

No. 723,427.

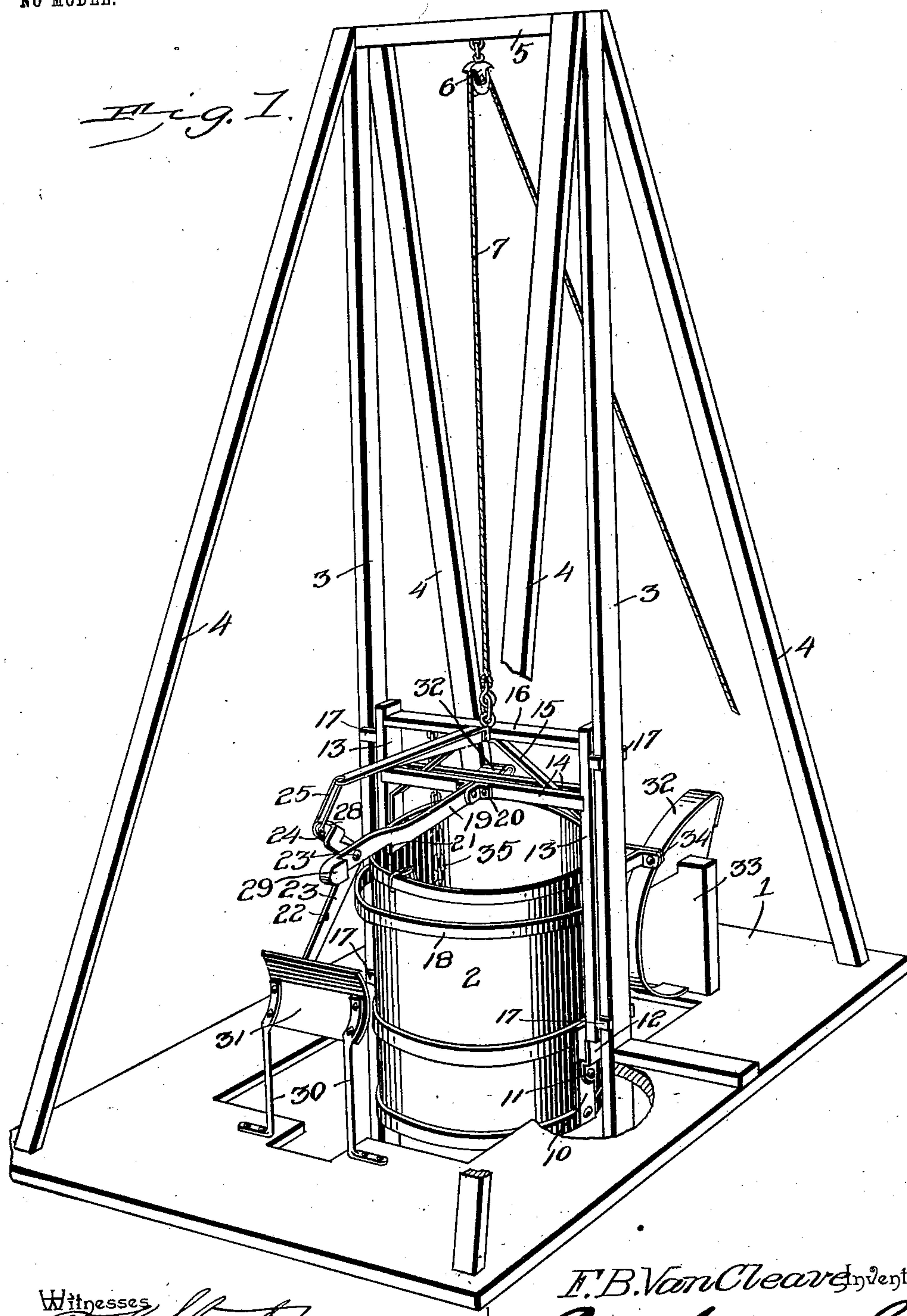
PATENTED MAR. 24, 1903.

F. B. VAN CLEAVE.
WATER ELEVATOR.

APPLICATION FILED MAR. 20, 1902.

