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W. L. & J. H. HARPER.
WATER ELEVATING AND DISCHARGE APPARATUS.

APPLICATION FILED JULY 25, 1906,

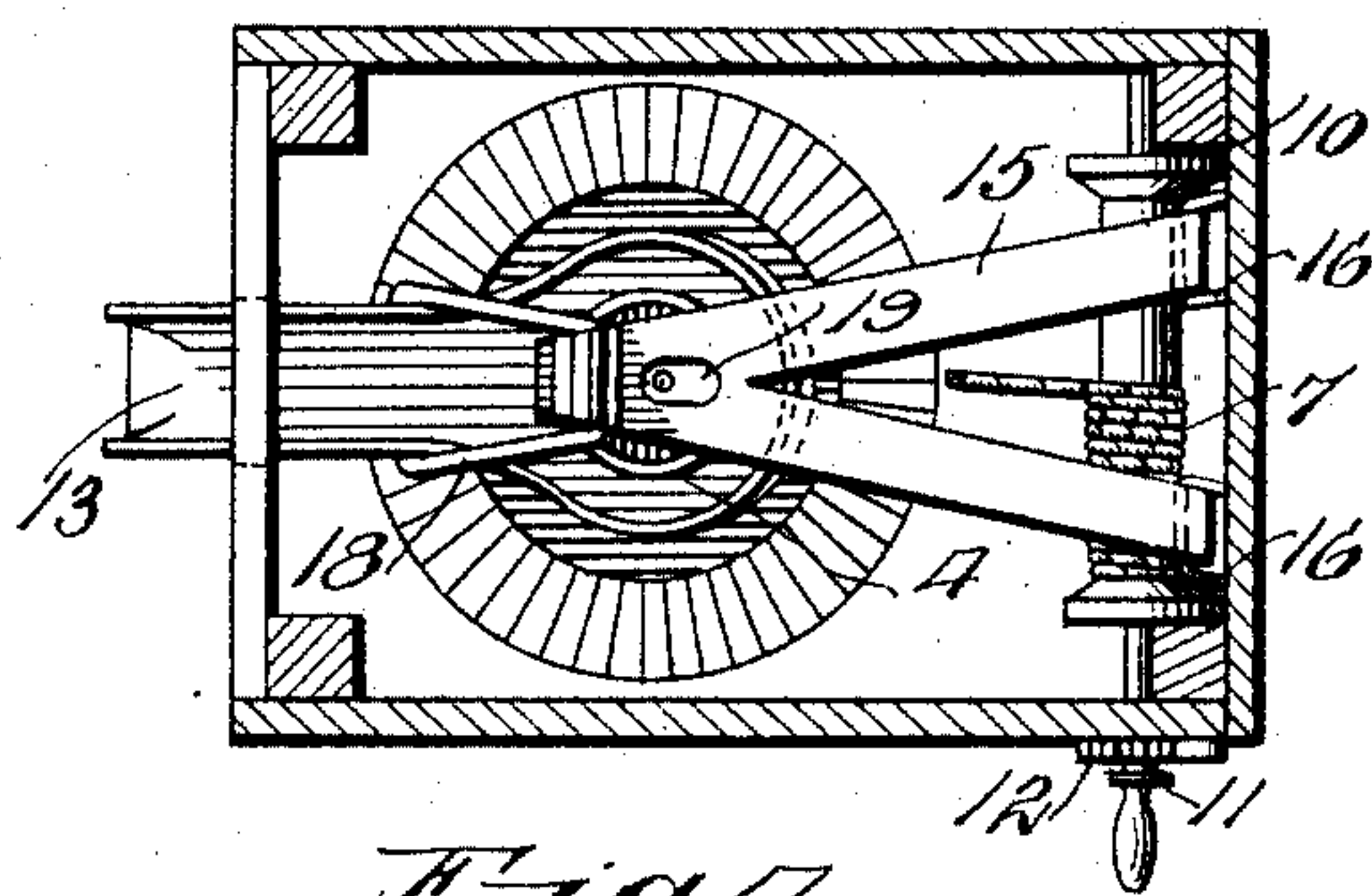
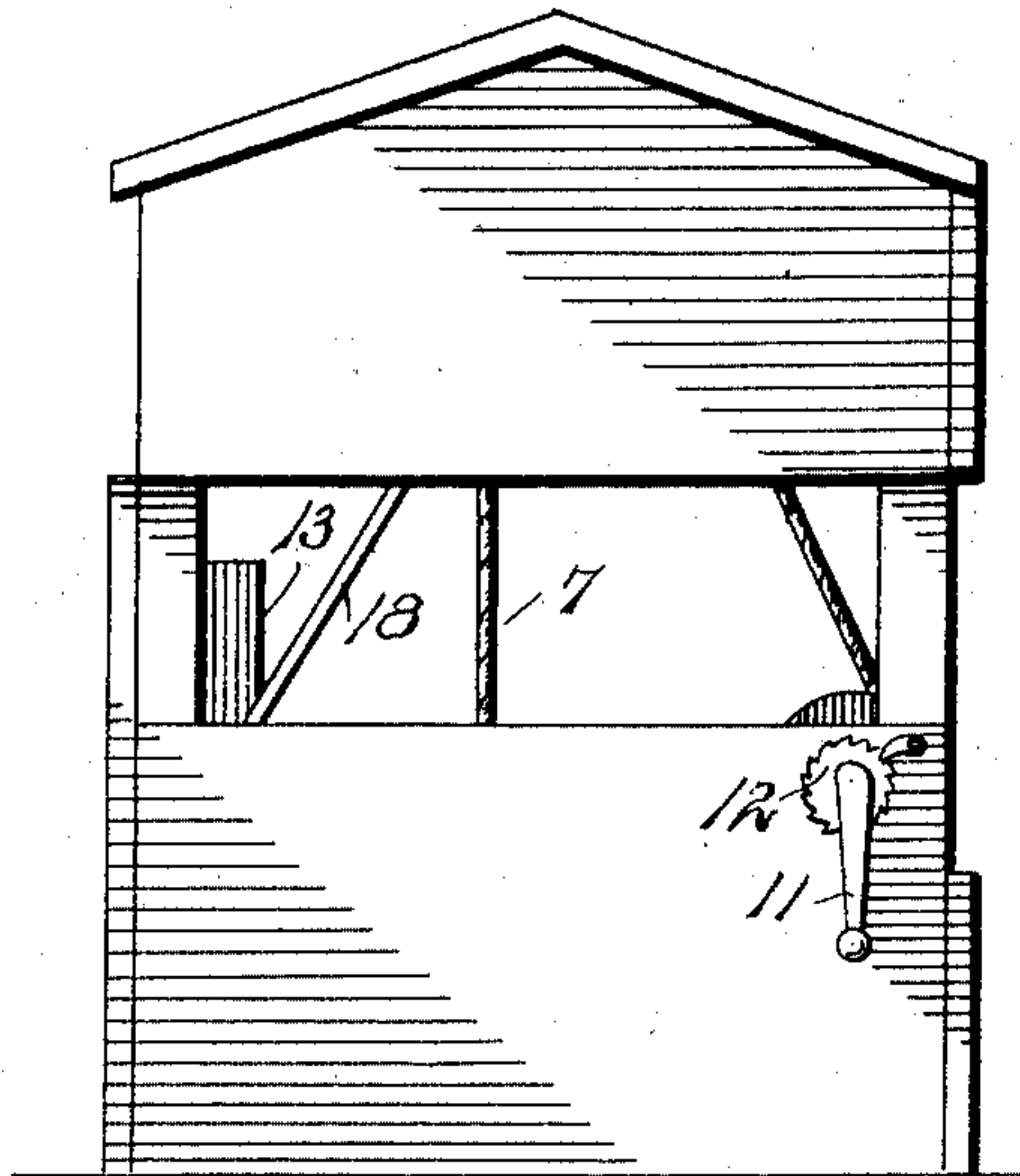
