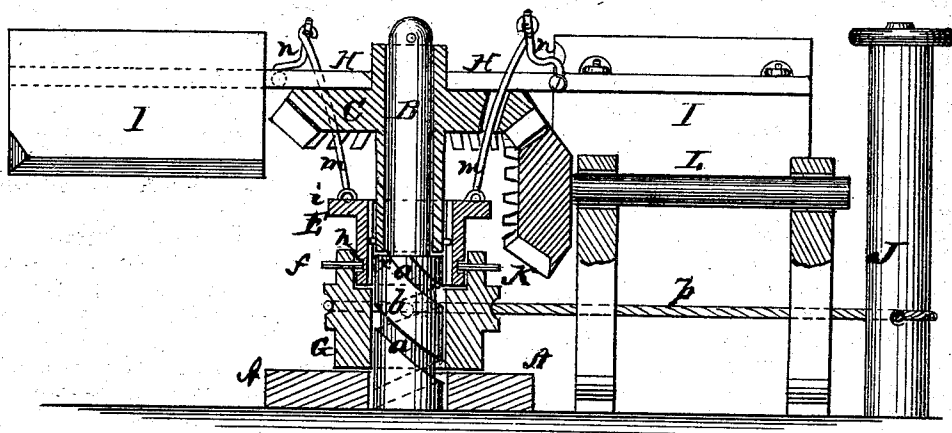
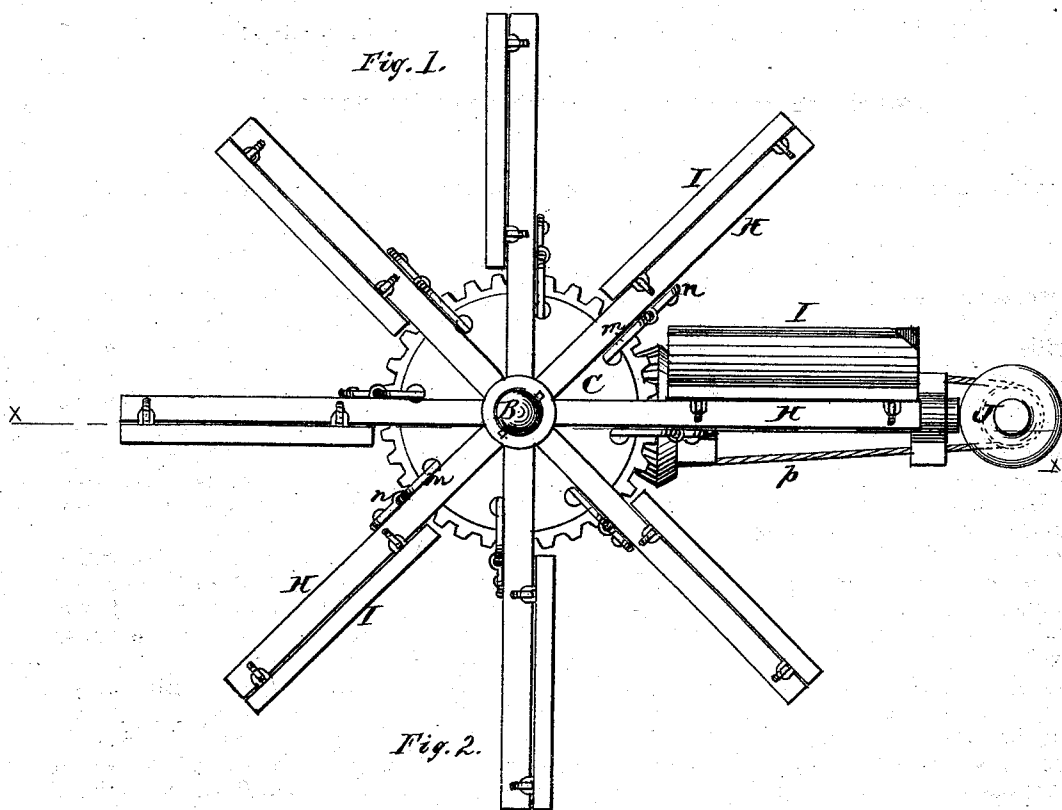


D. BOWLES.
Current Water-Wheels.

No. 154,449.

