(No Model.) 2 Sheets—Sheet 1.

R. W. FARIS.

WINDLASS WATER ELEVATOR.

No. 570,702. Patented Nov. 3, 1896.

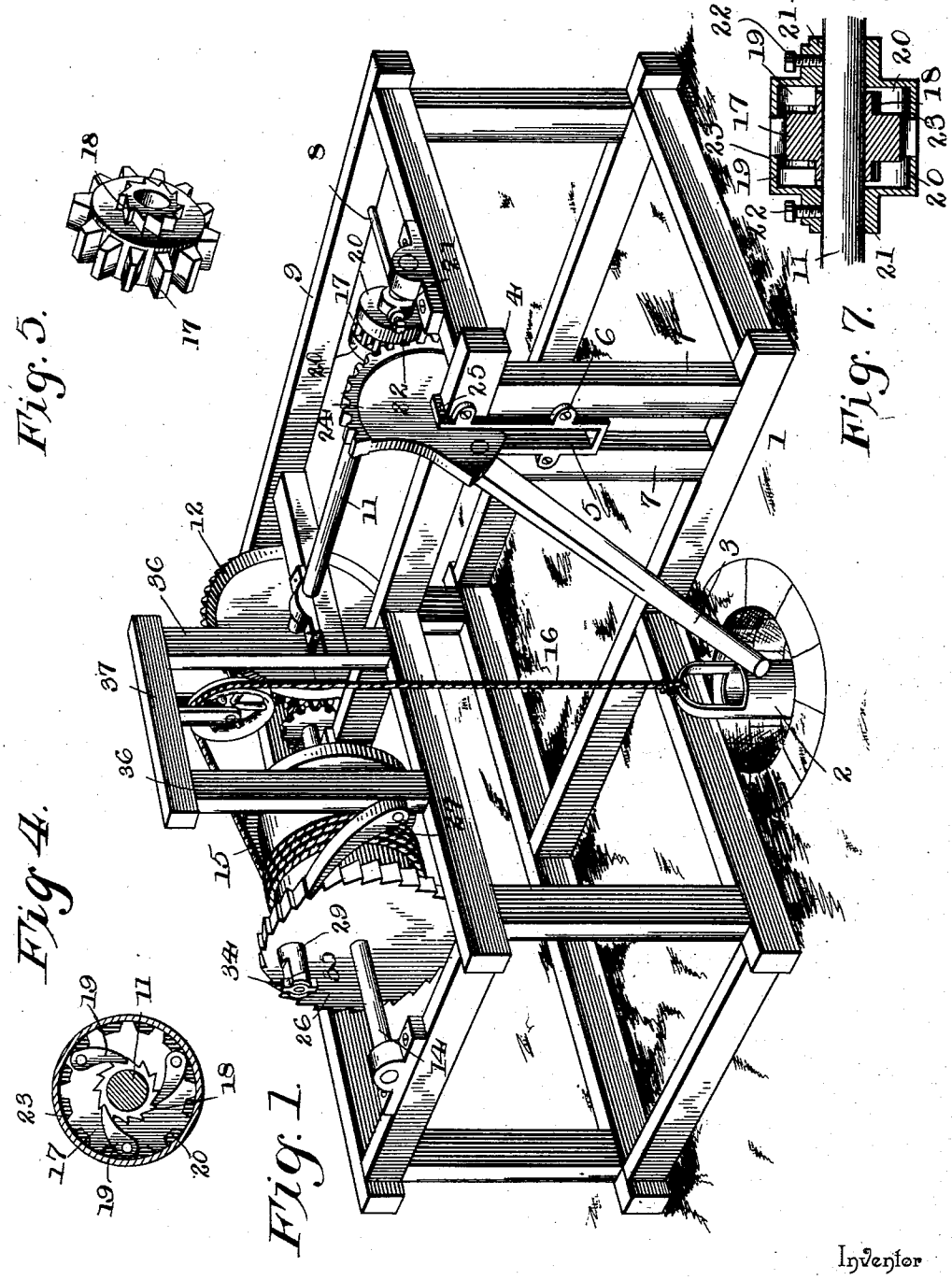

Fig. 1.

Fig. 5.

Fig. 4.

Fig. 7.

Witnesses
Chas. A. Ford.
V. B. Hillyard.