2 SHEETS—SHEET 1.

NO MODEL.



Witnesses
E. J. Stewart
R. M. Elvitt.

F.B. Van Cleave Inventor.
Chas. Knowles
Attorneys

No. 723,427.

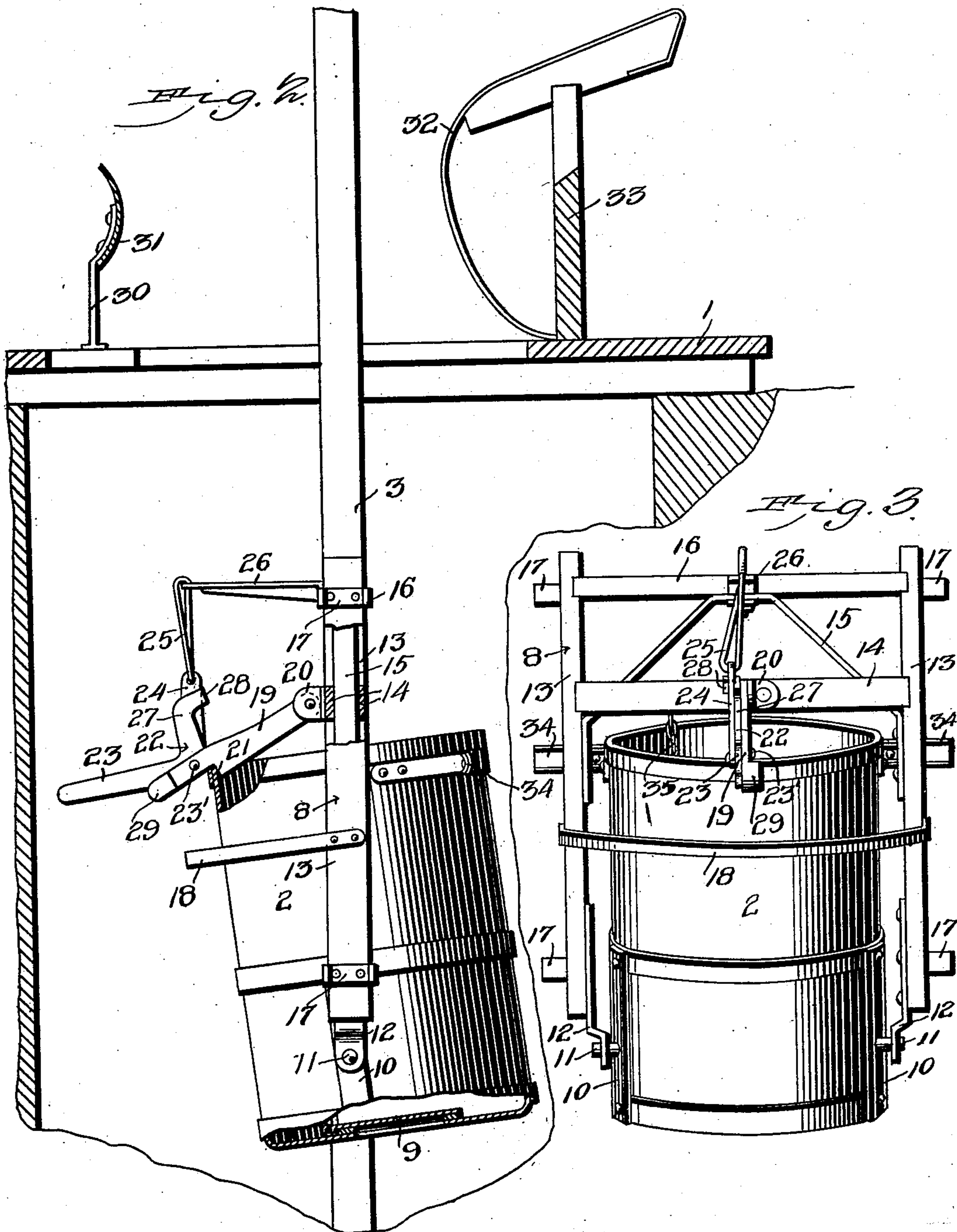
PATENTED MAR. 24, 1903.

