

P. W. Varrell,

Water Wheel.

No. 112,667.

Patented Mar. 14. 1871.

Fig. 1.

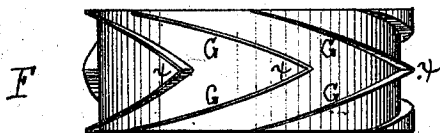


Fig. 2.

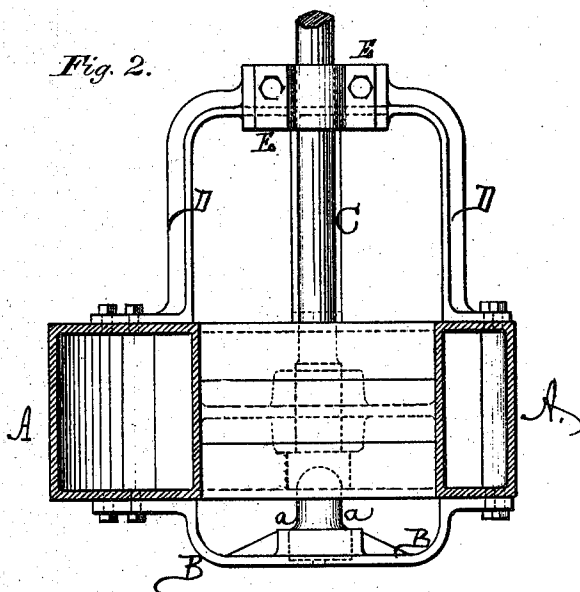
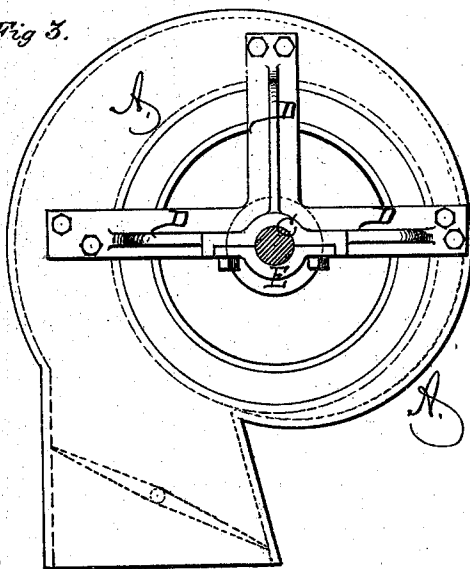


Fig. 3.



Witnesses:
M. A. Buckel
A. J. Peyton

Inventor:
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by Giesbrecht & Norris
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United States Patent Office.

PIERCE W. YARRELL, OF LITTLETON, NORTH CAROLINA

Letters Patent No. 112,667, dated March 14, 1871.

IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, PIERCE W. YARRELL, of Littleton, in the county of Halifax and State of North Carolina, have invented a new and useful Improvement in Water-Wheels; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side elevation of the wheel.

Figure 2 is a central vertical section of the casing, and showing the removable foot and arms.

Figure 3 is a top or plan view thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention is an improvement in the class of water-wheels, and consists in a reversible casing and removable foot and arms, whereby the wheel may be made either right or left-handed.

It also consists in an improvement on the wheel for which Letters Patent were granted to me March 29, 1870, whereby the wheel is adapted to be run with a scroll casing.

In the drawing—

A represents a scroll casing, which may be of ordinary form and construction.

B represents a foot, which is to be bolted to the casing, and forms means for supporting the shaft or spindle C of the wheel through the usual step *a*.

D are the arms for bearing and steadying the spindle, which, in the present case, are three in number, and are to be bolted to the casing in a manner similar to the foot B, the openings for the screws or bolts coinciding with each other, in order that the foot may be bolted to the casing in the position now occupied by the arms, and *vice versa*, for purposes to be hereinafter explained.

A piece, E, forms part of the arms, and is made removable therefrom.

When the wheel is placed in the casing the shaft is firmly supported in place by means of the piece E and arms D.

When the wheel is to be removed the piece E is unbolted from the arms D, and the former is then readily displaced without disturbing the casing.

When it is desired to have a right or left-handed wheel, I first remove the arms, wheel, and foot, and

then reverse the casing. I now secure said arms and foot correspondingly in place on the casing, the wheel being previously reversed on the shaft. Affix the piece E, and the wheel is in condition to run in the desired direction relatively to the stream or flow of water.

The wheel F is constructed somewhat similarly to the wheel shown in my former patent, with this exception, that the pairs of buckets have no spaces between their inner ends, such construction not being practical for a scroll casing.

In the present case the buckets have their ends united, as at *z*, or are somewhat V or U-shaped.

As the water is admitted to the wheel it presses upward and downward upon the surfaces of the buckets, thus operating the wheel and relieving the shaft from pressure on its bearings, and enabling the wheel to run with great power.

By making the upper sides of the buckets a little longer than the lower sides, by giving them a greater curve and uniting them below the center of the periphery of the drum to which they are attached, the upward pressure serves to relieve the step of the weight of the wheel and shaft when running, as well as to counteract the weight or pressure of the water, so that there is less friction when the wheel is set in motion than at any other time when rotated.

This invention will be found to be simple and effective for the purpose stated.

Having thus described my invention,

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

1. The series of buckets G G united at their ends, as shown and described, and arranged horizontally on the periphery of the wheel, substantially as and for the purpose described.

2. The combination, with the casing, of the removable foot and the removable arms, substantially as and for the purpose described.

3. In combination with the shaft of the wheel and the arms D, the removable piece E, arranged and operating as described.

The above signed by me this 2d day of December, 1870.

PIERCE W. YARRELL.

Witnesses:

JOHN A. WIEDERSHEIM,
JAMES L. NORRIS.