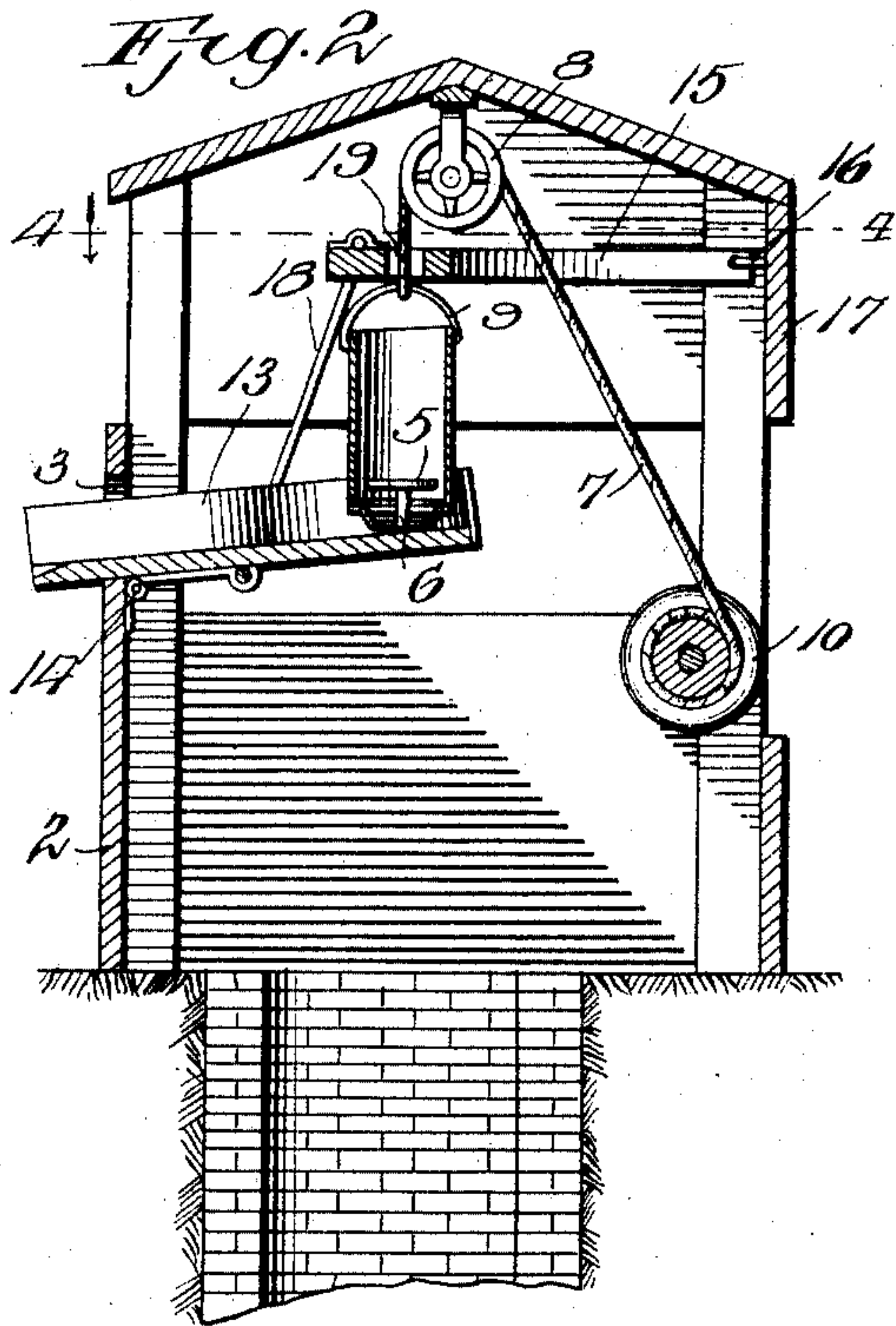
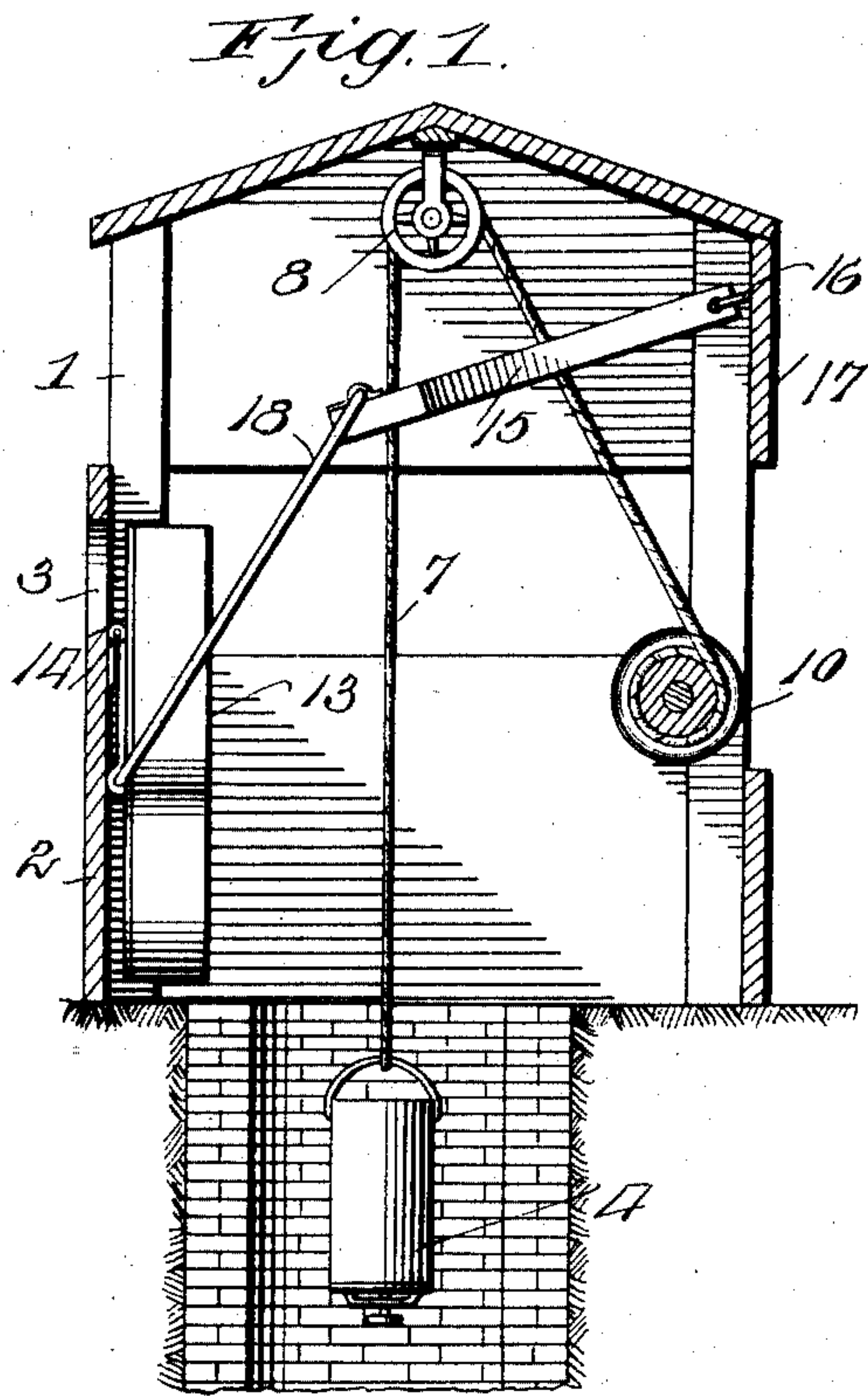


