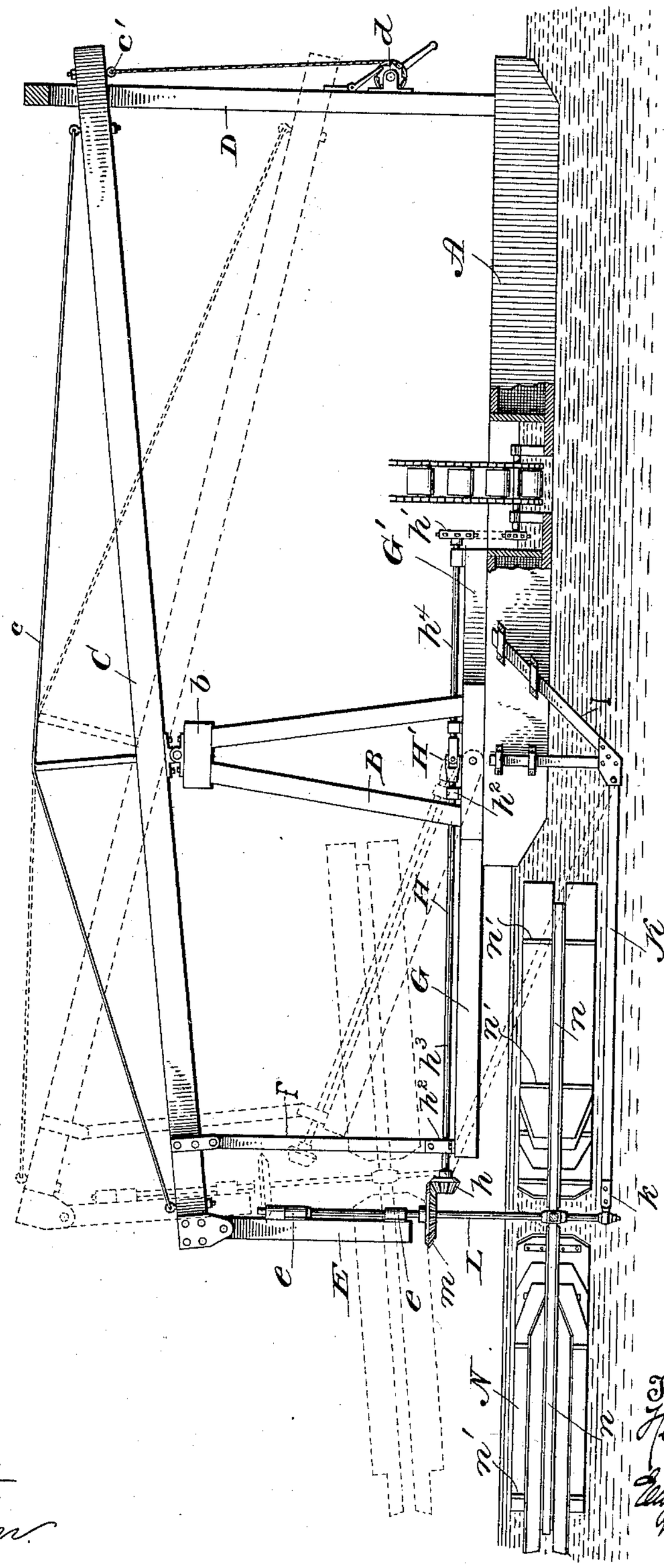
No. 652,143. Patented June 19, 1900.

H. ROOM.

WATER ELEVATOR OR IRRIGATING APPARATUS.

(Application filed Oct. 26, 1899.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

HENRY ROOM, OF OPHIR, WASHINGTON.

WATER-ELEVATOR OR IRRIGATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 652,143, dated June 19, 1900.

Application filed October 26, 1899. Serial No. 734,847. (No model.)

To all whom it may concern:

Be it known that I, HENRY ROOM, a citizen of the United States, residing at Ophir, in the county of Okanogan and State of Washington, have invented new and useful Improvements in Water-Elevators or Irrigating Apparatus, of which the following is a specification.

This invention relates to certain new and useful improvements in water-elevators or irrigating-machines.

