J. M. Hunter,

Windlass Water Elevator,

No. 44,867. Patented Nov. 1, 1864.

Fig: 2.

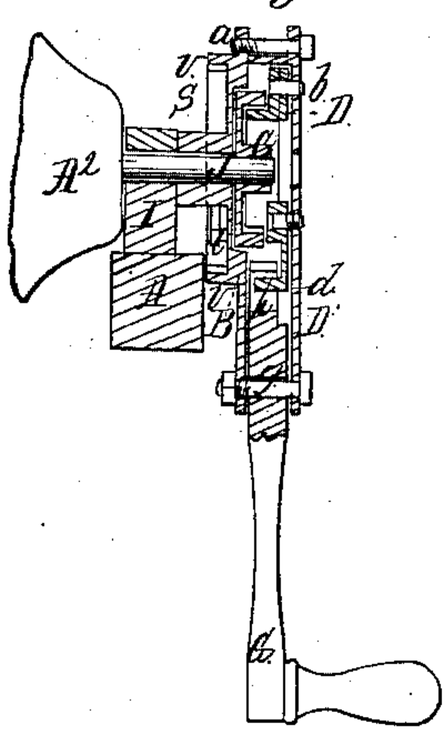


Fig: 1.

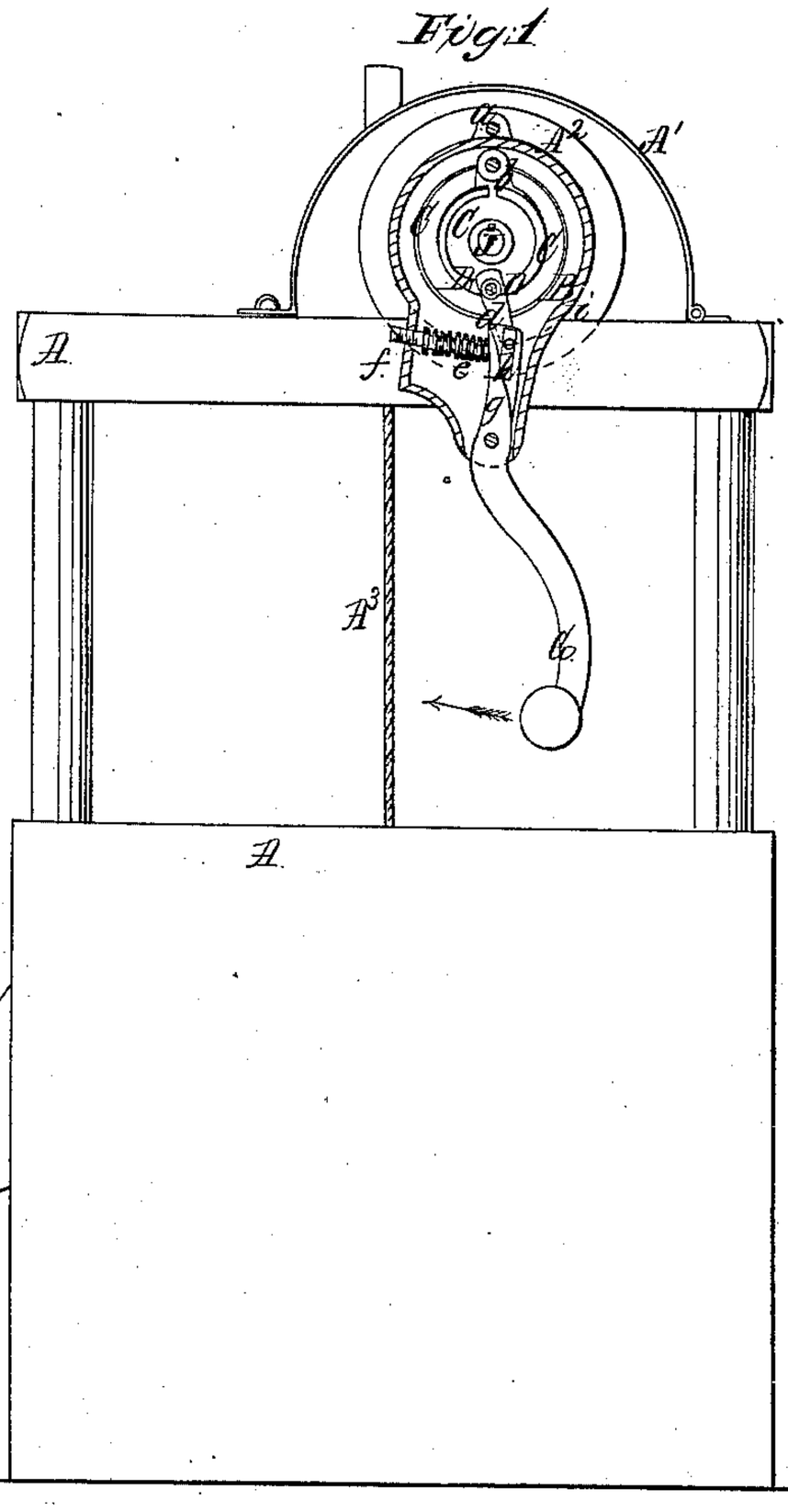


Fig: 3.