Fig. 3.
Witnesses
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UNITED STATES PATENT OFFICE.

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WATER ELEVATING AND DISCHARGE APPARATUS.

No. 864,736.

Specification of Letters Patent.

Patented Aug. 27, 1907.

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To all whom it may concern:

Be it known that we, WILLIAM L. HARPER and JOHN H. HARPER, citizens of the United States of America, residing at Harpersville, in the county of Stephens and State of Texas, have invented new and useful Improvements in Water Elevating and Discharge Apparatus, of which the following is a specification.

This invention relates to a water discharge apparatus for wells, the object of the invention being to provide a simple and effective means for automatically emptying water from a bucket by the simple operation of raising the same in the well, and by the use of the ordinary windlass, rope and pulley, the construction being such as to obviate the necessity of the operator directly handling the bucket.

In the accompanying drawing,—Figure 1 is a vertical section through the upper end of a well and its housing, showing the water discharge device in normal position. Fig. 2 is a similar view showing the water discharge device in operative position. Fig. 3 is an elevation of the well housing, showing the means for operating the windlass. Fig. 4 is a horizontal section through the well housing on the line 4—4 of Fig. 2.

Referring to the drawing, 1 designates a well housing provided in one of its walls 2 with an opening 3, and 4 designates the well bucket formed in its bottom with an outlet normally closed by a gravity valve 5 having a downwardly projecting stem 6. The bucket 6 is raised and lowered through an ordinary type of operating mechanism, comprising a rope 7 passing over a guide pulley 8 suspended from the peak of the roof of the housing, one end of said rope being connected with the bucket bail 9, while the other end thereof is attached to and adapted to wind around a windlass 10, to the shaft of which is connected an operating crank handle 11, the usual pawl and ratchet devices 12 being provided to control the action of the windlass.

A water chute 13 is hinged or pivoted on the inner side of the wall 2, as indicated at 14, and normally lies on the inner side of and parallel with said wall, as shown in Fig. 1, said chute being adapted to be raised on its hinge or pivot to an inclined position slightly above the horizontal, as shown in Fig. 2, so that its outer end will be projected through the opening 3. A chute-controlling lever 15 is pivoted at its rear end, as at 16, to a wall 17 of the well housing on the side opposite the wall 2 and is connected at its forward end with the chute by a pivoted bail or link 18, which is pivotally attached to the chute at a point in advance of the center thereof and in rear of the pivot 14. The lever is provided at its forward end with a guide opening 19 for the passage of the working or bucket supporting stretch of the rope 7.

The bucket is raised and lowered in the usual manner through the rope and windlass, and the normal

position of the parts is shown in Fig. 1. When the bucket is elevated with its load of water and its bail handle 9 comes into engagement with the lever 15, the latter is swung upward on its pivotal connection, thereby transferring an upward swinging movement to the chute 13. In such operation, the bail link 18 causes the chute 13 to be swung upward at a greater rate of speed than the speed of upward movement of the bucket, whereby the chute is brought into the operative position shown in Fig. 2 at the time the bucket reaches the limit of its upward movement and the lever 15 reaches a horizontal position. The bucket is thus seated in the chute, and the latter contacts with the stem 9 and raises the valve 5, whereupon the water discharges from the bucket and out through the chute 13. When the windlass is revolved in the reverse direction to lower the bucket, the chute descends in advance of the bucket by gravity at a greater rate of speed than the descent of the bucket and consequently clears the latter as it swings in its arc of movement to a vertical position, thus allowing the bucket to descend in the well without impediment, such downward movement of the chute, with which the lever 15 swings, restoring the parts to normal position for the succeeding operation.

It will thus be seen that the invention provides an automatic water discharging apparatus which is controlled in action by the movement of the bucket through the use of the ordinary windlass mechanism, and that the device is wholly automatic in action and effects the discharge of the water without the necessity of the operator directly handling the bucket.

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

In a water elevating and discharge apparatus, the combination of an elevator housing having an opening in the front wall thereof, a discharge trough pivotally mounted upon said wall to swing from a position parallel therewith to a horizontal position in which the normally upper end of the trough is adapted to project through said opening, a lever pivotally mounted at its rear end upon the rear wall of the housing and provided with openings therethrough, a valved bucket, a hoisting rope movably supported at the top of the housing and having branches extending through the openings in the lever, winding mechanism connected with one of said branches, a valved bucket connected with the other branch and adapted on its upward movement to engage and elevate the free forward end of the lever, and a bail-shaped link hung upon the forward end of the lever and pivotally connected with the trough, whereby the forward movement of the lever will swing the trough to a horizontal position to receive the bucket therein.

In testimony whereof, we affix our signatures in presence of two witnesses.

WILLIAM L. HARPER.
JOHN H. HARPER.

Witnesses:

J. B. ROBERTSON,
ANNA J. MARVELL.