F. B. VAN CLEAVE.
WATER ELEVATOR.

APPLICATION FILED MAR. 20, 1902.

2 SHEETS—SHEET 2.

NO MODEL.



Witnesses
E. J. Stewart
R. M. Elliott

F. B. VanCleave, Inventor.
by *C. A. Snow*
Attorneys

UNITED STATES PATENT OFFICE.

FRANKLIN B. VAN CLEAVE, OF ECHO, OREGON.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 723,427, dated March 24, 1903.

Application filed March 20, 1902, Serial No. 99,203. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN B. VAN CLEAVE, a citizen of the United States, residing at Echo, in the county of Umatilla and State of Oregon, have invented a new and useful Water-Elevator, of which the following is a specification.

This invention relates generally to water-elevators, and particularly to that class employing a bucket or barrel adapted to be raised by horse-power for supplying large quantities of water from a well of any depth for household and irrigating purposes.

The novelty of the present invention resides more particularly in the means for holding the bucket in an approximately vertical position while being raised and for tilting and discharging its contents when it reaches a predetermined level. It is essential in devices of this character that the bucket locking and tripping mechanism shall operate automatically and with certainty not only to preclude possibility of failure of the bucket to elevate the water, but also to render unnecessary the employment of an attendant for keeping the said parts in proper operative relation with regard to the bucket. In this apparatus the force of gravity is relied upon for actuating the bucket-locking mechanism and an eccentric pivoting of the bucket upon its supports for effecting, with the output of the minimum resistance, the tilting of the bucket when it has reached the desired level.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a water-elevator, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in perspective of a water-elevator embodying the essential features of this invention. Fig. 2 is a view in side elevation, partly in section. Fig. 3 is a view in rear elevation of a bucket and its trip and guiding mechanism.

Referring to the drawings, 1 designates an ordinary platform which may constitute the covering of the well-mouth and provided with an opening through which to permit passage of the bucket or barrel 2, as clearly shown in Figs. 1 and 2. Extending vertically downward through the platform are a pair of tracks 3, which will reach into the water of the well, the upper ends of the tracks being projected above the platform to the required height and are stayed by inclined braces 4, the upper ends of the tracks being connected by a cross-brace 5, from which is suspended a pulley 6 to be engaged by hoisting-rope 7, one end of which is connected in any suitable manner with the bucket-carrying frame 8, and the other end being adapted in the usual manner for connection with the harness of an animal or with the drum of a windlass.

The bucket 2 has an opening in its bottom normally closed by a valve 9. Suitably connected with the bucket at a point to the rear of a vertical central plane thereof are two plates 10, carrying each a pintle or projection 11 to be engaged by the lower ends of straps 12, carried by the bucket-carrying frame, which latter comprises two side pieces 13, connected near their upper ends by two cross-pieces 14, between which is disposed a brace-bar 15, the terminals of which are secured to the inner faces of the side pieces, the crest of the brace-bar being rigidly secured to a cross-brace 16, connecting the upper terminals of the side pieces. The side pieces each carry two guides 17, which are adapted to work upon the tracks 3, as clearly shown in Fig. 1, thereby to guide the bucket both in its ascent and in its descent. The side pieces are connected intermediate of their ends and braced against spreading by a band 18, connected at its terminals to the side pieces and bent to pass around the back of the bucket, as clearly shown in Figs. 1 and 2. As will be seen by

reference to the last-named figure, the bucket inclines rearward or away from its discharging-point, and by reason of the fact that the bulk of the water in the bucket will be disposed toward the front thereof the normal tendency of the bucket will be to tilt forward, and to obviate this a gravity locking device is employed, which comprises an arm 19, pivoted between a pair of ears 20, carried by one of the cross-pieces 14, the said arm being provided near its free terminal with a shoulder 21 to interlock with the inner portion of the bucket near its rim, and thereby positively to hold it against tripping until the arm is raised. As will be obvious, the means for releasing the arm must be operable only in one direction—that is, when the bucket is raised—and to effect this a trigger 22 is provided, which is approximately L-shaped and is connected with the arm 19 by a pivot 23'. Upon this pivot is also mounted one end of a link 24, the other end of which is connected through a loop or rod 25 with the outer end of a bracket 26, the inner end of which is rigidly secured to the cross-brace 16 intermediate of its ends. The long arm 23 of the trigger projects outward beyond the free end of the arm 22, and a short arm 27 is provided with an intumed toe 28, adapted to engage the link 24, and thus hold the long arm in the position shown in Fig. 2. By preference the free end of the arm 19 is provided with a counterweight 29, thereby to insure the proper cooperation of its locking-shoulder 21 with the edge of the bucket.

