

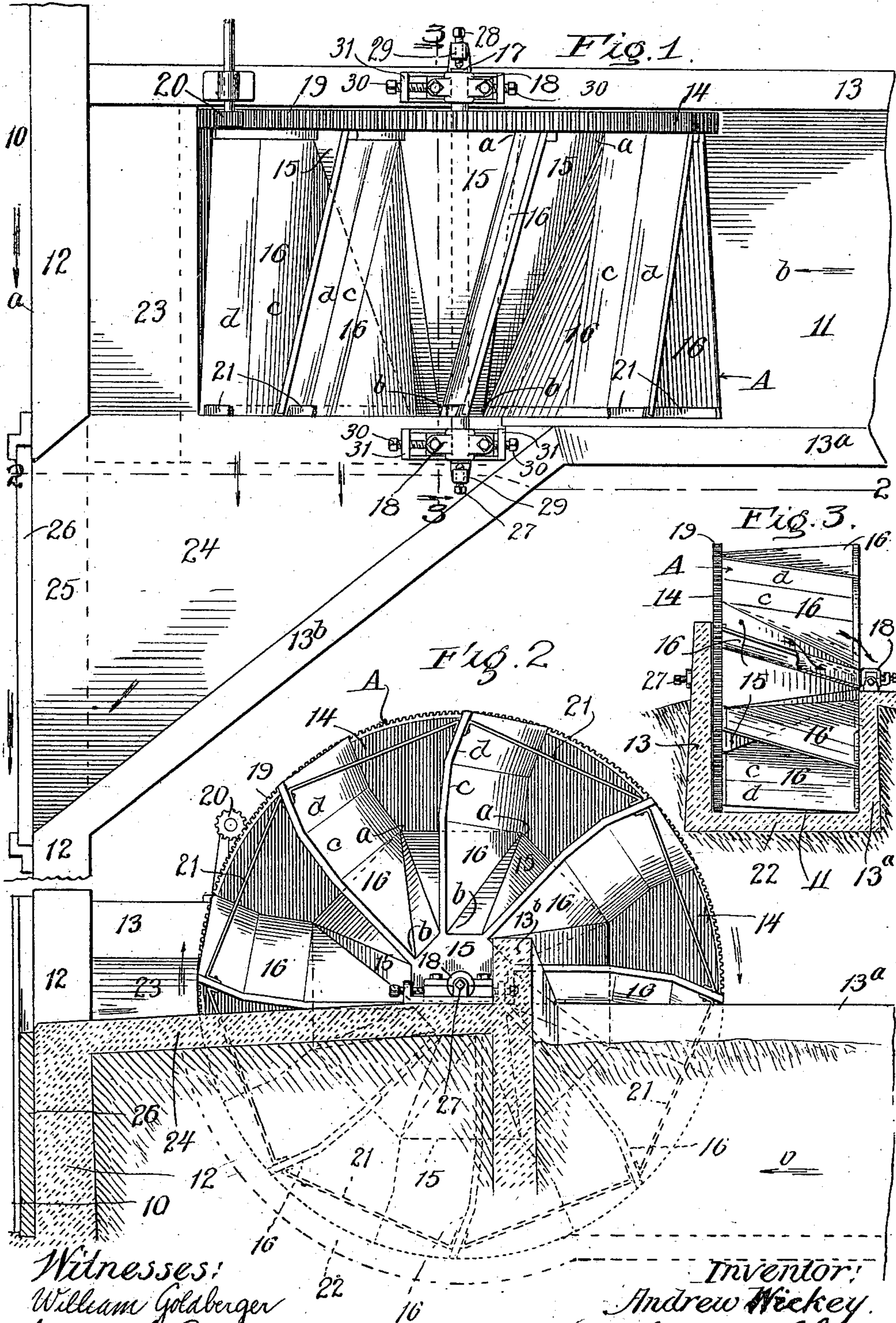
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WATER HOIST.

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989,741.

Patented Apr. 18, 1911.



UNITED STATES PATENT OFFICE.

ANDREW WICKEY, OF EAST CHICAGO, INDIANA.

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Specification of Letters Patent.

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Application filed March 14, 1910. Serial No. 549,281.