Inventor
Richard W. Faris,
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

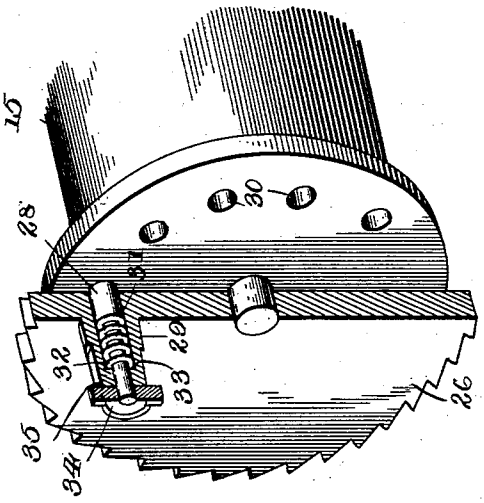

Fig. 6.

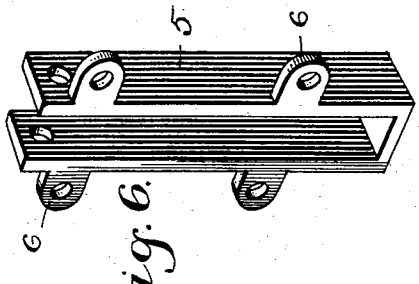

Fig. 2.

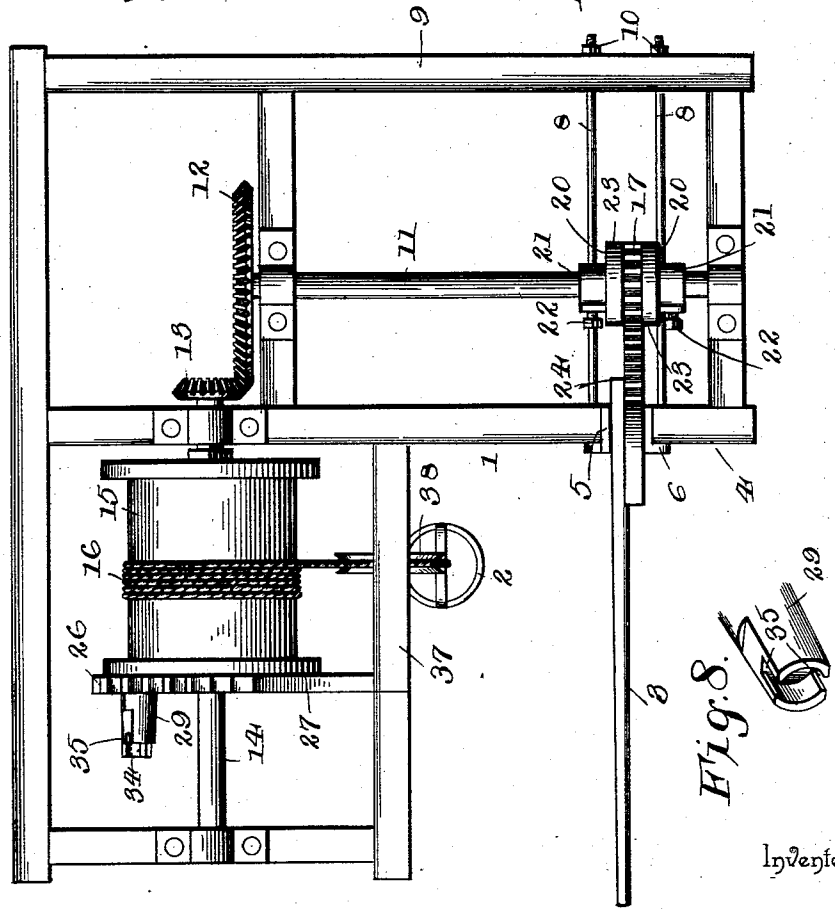

Fig. 8.

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UNITED STATES PATENT OFFICE.

RICHARD W. FARIS, OF MURFREESBOROUGH, TENNESSEE, ASSIGNOR OF ONE-FOURTH TO WILLIAM A. RANSOM, JR., OF SAME PLACE.

WINDLASS WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 570,702, dated November 3, 1896.

Application filed January 16, 1896. Serial No. 575,754. (No model.)

To all whom it may concern:

Be it known that I, RICHARD W. FARIS, a citizen of the United States, residing at Murfreesborough, in the county of Rutherford and State of Tennessee, have invented a new and useful Windlass Water-Elevator, of which the following is a specification.

