

D. H. ANDERSON.
Water-Wheel.

No. 220,212.

Patented Oct. 7, 1879.

Fig. 1

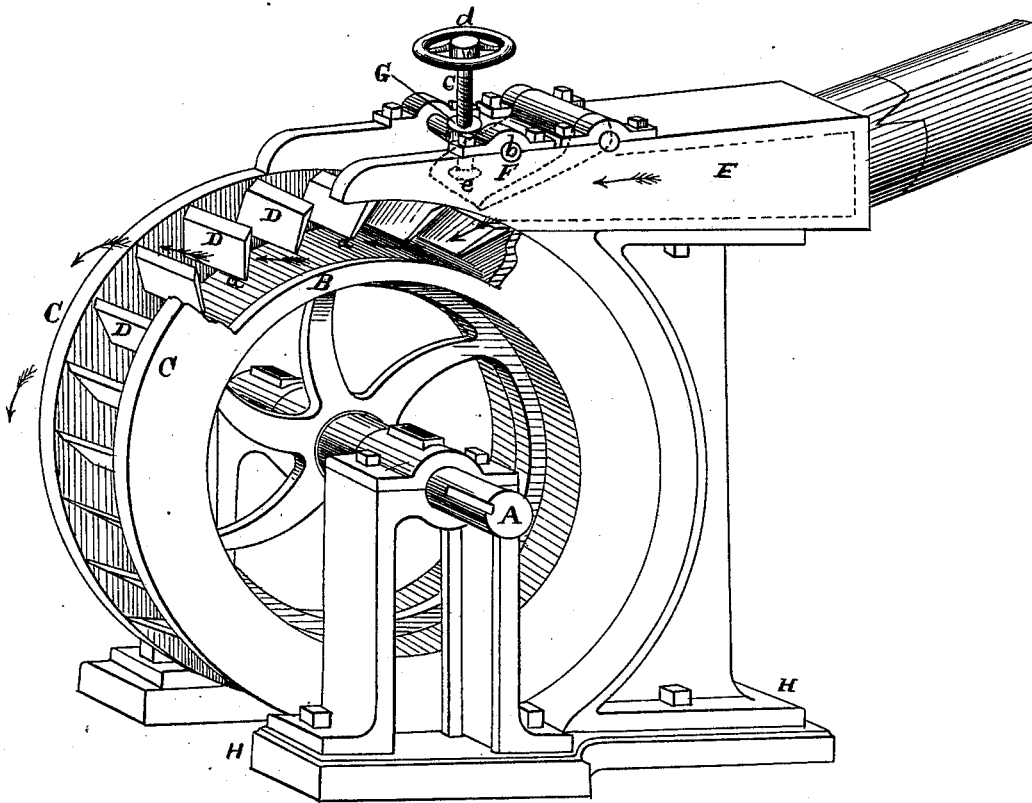
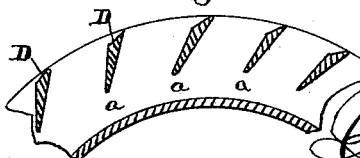


Fig. 2



Witnesses

Geo. W. Strong.

Frank A. Brooks

Inventor

David H. Anderson
By Dewey & Co.
Atty.

UNITED STATES PATENT OFFICE.

DAVID H. ANDERSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO SAMUEL K. GOLDTRAP, OF CENTERVILLE, IDAHO TERRITORY.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **220,212**, dated October 7, 1879; application filed March 7, 1879.

To all whom it may concern:

Be it known that I, DAVID H. ANDERSON, of the city and county of San Francisco, and State of California, have invented an Improved Water-Wheel; and I hereby declare that the following is a full, clear, and exact description thereof, reference being made to the accompanying drawings.

My invention relates to an improvement in that class of water-wheels known as "hurdy-gurdy" wheels, which are driven by the momentum of the water, and in which the water is received into the buckets from the outside and discharged in the same manner.

It consists in so mounting the buckets or floats on the flanges or rim of the wheel that a continuous space is left between the inner edges of the buckets and periphery of the wheel, so that the momentum of the water is not lost on the first bucket, but is distributed over a number, until its moving force is entirely lost, when it leaves the wheel.

Figure 1 is a perspective view. Fig. 2 is a section of the rim.

On suitable bearings is mounted the horizontal shaft A, on which is the wheel B. On each side of the face of this wheel is the rim or flange C, and between these rims or flanges are secured the inclined buckets D. These buckets may be slightly curved and their lower ends given a somewhat sharper pitch than their upper ends in the direction of the revolution. The buckets extend from the upper edge of the rims down about one-half or two-thirds of the distance toward the face, not continuing all the way to the face. By this means a space, *a*, is left between the lower edges of the buckets and the face of the wheel, and there is therefore a continuous passage all around the wheel under the buckets, for the purpose hereinafter described.

Water is supplied to this wheel from a feed or supply box, E, into which it is led under pressure. At the end of the feed-box is a gate, F, hinged at the upper end of said pipe or flume, and having suitable washers at the joint.

On top of the supply-box, and in a proper position over the gate, is a bar or nut, G, which

is swiveled, as shown at *b*, to the sides of the box. Down through this is a threaded rod, *c*, having a hand-wheel, *d*, on its upper end. On the upper part of the gate is formed a socket, *e*, into which the lower end of the rod *c* fits loosely. By means of this device the feed-opening is regulated as the bar and hand-wheel control the gate F.

By screwing the rod *c* up the pressure of water lifts the gate, and the varying angle of the gate with relation to the rod is compensated by the nut or bar through which said rod screws being swiveled, so that the bar may, to a certain degree, follow the circle described by the gate, and no undue strain be brought on any of the controlling parts.

When the water is admitted to the wheel from the pipe or flume under pressure it strikes the first bucket or float in its track with great force, but at the same time can pass under the paddles or buckets and sweep on its course, carrying the wheel with it. The main force of the water is not expended on the first bucket it strikes, but really strikes with greater force the one which it overtakes at right angles, which may be number four or five from the one it first strikes. This it is possible for the water to do, since it can pass under the paddles; but in passing under some of the water is at all times in contact with the intervening buckets. The force of the water is therefore not all expended and deadened on one bucket, but acts on the wheel as it passes on its course with the wheel.

The speed of the wheel is about two-thirds the velocity of the water, so that when the water becomes slowed down to the speed of the wheel the wheel moves away from the water and it passes off.

The discharge is easily effected, since there is no suction to the buckets, as the air can easily pass under them from below and admit of easy discharge of the water.

I intend to mount this whole wheel, with its supply-box and gate, on a bed-piece or foundation, H, and suitable framing, so that it will be portable, and the water can be applied at any suitable point.

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

1. The water-wheel B, having the flanges or rims C, which carry the buckets D, said buckets being secured to said rims so as to leave a space, *a*, between their lower edges and the periphery of the wheel, whereby the force of the water issuing from the box E may act by momentum on more than one bucket at the same time, substantially as and for the purpose herein described.

2. The bar or nut G, swiveled to the discharge-box outside the gate, having the threaded rod *c*, in combination with the gate F, with its socket *c*, by means of which the flow of water to the wheel is regulated, substantially as and for the purpose herein described.

In witness whereof I have hereunto set my hand.

DAVID H. ANDERSON.

Witnesses:

FRANK A. BROOKS,

A. H. EVANS.