is as follows: The handle E is moved up and down. When the downward stroke is given to the handle, the operator at the same time steps on the foot-lever Y, throwing his weight upon the same, or as much as is required to raise the bucket of water. When the bucket is emptied the foot is removed from the lever Y, and the upward stroke is made by the hand only, or automatically by the weight of the lazy-tongs, the levers of which extend downward their full length into the well and immerse the bucket in the water or other liquid to be elevated. By forcing down the handle E the gears C describe a partial revolution, the bolt J acting as a fulcrum to the handle E, whereby a second and increased power is communicated to the lazy-tongs at *n*, thereby raising the lazy-tongs with greater ease and bringing the buckets into the position shown by Fig. 1, and causing the bucket to empty automatically. In this position, Fig. 1, the balance-weight P has descended to the lowest point, aiding, by its gravity in descending, the upward motion of the lazy-tongs.

The rope or chain M may be attached to either set of the levers F, as may be found desirable, the power of the weight P being increased by attaching the rope or chain lower down, or decreased by making the point of attachment higher up on the series of levers. The weight thus acts as a counterpoise to the weight of the lazy-tongs and bucket. The pawl W and the ratchet on the hub of the segmental gear serve to suspend the bucket

and lazy-tongs at the top of the well when not in use, or to suspend the bucket in any desired position.

The lower sets of the levers F are made smaller than the upper. By this arrangement larger and more powerful levers may be used in the upper series—that is, levers of greater length than the diameter of the well—while the lower sets, requiring to enter the well in nearly a horizontal position, are necessarily of the same, or nearly the same, length as the diameter of the well. The upper sets assume a more or less vertical position before entering the well, and do not, therefore, require to be limited in size like the lower ones; and thus greater power is had by the arrangement of the different-sized levers. The rod U, extending to the bottom of the well, insures a steady motion of the lazy-tongs, and by its aid a rapid stroke can be given to a great depth without danger, consequent on the oscillation of the lazy-tongs which would occur without this device.

What I claim as my invention is—

1. The combination of the segmental gears C C and series of levers F with the handle E, when said handle is pivoted to the levers and to one of the gears, in the manner described, and for the purpose specified.

2. The combination of the segmental gears C C, series of levers F, handle E, rod Q, and foot-lever Y, substantially as and for the purpose specified.

3. The rod U and staple V, operating in combination with the lever F, segmental gears C C, and handle E, substantially as and for the purpose specified.

4. The combination of the gears C C, levers F, handle E, rod Q, foot-lever Y, weight P, and rope or chain M, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of June, 1873.

JAMES B. ERWIN.

Witnesses:

A. E. WELCH,

CLARA J. WELCH.