This invention relates to water-elevating apparatus designed to lift water from the well by means of a bucket and windlass, and aims to improve the framework for supporting the operating parts so that the person actuating the lifting mechanism will be within easy reach of the bucket, and at the same time to improve the actuating mechanism so that the windlass can be thrown into or out of gear at will, and which will admit of the windlass-actuating mechanism being operated by oscillating a lever, thereby dispensing with the ordinary crank usually employed for rotating the windlass of water-elevating apparatus.

Many other objects and advantages will become manifest as the nature of the invention is better understood; and to this end the invention consists in certain novel features of construction and combinations of parts, substantially as herein illustrated, described, and particularly claimed.

In the accompanying drawings is illustrated an adaptation of the invention, although slight changes in the details and arrangement may be resorted to without departing from the spirit of the invention, and in said drawings—

Figure 1 is a perspective view of the apparatus in its entirety. Fig. 2 is a top plan view thereof. Fig. 3 is a detail view showing the means for locking the ratchet-wheel to the windlass. Fig. 4 is a sectional detail of the ratchet mechanism by means of which motion is imparted to the continuously-rotated shaft by means of the oscillating lever. Fig. 5 is a detail view of the pinion, having the ratchet-teeth formed on its opposite sides. Fig. 6 is a detail view of the U-shaped casting for connecting the intercepted parts of the framework and in which is mounted the segmental operating-lever. Fig. 7 is a sectional detail of the ratchet mechanism by means of which motion is imparted to the apparatus from the operating-lever. Fig. 8 is a detail view of the outer end portion of the tubular extension provided on the side of the ratchet-wheel.

The same reference-numerals indicate corresponding parts in all the figures of the drawings.

The framework is substantially L-shaped in plan elevation or is formed with one corner omitted, providing an angular indentation or recess 1, into which the person operating the apparatus enters, so as to be within easy reach of the bucket 2 and the operating-lever 3. The framework, which may be of any substantial construction, consists of upper and lower frames of similar formation, and comprises longitudinal beams and connecting cross-beams and uprights, which are secured together in any convenient and approved manner. One of the longitudinal beams, as 4, is intercepted near one end, and the intercepted parts are firmly attached to the side members of a U-shaped casting 5, the latter having outstanding ears 6, which are apertured for the reception of the fastenings by means of which the castings and the parts of the framework bordering thereupon are connected together.

In order to strengthen the framework and prevent any movement of the casting 5, parallel posts 7 are located upon opposite sides of the said casting and are attached to the lower ears thereof, and are secured at their ends to the upper and lower longitudinal beams of the framework.

To brace the framework against the stress attendant upon the operation of the lever 3, the casting 5 is attached to the intercepted parts of the beam 4 by means of transversely-arranged tie-bars 8, which pass through the perforated ears 6 opposite to the beam 4 and through the corresponding longitudinal beam 9 opposite to the said beam 4, and the ends of the tie-bars are threaded and project beyond the longitudinal beam 9 and receive binding-nuts 10, by means of which the tie-bars are tightened, so as to compensate for any wearing of the parts.

A shaft 11 extends parallel with the longitudinal beams 4 and 9 and is mounted in bearings provided upon the connecting cross-beams, and a gear-wheel 12 is secured upon

one end of the shaft 11 and meshes with a pinion 13 on the adjacent end of the shaft 14, which is disposed at right angles to the shaft 11 and upon which is loosely mounted the windlass 15, upon which winds the hoisting-rope 16, by means of which the bucket 2 is raised and lowered into the well. A pinion 17 is loosely mounted on the shaft 11 opposite to the operating-lever 3, and is formed on each side with ratchet-teeth 18, which are engaged by pawls 19, pivotally attached to the inner faces of plates or disks 20, adjustably secured upon the shaft 11 upon opposite sides of the said pinion 17. These plates or disks 20 have hub portions 21, which are enlarged at one side and formed with threaded openings for the reception of binding-screws 22, by means of which the parts 20 are secured upon the shaft 11 in proper position. These plates or disks 20 have inwardly-extending annular flanges 23, which encircle and house the pawls 19, thereby preventing the lodgment of foreign matter upon the pawls and the ratchet-teeth 18, which would have a tendency to interfere with their efficient service. While the pinion 17 is adapted to rotate freely upon the shaft 11, it is held from moving longitudinally thereon by being located between the plates or disks 20. The ratchet-teeth and pawls are so related that when the operating-lever 3 is elevated the said pawls will ride upon the ratchet-teeth, and when the operating-lever is lowering at its outer end the ratchet-teeth and pawls will interlock and cause the pinion 17, plates 20, and shaft 11 to rotate in unison, so as to wind the hoisting-rope 16 upon the windlass 15 and elevate the bucket 2.