To all whom it may concern:

Be it known that I, ANDREW WICKEY, a citizen of the United States, residing at East Chicago, in the county of Lake and State of Indiana, have invented new and useful Improvements in Water-Hoists, of which the following is a specification.

This invention relates to water hoists and particularly to that class of water hoists adapted for use in connection with drainage systems wherein devices are used for raising the water from small ditches and emptying it into a main ditch or bayou which runs at an angle to the small ditches.

The object of this invention is to provide an efficient hoist adapted to raise water from one level to another and to discharge the water longitudinally of the main ditch or canal so as to move said water down stream.

Another object is to provide a water hoist in which the blades are so arranged that the water may be discharged sidewise through an open side of the water hoist.

Other objects and advantages will appear in the course of this specification and to such ends this invention consists in the several novel features of construction, arrangement and combination of parts hereinafter set forth and more particularly defined in the claims.

The invention is clearly illustrated in the drawing furnished herewith in which—

Figure 1 is a plan view of my improved water hoist in position at the junction between a drainage ditch and a bayou, Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1 and Fig. 3 is a vertical cross section taken on the line 3—3 of Fig. 1, showing the water hoist in end elevation.

In draining low lands, it is customary to construct a series of small ditches running to a main water way or bayou through which the water is carried away. The water is drained into the small ditches from the land and runs into the bayou but the ends of the ditches are separated from the bayou in order that the water in the bayou may not flow back onto the land. In the drawings I have illustrated a fragment of such a bayou at 10, and a ditch at 11, the water in the same traveling in the direction of the arrows *a*, *b*. The sides of the bayou are bounded by parallel walls, one of which is shown at 12, and the sides of the ditch are bounded by walls 13, 13^a, as shown in Fig. 1. The ditch 11, terminates at the wall 12,

which separates the main bayou 10, from the ditch 11, so that the water in the bayou may not flow back into the ditch and force the water therein back upon the land from which it came.

The water hoist A, is placed in the ditch 11, at a point adjacent to the wall 12, of the bayou, said hoist turning upon a horizontal axis extending transversely to the ditch so that the hoist may rotate in the longitudinal plane of the ditch. A simple form of the hoist is illustrated in the drawing and as shown, the same comprises one side 14, a central core or hub 15, and a plurality of blades 16. The hoist is mounted upon a shaft 17, which is journaled in bearing boxes 18, that are adjustably mounted upon the walls of the ditch 11. Mechanism is provided for rotating the hoist, and as shown one means for effecting this comprises an annular rack 19, upon the periphery of the side 14, and a suitably driven pinion 20, meshing with said rack. If desired the free ends of the blades may be connected by struts 21, for the purpose of bracing them at this point.

A curved wall 22, is formed in the bottom of the ditch underneath the hoist, and the latter rotates in the pocket formed between the side walls 13, 13^a, and curved wall 22, of the ditch. The pocket acts as the intake of the hoist. A waste way 23, extends across the space between one end of the hoist and the wall 12, and said waste way is continued on as at 24, and extends from the side of the hoist to a gateway 25, in the wall 12, where said waste way terminates and discharges the water into the bayou. The waste way 23, 24, preferably inclines downward from the hoist to the gateway. A gate 26, is usually employed at the gateway 25, and said gate may be raised above the level of the waterway whenever the water in the bayou rises to the level of said waterway. It will be noticed that the top of the wall 13^a, is cut away at a point between the shaft 17, of the hoist and the wall 12, and that said wall is continued onward on an angle to the main wall as shown at 13^b, said wall 13^b, extending along the outer margin of the waste way 24, and operating to deflect the water discharged upon the same.

