W. F. EYSTER.
Water-Motor.

No. 221,225. Patented Nov. 4, 1879.

Fig. 1.

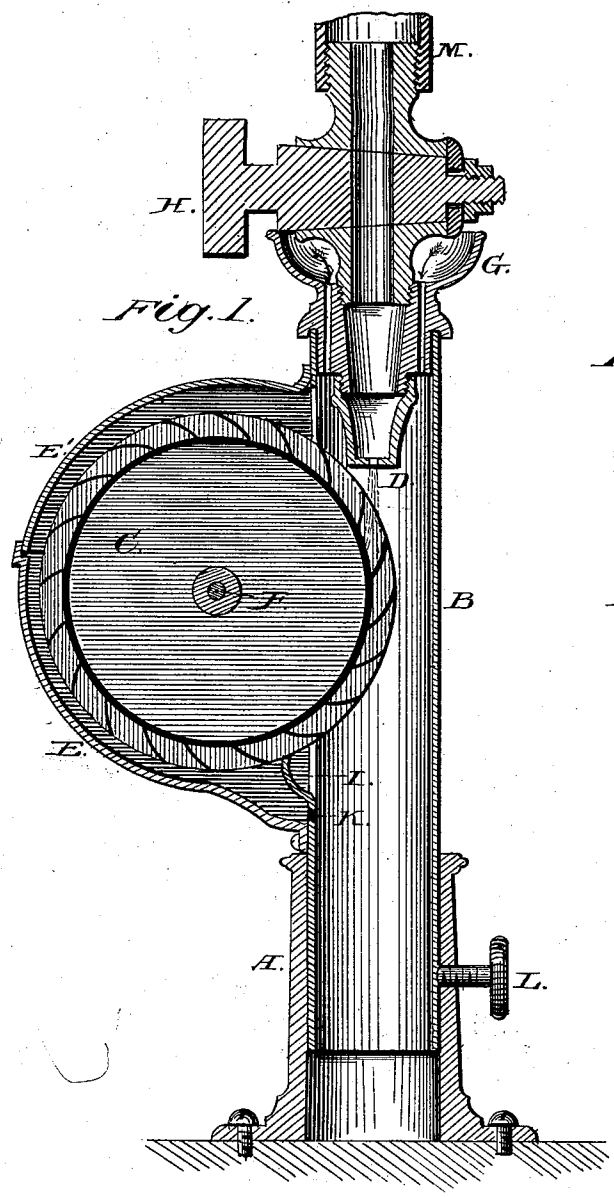


Fig. 2.

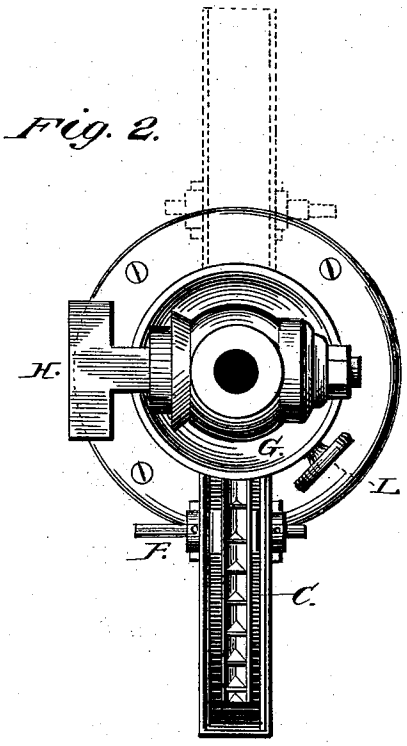
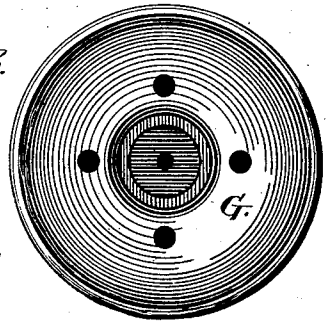


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILBUR F. EYSTER, OF CHAMBERSBURG, PENNSYLVANIA.

IMPROVEMENT IN WATER-MOTORS.

Specification forming part of Letters Patent No. **221,225**, dated November 4, 1879; application filed May 10, 1879.

