

No. 772,241.

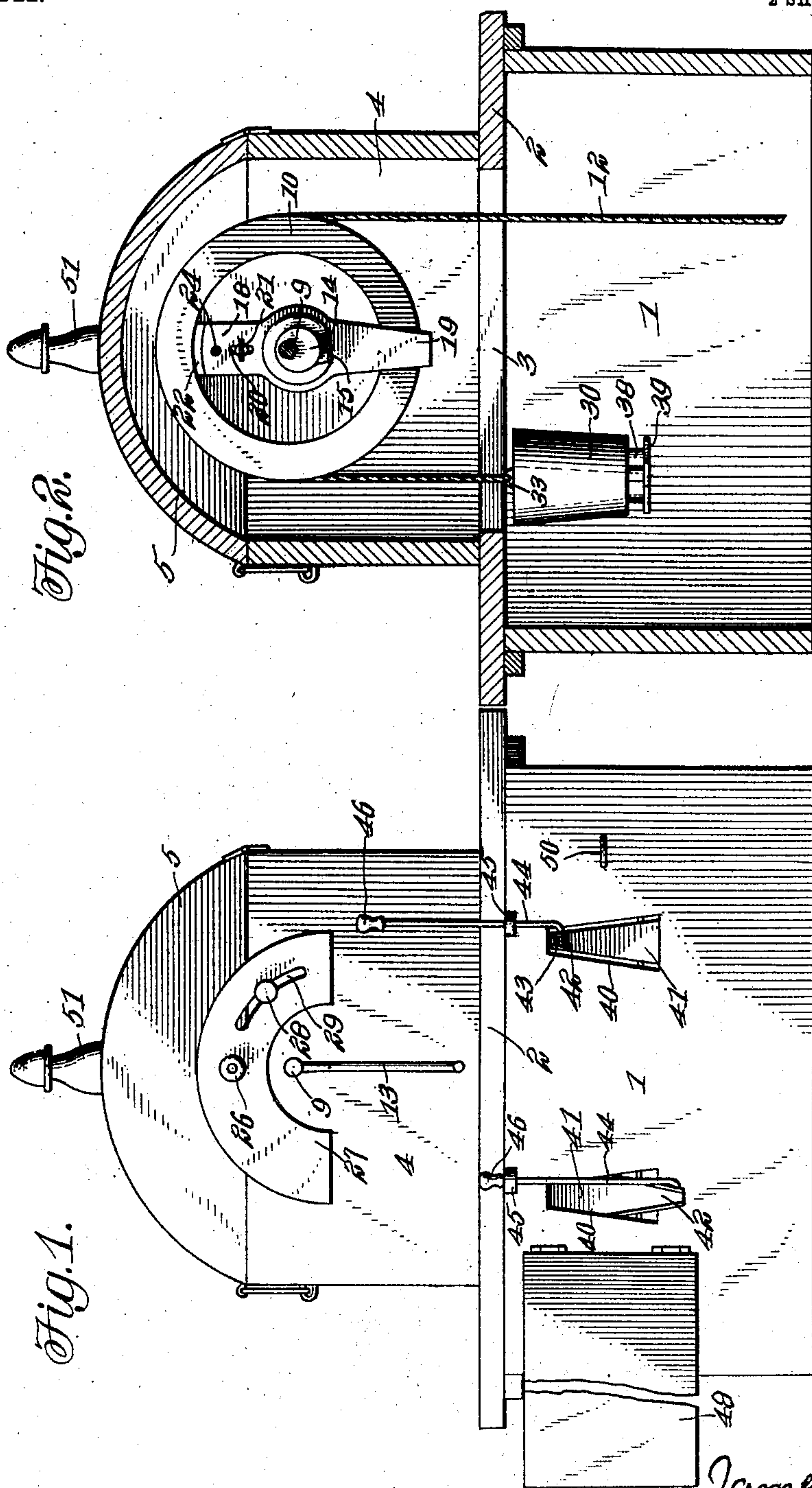
PATENTED OCT. 11, 1904.

