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W. MILLER

WATER POWER WHEEL

Filed June 22, 1922

Fig. 1.

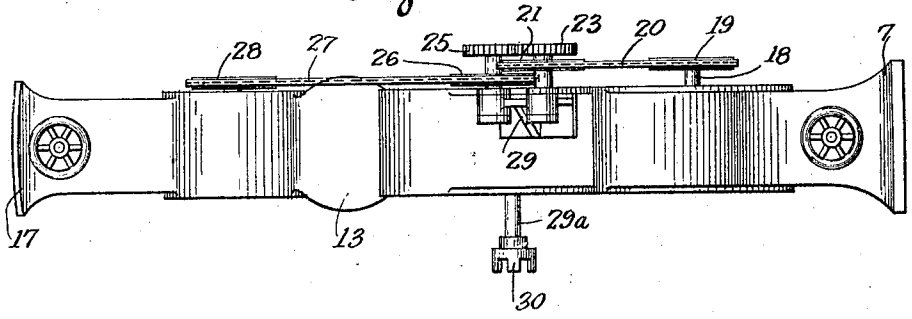
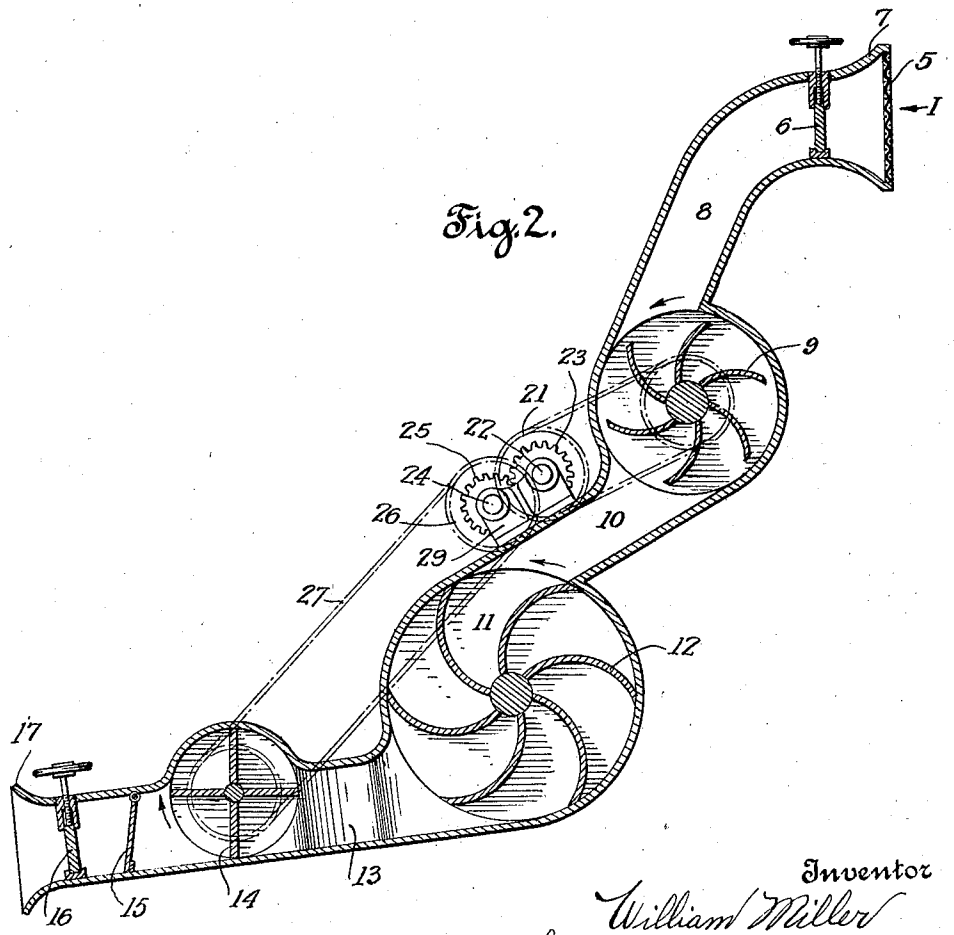


Fig. 2.



Inventor

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By his Attorney

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UNITED STATES PATENT OFFICE.

WILLIAM MILLER, OF NEW YORK, N. Y.

WATER-POWER WHEEL.

Application filed June 22, 1922. Serial No. 570,070.

To all whom it may concern:

Be it known that I, WILLIAM MILLER, a citizen of the United States, and resident of the borough of Manhattan, city, county, and State of New York, have invented new and useful Improvements in Water-Power Wheels, of which the following is the specification.

The device, the subject of this invention is intended as a means for controlling the flow of water from a water wheel and has particularly for its features, means for controlling the flow of water away from a power wheel, the object being to control the flow so that a certain cushion of water will be retained on the discharge side of the power wheel, the cushion being retained by a movable gate which may be movable at a desired speed of discharge of the water and regardless always of the amount of water flowing in or toward the wheel.

Another object of the invention is to control the speed of a power wheel without reducing the amount of water flowing from the wheel, in other words to change the speed, without changing the torque and another object of this invention is to provide means whereby water may be most readily discharged from a power water wheel, allowing the wheel to rotate more freely and more rapidly. All of these objects and the means for accomplishing them will be fully set forth as the specification progresses and the accompanying drawing should be referred to for a complete understanding of the specification which follows:—

In the drawing:—

Fig. 1 is a plan view of my device, and

Fig. 2 a side elevation, partly in section, showing the operating mechanisms and other constructions.

