Graham & Topliff,

Windlass Water Elevator,

No. 32,767. Patented July 9, 1861.

Fig. 1.

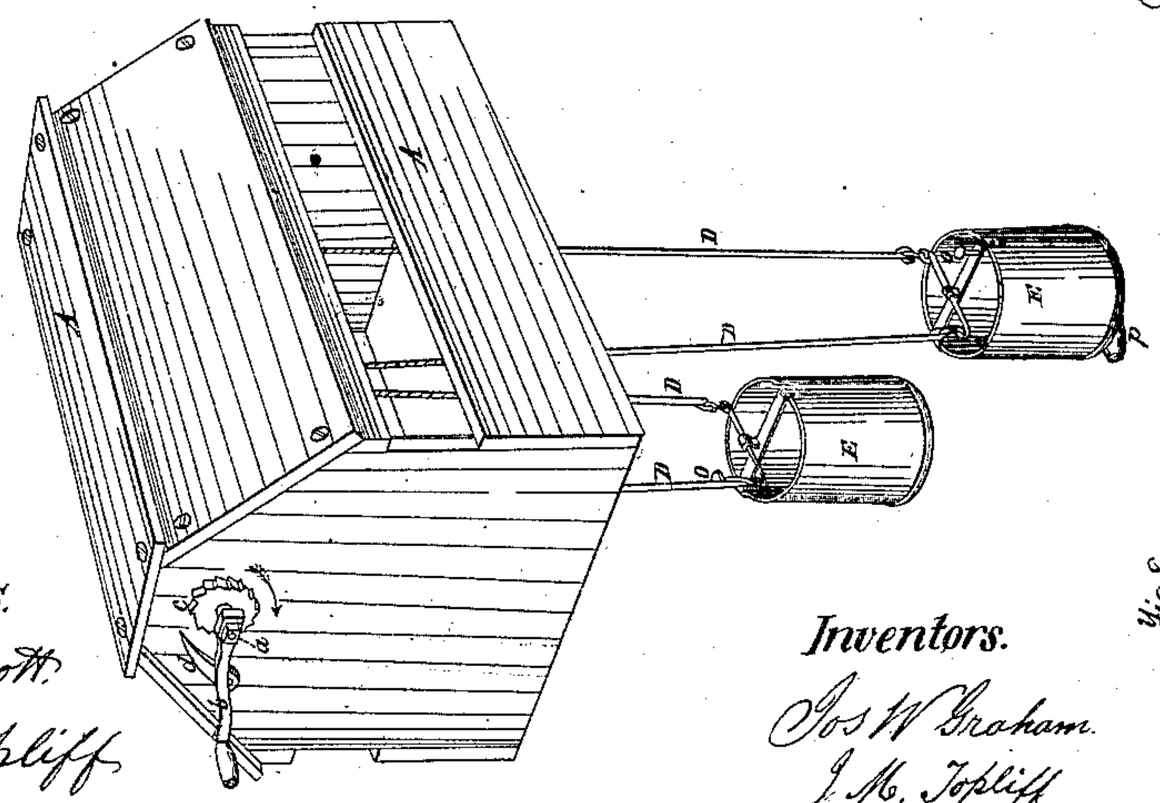


Fig. 2.