J. L. O. KING.
WATER ELEVATOR.

APPLICATION FILED JULY 18, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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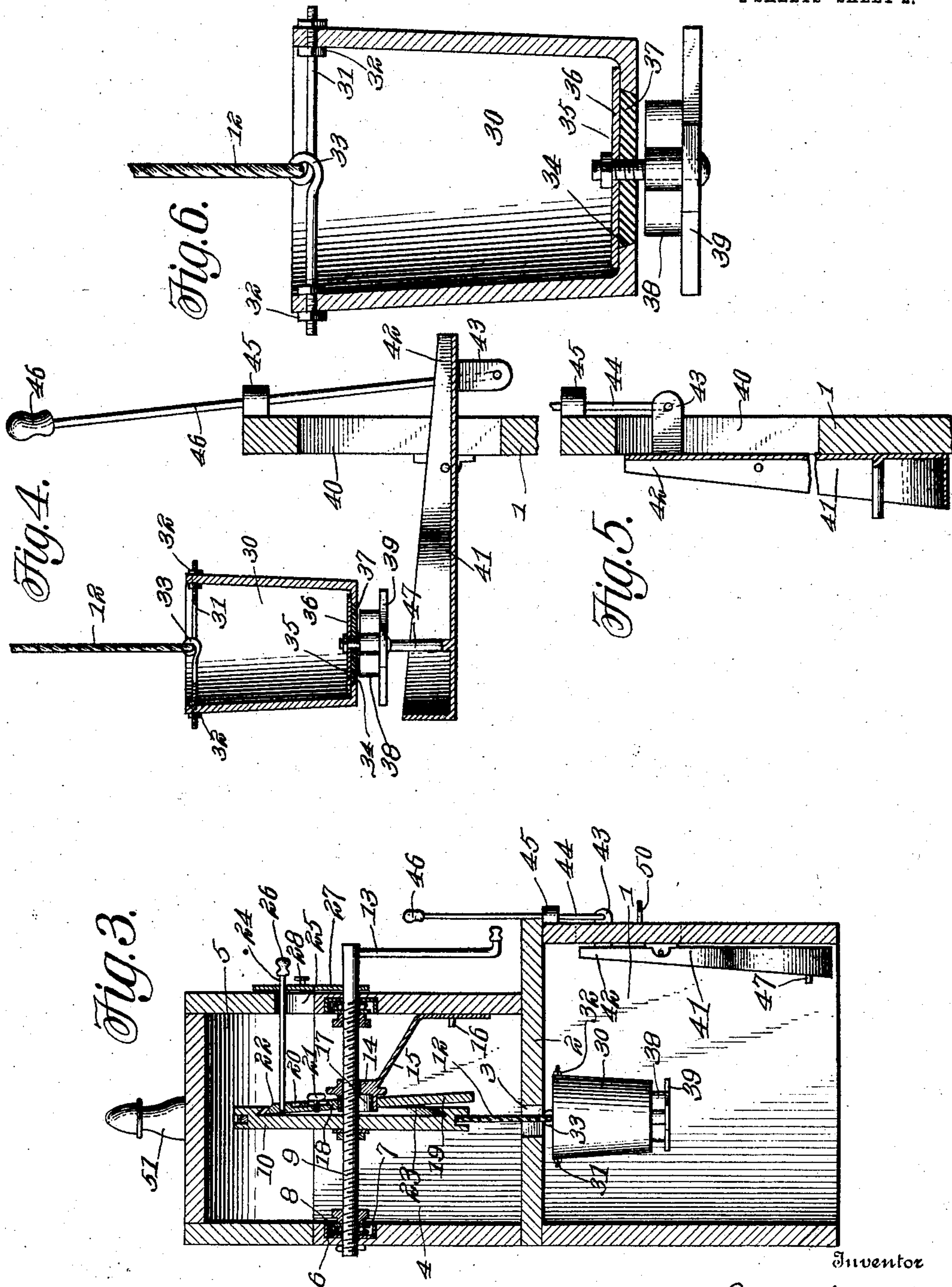
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UNITED STATES PATENT OFFICE.

JAMES LARENCE ORR KING, OF TOKEENA, SOUTH CAROLINA.

WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 772,241, dated October 11, 1904.

Application filed July 18, 1904. Serial No. 217,023. (No model.)

To all whom it may concern:

Be it known that I, JAMES LARENCE ORR KING, a citizen of the United States, residing at Tokeena, in the county of Oconee and State of South Carolina, have invented certain new and useful Improvements in Water-Elevators; and I do declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in water-elevating apparatus.

The object of the invention is to provide means whereby the elevating mechanism of a two-bucket well may be held at any point to prevent a retrograde movement of the windlass or crank-handle.

