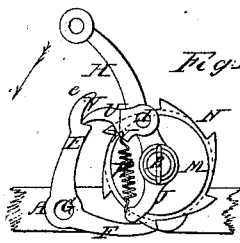
W. H. Babcock,

Windlass Water Elevator.

No. 36,330. Patented Sep. 2, 1862.

Fig. 1a



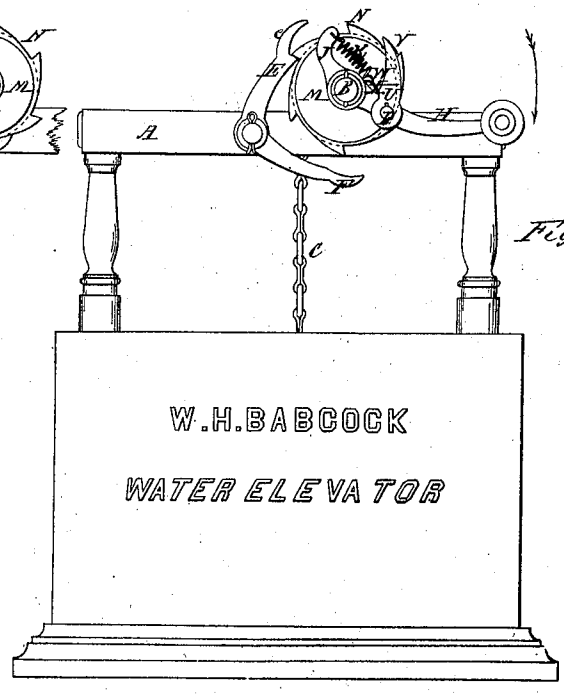


Fig. 1.

Fig. 3. Fig. 4.

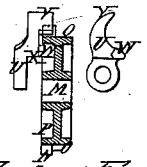


Fig. 5 Fig. 6

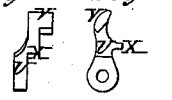
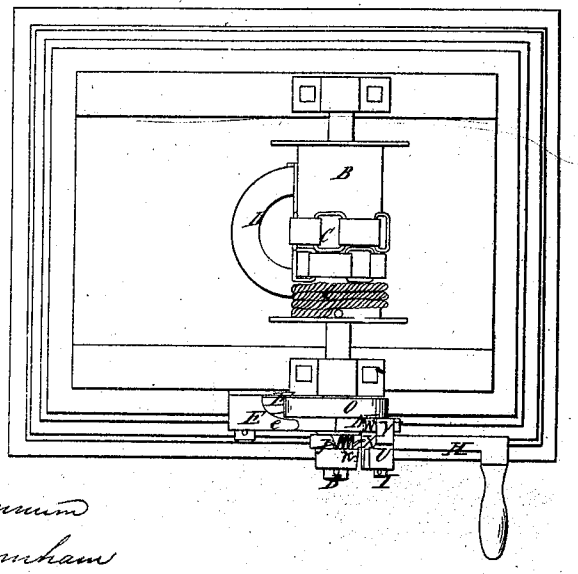


Fig. 2



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WILLIAM H. BABCOCK, OF HOMER, NEW YORK.

WATER-ELEVATOR.

Specification of Letters Patent No. 36,330, dated September 2, 1862.

To all whom it may concern:

Be it known that I, W. H. BABCOCK, of Homer, in the county of Cortland, in the State of New York, have invented certain new and useful Improvements in Water-Elevators, Applicable Also to other Purposes; and I do hereby declare that the following is a full and exact description of the same, prepared with a view to the obtaining of Letters Patent for the same.

The accompanying drawings form a part of this specification and represent my invention entire and also some of the parts of the same as applied to the windlass of a well for the operating of the bucket.

Figure 1 is a side elevation of the apparatus. Fig. 2 is a plan view of the same. Figs. 3 and 4 are views of one of the parts detached from the rest to exhibit its peculiarities, and Figs. 5 and 6 are corresponding views of a different form of the same. Fig. 1ª is a side elevation of the apparatus with the parts in a different position. In Fig. 1 the parts are in the position which they spontaneously assume when the crank is operated in such direction as to raise the bucket; in Fig. 1ª the parts are in the position which they spontaneously assume when the crank is operated or moved to a proper extent in the reverse direction. It may be here remarked that the moving of the crank to a small extent in the latter direction suffices to lower the bucket and to apply a brake by which the rate of its descent is controlled without any additional movement on the part of the operator.

Similar letters of reference indicate like parts in all the drawings and to enable those skilled in the art who are familiar with the inventions for this purpose heretofore known and used to make and use my invention I will proceed to describe it by the aid of the drawings and of the letters of reference marked thereon.

A is a fixed framing and B is a windlass supported thereon.

C is suitable rope and chain adapted to be wound and unwound by the turning of the windlass B in opposite directions, and D is an ordinary bucket which is thereby raised and lowered so as to take water from the well and deliver it at the proper level a little below the windlass B.

M N O P are different parts of a single wheel which is fixed on the end of B.

M is the hub and web; N a series of ratchet teeth, and O and P cylindrical surfaces adapted to receive suitable brakes. The surface O is adapted to receive a brake on the exterior of the wheel and the surface P a brake on the interior of the wheel. This wheel is rigidly fixed on the windlass B so that both are compelled to turn together.

E F is a bent lever capable of turning slightly on the pin G as a center. Its upper arm E is adapted to take the teeth of the ratchet N and hold the same. Its lower arm F is adapted to act as a brake against the surface O, and prevent its too rapid rotation while the bucket D is descending. The upper arm E is forked as represented, the lower fork performing the function of a pawl while the upper part or fork *e* serves to lift the entire lever at certain periods as will be presently explained.

