(No Model.)

D. F. BROWN, Sr.

WATER ELEVATOR.

No. 266,269. Patented Oct. 24, 1882.

Fig. 1

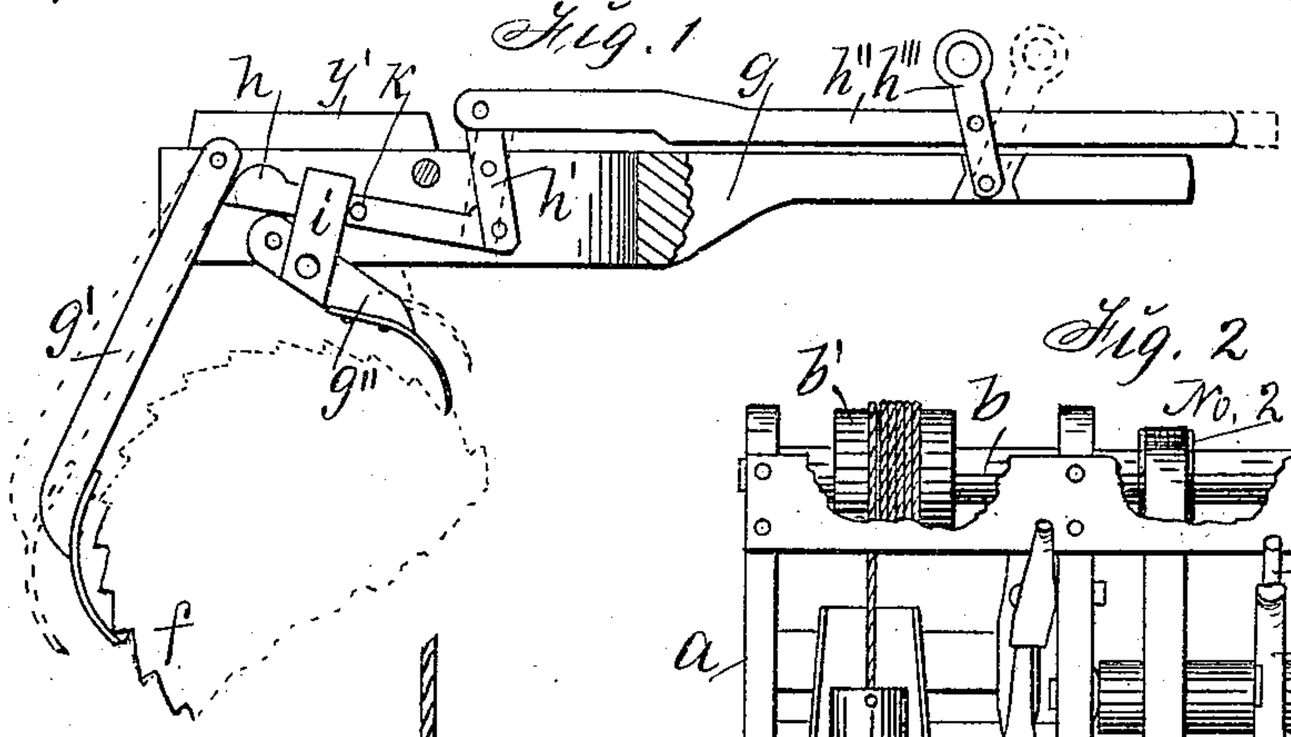


Fig. 2

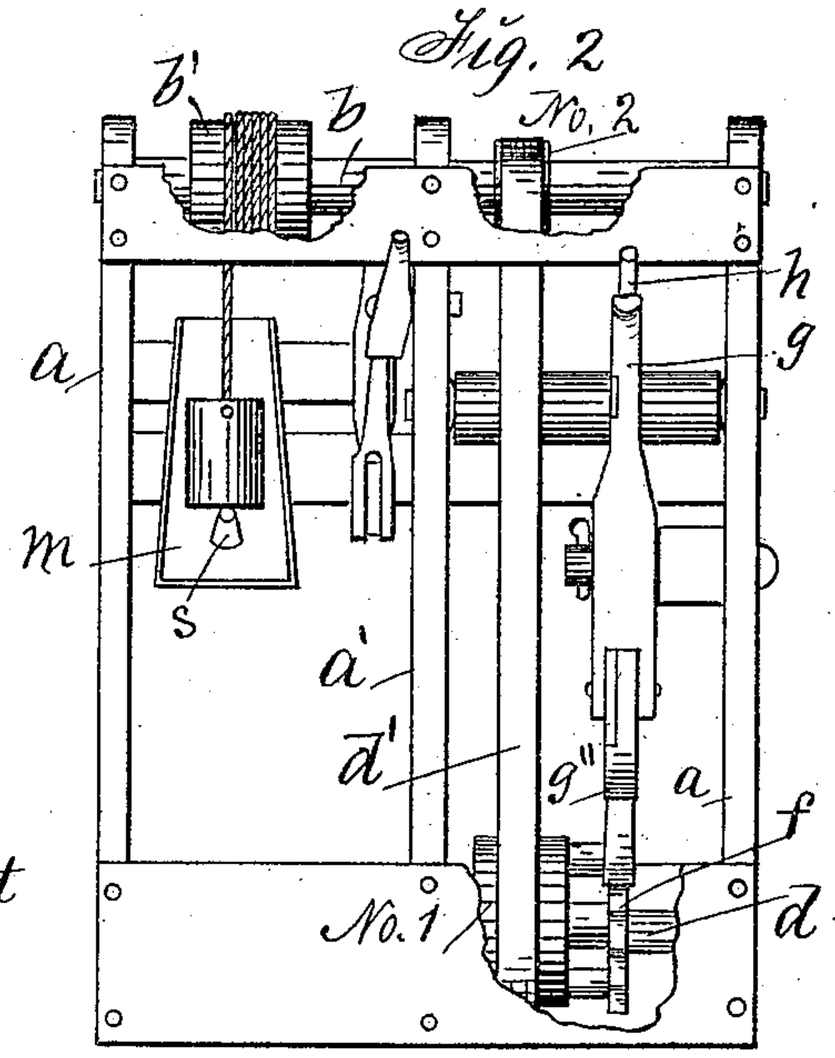


Fig. 5

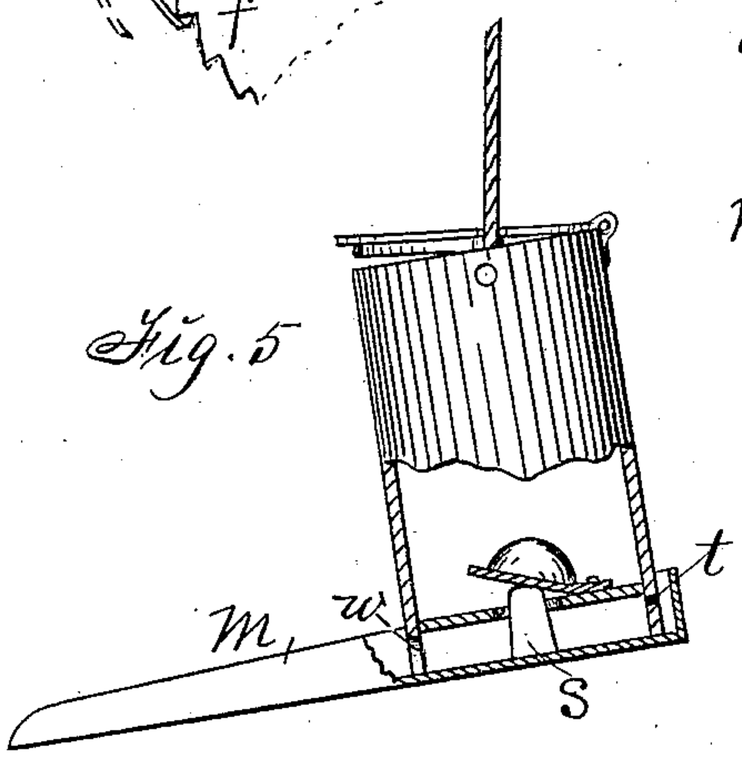