Arranged upon the platform at the rear of the bucket and supported by two uprights 30 is a curved trigger-tripping plate 31, with which the free end of the longer arm of the trigger contacts on both movements of the bucket. On the downward movement of the bucket, when the arm 19 is locked in engagement with the rim of the bucket, contact between the arm of the trigger and the plate 31 will merely cause the trigger to move on its fulcrum; but upon upward movement of the bucket contact with the plate will exert downward pressure upon the said longer arm, causing it to rock upon its pivot, the downward movement of the free arm of the trigger, through the medium of the toe 28, being transmitted to the link 24, which latter will then tend to resume a horizontal position and in so doing will throw the arm 19 upward, and thus release the bucket. By reason of the fact, as before pointed out, that the connection between the bucket and the supporting-frame is eccentric, thereby throwing the bulk of the water forward of the pivotal point as soon as the arm 19 is thrown out of engagement with the bucket it will immediately tilt, and in order to guide the bucket gradually after being tilted and while being further raised, thus to cause it to discharge its contents in the proper manner,

two curved guides 32 are provided, which are rigidly supported by a cross-bar 33, secured to the platform 1, these guides being engaged by laterally-extending arms 34, carried by the front of the bucket. These guides subserve the further and all-important function of automatic bucket-setting means—that is to say, when the bucket begins to descend after having discharged its contents the arms 34 by traveling downward upon the guides force the bucket rearward, and thus to a position to be engaged by the locking-shoulder of the arm 19, it being observed by reference to Fig. 2 that the guides 32 project inward on both sides beyond the outer edge of the bucket or that portion facing the discharge. To prevent the bucket from turning bottom side up, should it be raised too high above the guides, a stop is provided in the nature of a chain or other flexible connection 35, one end of which is suitably secured to the bucket near its mouth and the other end to the cross-brace 16.

It will be seen from the foregoing description that although the water-elevator of this invention is exceedingly simple of construction it will be found thoroughly efficient and practical in use for the purpose designed, and, further, by reason of the automatic and positive manner in which the bucket locking and resetting mechanisms operate that the attendance of an operator at the well will be entirely obviated.

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

1. In a water-elevator, the combination with an eccentrically-supported bucket and locking mechanism operating normally to hold the bucket against tilting, of means operating automatically to release the locking mechanism when the bucket reaches a predetermined level, and guides coacting with the bucket and operating on its upward movement to cause gradual tilting thereof and on its downward movement to bring the bucket into reengagement with the locking mechanism.

2. In a water-elevator, a frame guided for vertical movement, a bucket eccentrically supported thereby, gravity-controlled bucket-locking mechanism carried by the frame, means disposed in the path of the locking mechanism to trip the same when the bucket reaches a predetermined level, and guides coacting with the bucket for effecting gradual tilting thereof as it moves upward and its automatic reengagement with the locking mechanism on its downward movement.

3. In a water-elevator, a frame guided for vertical movement, a bucket eccentrically supported thereby, gravity-controlled bucket-locking mechanism carried by the frame, means disposed in the path of the locking mechanism to trip the same when the bucket

reaches a predetermined level, and guides
projecting inward beyond the path of move-
ment of the sides of the bucket and coacting
therewith for effecting gradual tilting there-
5 of on upward movement and its automatic re-
engagement with the locking mechanism on
downward movement.

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

FRANKLIN B. VAN CLEAVE.

Witnesses:

MAX MOREHEAD,
JAMES B. PERRY.