No. 775,843. PATENTED NOV. 22, 1904.

W. H. MOODY.

WATER HOISTING APPARATUS.

APPLICATION FILED JAN. 24, 1903.

NO MODEL.

FIG. 1.

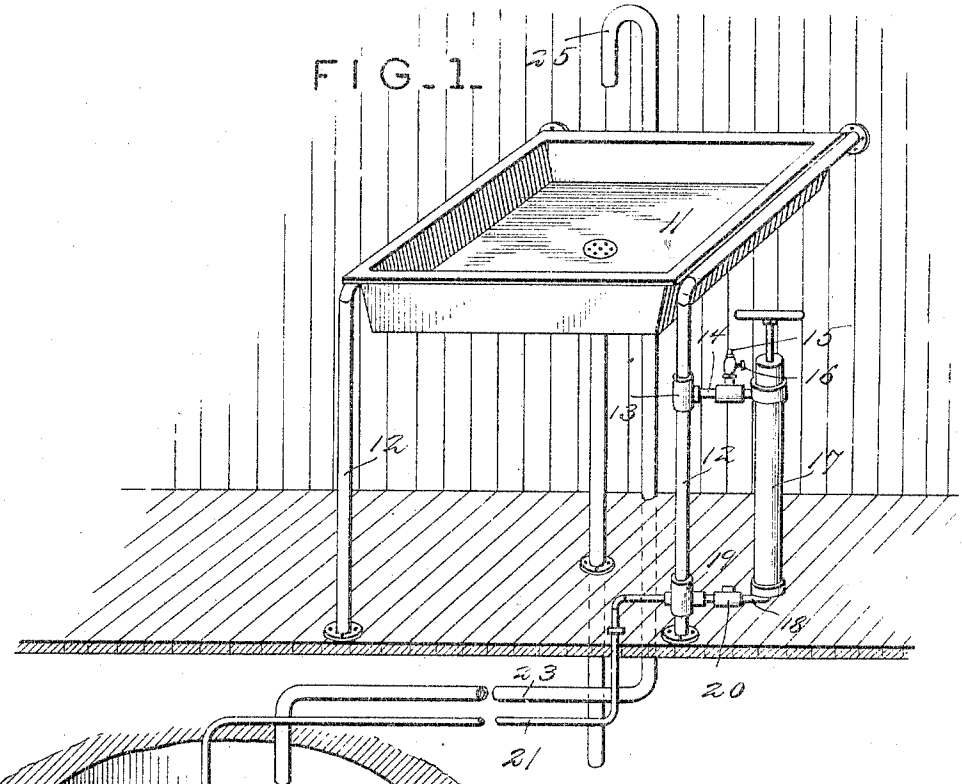
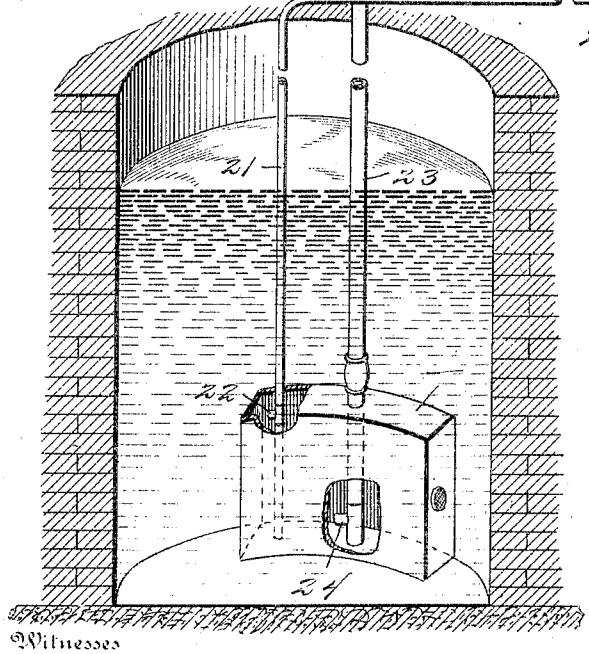
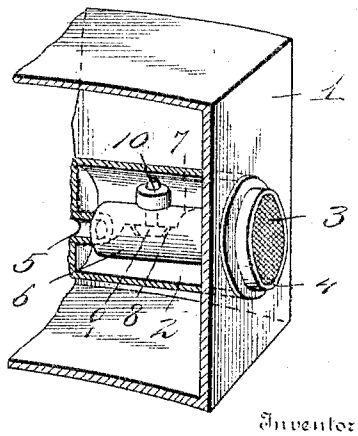