One object of the invention is to provide an apparatus or mechanism by the use of which water may be raised for irrigating purposes by a wheel which is actuated by the current or flow of a river or stream, such being the primary object of my invention, though it is obvious that the apparatus may be used for other than irrigating purposes or as a water-elevator. For instance, by reversing the endless chain of buckets and slightly varying their position the apparatus might be used successfully for dredging, or the power might be used for other purposes than to operate an endless conveyer or carrier.

A further object of my invention is to provide means whereby when the water-wheel is raised above the level of the river or stream in which it is submerged to be actuated by the current thereof the shaft of said wheel will be disengaged from the shaft which is driven thereby.

A further object of my invention is to generally improve the construction and arrangement of the parts.

The invention consists in the construction and arrangement of parts, as will be hereinafter set forth and claimed.

In the drawing the view is a side elevation, partly in section, the full lines showing the position of certain parts when the water-wheel is submerged to receive power and be driven by the current, and the dotted lines show the position of the parts when the water-wheel is raised above the level of the river or stream.

In practice the supporting structure may consist of cribwork, a pier, or a float, as is illustrated in the accompanying drawing. Upon the structure or float A is mounted a pair of steeple-frames B, which are connected by a cross-beam *b*, there being fulcrumed thereon a lever or rock-beam C, which is braced by a suitable truss or tie rod *c*. Vertical beams D are secured to one side of the float, and near one end of the lever C, which passes between the beams, is an eyebolt *c'*, to which is attached a rope or flexible connection, which extends to the drum of a windlass *d*, which windlass is carried by the beams D, one of said beams having a pawl which engages with a ratchet-wheel on the shaft of the windlass.

The lever C has pivoted to its load end a hanger E, which carries on one side shaft-bearings *e e*, through which pass and is supported thereby a power-shaft, which carries a gear-wheel and below said gear-wheel a water-wheel. The lever C, adjacent to the hanger E, has suspended therefrom a hanger F, which is of greater length than the hanger E, and said longer hanger is pivotally connected to the end of a bar or beam G, the opposite end thereof being pivotally supported between the base or sill pieces of the steeple-frames. Instead of employing a single bar, as G, I may use two parallel bars and connect them by cross-pieces, and when such construction is employed the distance between the bars will be greater than the diameter of the water-wheel. The bar G or its equivalent frame carries by having journaled thereon a section of a driven shaft H, the two parts of the shaft being coupled by a universal joint H', which is on a line with the pivotal points of connection of the beam G and lever C. The bar G carries shaft-bearings h^2, through which passes the outer section h^3 of the shaft H, and the inner section h^4 of the shaft passes through journal-boxes attached to a beam G', which is supported in line with the beam or bar G. The outer end of the section h^3 of the shaft H has rigidly secured thereto a pinion *h*, and the inner end of said shaft carries a gear or sprocket wheel from which power is transmitted to a shaft or drum over which passes an endless chain of buckets or other equivalent means for raising water from the stream or river to a higher elevation for irrigating purposes, or said chain of buckets or an equivalent endless conveyer may lead to the bottom of the river when it is desired to use such a portable apparatus as has been illustrated for dredging.

Attached to the float or supporting structure is a depending frame I, which has means for pivoting thereto one end of a bar K, and the pivotal point of the bar with the depending frame is to one side of the pivotal point of the bar G and the fulcrum of the lever C. To the outer end of the bar K is pivoted a shaft-bearing *k*, which encircles the shaft L adjacent to its lower end. The shaft L, which is suspended from the hanger E, is also in engagement with the bar K, and on said shaft above the current-actuated water-wheel is a gear-wheel *m*, which is adapted to mesh with the pinion *h* and drive the shaft H, and when the gears are in operative position or mesh the shafts will be substantially at right angles with each other, and they are supported in such position by the bar G, which rests on one side of its pivotal point upon the deck of the float, and the hanger prevents the lever from moving downward more than is necessary to insure a proper engagement of the gear-wheel and pinion.

The water-wheel N consists of a hub which is rigidly attached to the shaft L, and from said hub project a series of radiating spokes *n*, which carry divided or feathering blades, which blades when in a vertical position engage with arms or stops *n'*, attached to the spokes, so as to project vertically from each side of the same.

