No. 847,508. PATENTED MAR. 19, 1907.

J. H. RALSTON.

WATER ELEVATING DEVICE.

APPLICATION FILED AUG. 16, 1905.

2 SHEETS—SHEET 1.

Fig. 1

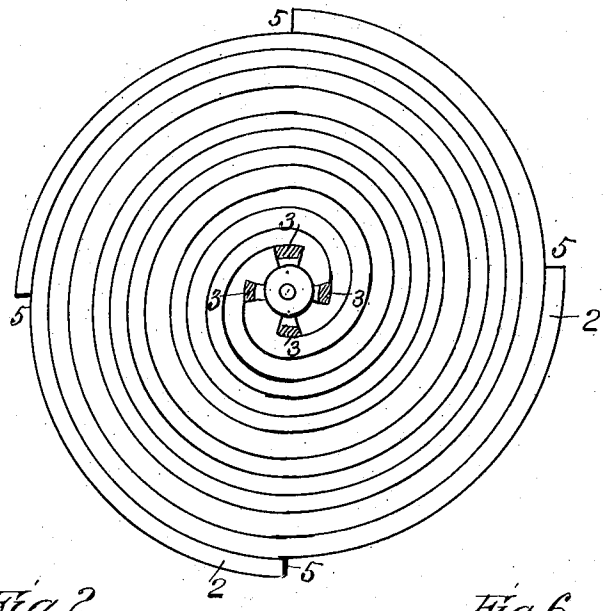


Fig. 2

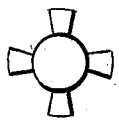
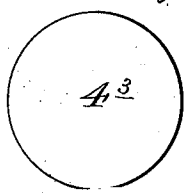


Fig. 6



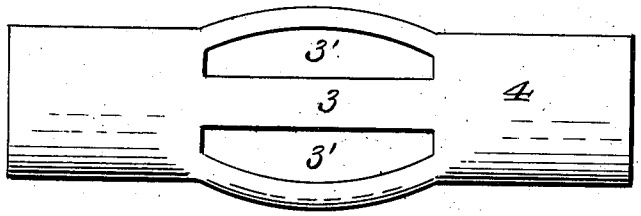


Fig. 3.

Inventor

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Witnesses

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Attorney

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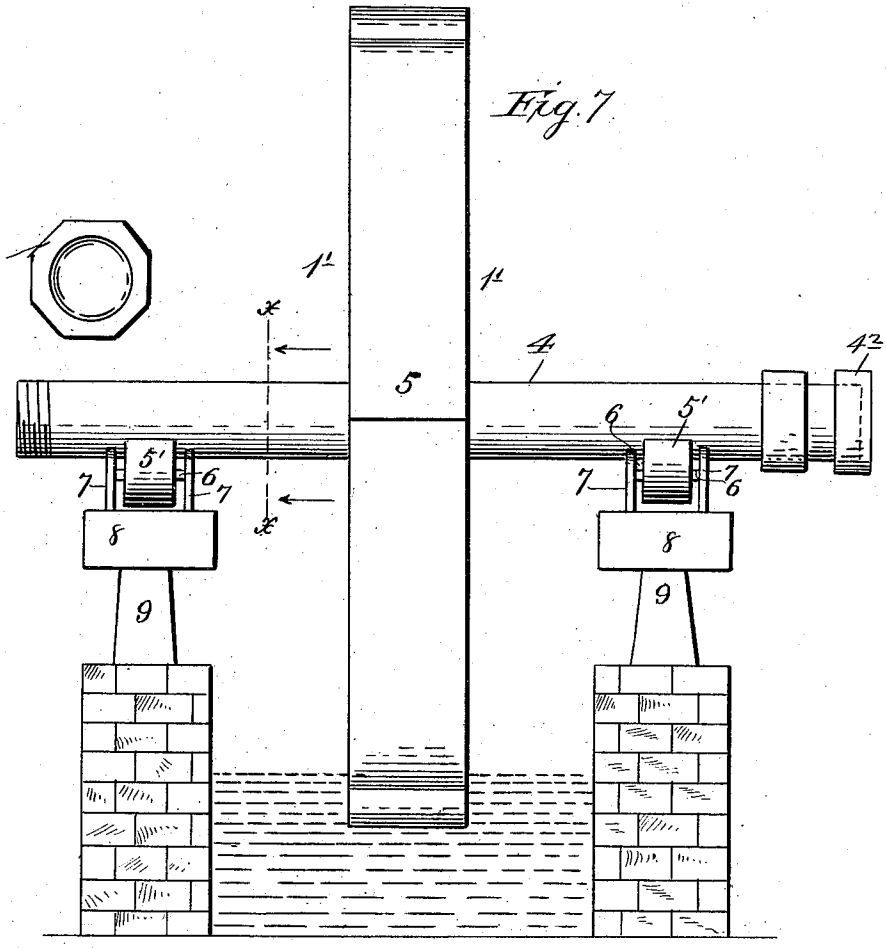
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2 SHEETS—SHEET 2.

Fig. 7



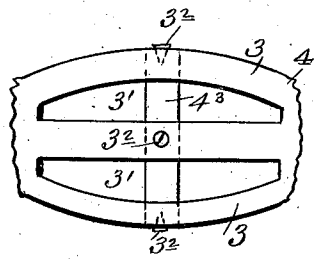
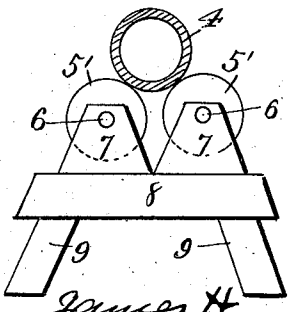


Fig 5

Fig 4



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES H. RALSTON, OF SNOWMASS, COLORADO.