Patented Aug. 25, 1874.



WITNESSES.

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IMPROVEMENT IN CURRENT WATER-WHEELS.

Specification forming part of Letters Patent No. **154,449**, dated August 25, 1874; application filed March 17, 1874.

To all whom it may concern:

Be it known that I, DAVID BOWLES, of Knoxville, in the county of Knox and State of Tennessee, have invented certain new and useful Improvements in Current Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The nature of my invention consists in the construction and arrangement of a current water-wheel, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a top view, and Fig. 2 a central vertical section through the line *x x*.

A represents a platform of any suitable dimensions, which is to be sunk to the bottom of the stream where the wheel is desired. In the center of this platform is a post or round standard, B, the lower end of which is enlarged and provided with spiral grooves *a a*. Over this part of the post B is placed a wheel, G, having pins *b b* on the inside of its hub to enter the grooves *a a* on the post. On the post B is further placed the driving-wheel C, the hub of which extends down to and rests on the shoulder *x*, formed by the enlarged portion of the post. On the hub of the wheel C is placed a movable collar, E, having two vertical slots, *d d*, cut in its interior on opposite sides, in which grooves work lugs or feathers *e e*, on the outside of the driving-wheel hub. The lower end of the collar E extends within the hub of the wheel G, and pins *f f* pass through said hub into a circumferential groove, *h*, on the exterior of the collar, allowing the collar to revolve with the wheel C, without in any way interfering with the wheel G, but if this wheel G is turned in either direction, so as to move either up or down by means of the spiral grooves *a a* and pins *b*, the collar E is correspondingly raised or lowered on the hub of the driving-wheel C. The driving-wheel C is provided with a series

of radiating arms, H H, to each of which is hinged a float, I, said floats being hung above the center to the upper edges of the arms, so as to hang naturally in a perpendicular, and be stayed therein by the arms. Around the upper end of the collar E is a flange, *i*, from which rods *m* extend up through slots in the wheel C, and the upper end of each rod is connected with a catch, *n*, pivoted on the rear side of the arm H.

It will readily be seen that by the arrangement of the floats I I, the full force of the water is obtained on their faces, and that they will turn into a horizontal position when passing through the back current.

The wheel G is worked by a chain, *p*, or a worm-screw, extended to a capstan, J, or a hand-wheel, J, on shore, which enables the operator to control the power of the wheel. When the wheel G is worked up, the collar E will also move up, and, by means of the rods *m*, throw the catches *n* out, so that they will snap on the floats I when passing through the back current, and hold them in a horizontal position, thus stopping the motion of the wheel. When the wheel G is moved so as to lower the collar E, the catches *n* will be withdrawn, and the floats in the current will fall down, starting the water-wheel.

By having two or more notches in each catch *n*, the floats may be held at a greater or less angle, showing more or less face to the current, thereby regulating the power of the wheel.

The drive-wheel C communicates motion to a pinion, K, on a line-shaft, L, thereby carrying the power ashore. Above this line-shaft, to the center of the water-wheel, is to be run a pier or coffer-dam to protect the wheel from floating drift, and to increase the current.

The water-wheel being horizontal its capacity may be increased by adding to the length and width of the floats.

When it is used as a tide-wheel it turns the same course, whether the tide moves up or down the stream.

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

1. The movable collar E, rods *m*, and catches *n*, in combination with the wheel C, arms H,

and floats I, substantially as and for the purposes herein set forth.

2. The wheel G, working up and down in the spiral grooves *a a*, and connected with the movable collar E, substantially as and for the purposes herein set forth.

3. The combination of the spirally-grooved post B, wheel G, driving-wheel C, with arms H and floats I, the movable collar E, rods *m*,

and catches *n*, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

DAVID BOWLES.

Witnesses:

E. P. BAILEY,
J. H. CRUZE.