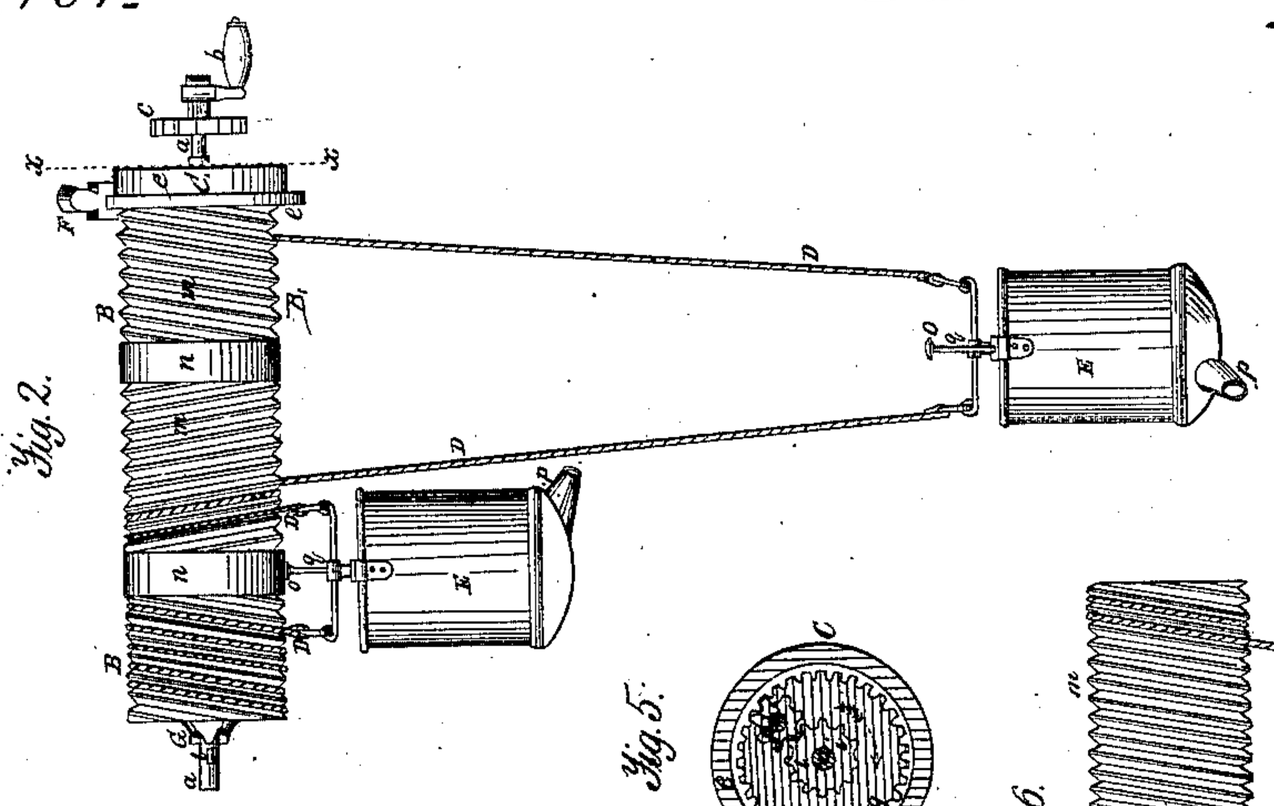


Fig. 3.

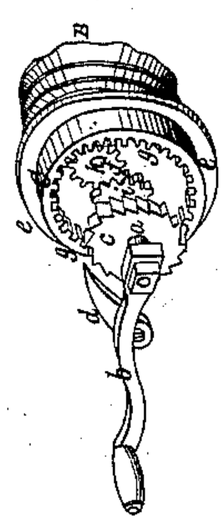


Fig. 4.

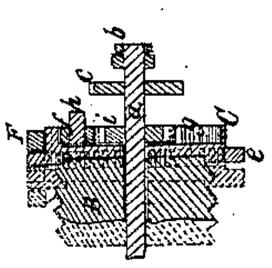


Fig. 5.

Fig. 6.

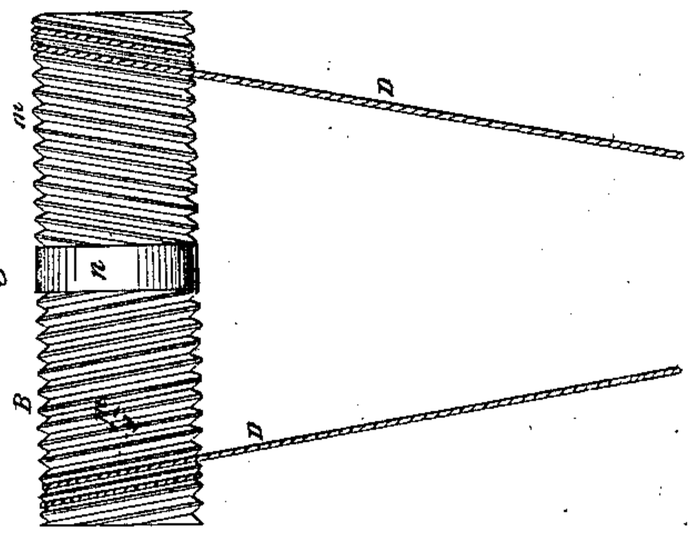


Fig. 7.