H is a hand crank of convenient size and form adapted to turn loosely around a suitable boss at the center of M or around the projecting end of the windlass B. In this crank H is fixed a pin or projection I at the point represented. A suitable projection J is also cast or otherwise fixed on this crank at the point represented.

U V W X is a casting of the form represented adapted to fit loosely upon the pin or projection I as represented.

U is the main body of this casting.

V is a part adapted to take the teeth of the ratchet N.

W is a part adapted to act as a brake against the inner cylindrical surface P, and X is a suitable projection corresponding in character to the projection J before referred to, both J and X being adapted to hold the ends of a coiled spring K in the manner represented. The contractile force of this spring K tends to hold the part V always in contact with the ratchet teeth N.

The operation of my invention may now be readily understood. The crank H is grasped by the hand and turned laboriously as usual in the direction indicated by the black arrow to raise the loaded bucket from the well and during this operation the click V holds by one of the teeth N so as to compel

the windlass B to turn therewith while the pawl lever E F is of no effect but drops idly off each successive tooth of N as it rotates within it. When the bucket is elevated and the effort of the operator is relaxed the pawl E holds by one of the teeth N and prevents its return for any period desired. But when it is required that the bucket be again lowered the hand is applied and the crank H turned backward or in the direction indicated by the red arrow. This movement is made but a little distance and the labor is very slight, for so soon as the reverse movement of the crank has been made to a sufficient extent the end of the casting U V W X meets the upper fork *e* of the pawl lever before described and acting under it in the manner which will be apparent on inspection raises by its means both itself and the pawl lever.

In other words the reverse motion of the crank soon brings the parts into the relations shown in Fig. 1ª, the casting E F, which I term the pawl lever, being elevated so much that the pawl arm E is out of contact with the ratchet teeth N which are consequently allowed to turn backward and thus lower the bucket, while the casting U V W X is also elevated so much that the click V is out of contact also with the said teeth so that they may turn independently of the crank. The weight of the bucket D and its connections depending from one side of the windlass B compels the latter to turn now that it is free and to lower the bucket rapidly into the well, but to prevent the motion from becoming too rapid ample provision is made by my invention, for by turning to Fig. 1ª again it will be seen that the elevation of the castings E F, and U V W X is such that the brake on each is nearly or quite in contact with its corresponding surface on the wheel M N O P. This being the fact, and the arrangement and relations of the parts being as represented it follows that a farther backward movement of the crank H or movement in the direction of the red arrow presses one or both the brakes F and W forcibly against its proper portion of the wheel to retard the motion, the brake arm F of the pawl lever E F being pressed against the surface O and the brake projection W of the casting U V W X being pressed against the inner surface P. Either of these brakes is sufficient of itself to effectually retard and control the motion and either may be used without the other if preferred. When the lowering has been effected and the bucket D has filled with the water, the motion of the crank in the forward direction may be resumed and the parts will all spontaneously assume their original positions as shown in Figs. 1 and 2. The operation of raising water by my device therefore is performed by a series of powerful revolutions of the crank in the forward direction interrupted at proper intervals by slight or partial revolutions of the same crank backward and by waiting in this last condition a little period for the bucket to descend. During this period of waiting the force of the hand tending to turn the crank backward is varied to suit the circumstances and thus control the rapidity of the descent by the friction its position induces between the rubbing surfaces of F and O and of V and P.

It is not necessary that both F and W shall be employed in order to realize the effect of my invention as either may be used without the other and in such case the other may be entirely dispensed with. In case either part is entirely dispensed with the opposing surface O or P, as the case may be, need not be formed on the wheel to receive and act on it.

Certain distinctly recognizable advantages accrue from certain features in my apparatus and among those due to the features of my invention which I believe to be novel are the following:—

First. My catch V on my casting hinged to the crank H by means of the projection I is by the contractile force of the long and active spring K which extends from said casting to the projection J or nearly across the whole diameter of the wheel, held with a force greater than its weight so that it is always certain to drop at once into action when the crank commences to turn in the right direction whether the casting be on the upper or under side of the wheel at that moment, and it is for the same reason certain never to drop out of connection with the teeth under any circumstances until desired, while the resistance to extension of the spring is but slightly increased by the considerable movement made by the casting in being made to assume the position shown in Fig. 1ª.

Second. And corrollary to the above my apparatus is capable of being operated successfully by weak persons as delicate women and children by merely reciprocating the crank H sufficiently to gain but one notch at a time, and this reciprocation may be in any part of the revolution of the crank which may be most desirable or comfortable to the operator. It is in practice a very important advantage to facilitate the drawing of water by persons of little strength and skill, and my invention allows the crank to be reciprocated in a pendant position, analogous to those of the levers of the pumps so common in the streets of Washington, as would probably be preferred in most cases by children, or to be reciprocated in the nearly opposite position so that the action may be analogous to rowing with the

hands higher than the windlass as would probably be preferred by most adults or in any other part of a revolution as may be desired.

Having now fully described my invention what I claim as new therein and desire to secure by Letters Patent is—

The arrangement of the spring K, projection, J, piece U, V, and pawl E *e*, for operation with the loose crank and ratchet wheel, and frictional surface P, substantially in the manner herein set forth.

W. H. BABCOCK.

Witnesses:
LEWIS HANNAN,
WM. H. BIRMHAM.