H. Wenger,

Water Wheel.

No. 48855. Patented July 18, 1865.

Fig. 1.

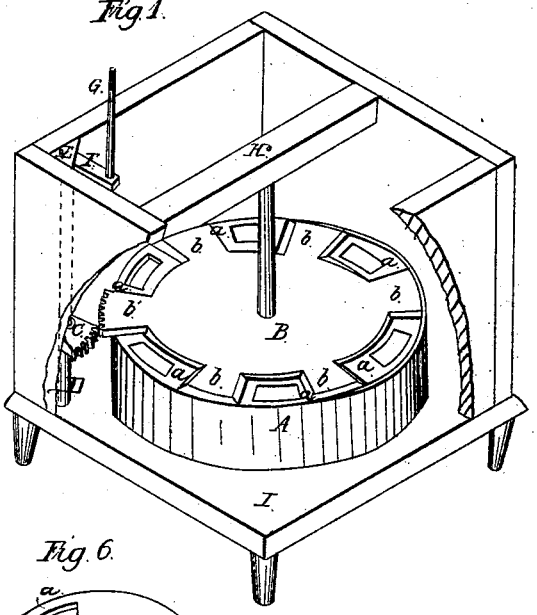


Fig. 3.

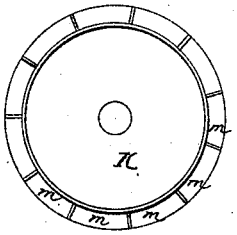


Fig. 4.

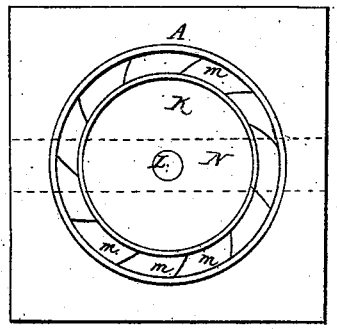


Fig. 6.

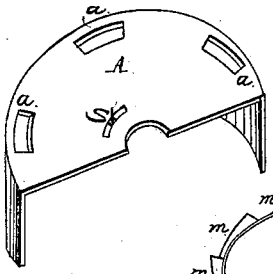


Fig. 2.

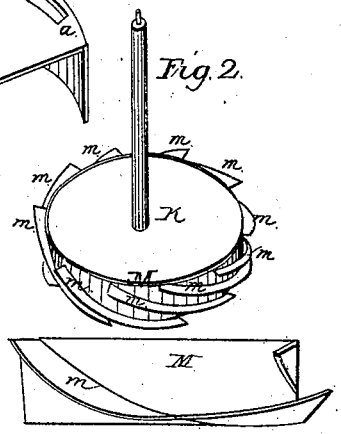
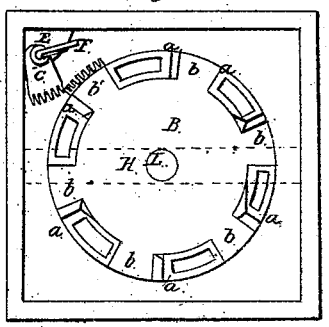


Fig. 5.



Witnesses:

E. Burkholder

John J. Sanders

Inventor:

Henry Wenger

UNITED STATES PATENT OFFICE.

HENRY WENGER, OF FARMERSVILLE, PENNSYLVANIA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **48,855**, dated July 18, 1865.

To all whom it may concern:

Be it known that I, HENRY WENGER, of Farmersville, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in the Construction of Horizontal Water Wheels or Motors; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 shows my arrangement within the large wooden penstock, with a portion of the two sides broken away for that purpose; Fig. 2, the shaft, with the central hub and buckets on its side removed from its outer cover or cylindrical case, A, which latter is affixed to the bottom of the penstock, as shown by Fig. 1. Fig. 3 is a top view or plan of the motor-wheel K; Fig. 4, the same as seen from beneath. Fig. 5 is a top or plan view of the chutes *a* and portions of the top of the circular case or box A and the disk or gate B, with its covering-projections *b*, one of which, *b'*, is provided with cogs meshing into a cogged quadrant, C, on a vertical shaft, D, operated by a lever, F G, for closing or regulating the flow of water into the chutes simultaneously; Fig. 6, a section of case.

The nature of my invention is to supply a water-motor of a class which have come into extensive use so simplified as greatly to reduce the cost without loss of power.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

I construct my water-tight wooden penstock in the ordinary manner. In the bottom I, Fig. 1, I make a circular opening, into which the casing A, with its top and chutes *a*, is inserted centrally in said bottom. On the top of the casing A, I have a circular disk, B, with extended ears or covers *b* for the chutes *a*. This disk, like the casing, has a central opening for the shaft L of the motor K, and is connected with the top of the casing A, Fig. 6, in a regulating-slot, *s*, and headed bolt, by which it is also made adjustable in centralizing it for the shaft.

One of the valves or covers marked *b'* is made to project beyond the casing, and is provided with cogs.

On an upright shaft (in the most convenient corner of the penstock for operating it) there is a segment of a cogged wheel meshing into the cogs on *b'*, which, by means of a lever and connection carried to or into the mill, can be so operated as to close all the chutes at once, or partially, as may be desirable. This disk B may be made of wood, and made water-tight over the chutes by leather or other material.

The revolving shaft L has its bearings in the cross-piece H on top, and step or bearing beneath in the cross-piece N. The shaft and motor-wheel, Fig. 2, show their connection. This motor K may have a central wooden hub firmly connected to the shaft, with a metallic ring surrounding it, with the buckets *m* on the vertical periphery of the said ring or hub K. I employ a series of eleven buckets so inclined as to bring the lower terminus of one in a line with the top of the third succeeding bucket, as shown by Fig. 2. Beneath is also shown a single bucket, (enlarged and elongated on a straight plane.)

The operation is readily understood. The water lying a dead weight in the penstock, on opening the chutes the water rushes in on the top of the casing and falls vertically on the upper part of the buckets at six or more different points. Confined by the vertical edge of the casing, the entire gravitating force acts upon the buckets and is discharged beneath.

I am aware that various devices are employed in the construction of this class of water-motors; but I am not aware of any arrangement and combination substantially the same.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement and combination of the water-wheel K, with its buckets *m* on its vertical periphery M within the vertical casing A, chutes *a* on top, disk B, with its valves *b*, and cogged valve *b'*, operated in the manner and for the purpose set forth.

HENRY WENGER.

Witnesses:

JOHN J. SANDERS,

E. BURKHOLDER.