To all whom it may concern:

Be it known that I, WILBUR F. EYSTER, of Chambersburg, Franklin county, Pennsylvania, have invented an Improvement in Water-Motors; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section. Fig. 2 is a top view. Fig. 3 is a detached view.

My invention or improvement in water-motors consists, first, in a hollow supporting standard or column, having a slot in one side, in combination with a water-wheel and a vertical, or nearly vertical, jet of water or jet-tube, directing the stream of water downward upon the buckets, the jet striking the buckets on a level, or nearly on a level, with the axle of the wheel; secondly, of a revolving standard for the purpose of turning the water-wheel horizontally; and, third, in the combination of a funnel with a stop-cock for carrying off the drip in case the cock leaks; also, in other improvements, all of which will be fully understood from the following description.

In the construction of my improved water-motor, a suitable hollow pedestal, A, receives a hollow column or cylinder, B, which will easily revolve in the pedestal A, and thus turn the water-wheel in any direction as may be desired. The column or hollow cylinder B has a slot in one side, and the water-wheel C is inserted into this slot so as to bring the circumference of the wheel or one part thereof a little beyond the center of the hollow column. Then the jet-tip D is set to direct the stream of water down upon the wheel or buckets at this center of the hollow column.

The wheel-case is made in two pieces, E and E′, both fastened to the hollow column by screws. The lower part, E, of the case has bearings for the wheel-axle F, and the upper part, E, drops inside of a lip on the lower part, thus forming a joint without any expense in fitting up. Also, the funnel G is cast with a lip and groove, so as to drop into place on the top of the hollow cylinder or column without any machine-work in fitting this joint, and the drip from the stop-cock H runs down through the funnel G directly into the hollow cylinder B, and thus joins the spray or splash from the stroke of the water-jet on the buckets of the wheel.

Below the wheel is a shield or fender, I, to prevent the water from splashing too freely into the wheel-case; and below this water-fender is an opening, K, to discharge any water that may adhere to or follow the wheel.

A thumb-screw, L, is employed to fix the column B, when turned into place, as desired.

At M, Fig. 1, is a hose-pipe or rubber tube, for bringing water from the hydrant in the usual manner.

I do not limit my invention to the precise construction set forth.

Two jet-tubes and jets may be employed, and the buckets may be flat plates, so as to receive the jet on either side, reversing the motion of the wheel, if desired, and the funnel and other parts may be somewhat changed in form, if desired.

The chief advantages of my improved water-motor are, first, simplicity of construction by the use of the hollow cylinder or column B; second, rotation of this column so as to turn the wheel to either side, as may be desired, where the workman has little room; third, there is no possibility of flooding the wheel or the various joints, which latter may be loose joints; fourth, the vertical or down stroke of the jet upon the buckets; fifth, there are no curves for the water-current in approaching the wheel, and therefore I secure the full force or momentum of the stroke or current; sixth, a free discharge, there being no obstruction to the fall of the water in the vertical column or well B, in which the water falls freely through the air which always occupies a large portion of the space in this hollow column, there being ample space for the water to expand or for the water from fifty or one hundred jets to fall and discharge.

I do not broadly claim a swinging motor; but I believe it is new to rotate a hollow column on its own axis, and thus turn the wheel horizontally, as above described.

Having thus described my invention, what I claim is—

1. The arrangement and combination of the hollow supporting-column B with the wheel C, inserted into one side thereof, and also provided with a wheel-cap, and the jet-tube D, dis-

charging the water downward upon the buckets in the free space of the hollow column, substantially as set forth.

2. The hollow column B, arranged to rotate on its own axis, and also supporting the wheel C, and giving the same a horizontal rotation around the water-jet, substantially as specified.

3. In a water-motor having a hollow column, B, and jet-tube D, the funnel G, for catching the drip from cock H and discharging the same into waste below, as described.

4. The pedestal A, in combination with the hollow column B, substantially as set forth.

5. The wheel-case having the two parts E and E′, and one edge of the wheel projected into the hollow column or water-channel, as described.

6. The lower part of the wheel-case, E, provided with a lip to receive and embrace the lower edges of the upper part, E′, thus forming a joint without any fitting or machine-work, as set forth.

The above specification of my said invention signed and witnessed at Washington this 9th day of May, A. D. 1879.

WILBUR F. EYSTER.

Witnesses:
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