WATER-ELEVATING DEVICE.

No. 847,508. Specification of Letters Patent. Patented March 19, 1907.

Application filed August 16, 1905. Serial No. 274,469.

To all whom it may concern:

Be it known that I, JAMES H. RALSTON, a citizen of the United States, residing at Snowmass, in the county of Pitkin and State of Colorado, have invented new and useful Improvements in Water-Elevating Devices, of which the following is a specification.

My invention has relation to new and useful improvements in machines for elevating water, and consists of a wheel provided with side walls and provided with spiral dippers, which are secured to the inner faces of said side walls, and a hollow axle, to which said wheel is rigidly connected.

While my improved wheel is especially adapted for irrigating, mining purposes, and the like, it may be used in all cases for elevating water where applicable.

With these ends in view my invention consists in the novel construction, combination, and arrangement of parts, as set forth in the specification and claims hereunto attached.

In the accompanying drawings, in which like parts are designated by like characters throughout the several views, Figure 1 is a vertical side view of my invention with one of the walls removed, the axle being in cross-section. Fig. 2 is a transverse sectional view of my axle. Fig. 3 is an enlarged perspective view of my axle. Fig. 4 is a front elevation of my invention mounted on roller-bearings placed on a brick wall or other bounding means for a pond, stream, or the like, showing how the water is taken at the periphery of the wheel and delivered at the end of the hollow axle. Fig. 5 is a side elevation of one of the roller-bearings on which my invention is mounted, the axle shown in transverse section, cut on the line x x of Fig. 4, looking in the direction of the arrows. Fig. 6 is a face view of the disk for dividing the water. Fig. 7 is a detail view showing slots at the center of the axle, leaving connecting-strips and having secured between said strips a disk.

My invention is described as follows: The numeral 1 represents a wheel provided with side walls 1′. Said wheel is also provided with a series of spiral buckets 2, which are secured to the inner faces of said side walls. Said wheel is rigidly connected to a hollow axle-wheel 4, provided with a series of longitudinal slots 3′, leaving bowed connecting-strips 3. Said connecting-strips are equal in length to the thickness of the wheel and extend from the inner periphery of the axle and curve in such a manner that their middle points extend slightly beyond the outer periphery of said axle. The outer ends of said buckets are so constructed as to provide a series of mouths 5. Although my improved wheel is preferably constructed with four mouths, (see Figs. 1 and 2,) which serve to effect a quadruple delivery or take in water at the periphery of the wheel and deliver same out of either or both ends of said hollow axle four times per revolution, it will be obvious that my improved wheel may be provided with two, three, or any number of mouths as will comply with the requirements of each need. By providing said axle 4 at its middle point with a series of connecting-strips 3, equal in length to the width of the wheel, I necessarily provide said axle with openings 3′, equal in number to the spiral buckets or dippers. The water is taken in at the periphery of the wheel, passes along the spiral buckets to the middle part of the axle, and thence outwardly to be delivered at either or both ends of said hollow axle. The water taken in by any of the mouths will always be conveyed to the hollow axle by the same opening—that is to say, each mouth has use of a separate opening to convey the water to the hollow axle, which construction causes a uniform taking in and delivery of the water. Both ends of said axle are provided with a thread, and each end is provided with a cap $4'$ and 4^2, which screws on the thread of each end. When I wish to divert the water to the left side, I screw on the cap 4^2 and screw off the cap $4'$, and when I wish to divert the water to the right side I screw off cap 4^2 and screw on cap $4'$, and when I wish the water to flow equally out of both ends of the cylinder at the same time I remove both caps; but if I want the water to flow, say, one-third out of one end and two-thirds out of the other I secure, by screws 3^2 or other suitable means, the disk 4^3 at the proper place near the center of said axle before the buckets are attached. Said disk is inserted into said axle by passing it through one of the slots 3′ and is secured in place by any suitable mechanical means. Said axle is mounted and revolves on roller-bearings 5′, which in turn are rigidly connected to axles 6, having their outer ends journaled in bearings 7. Said bearings 7 rest on longitudinal beams 8, which are supported by legs 9.

The operation of my wheel is as follows: Said supports and roller-bearings are placed on brick walls or other means for inclosing a

stream, pond, or the like and the said axle 4 mounted on said bearings. Said axle 4 is then revolved by passing a belt over a pulley-wheel 10 on said axle, or said wheel may be operated by a sprocket-wheel or a flanged groove fastened on the side of the elevator.

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

1. A water-elevating device, consisting of a hollow axle mounted on suitable bearings, said axle provided at its center with longitudinal slots for the inflow of water, leaving connecting-strips; a disk, secured between said strips, and a series of spiral buckets, their outer ends terminating in mouths, their inner ends secured to said connecting-strips, permitting the inflow of water to said axle, substantially as shown and described and for the purposes set forth.

2. A water-elevating machine, consisting of a wheel 1, provided with side walls 1′; a series of spiral buckets 2, secured to the inner faces of said walls, and terminating at the periphery of said wheel in mouths 5; an axle 4, provided with connecting-strips 3, and openings 3′, said axle being hollow its entire length; caps 4′ and 4^2, removably secured one on each end of said axle; a disk, adapted to be secured near the middle of said axle; roller-bearings 5′, supporting said axle, and rigidly connected to axles 6, journaled in bearings 7; longitudinal beams 8, provided with legs 9, said beams supporting said bearings 7, with means for revolving said axle and wheel, substantially as shown and described and for the purposes set forth.

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

JAMES H. RALSTON.

Witnesses:
FERNAND L. MULLIN,
JOHN S. THORN.