FIG. 2.





Witnesses

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UNITED STATES PATENT OFFICE.

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WATER-HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 775,843, dated November 22, 1904.

Application filed January 24, 1903. Serial No. 140,430. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD H. MOODY, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Water-Hoisting Apparatus, of which the following is a specification.

My invention relates to new and useful improvements in water-hoisting apparatus, and is especially adapted to be used for drawing water pneumatically from wells or other receptacles; and its object is to provide removable means at a suitable point in a well or other receptacle, whereby the discharge of the water from said receptacle may be readily controlled.

A further object is to provide a receiving-tank of peculiar construction into which the water within the receptacle is adapted to flow prior to being elevated by the apparatus.

A further object is to provide an apparatus the parts of which can be readily detached for the purpose of cleaning or replacing the same.

With the above and other objects in view the invention consists in employing a tank which is so shaped as to fit snugly against one wall of the well, cistern, or other water-containing receptacle and which has an inlet provided with a valve, so constructed as to open automatically to permit the passage of water into the tank, but which will prevent the water from flowing backward therethrough. A pump of suitable construction is arranged at a point adjacent to the outlet of the water-elevating apparatus, and it is connected to an air-pipe which has an outlet in the tank at a point near the top thereof. A water-pipe extends from the outlet of the system and into said tank and has an intlet at a point near the bottom thereof. An air-vent having a suitable valve therein is arranged adjacent to the pump and is so connected with the air-pipe as to permit air forced into the tank to escape in any desired quantities.

The invention also consists in providing means whereby the pump may be attached to one of the supports of the sink, thereby doing away with securing attachments especially designed for holding the pump in position.

The invention also consists in utilizing said support for connecting the air-vent with the air-pipe.

The invention also consists in the details of construction and arrangement of parts, which will be more fully hereinafter set forth.

In the drawings, Figure 1 is an elevation of my improved hoisting apparatus, the tank being shown in position within a well and portions thereof being broken away to show the interior; and Fig. 2 is a section through one end of the tank and showing the inlet thereto.

Referring to the figures by numerals of reference, 1 is a tank, the front and rear faces of which are preferably curved to conform to the shape of the walls of the well, cistern, or other water-containing receptacle in which the tank is adapted to be located. By forming the tank in this manner it is obvious that the same may be fitted close to a wall of the water-containing receptacle and may be of any desired length without interfering with the bucket-hoisting apparatus usually employed. A hollow cylinder 2, having open ends, is arranged within an aperture formed in one end of the tank 1, and said aperture is covered by a screen 3, connected to a ring 4, which may be fitted over the end of the cylinder in any suitable manner. That end of the cylinder which projects into tank 1 is provided with an inwardly-extending tubular connection 5, upon which is detachably secured a valve-casing 6, having a partition 7 therein which is so arranged as to compel all liquid entering through the screen under the cylinder 2 to pass upward through the valve-seat 8 in the partition, thence through the connection 5. A valve 9 is adapted to rest upon seat 8 and close the aperture in the partition, and this valve is weighted, as shown at 10, so as to be held normally in closed position. The valve-casing 6 connects with the open screen-covered end of the cylinder 2, the difference in diameter between the casing and the cylinder being such as to permit the valve 9 to have a free gravitating action, the said valve opening and closing in a vertical direction. By inclosing the casing 6 within the cylinder 2 said casing is fully protected and injury to the valve is prevented. The partition 7, as shown

by dotted lines in Fig. 2, is disposed lengthwise through a part of the casing 6, so that the incoming water can flow thereunder and pass up through the opening 8, forming the valve-seat for the valve 9. The inner terminal of said partition 7 connects with the lower part of the outlet-opening of the casing to obstruct any possibility of water passing out through the connection 5 from below said partition.