The operating-lever 3 is provided at its inner end with a segmental head 24, which is toothed, the teeth meshing with the teeth of the pinion 17, and for economy of construction the segmental head 24 is separate and distinct from the lever 3 and is attached thereto in any convenient manner. The lever, with its segmental head, is fulcrumed in the upper open end of the U-shaped casting 5, and the pin 25, upon which the said lever is mounted, is constructed so as to engage with the sides of the said casting 5 and prevent the spreading or separating of the same in the event of the separated parts of the longitudinal beam 4 being subjected to linear strain.

A ratchet-wheel 26 is secured upon the shaft 14 in approximate relation to a head of the windlass 15, and its teeth are engaged by means of a pawl 27, so as to prevent the unwinding of the hoisting-rope from the windlass after the bucket has been elevated to the required point. In order to cause the ratchet-wheel, its shaft, and the windlass 15 to rotate in harmony, it has been found necessary to interpose a locking mechanism between the ratchet-wheel and the windlass, which, in the present instance, consists of a spring-actuated bolt 28, slidably mounted in a tubular extension 29, forming a part of and extending from the side of the ratchet-wheel 26, and a series of openings 30 in the head of the windlass adjacent to the ratchet-wheel 26. The locking-bolt 28 has an annular stop 31 near its inner end, against which bears one end of the coil-spring 32, mounted upon the said bolt, and the tubular extension 29 is formed with an annular shoulder or stop 33 near its outer end, against which abuts the outer end of the said coil-spring 32, and the outer portion of the locking-bolt is threaded, and a thumb or winged nut 34 is mounted thereon and serves as a means for actuating the locking-bolt when required. The outer end of the tubular extension 29 is provided with oppositely-disposed notches 35, in which are fitted the winged portions of the thumb-nut 34 when the locking-bolt is in engagement with one of the series of openings 30. When it is required to release the windlass to admit of the hoisting-rope unwinding therefrom, the locking-bolt 28 is withdrawn from engagement with the windlass and is held out of operative relation by turning the thumb or winged nut 34 so that its wings or offstanding projections will be out of register with the notches 35 and engage with the terminal end of the tubular extension 29 at any point intermediate of the said notches 35.

Standards 36 rise vertically from the framework and are connected at their upper ends by a cross-bar 37, to which is fitted a pulley 38, over which passes the hoisting-rope, and which is guided thereby when unwinding and winding upon the windlass.

Supposing that the hoisting-rope is wound upon the windlass and it be required to elevate a quantity of water from the well, the locking-bolt 28 is withdrawn from engagement with the windlass and the latter will rotate and unwind the hoisting-rope, thereby permitting the descent of the bucket into the well. To elevate the bucket filled with water, the locking-pawl is thrown into engagement with the windlass, and by moving the operating-lever 3 upon its fulcrum the windlass will be rotated by means of the instrumentalities herein set forth, so as to wind up the rope 16, and thereby raise the bucket. The intermeshing gearing is so proportioned and of such relative sizes that a limited downward movement of the operating-lever will cause the windlass to make a number of revolutions. Hence in a deep well only a few movements of the operating-lever will be required to bring the bucket to the surface, as will be readily understood. The framework is so placed that the well will be opposite the inner portion of the angular indentation or recess 1 and will in effect constitute a housing for the well or the major part of a housing or guard, thereby preventing persons and animals from accidentally falling into the well.

Having thus described the invention, what is claimed as new is—

In a water-elevating apparatus, the combination of a framework having an angular indentation or recess at one corner and comprising parallel longitudinal beams and vertical posts, one of the longitudinal beams being intercepted near the extremity bordering upon the recess, and having vertical posts located upon opposite sides of the space formed between the intercepted parts, a U-shaped casting interposed between and firmly attached to the intercepted parts of the beam and the vertical posts contiguous thereto, and having outstanding ears which are apertured, tie-bars passing through the upper apertured ears and connecting the casting to the opposite longitudinal beam so as to brace the framework, a windlass journaled to the end portion of the framework upon the opposite side of the recess, an operating-lever fulcrumed in the open end of the U-shaped casting and operating between the side pieces of the latter, and intermediate mechanism actuated by the lever for rotating the windlass, substantially in the manner set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RICHARD W. FARIS.

Witnesses:
S. B. CRANOR,
W. R. SINGLETON.