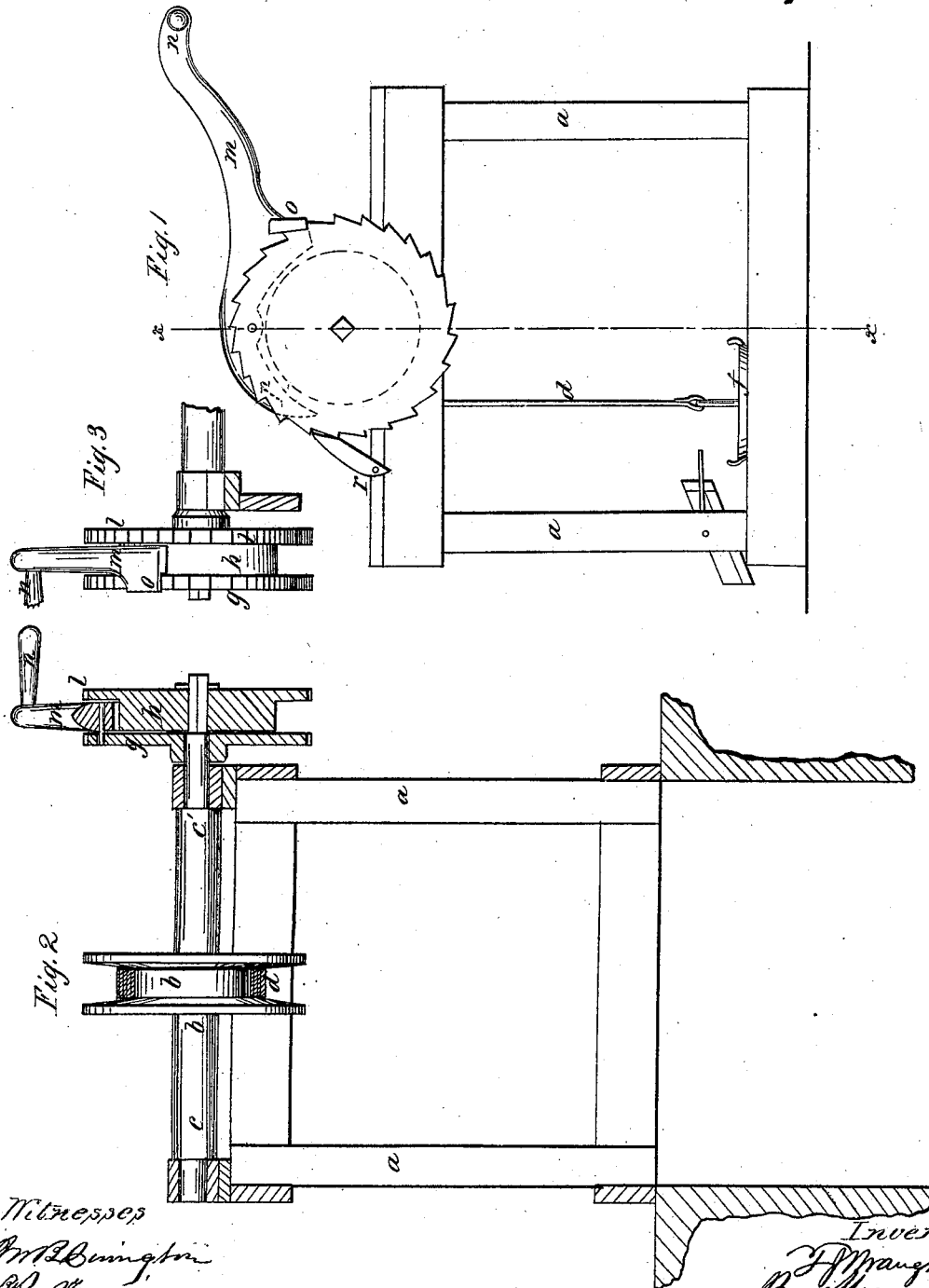


T. J. Wrantham,
Windlass Water Elevator

N^o 54,242.

Patented Apr. 24, 1866



Witnesses
W. L. Bunting
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UNITED STATES PATENT OFFICE.

T. J. WRANGHAM, OF BENSON, VERMONT.

IMPROVEMENT IN WELL-WINDLASSES.

Specification forming part of Letters Patent No. 54,242, dated April 24, 1866.

To all whom it may concern:

Be it known that I, THOMAS J. WRANGHAM, of Benson, in the county of Rutland and State of Vermont, have invented a new and Improved Windlass for Wells; 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.

The present invention consists in a novel arrangement of mechanical devices for operating the windlass or drum upon which the chain or rope carrying the bucket of a water-well is hung, as will be now described, reference being had to the accompanying plate of drawings, of which—

Figure 1 is an end view; Fig. 2, a vertical section in the plane of the line *xx*, Fig. 1, and Fig. 3 a detail view.

a a in the drawings represent the curb of a well, across which is placed a windlass, *b*, hung by its shafts *c c'* in bearings on the sides of the same. To this windlass is secured the upper end of the bucket rope or chain *d*, a suitable shaped bucket, *f*, being hung to its other end, and about which it is wound when turned in the proper direction therefor.

On the outer end of one of the shafts, *c'*, of the windlass, and outside of the well-curb, is placed a loose ratchet-wheel, *g*. *h l* represent a combined drum and ratchet-wheel secured to the same end of the said shaft *c'*, so as to revolve therewith.

On the outer face of the loose ratchet is hung the arm *m* of a winch, *n*, the inner end of which arm is enlarged and made in eccentric or crescent form, partially surrounding the periphery of the fixed drum with a pawl or dog, *o*, and bolted to the loose ratchet at a point equidistant from the dog *o* and its inner end, forming its fulcrum at said bolt, which, when power is applied in one direction to the said arm, engages with the teeth of the fixed ratchet *l* of the windlass-shaft, thus causing the same to turn, and through it the windlass, winding the bucket-rope around and upon the same,

the eccentric portion, when power is applied in an opposite direction to the arm, bearing against and upon the fixed drum, and thus serving as a brake thereto, to retard the backward movement of the windlass from the weight of the bucket, the loose ratchet, upon which the arm has its fulcrum, as described, then being held stationary or fixed by the pawl *r* of the well-curb engaging with its teeth.

From the above description it is obvious that by turning the crank or winch handle in one direction it acts against the fixed wheel to raise the bucket, and by pulling it in the other direction it acts as a brake upon the friction-drum to retard the downward movement of the bucket, the advantages of which are obvious.

I am aware that an arrangement of devices for operating well-windlasses has been before and is now in use, acting upon the same general principles as the present improvements; but in that case the fixed drum of the windlass-shaft was revolved by the friction produced with the crank-arm thereupon when turned in the proper direction; but there are many and quite serious objections to this, among which may be mentioned that it was not only unreliable, but impracticable, as it is extremely difficult and impossible to produce sufficient friction upon the drum to turn it if the water-bucket was full, whereas by my improvements a positive and direct application of the power applied is given to the windlass; and, furthermore, it was continually becoming disarranged, so as to often require readjustment.

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

The arrangement of the fixed and loose ratchet-wheels *j* and *l*, fixed drum *h*, and crank-arm, all attached to the windlass-shaft of a well-curb, as and for the purpose specified.

The above specification of my invention signed by me this 22d day of August, A. D. 1865.

T. J. WRANGHAM.

Witnesses:

M. M. LIVINGSTON,
A. W. BROWN.