Another object is to provide means whereby the water may be quickly discharged from either of the buckets after being raised to the top of the well.

A further object is to provide antifrictional bearings for the windlass, thereby facilitating the turning of the same.

With these and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of the well box or casing which contains the water-elevating mechanism, showing the door which covers the discharge-openings in open position and one of the discharge-spouts lowered. Fig. 2 is a vertical sectional view taken in front of the elevating-wheel. Fig. 3 is a vertical sectional view taken at right angles to Fig. 2 and on a line with the shaft of the wheel. Fig. 4 is a detail vertical sectional view through one of the discharge-troughs and a well-bucket, showing the trough elevated and in the act of opening the valve in said bucket to discharge the water from the same. Fig. 5 is a similar view showing the trough lowered or in the position it assumes when not in use. Fig. 6

is a detail vertical sectional view of the bucket, on an enlarged scale, showing the construction of valve in the bottom of the same.

Referring more particularly to the drawings, 1 denotes a well box or casing having closed sides and a top 2. In the top 2 is formed an elongated slot 3, through which the elevating chains or cables are adapted to work.

On the top 2 and over the slot 3 is disposed a wheel box or dome 4, having a hinged cover 5. In the sides of the box or dome 4 are disposed bearing-sleeves 6, in which are formed ball-races 7 to accommodate balls 8, which form antifrictional bearings for the shaft 9 of a grooved wheel or pulley 10, over which the elevating chain or cable 12 is arranged. Roller-bearings may be employed, if desired, instead of ball-bearings.

On the end of the shaft 9, outside the dome 4, is secured a crank-handle 13, by which said shaft and wheel or pulley 10 are turned. On the shaft 9, between one side of the wheel and the adjacent inner side of the box, is loosely mounted an eccentrically-disposed hub or disk 14, having an arm 15 secured to and depending therefrom, said arm being disposed between stops 16, and thereby holding the eccentric hub or disk 14 from being turned by the shaft 9.

On the hub or disk 14 is mounted a collar 17, on which is formed oppositely-disposed radial arms 18 and 19, the arm 18 being formed in two parts adjustably secured together by means of a slot 20 and set-screw 21 to permit said arm to be lengthened. On the outer end of the arm 18 is formed a shoe 22, the end of which is curved and beveled, as shown.

The side of the wheel 10, adjacent to the arms 18 and 19, is formed with an annularly-disposed rim or flange 23, the inner edge of which is beveled inwardly, as shown.

By turning the arm 18 and the collar 17 on the eccentric hub or disk 14 to one side or the other of a perpendicular line above said shaft the beveled end of the shoe 22 will be brought into frictional engagement with beveled edge of the rim or flange 23, and thereby hold the wheel 10 from turning backward. The arm 18 is thrown against the flange of the wheel in the direction opposite to that in which

the same is being turned by the crank-handle, so that should said handle be released for any reason, thereby causing a retrograde movement of the wheel and handle due to the weight of the bucket of water being raised, the shoe on the arm 18 will grip or bind against the flange of the wheel because of the connection of said arm or the collar on which it is formed with the eccentric hub. The adjustable construction of the arm 18 permits the same to be lengthened to compensate for the wear on the shoe 22.

In order that the arm 18 of the collar 17 may be conveniently shifted to one side or the other, a laterally-projecting rod or bolt 24 is secured to said arm and projects out of the casing through a segmental slot 25 and is provided with a knob or handle 26. The rod or bolt is also adapted to project through and has secured thereto a segmental plate 27, which covers said segmental slot at all times. The plate 27 is slidably secured to the side of the box 4 by means of a pin 28, with which is engaged a slot 29, formed in said plate.

The arm 19 of the hub 17 projects over the rim or flange 23 and simply acts as a guide arm or brace.

