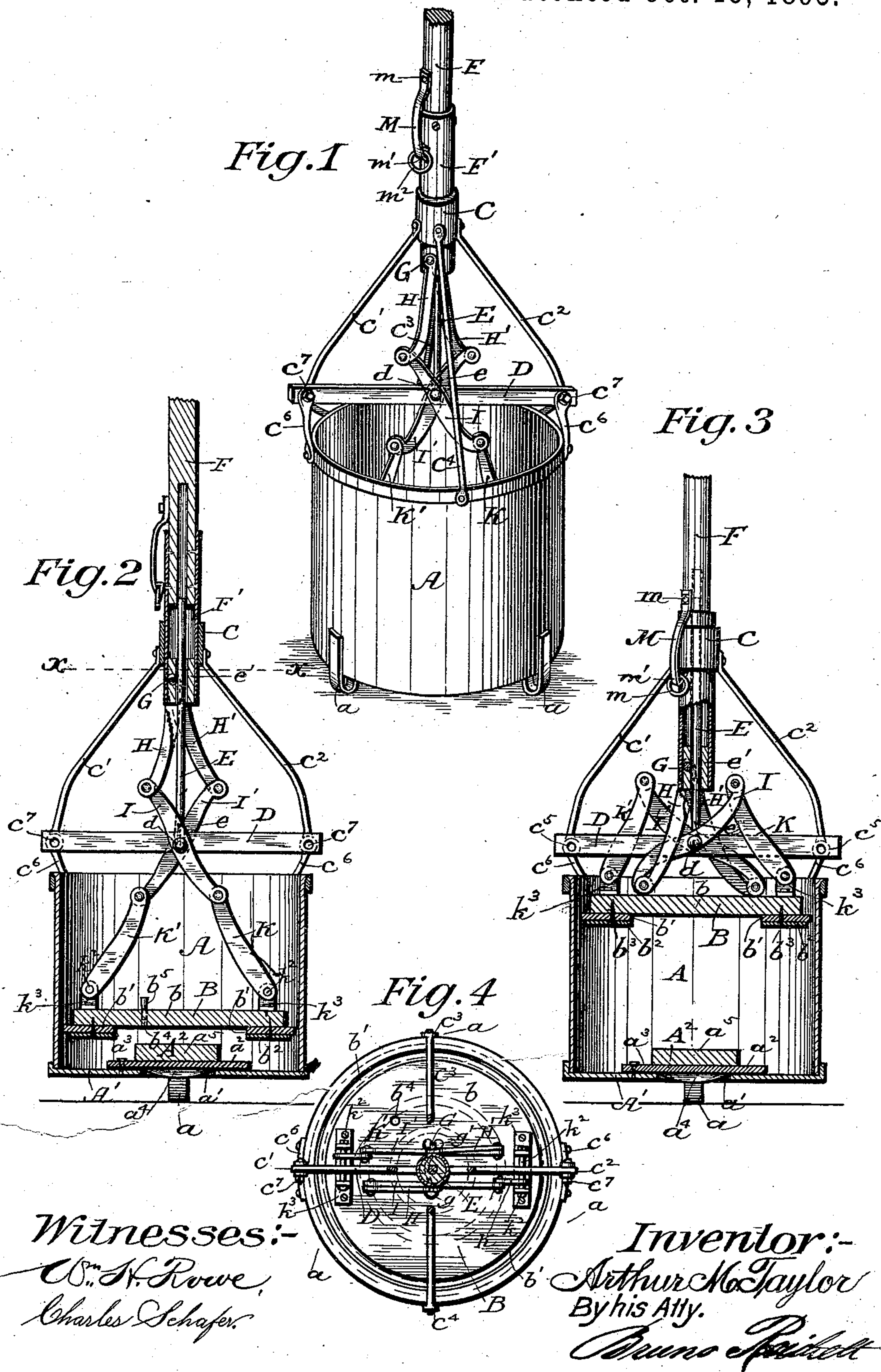


(No Model.)

A. M. TAYLOR.
WELL OR CISTERN CLEANING MACHINE.

No. 548,018.

Patented Oct. 15, 1895.



UNITED STATES PATENT OFFICE.