The core 15, of the hoist is shown as being of pyramidal form, the base line of which lies in a vertical plane at the side 14, whereby the upper face or faces of the core slope

or incline down toward the opposite or open discharge side which is adjacent to the waste way 24. It is evident that any water which may be carried up on said core will run down the sloping faces thereof and be discharged upon the waste way 24. The blades 16, project out from the faces of said core and are preferably set at an angle with respect to the longitudinal line running along the face and in the drawings I have shown them as extending diagonally from the corners *a*, of the faces of the core to the corners *b*, thereof. It may be found advantageous to arrange the blades in the form of scoop like structures and for this reason I have illustrated the ends thereof as having bends *c*, *d*. By this arrangement the blades enter the water on an angle, the rear edges of each blade entering first and continuously traveling in advance of the forward edge thereof so that each blade in its upward travel presents an inclined plane which slopes downward toward the front or open side of the hoist, whereby the water carried thereby will flow toward the open side and be discharged upon the wasteway 24. Furthermore by reason of the fact that the upwardly traveling blades incline downwardly toward the open discharge side of the hoist, the water carried thereby leaves the hoist in the same direction that the water in the main channel is flowing and enters the channel in the same general direction, thereby tending to increase rather than retard the velocity of its movement. The tapered core and the blades operate to discharge the water toward the open side of the hoist. Whenever the hoist is rotated at a comparatively high speed and the water carried by any one blade is of such volume that all can not escape before the blade reaches an upright position, it will still continue to flow down the inclined face of the core between the two adjacent blades and be discharged through the open side of the hoist and on to the waste way 24.

It may be found desirable to maintain a comparatively tight joint between the forward edges of the blades and the inner face of the wall 13^a, and for this reason I provide means for adjusting the hoist bodily toward said wall. As shown this is accomplished by means of set screws 27, 28, that are threaded in ears 29, and bear against the ends of the shaft 17. By unscrewing the set screw 27, and screwing up the set screw 28, the hoist is moved closer to the wall 13^a. Means of adjustment is also provided for moving the hoist toward the waste way 23, and as shown comprises set screws 30, that are threaded in ears 31, and bear against the boxes 18. This arrangement forms one simple means for adjusting the hoist bodily toward the walls 13^a, 22, so as to maintain a comparatively tight joint therebetween

and prevent any considerable leakage but it is obvious that many other well known expedients may be employed to accomplish the same results.

The operation of the device is readily understood from the above description. The water in the ditch enters the intake in the pocket between the curved wall, the blades and the core, is raised by the inclined blades and flows down the same, discharging over the waste way 24 and into the main channel.

I am aware that various alterations and modifications of this device are possible without departing from the spirit of my invention, and I do not therefore desire to limit myself to the exact form of construction shown and described.

I claim as new and desire to secure by Letters Patent:

1. A water hoist comprising an open rotatable structure having a lateral inlet and an axial discharge, a core extending toward the discharge and having oblique axial blades, and a stationary wall fitting the periphery of the blades, on the side opposite the inlet.

2. A water hoist comprising an open rotatable structure having a lateral inlet and an axial discharge, a core tapered toward the discharge and having oblique axial blades, and a stationary wall fitting the periphery of the blades, on the side opposite the inlet.

3. A water hoist comprising an open rotatable structure having a lateral inlet and an axial discharge and being formed with a circular side wall and a core tapered away therefrom and toward the discharge and having oblique axial blades, and a stationary wall fitting the periphery of the blades, on the side opposite the inlet.

4. A water hoist comprising an open rotatable structure having a lateral inlet and an axial discharge, a many sided core tapered toward the discharge and having oblique axial blades extending across said sides and a stationary wall fitting the periphery of the blades, on the side opposite the inlet.

5. A water hoist comprising an open rotatable structure having a lateral inlet and an axial discharge, said structure being formed with a circular side member provided with an annular rack on its periphery, a core extending from said side member and tapering toward the discharge and having oblique axial blades, and a stationary wall fitting the periphery of the blades, on the side opposite the inlet.

6. The combination with the side walls and a curved bottom wall of a ditch, a bayou wall running at right angles to said ditch and a wasteway running from one of said walls to the bayou wall, of an open rotatable structure journaled upon said side walls and

turning in the ditch, said structure having a lateral inlet opposite the curved wall and an axial discharge, a core tapered toward the discharge and having oblique axial blades,
5. whereby water raised by the blades may run down the same and be discharged upon the wasteway.

In witness whereof I have hereunto set my name at East Chicago, county of Lake, State of Indiana, this 9 day of March, 1910.
ANDREW WICKEY.

Witnesses:

M. E. PETERSON,
CHARLES O. SHERVEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