To each end of the hoisting chain or cable 12 is connected a bucket 30, said buckets having arranged in their upper ends a cross-bar 31, the ends of which are threaded and project through apertures in the sides of the bucket. On said threaded ends are nuts 32, one of which is screwed against the inner side of the bucket and the other against the outer side of the same, thereby firmly bracing said sides. Midway between the ends of the bar 31 is formed an eye 33, with which is connected the end of the hoisting-cable 12. The buckets 30 are of the same weight and when empty are adapted to balance each other. In the bottom of each bucket is formed an opening 34, which is normally closed by a valve 35, consisting of a metallic disk 36, having arranged on its under side a disk 37, formed of rubber, leather, or other resilient material which will form a water-tight engagement with the bottom of the bucket. On the under side of the disk 37 is arranged a stem 38, which is notched or recessed around its edge. The stem 38 is adapted to project through the opening 34 in the buckets and has secured to its lower end a stop 39, which is preferably in the form of a cross the arms of which engage the under side of the bottom of the bucket when said valve is raised, thereby limiting the upward movement of and holding the same in place. When the bucket is lowered into the well and strikes the water, the valve will be raised, which will permit the water to enter and fill the bucket. As soon as the raising of the bucket begins the weight of the water in the same will close the valve and hold the water in the bucket.

In one side of the box or casing 1 is formed two triangularly-shaped openings 40, and on the inner side of said box, adjacent to the lower edge of said opening, is pivotally mounted discharge-troughs 41, having triangularly-shaped spouts 42. The troughs 41 are pivotally mounted near their spout end of the same, so that they will overbalance and normally hang in a substantially vertical position.

On the under side of the spouts 42, near their outer ends, are secured downwardly or outwardly projecting lugs 43, to which are pivotally connected the lower ends of operating-rods 44, which project upwardly on the outside of the box 1 and pass through apertured guide lugs or ears 45, which are secured to and project from the upper side of said box. On the upper end of said rods 44 are secured knobs 46, by which the same may be depressed to raise or swing the troughs 41 to an inclined position below the bucket, which has been previously elevated and is ready to discharge the water contained therein.

At a suitable point in the bottom of each trough is secured an upwardly-projecting pin 47, which when the troughs are swung upwardly will engage the lower side of the stop 39 on the end of the valve-stem and force said valve upwardly, thereby discharging the water from the bucket. The water discharges into the trough and is conducted through the spout of the same into a suitable receptacle outside of the well-box. As soon as the water is discharged the trough is lowered, thereby allowing the valve in the bucket to drop and close by gravity. This bucket may now be lowered and the other one raised and the water discharged therefrom in a similar manner by the other trough.

On the side of the well-box 1 is hinged a door 48, which is adapted to close over the spout-openings in said box and is held in closed position by a hook 49, which engages an eye 50 in the side of the box. When not drawing water and the troughs and spouts are in a vertical position, the door 48 may be closed tightly against the side of the box, thereby entirely closing the box.

A knob 51 may be secured to the top of the dome, thus affording a convenient handhold when operating the crank-handle. The door 48 may also be provided with a knob with which to open and close the same.

By constructing a well-box so that the same may be tightly closed, as herein shown and described, the well is kept clear of dust, dirt, insects, reptiles, and all animals which might find their way into an open well and thereby contaminate the water. This closed construction of the well-box also prevents the freezing of the water and the accumulation of ice on the elevating cable or wheel.

From the foregoing description, taken in connection with the accompanying drawings,

the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, 5 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what 10 I claim as new, and desire to secure by Letters Patent, is—

1. In a water-elevating apparatus, the combination with a closed casing, of a crank-shaft mounted in said casing, an elevating-wheel 15 fixed on said shaft, a laterally-projecting annular flange or rim formed on the side of said wheel, a cam or eccentric disk loosely mounted on said shaft, means for holding said disk against rotation, a collar mounted to turn on 20 said disk, radially-projecting arms secured to said collar, one of said arms being formed of two sections adjustably connected together to lengthen said arm, a brake-shoe arranged on the end of said outer section, whereby when 25 said arm is turned one way or the other said shoe will engage the flange or rim on said

wheel and hold the same against retrograde movement, substantially as described.

2. In a water-elevator, the combination with a closed casing, of a crank-shaft mounted in 30 said casing, an elevating-wheel fixed on said shaft, a cam or eccentric disk loosely mounted on said shaft, a collar mounted to turn on said disk, an adjustable arm fixed on said collar, a brake-shoe formed on the end of said 35 arm whereby upon turning the latter in one direction or the other said shoe will be brought into frictional engagement with said wheel to stop the retrograde movement of the same, a laterally-projecting rod or bar secured to said 40 arm and extending through a segmental slot in said casing whereby said arm may be turned, and a plate secured to said bar to move therewith across said slot thereby closing the same at all times, substantially as described. 45

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES LARENCE ORR KING.

Witnesses:

J. W. STRIBLING,

F. S. HALLIMAN.