Fig. 3

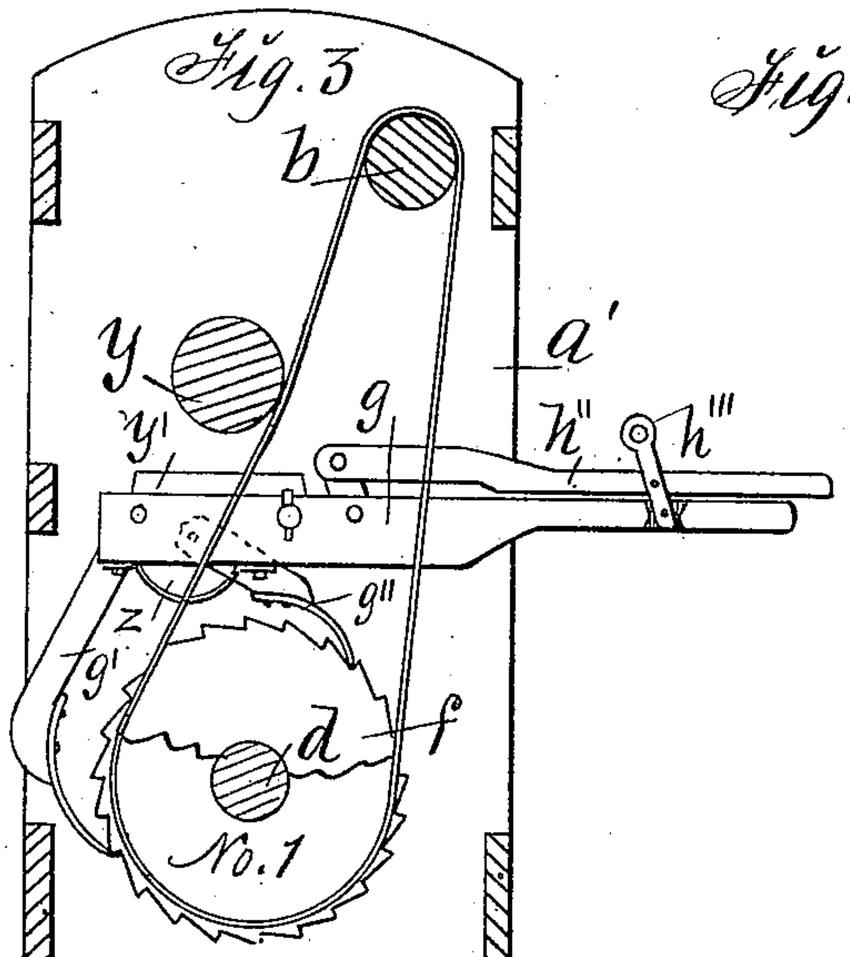
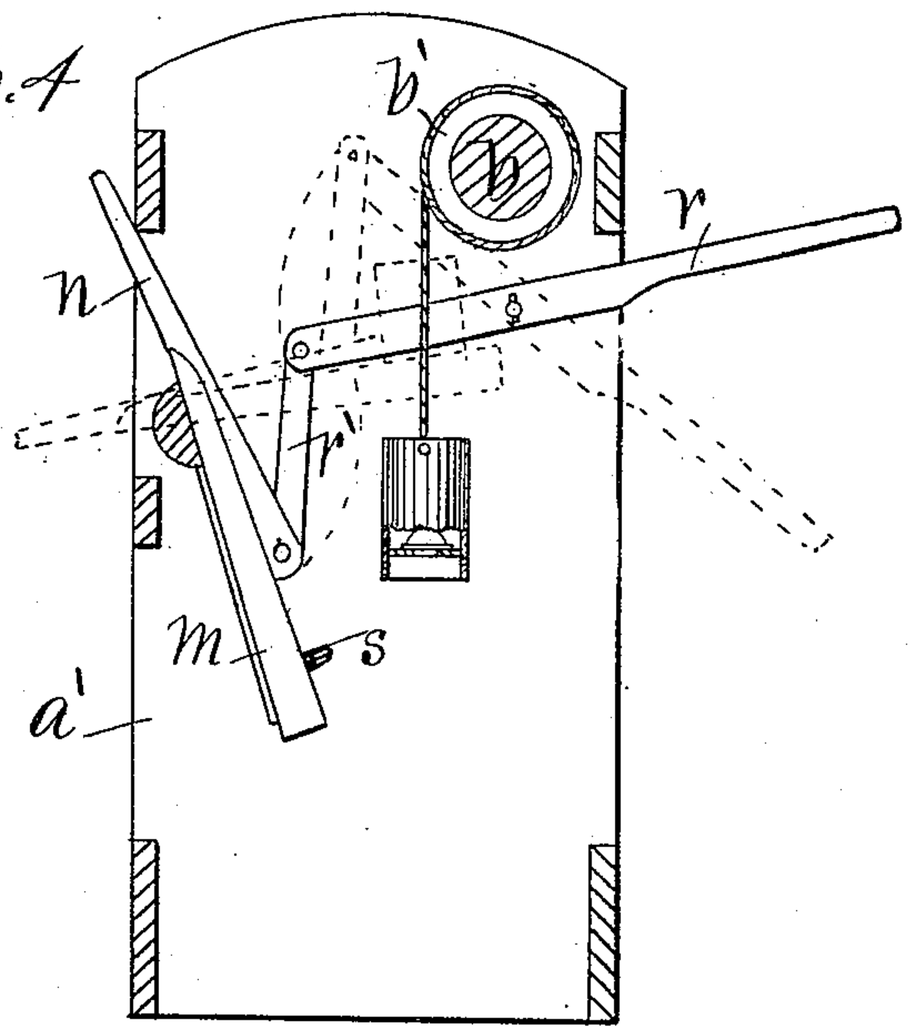