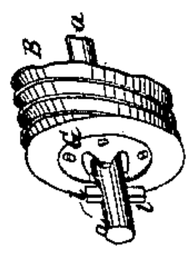
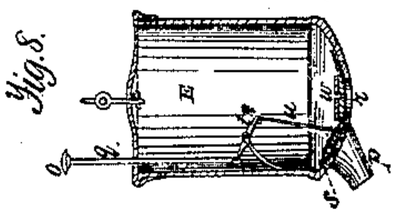


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

J. W. GRAHAM AND J. M. TOPLIFF, OF PITTSFIELD, ILLINOIS.

WATER-ELEVATOR.

Specification of Letters Patent No. 32,767, dated July 9, 1861.

To all whom it may concern:

Be it known that we, J. W. GRAHAM and J. M. TOPLIFF, of Pittsfield, in county of Pike, in the State of Illinois, have invented certain new and useful Improvements in Apparatus for Raising Water; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

Our invention has for its object to combine with a windlass elevating apparatus a bucket or system of buckets in such manner that water may be raised from the well, or reservoir to any given height, and automatically discharged into a suitable exit spout or trough.

Our invention consists in the employment of a windlass cylinder or roll hung loosely on a center shaft, in combination with a suitable clutch near one end of said shaft and a system of gearing near the other end, the whole so arranged that by sliding the roll longitudinally on the said shaft the roll will be caused to rotate in either of two directions while the shaft is rotated always in a given direction, as will be presently described for purposes hereinafter explained.

Our invention further consists in combining with an elevator or windlass a bucket, or system of buckets provided with valves and suitable opening devices the whole so arranged that the contents of the bucket will be automatically discharged when the bucket has reached the proper height as will be hereinafter fully described.

Our invention further consists in the employment in connection with the sliding roll of a shipper bar or lever so arranged as to serve also the purpose of a brake to the windlass as will be hereinafter fully described.

Our invention further consists in the formation of alternately reversed screw threads, or helical grooves on the windlass roll, in combination with central blanks, the former operating to guide the ropes and bring the valve levers properly in contact with the latter as will be hereinafter fully described.

Our invention further consists in so constructing a bucket for raising the water with a valve, or valves as that the buckets shall fill by its descent through the water and can be discharged through same orifice or valve openings as will be hereinafter fully described.

To enable those skilled in the art to make and use our invention, we will proceed to describe the construction and operation of our improved apparatus for raising water, referring by letters to the accompanying drawings forming part of this specification and in which—

Figure 1. is a perspective view of the well-house and apparatus—Fig. 2. is a front elevation of the same with the well-house removed to show the fixture more clearly—Fig. 3. is perspective view of geared end of windlass, shaft, and operating handle—Fig. 4. is a partial vertical section of roll and shaft with gearing, with motion of roll illustrated in red lines (to be particularly alluded to hereinafter)—Fig. 5. is a vertical section at *x*. *x*. Fig. 2. Fig. 6. is a side elevation of another modification of windlass adapted to the employment of one bucket only—Fig. 7. is perspective view of clutch end of shaft and windlass, and Fig. 8. is vertical section of one of the buckets.

In the several figures the same letter indicates the same part of the apparatus.

A, is the well-house, or covering which may be constructed after any suitable fashion and in which is hung in suitable bearing the horizontal shaft *a*, which is provided at one end (outside of the well house A,) with an ordinary crank handle *b*, and immediately adjacent to said handle *b*, there is secured on said shaft *a*, a ratchet wheel *c*, with which engages a pawl *d*.

On the shaft *a*, hung concentrically and so as to turn loosely thereon, is a cylinder or roll B, around which wind the ropes, or cords D, which carry the buckets E. Said cylinder B, is constructed with a metallic cap piece C, at one end, which has an annular flange *e*, which fits into the slot of shipper and brake lever F, and said cap C, is also provided with an internal gear *g*, (see Figs. 3, 4 and 5) into which meshes a pinion *f*, that is hung on a fixed shaft, or stud *h*, projecting from the side of the well house A. The said pinion *f*, is geared with a pinion *i*, which is keyed onto the shaft *a*.