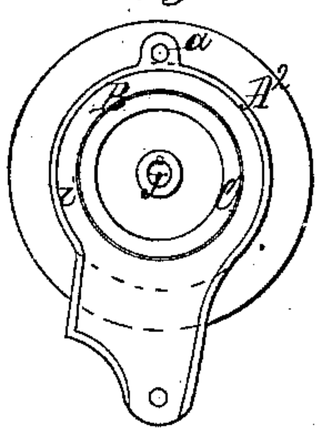
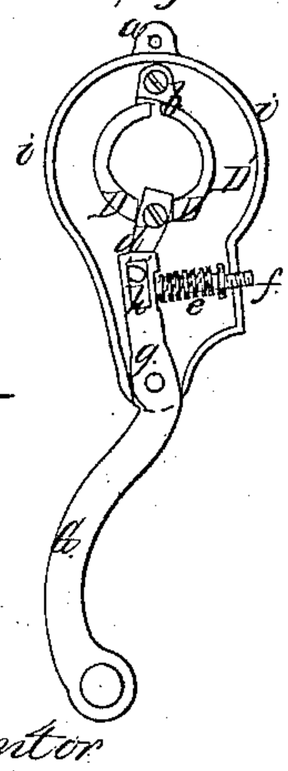


Fig: 4.



Witnesses:
Henry Morris
C. L. Toftoff

Inventor
Jas. M. Hunter

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES M. HUNTER, OF GREENE, NEW YORK.

IMPROVED WATER-ELEVATOR.

Specification forming part of Letters Patent No. 44,867, dated November 1, 1864.

To all whom it may concern:

Be it known that I, JAMES M. HUNTER, of Greene, in the county of Chenango and State of New York, have invented a new and useful Improvement in Water-Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a well-frame and windlass with my improvements applied thereto, the cover of the box of the clutch being removed to show the details of my invention. Fig. 2 is a vertical section of the clutch-box and its appurtenances, in the line of the axis of the windlass A^2. Fig. 3 shows the inner side, B, of the box and the end of the shaft of the windlass with the friction-collar C. Fig. 4 shows the clutch-box and its appurtenances, including the friction-clutch D.

A represents the box-frame of a well curb, with its hood A′, for protecting the windlass A^2 and its rope A^3 from the weather. The shaft J of the windlass is journaled in boxes I, secured to the frame, A. A friction wheel or disk, C, having a hub and an annular flange, as seen in the figures—more especially in Fig. 2—is secured rigidly to the shaft J at its end. It is inclosed by a box composed of the parts B and D′, the former of which is loosely fitted on the shaft J, behind the fixed friction-wheel C. It has an annular flange, *v*, on its inner face, in the inner circumference of which flange is cut a series of ratchet-teeth, *s*, which are engaged by a detent, *t*, which is hinged to a bracket or standard that is secured to the frame A.

The operation of the detent *t* is to prevent the clutch-box from rotating in a direction to the left. The other part, D′, of the clutch-box is secured to the part B by two screw-bolts, *a* and *q*. It has a flange, *i*, around its edge, which is cut away at bottom to receive the crank-arm G. The flange *i* comes against the face of the part B, so that when the parts B and D′ are bolted together they form a close box, as seen by the sectional Fig. 2.

D is a friction-clutch composed of two curved or semicircular arms hinged to each other and to the part D′ within the flange *i*. Its arms are shortened to receive between them a vibrating lever, *d*, which is pivoted to the part D′ of the clutch-box at a point which would be in the line of the circumference of the arms D if they formed a complete circle. The width of the lever *d* is just equal to the sum of the sections cut away from the ends of the semicircular arms D, so that when the lever *d* is in its normal position, with the arms resting against its sides, the said arms lie within the projecting annular flange of the friction-wheel without coming in contact therewith; but when the lever *d* is vibrated, either to the right or left, the arms D are separated and their peripheries are brought against the inner circumference of the flange of the friction-wheel C, causing them to rotate in unison. The lower and longer end of the lever *d* has a hook or dog projecting from its surface at its point, which travels in a slot, *h*, cut in the arm *g* of the crank G. A spiral spring, *e*, which is carried upon a screw-rod, *f*, bears canstantly against the left-hand side of the arm *g*. The screw-rod carries a collar, against which the opposite end of the spiral spring presses, and the tension of the spring is regulated by screwing the rod in or out through the flange *i* of the box, which is tapped to receive it.

The parts being properly connected and in place, as shown in Fig. 1, the crank is to be turned in the direction of the arrow, when the vibrating lever *d* will be made to open the arms D against the inner side of the flange of the friction-wheel C, so as to rotate the shaft and its windlass. When the bucket of water has been elevated and emptied, and it is desired to let it return to the bottom of the well, the crank is to be moved in the opposite direction, thereby bringing the lever *d* in a vertical line, and allowing the arms D to fall away from the friction-wheel C. The wheel C and the shaft are thereby released from the action of the clutch, and the weight of the bucket will turn the windlass so that it will be free to descend. The action of the spring is to move the arm *g* of the crank in such a direction as to vibrate the lever *d* and expand the arms D so as to bear on the friction-wheel, so that if the crank should be released when the bucket is full of water and near the top of the well the clutch will not be released, but will be held with a certain force, adjustable by means of the rod *f*, so that it cannot descend so rapidly as to cause any injury.

As the box D′ B can only rotate in the direction of the arrow by reason of the detent *t*, it follows that when the lever is pushed in the opposite direction its only action will be to compress the spring *e* and bring the lever *d* to a vertical line, and thus release the clutch.

I claim as new and desire to secure by Letters Patent—

1. In a water-elevator, making the friction-clutch which communicates the motion of the crank to the windlass operate also as a brake when the crank is released, by means of the spiral spring *e*, the arm *g* of the crank, and the vibrating lever *d*, substantially as above described.

2. The combination of the friction-wheel C, the clutch-arms D D, the vibrating lever *d*, and the slotted arm *g* of the crank with the windlass of a water-elevator, substantially as above described.

JAS. M. HUNTER.

Witnesses:

C. L. TOPLIFF,

M. M. LIVINGSTON.