ARTHUR M. TAYLOR, OF NILES, ASSIGNOR OF ONE-HALF TO EDWARD HORAN, OF CASSOPOLIS, MICHIGAN.

WELL OR CISTERN CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 548,018, dated October 15, 1895.

Application filed March 18, 1895. Serial No. 542,105. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR M. TAYLOR, a citizen of the United States, residing at Niles, in the county of Berrien and State of Michigan, have invented a new and useful Well or Cistern Cleaning Machine, of which the following is a specification.

My invention relates to improvements in well or cistern cleaning machines in which a cylinder receiving-bucket, having a valve in its bottom and containing a piston, is operated near the bottom of the cistern to clean the well or cistern without going down into it or removing the water therefrom; and my present invention constitutes an improvement upon a former patent granted to me, No. 412,211, dated October 1, 1889, wherein the piston is supported upon guide-rods and held stationary, while the cylinder, provided with a valve in its bottom, is pushed down and filled with the sedimentary water at the bottom of the well or cistern.

My present invention consists in reversing the operation described in said patent by employing simple novel mechanical means which will allow the cylinder to be first placed down in close proximity to the bottom of the cistern, thereby being at all times nearest the sediment, and then lifting the piston or plunger within said cylinder by pressing down upon the handle, the downward pressure serving to hold the cylinder closely against the dirt and sediment at the bottom of the well or cistern and also serving to lift the piston within the cylinder.

In the accompanying drawings, which illustrate the preferred form of my invention, Figure 1 is a perspective showing the machine with the piston down at the bottom of the cylinder ready to be placed in a well or cistern; Fig. 2, a vertical central section thereof in the same position shown in Fig. 1; Fig. 3, a vertical section similar to Fig. 2, with the piston raised to the top of said cylinder, as will hereinafter appear; and Fig. 4, a sectional plan in line $x-x$ of Fig. 2.

A receiving-bucket A, of cylindrical form, preferably of galvanized iron, is fitted with a bottom A' and supporting-feet a , secured thereto to extend a short distance below the bottom, and has an aperture a' centrally lo-

cated therein, over which is fitted a valve a^2 , preferably formed of sheet-rubber cut in a circle to amply cover the aperture a' and having a hinge extension a^3 , riveted or otherwise secured to the bottom of said receiving-bucket, and also having a weight a^4 to fit the aperture a' freely, and a block of wood a^5 upon the top of the rubber holds the latter rigidly between them, while the weight insures the quick movement of the valve to seat itself.

A piston B, consisting of a disk b , of wood or other suitable material, a ring of sheet-rubber b' , cut to closely fit the interior of the cylinder A, and a follower of sheet metal b^2 upon the under side of said rubber ring, secured to the bottom of the disk b by wood-screws b^3 or other suitable means to clamp the rubber ring securely between them, is provided, which is simple, inexpensive, and effective, and securely packed to work within the cylindrical piston-chamber and exhaust the air therefrom. The piston B has a small air-aperture b^4 , fitted with a plug or cock b^5 , which may be opened to allow the air to escape from the bucket-cylinder when the bottom valve is closed and the piston B is to be drawn down to the bottom of the bucket-cylinder.

The bucket-cylinder has four upright bracket-rods c' c^2 c^3 c^4 , secured at their lower ends to the upper edge or periphery thereof and, converging at their upper ends, are secured to a collar C, the lower ends of the rods c' c^2 being preferably inclined oppositely to branching arms c^6 , secured at the angle thereof by a bolt c^7 , which also serves to support and also as means for securely attaching the ends of a horizontal cross-bar D at a suitable height above the bucket-cylinder in a diametrical line therewith. The center of the bar D carries a bolt d , which passes through eyes in the lower forked end e of an upright guide-rod E, the upper end of said rod passing freely through a small block e' , which fits and is secured to the lower end of a tubular extension F' upon the end of a handle F, which latter serves to lower the receiving-bucket into the cistern. The guide-rod E supports the lower end of the tubular extension F' and handle F, secured thereto, thus insuring the