On the end of roll B, opposite to that on which is plate C, there is secured a clutch piece G, which can be made to engage with the clutch pin *l*, in shaft *a*. (See Figs. 2 and 7.)

m, are the grooves in surface of windlass and *n*, are the blanks or plain surfaces in contact with which come the button heads *o*,

of the valve levers of buckets. The windlass shown at Fig. 6, has only one set of reversed grooves and one blank *n*, being adapted to one bucket.

The bucket E, we propose to make of cast iron or wood and iron combined, in the bottom is formed a discharge spout *p*, the throat, of which is closed inside by a valve *s*, (see Fig. 8) which is opened by means of rod *q*, which is connected to one end of the vibrating arm *t*, to the other end of which arm is coupled the rod *u*, attached to said valve S. In the bottom of the bucket E, is formed a hole *r*, which is furnished with a valve *w*, made as an ordinary flap valve.

In Figs. 2 and 3 the windlass roll B, is shown with the cap C, in gear, when the operation is as follows viz: the shaft *a*, being rotated by means of handle *b*, in the direction indicated by the arrow at Figs. 1 and 2 the pinion *i*, drives the pinion *f*, in an opposite direction and said pinion *f*, meshing into the internal gear *g* drives the roll B, in the same direction as shaft *a*. When it is desired to reverse the motion of the roll B, the operator takes hold of lever or shipper F, and slides the roll B longitudinally on shaft *a*, in the direction indicated by arrow at Fig. 2, and into position shown in red at Fig. 4, whereby the gear *g* is disengaged from pinion *f*, which always remains in the same place, and the clutch G, is engaged with the clutch pin *l*, when the roll B, is locked to shaft *a*, and rotates with it and in an opposite direction to that in which it moved, when the gear *g*, was in gear with pinion *f*. At Fig. 4, the black lines show one position of the roll B, on shaft *a*, and the red lines show the other.

In Fig. 2 one of the buckets is shown down and the other up with its rod *q*, in contact with the blank *n*, of windlass. It will be understood that when the button *o*, comes in contact with the roll at *n*, the rod *q*, is depressed which through the medium of the arm *t*, raises rod *u* and opens the valve S, which allows the water in bucket E, to flow out through spout *p*, from whence it is discharged into a trough extending through the side of the well-house (not seen in the drawing).

It will be seen that by hanging the shipper F in the manner shown, and described, it also serves as a brake to create the necessary friction on roll B, when it is desired to let the bucket "run down."

By forming the grooves *m* in the manner shown the cords D, are prevented from becoming displaced, or entangled, and the buckets are always brought up level and with their rods *q*, immediately beneath the blanks *n*.

It will be understood that the form of the buckets may be varied at the will of the constructor and that various modifications of construction in detail may be resorted to without departing from our invention.

The ratchet and pawl *c*, *d*, it will be seen operate with the same effect no matter which way the roll B is turning.

Having described the construction and operation of our improved apparatus what we claim therein as new and desire to secure by Letters Patent is—

1. In combination with the shaft *a*, the loose roll B, and gears *i*, *f*, *g*, and clutch G, N, the whole constructed and operating substantially as described for the purpose set forth.

2. The combination of the windlass having reversed helical grooves, with the cords and water bucket and the device for opening the valve of bucket, the whole arranged and operating as described for the purpose set forth.

3. In combination with the elevating and automatically discharging bucket and grooved windlass, the blank *n*, as and for the purpose specified.

4. Constructing the bucket with a mouth piece *p*, in combination with its valve and opening mechanism and a filing valve in center of bucket's bottom as hereinbefore described for the purposes set forth.

In testimony whereof we have hereunto set our hands and affixed our seals this 14th day of February 1861.

JAS. W. GRAHAM. [L. S.]
J. M. TOPLIFF. [L. S.]

Witnesses:
L. L. TALCOTT,
I. I. TOPLIFF.