Similar reference numerals indicate like parts in all the figures where they appear.

I utilize as a part of my invention a suitably supported flume or conduit. I prefer, however, that the angles of the flume should be similar to those shown in Fig. 2 of the drawing, wherein the inlet is in the direction of the arrow I, the water passing the screen 5, the inlet being controlled by a gate valve 6 and it will be noted that the end of the flume is trumpet shaped as shown at 7.

After passing the gate 6, the water drops through the angular passage 8 upon a water wheel 9 and it will be noted that this wheel 9 does not entirely fill the flume at that part where the wheel is mounted. As this wheel 9 is not the main power wheel, a part of the water passing through the flume may be allowed to pass the wheel 9 without exerting its weight or force thereon.

All of the water passing the wheel 9 is received in the angularly disposed directioning nozzle 10, which is a part of the flume body and is from there directed into the buckets 11, formed by the blades of the wheel 12 and is discharged into the tank 13 which is formed as shown in Fig. 1, of the bulged or extended portion of the flume.

Adjacent this tank is a movable gate or discharging member, which consists of a plurality of rotatable paddles 14, rotated by a means which I will describe and at a speed that may be pre-determined and changed at will. A check valve 15 is provided and a gate valve 16 for a purpose that shall appear later and it will be noted that the final discharge passage of the flume is also trumpet shaped as shown at 17.

The discharge end 17 of the flume at times, may be submerged and for that reason I provide the check valve 15 and gate valve 16, by which means I prevent the filling up of the flume when the discharging device 14 is stopped.

Upon the shaft 18 of the smaller wheel 9, I arrange a sprocket 19 driving a chain 20, which rotates a sprocket 21, a first jack shaft 22 and a gear 23 thereon.

Parallel with the jack shaft 21 is another jack shaft 24 having a gear 25 in mesh with a gear 23 and by means of which the shaft 24 is rotated. A sprocket 26 upon the shaft 24 operates a chain 27, which in turn drives the movable gate or discharge member 14 through a sprocket 28 upon the shaft thereof.

It will be noted that I provide a bracket 29 for the short jack shafts, supporting these shafts so that the gears 23 and 25 may be readily changed at will and the relation of these gears vary so that the speed of rotation of the movable gate or discharging member 14 may be changed at will.

Upon the shaft 29^a of the main power wheel 12, I may arrange a clutch 30 or any other power take-off member, connecting this power take-off member within the device that it is my desire to drive. The direction of rotation of the water wheels and gate are indicated by the arrows shown in the flumes and adjacent to these members.

Water passing into the flume in the direc-

tion of the arrow I, will pass downward through the flume, some of it rotating and some of it passing the smaller power wheel 9. All of the water will continue onward operating the large power wheel 12 and will be received into the cushioning or reception chamber 13.

The movable gate member 14 operating from the smaller wheel 9 will force the water outward through the check valve 15 at a speed that shall be determined by the rotation of this wheel. If desired, the rotation of the wheel 14 may be fast enough to discharge all of the water as it is received, at which time the wheel 12 will operate at its maximum speed and power. If, however, the speed of the discharging member 14 is slower, some of the water will be held backward tending to check the wheel 12 and preventing the racing of the wheel when the load is dropped.

Another important reason for the rotary discharge gate 14 is that it will force water out of the flume even when the discharge end of the flume is submerged below the surface of the water.

I may provide means, such as shifting gears for readily changing the speed of the member 14 and other modifications may be made within the scope of the appended claims without departing from the principle or sacrificing the advantages of the invention.

Having carefully and fully described my invention what I claim and desire to secure by Letters Patent is:—

1. Means for controlling the discharge of water from a water wheel, which consists of a primary wheel and a secondary wheel, and a movable gate operated by said secondary wheel and adapted to retain or discharge the water from the discharge side of the primary wheel.

2. Means for controlling the discharge of water from a water wheel, which consists of a primary wheel and a secondary wheel, and a movable gate operated by said secondary wheel and adapted to retain or discharge the water from the discharge side of the primary wheel, and means for varying the speed of said discharge.

3. A means for controlling the discharge of water from the water wheel which consists of a conduit, a plurality of water wheels in said conduit, said wheels being of different diameters, a cushioning chamber in said conduit and a movable gate adjacent, said cushioning chamber to control the discharge therefrom.

4. A means for controlling the discharge of water from a water wheel which consists of a conduit, a plurality of water wheels in said conduit, said wheels being of different diameters, a cushioning chamber in said conduit and a movable gate adjacent, said cushioning chamber to control the discharge therefrom, said gate being opened and closed by the movement of said wheel of smaller diameter.

5. A power means comprising a water conduit, a plurality of water wheels arranged therein, and of different diameters, one said wheel receiving all of the water flowing through said conduit and the other said wheel receiving a portion of the water flowing through said conduit, and means operated by one said wheel for controlling the discharge of water from said conduit.

6. A power means comprising a water conduit, a plurality of water wheels arranged therein, and of different diameters, one said wheel receiving all of the water flowing through said conduit and the other said wheel receiving a portion of the water flowing through said conduit, and means operated by one said wheel for controlling the discharge of water from said conduit, and a cushioning chamber between the larger of said wheels and said discharge controlling means.

Signed at the city, county and State of New York, this 19th day of June, 1922.

WILLIAM MILLER.