free endwise movement of the latter through the collar C. A bolt G, passing through block e and the lower end of the handle extension F' at one side of the center thereof to avoid interference with the movement of the guide-rod E, has a head g and nut g' and carries the ends of depending links H H' upon either side of the handle, which are each pivotally connected at their lower ends to the respectively opposite ends of one of a pair of parallel rocking arms, I I' pivotally connected at the middle of their length to the opposite ends of the bolt d, a head and nut upon said bolt serving to hold the rocking arms securely upon the bolt, but allowing them to rock by the reciprocation of the handle. The free ends of links K K' are each pivotally connected at their upper ends to the rocking arms I I', located diametrically opposite each other and secured at their lower ends to pivot-bolts k², supported in angle-iron lugs k³, fastened to the top and near the periphery of the piston, by which means the piston is pushed downwardly in the bucket-cylinder by lifting the handle F and is lifted therein by pushing downwardly upon the handle. A latch M, suspended from a bolt m on the handle, has a catch m', which engages with the bottom edge of the collar C and holds the piston and handle intact while the bucket with its contents is being lifted, and a ring m² at the free end of the said catch enables the latter to be easily operated.

The action of the device is clearly shown by Figs. 2 and 3 of the drawings. The rocking arms I I', having a fixed pivoted support on the cylinder cross-bar D and being held in a nearly upright position by pivotal connection with the free ends of the depending links H H', secured at their opposite ends to the reciprocating handle E, it is evident, by referring to Figs. 2 and 3 aforesaid, that the links K K', similarly connecting the lower ends of said rocking arms, and the hinge-bolts k² at opposite sides of the piston will operate the piston as above described—that is, raise the piston by depressing the handle and lower the piston in the cylinder by lifting upon the handle.

I am aware that a lazy-tongs movement is employed variously for securing an opposite or reverse reciprocating movement for various purposes, and I do not broadly claim its application to a pump cylinder and piston, but limit my claim to a cylinder lifted and suspended by a handle provided with such mechanism for lifting the piston when the cylinder is resting upon the bottom of the well or cistern and the handle is pushed down. Other devices may be substituted for the levers or arms to effect a reverse movement of the piston by the downward pressure upon the handle in an effective manner to both hold the cylinder down and at the same time lift the piston thereon. The sediment and lowermost strata of the contents of the cistern only are disturbed by the operation de-

scribed, the superimposed contents of the cistern or other vessel being unriled. The pump may be effectively used for cleansing settling-tanks for various purposes.

The device is first lowered to the bottom of the tank or cistern at a given spot, with the piston lowered in the cylinder, as shown in Figs. 1 and 2. When firmly resting upon the bottom at the required point, the handle F is pushed down, which holds the cylinder firmly in position and at the same time raises the piston B in the cylinder to the position shown in Fig. 3, lifting the valve A² and, upon reaching the end of its movement, engaging the catch M with the collar C, the valve A² closing to prevent the escape of the contents of the cylinder A, and the entire device with its contents may then be lifted from the cistern with safety and dispatch. The cylinder is emptied of its contents by opening the hole b⁴, releasing the catch M, and placing the cylinder over an object which will lift the valve A², an upward movement of the handle F facilitating the operation and moving the piston B to the bottom of the cylinder in position to be again lowered into the cistern at a new spot to repeat the above-described operation.

I claim as my invention and desire to secure by Letters Patent—

1. In a cistern cleaner, the combination with the cylinder A, fixed bottom A', valve A² therein, handle F from which the cylinder is suspended, a piston B, a double system of arms connecting the handle and piston, and a guide rod E pivoted to said arms and reciprocating within said handle, substantially as described.

2. In a cistern cleaning machine, the combination with a cylinder A, having a fixed bottom A' and valve A² therein, a handle F from which the cylinder is suspended, a piston B, a double system of arms connecting the handle and piston, a collar supported upon the cylinder to guide the handle, and a catch M to connect a fixed part of the cylinder as the collar with the handle, substantially as described.

3. In a cistern cleaning machine, the combination with the portable cylinder A, fixed bottom A', valve A² therein, a handle F from which the cylinder is suspended, a piston B, a double system of arms connecting the handle and piston, a collar supported upon rods secured to the cylinder, a cross bar D secured to the cylinder to which the double system of arms is pivoted, the other end of said arms being connected with the said movable cylinder supporting handle, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ARTHUR M. TAYLOR.

Witnesses:

WM. H. ROWE,

CHARLES SCHAFER.