A sink 11, or other receptacle, may be arranged at any suitable distance from tank 1, and one of the supports of this sink is preferably formed of tubing, as shown at 12, which is closed at the ends and is provided near the upper end of its upward portion with a T-joint 13, connected, by means of a cross-pipe 14, with an air-vent 15, having a suitable valve 16 therein. This pipe 14 is attached in any suitable manner to the upper portion of the cylinder 17 of a pump, and a pipe 18 extends from the outlet formed at the lower end of the cylinder to a cross-joint 19, arranged upon the upright portion of the support 12 near the lower end thereof. A valve 20 is located in pipe 18 and is of such construction as to permit the passage of air from the pump-cylinder through the pipe 18, but will prevent the return of the air to said cylinder. From the described connections between said tubing or pipe 12 and the pump it will be observed that the latter is also supported or held in position.

The cross-joint 19 is connected to an air-pipe 21, which extends downward into the tank 1 and is supported upon the bottom thereof. The lower end of this pipe is closed, but an outlet 22 is formed therein at a point within and adjacent to the top of the tank. A discharge-pipe 23 also rests upon the bottom of tank 1 and is provided with an inlet 24 near the bottom of said tank. This pipe extends upward to a point outside the sink 11 and terminates in a gooseneck 25, through which water is adapted to be discharged into the sink.

The operation of the apparatus is as follows: The valve 16 in vent 15 is opened so as to permit the escape of all air contained within tank 1 and pipe 21. As the air escapes from the tank it is replaced by water which flows through the screen 10 to casing 6 and automatically opens valve 9 and then passes through the connection 5 and into the tank. This action of the water is produced by force of gravity in view of the fact that the tank 1 is at all times submerged. Valve 16 is then closed and air is forced into tank 1 by operating the pump 17. The air will pass into the tank by way of pipe 21 and will be discharged at a point near the top of the tank. The pressure of the air upon the water within the tank will force the water upwardly through pipe 23 and gooseneck 25, and this discharge of the water will continue as long as the pump is operated or until the tank 1 is emptied. As the air contained within the tank cannot escape until the vent 15 is opened, it is obvious that water will not again enter the tank until valve 16 is turned to permit the escape of the air through pipe 21 and the vent. As soon as this valve 16 is opened the operation above described will be repeated.

It will be seen that the apparatus is extremely simple and inexpensive in construction and can be readily installed in connection with a well, cistern, or other water-containing receptacle, or can be used in connection with ponds, springs, or other bodies of water. By utilizing one of the supports of the sink for conducting air from the pipe 21 to the vent 15 it will be seen that the cost of the apparatus is reduced, in that an extra pipe is dispensed with. Moreover, holding attachments for the pump are therefore rendered unnecessary.

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

In an apparatus of the class set forth, the combination of a closed tank, a cylinder having one end opening through the tank and provided with a reticulated covering, the opposite end of the tank having an inwardly-extending tubular connection, a valve-casing secured to the said connection and inclosed within the cylinder, the said valve-casing having a partition extending therethrough for a portion of its length and provided with a valve-seat, a vertically-disposed valve movable through the casing and having means in connection therewith for causing the same to gravitate, an outflow-pipe extending vertically downward into the tank and having a lower closed end resting on the bottom of the casing and an outflow-opening means close to its lower end, an air-pipe also extending vertically downward into the tank and having a lower closed end and an opening therein under but close to the top of the tank, and a pump connected to said air-pipe and having air-vent means coöperating therewith to permit the air to escape from the tank.

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

WINFIELD H. MOODY.

Witnesses:
DELLA WATKIN,
JAS. KETTLE.