Fig. 4



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UNITED STATES PATENT OFFICE.

DAVID F. BROWN, SR., OF WALNUT, IOWA, ASSIGNOR OF ONE-HALF TO SOLOMON ENGLEMAN, OF SAME PLACE.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 266,269, dated October 24, 1882.

Application filed February 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID F. BROWN, Sr., of Walnut, in the county of Pottawattamie and State of Iowa, have invented a Water-Elevator, of which the following is a specification.

The object of my invention is to facilitate the lifting of water from deep wells by means of hand-power, and to retain and control the water when elevated, so that it can be used in small quantities advantageously at intervals whenever desired. Pumps adapted for deep wells are expensive, liable to get clogged and foul, and much time and labor are required to raise and support a column of water in a pump-tube in order to obtain an overflow at its top; and when water is desired at intervals the quantity required to fill the pump-tube must be lifted each time the pump is operated, and also maintained therein, before any water can be obtained for use, and in raising water with a rope, bucket, and winch or windlass the operation is slow, tedious, and laborious, and must be frequently repeated to obtain a half-barrel. To overcome these objections to the means in common use for lifting water from wells by hand-power, and to readily lift and control half a barrel at a time, I arrange and combine a windlass, a lever, a ratchet-wheel, two pawls and a pawl-governor, a brake, a drive-wheel and chain, a bucket having a valve in its bottom, and an adjustable valve-operator and water-conveyer, as hereinafter fully set forth.

Figure 1 of my accompanying drawings is a detail view of my compound lever and pawl-governor. Fig. 2 is a front view of a well curb or frame, within which the various parts of my operating mechanism are mounted and combined. Fig. 3 is a side view of the lifting mechanism. Fig. 4 is a side view of the valve-operator and water-conveyer. Fig. 5 is a sectional view of the bucket. Jointly considered, these figures clearly illustrate the construction, operation, and utility of my complete invention.

a a represent the side walls of a well curb or frame adapted to support my machinery over a well.

a' is a division-wall in the center of the frame.

b is the axle of a winch, mounted in the top portion of the frame.

b' is a cylinder fixed to the axle *b*, to which cylinder is attached a rope or chain in such a manner that it will wind on and off the cylinder when the axle *b* is rotated, as required, to raise and lower the bucket attached to its free end.

d is an axle in the lower part of the frame, and extends across only one of the compartments of the complete frame. No. 1 is a drive-wheel fixed to the axle *d*.

d' represents a belt or chain that connects the wheel No. 1 with a driver-pulley, No. 2, fixed to the axle *b* of the winch.

f is a ratchet-wheel fixed to the axle *d* at the side of the drive-wheel No. 1.

g is a bifurcated hand-lever of the first order, pivoted to the frame in a horizontal position and immediately over the ratchet-wheel *f*.

g' is a hook-shaped pawl pivoted to the end and top of the short arm of the lever *g*. *g''* is a second pawl, pivoted to the lever *g* at the lower edge and in an intermediate position relative to the pawl *g'* and the fulcrum of the lever. These two pawls engage the ratchet-wheel *f* on opposite sides of its axis.

h (clearly shown in Fig. 1) is a pusher-bar and pawl-governor, placed within the bifurcated lever *g* in such a position relative to the pawls *g'* and *g''* that a longitudinal movement of the bar will actuate both of the pawls simultaneously and lift them from the ratchet-wheel *f*. This bar *h* is flexibly connected at its front end with a double crank, *h'*, that is pivoted to the lever *g* in a vertical position.

h'' is a rigid bar or rod flexibly connected with the top portion of the crank *h'*, and extends forward parallel with the lever *g*, and is flexibly connected therewith by means of a link or lever, *h'''*, in such a manner that a forward motion of the rod will operate the crank *h'*, and thereby impart a rearward motion to the pusher-bar *h*.