When the water-wheel is mounted on a float and used for irrigating purposes, said float may have near its longitudinal center a well, and the endless conveyer or chain of buckets can pass over a suitably-supported shaft located in said well, which shaft is driven from a sprocket-wheel *h'*, over which passes a chain which engages with a sprocket-wheel on the shaft or drum of the endless conveyer. Thus when the water-wheel is placed in an operative position to be affected by the current on one side of the hub the blade on the other side of the hub will assume a horizontal position, so that said wheel will operate the endless conveyer and carry water from the stream to a higher elevation. Inasmuch as the endless conveyer and the manner of supporting the higher end of the same is varied and forms no part of my present invention I have not deemed it necessary to illustrate it or set forth the details of construction.

When it is desired to raise the water-wheel, so that it will not be actuated by the current, the windlass is turned to change the position or raise the load end of said lever, which movement inclines the two pivoted bars G K, one being connected to the lever by the hanger F and the other to the shaft L, which is connected to the hanger E. As the lever is raised, by reason of the organization of the parts, their proportions, and the arrangement of their pivotal connections the gear-wheel *m* will be put out of mesh with the pinion *h* when the load end of the lever is elevated, and when a single beam G is used two of the arms of the water-wheel will lie on each side of the same, which will prevent the turning of the wheel.

Having thus described my invention, I do not wish to limit myself to the precise arrangement of the parts, but reserve the right to change and modify them within the scope of my claims.

I claim—

1. In a current-actuated water-motor, for the purpose set forth, the combination with a water-wheel having horizontally-disposed feathering-blades, a shaft to which the water-wheel is attached, means for supporting the upper end of the shaft said means being attached to a hanger which is pivotally attached to the load end of a lever, a bar connected at one end to the lower end of the shaft the other end being pivotally supported to one side of a vertical line drawn through the fulcrum of the lever, a gear-wheel carried by the shaft, of a bar or frame which is pivoted at one end in line with the fulcrum of the lever, a link connecting the other end of the bar to the lever, and a driven shaft journaled upon the bar and provided with a pinion for engagement with the gear-wheel on the drive-shaft, substantially as shown, so that when the load end of the lever is lowered the gears will engage and when raised will be placed out of engagement.

2. In combination with a support, of a lever fulcrumed thereon, a shaft having a universal joint on a line with the fulcrum of the lever, a gear-wheel on the end of the shaft a link or hanger which connects the shaft with the lever, a drive-shaft connected to the lever by a hanger which is pivoted thereto, a gear on the drive-shaft for engagement with the pinion of the driven shaft and means for governing the swinging movement of the drive-shaft, whereby when the lever is elevated the gears will be disengaged, substantially as shown.

3. The combination with a supporting-frame, of a lever attached thereto a hanger and a link which depends from the lever a shaft supported by the hanger said shaft having means for rotating the same and a gear-wheel thereon, a bar pivoted at one end in line with the fulcrum of the lever the other end being connected to the link, a shaft having a pinion for engagement with the gear-wheel on the drive-shaft and a bar connecting the lower end of the drive-shaft with a frame attached to the support so as to extend therefrom in an opposite direction from the support for the lever, for the purposes set forth.

4. In an irrigating apparatus, the combination with a float having thereon steeple-frames, a lever fulcrumed on said steeple-frames, uprights between which one end of the lever passes, a windlass attached to said uprights and means for connecting the lever thereto, a hanger carried by the load end of the lever and a link attached between said hanger and the fulcrum of the lever, a shaft

journaled upon the hanger and provided with a gear-wheel and with a horizontally-disposed current-actuated water-wheel, a bar pivotally attached to the float on a line with the fulcrum of the lever said bar resting upon the float when lowered, the link connecting the outer end of the bar with the lever whereby the downward movement of the load end of the lever is limited, a shaft mounted on the bar connected to the link, said shaft having at one end a pinion for engagement with the gear-wheel of the drive-shaft and at the other end a universal joint which is connected with a shaft having means for operating an endless conveyer, substantially as shown.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY ROOM.

Witnesses:
GEORGE T. JENKINS,
EDW. B. FLANDERS.