i is an arm extending upward from the pawl *g''*.

k is a pin or lug projecting laterally from the pusher-bar *h* to engage the arm *i* in such a manner that the rearward motion of the pusher-bar *h* will cause the lug *k* to engage the arm *i*, and thereby tilt the pivoted pawl *g''* and lift it from the ratchet-wheel at the same time that the end of the same pusher-bar engages the pawl

g' and lifts it from the same ratchet-wheel, as required, to allow a reverse movement of the ratchet-wheel and driving mechanism connected therewith to lower the bucket into the well.

m is a spout or water-conveyer, pivoted to the frame in such a manner that its inner end can be readily swung up to connect with the bottom of an elevated and suspended bucket, as indicated by dotted lines in Fig. 4, by means of a hand-lever, n, fixed thereto or to the shaft that supports the conveyer.

r is a hand-lever, pivoted to the opposite side of the frame and connected with the inner end of the lever n by means of a link, r', in such a manner that the water-conveyer m may be operated from either side of the frame by means of the connected levers n and r.

s is a pin projecting upward from the conveyer m in such a position as to adapt it to open the valve in the bottom of the bucket, as shown in Fig. 5, whenever the conveyer is brought in contact with the bottom of the bucket, for the purpose of allowing water to flow from the bucket and into the conveyer when desired. A vent, t, in the side of the rim of the bucket facilitates the flow of the water through an opening, w, in the same rim on the opposite side of the bucket. A hinged cover on top of the bucket will float when the bucket is submerged in the well, and allow water to enter and fill the bucket, and as the bucket rises the cover will, by force of gravity, close the top and protect the water until it is withdrawn through the valve in the bottom of the bucket.

y (shown in Figs. 2 and 3) is a revolving axle and part of my brake device, mounted in the frame in such a position relative to the lever g and drive chain or belt d' that a downward pressure of the long arm of the lever g will cause the short arm or a friction-block, y', fixed on its top to impede the movement of the chain or belt d', that is in contact with the said revolving axle y or a friction-pulley fixed thereto.

z represents a friction bar or block on the under side of the lever g, that will engage the drive-wheel No. 1 when the long arm of the lever is elevated, and thereby impede the movement of the belt or chain d', as required, to regulate the descent of the bucket in the well.

From the foregoing detailed description of the construction and operation of each part it is obvious that in the practical operation of my invention, when properly placed at the mouth of a well, a vibratory motion imparted to the hand-lever g will, by means of the ratchet-wheel f and pawls g' and g'', transmit a compound force to the axle d, to thereby rotate the driver-wheel No. 1, from whence power and motion will be communicated to the winch $b\ b'$, as required, to wind the rope upon the winch and elevate the bucket after it has been submerged in the well and filled with water; and to let the bucket descend into the well when empty I simply pull upon the rod h'' to disengage the pawls from the ratchet-wheel, and at the same time bear down or lift up the end of the lever g to operate my brake device, and thereby regulate the descent of the bucket.

I claim as my invention—

1. The bifurcated lever g, having the pawls g' and g'', in combination with the axle d, having a fixed ratchet-wheel, f, and drive-wheel No. 1, substantially as shown and described, to produce a compound leverage adapted to operate a winch in the manner set forth, for the purposes specified.

2. The pawl-governor consisting of the parts $h\ h'\ h''\ h'''\ i\ k$, in combination with the bifurcated lever g, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

3. The lever g, the pawl g', the pawl g'', having an arm, i, the pawl-governor $h\ h'\ h''\ h'''\ k$, the shaft d, having a fixed ratchet-wheel, f, and drive-wheel No. 1, the winch $b\ b'$, having a fixed pulley, No. 2, and a drive chain or belt, d', arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

4. The lever g, having the friction-bar z on the under side of its short arm, in combination with the drive-wheel No. 1 and the drive chain or belt d', substantially as shown and described, to operate in the manner set forth, for the purposes specified.

5. The pivoted water-spout or conveyer m, having a projecting pin, s, the lever n, the lever r, and the link r', arranged and combined, substantially as shown and described, to operate in the manner set forth, for the purpose of drawing and conveying water from a suspended bucket or barrel.

6. A well bucket or barrel having a valve in its bottom and an opening or eduction-port in one side of its base and rim, and a vent, t, in the opposite side of the same rim, in combination with a flat-bottomed spout, substantially as shown and described, to operate in the manner set forth, for the purpose of facilitating the flow of water from the bucket and through the spout.

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