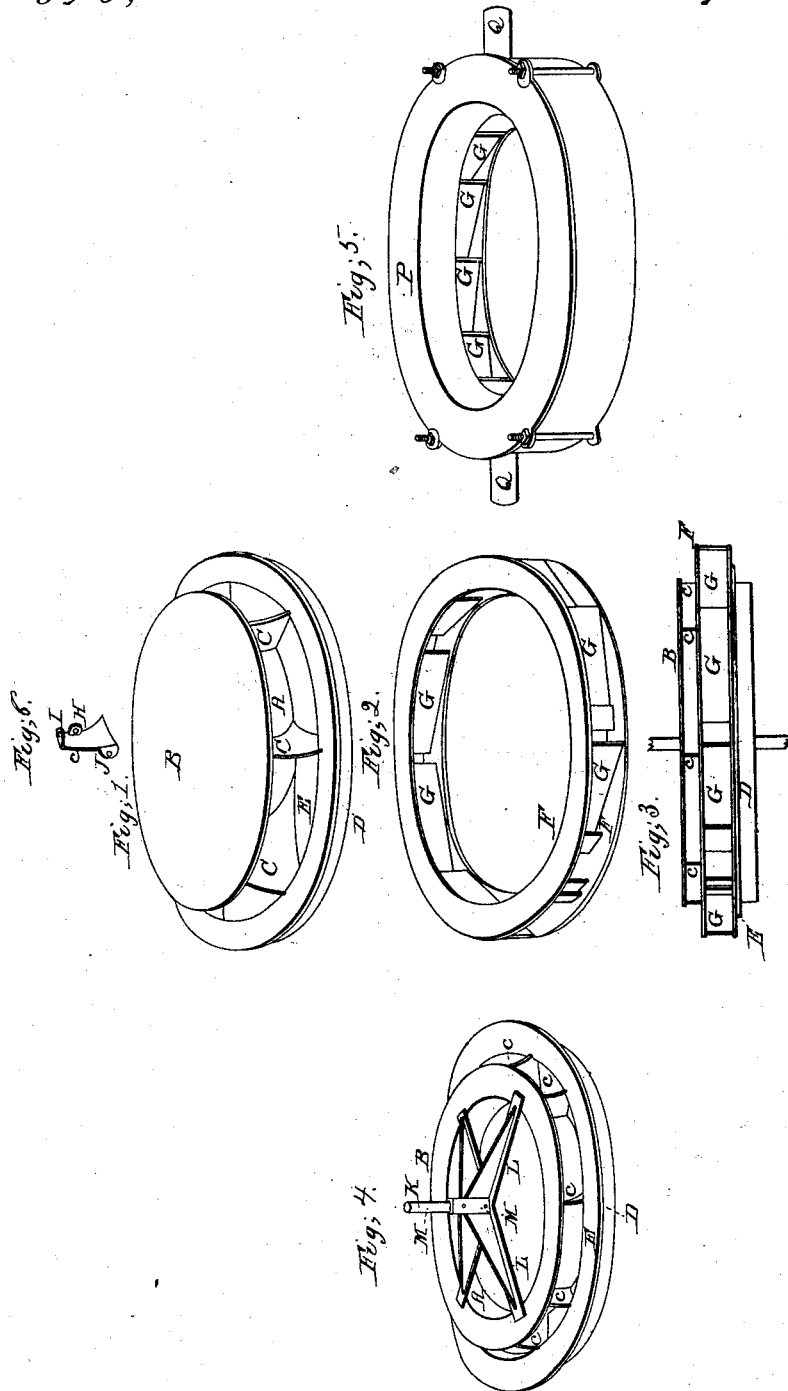


*J. R. Wheeler,*

*Water Wheel,*

*N<sup>o</sup> 695,*

*Patented Apr. 16, 1838.*



# UNITED STATES PATENT OFFICE.

JOHN R. WHEELER, OF SENECA FALLS, NEW YORK.

## IMPROVED WATER-WHEEL.

Specification forming part of Letters Patent No. 695, dated April 14, 1838.

*To all whom it may concern:*

Be it known that I, JOHN R. WHEELER, of Seneca Falls, in the county of Seneca and State of New York, have invented a new and useful Cast-Iron Horizontal Centrifugal Water-Wheel with Cast-Iron Chutes or Issues, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

I make a rim A, Figures 1 and 4, of cast-iron, four feet in diameter and eight inches high, with a flange B on the top projecting outward six inches, which makes the top of the wheel five feet in diameter. I then make the buckets C, Figs. 1 and 6, which are five inches wide at the top, with a flange I, Fig. 6, on the face side to fasten them to the upper rim or flange B by bolts; also, with flanges H on the inner edge to fasten that edge to the rim A, first spoken of, also by means of bolts. The first five inches of the buckets from the upper rim downward is to increase in width one and a half inches and to have one-fourth of an inch concavity. The remaining part of the bucket is to have half an inch concavity, making three-fourths of an inch concavity in the length of the bucket, which reaches across the first-mentioned rim of eight inches. The upper end of the bucket from the inner rim to the outer edge is to be concave three-eighths of an inch and the lower end five-eighths of an inch concave, the buckets being of an irregular concave both in length and breadth. (See Fig. 6, which represents the form of one of said buckets, all of which are made alike.) For such a wheel I make sixteen buckets; but the number may be varied to suit the head of water and force required. I fasten them equidistant on the first-mentioned rim by bolting through the flanges on the inner edge and face side of the buckets and also to the flange of said rim through the flanges on the upper end of the buckets. I then make a rim D, Figs. 1, 3, and 4, three inches high, of cast-iron, with a flange E projecting outward two inches. This rim I put on the outside of the buckets, the lower side being even with them and the flange up. To this rim I fasten the outer edge of all the buckets by bolting through the flange J, Fig. 6, on the outside edge and back side of the bucket.

To hang the wheel on the shaft, I make a

cast-iron hub K, Fig. 4, about six inches square on the inside one and one-fourth of an inch thick and nine inches high, with an arm L to extend from each corner to the outer edge of the wheel and of sufficient strength to support it, which is fastened to them by bolting through the upper rim or flange. To hang it true I put two screws M M through each side of the hub to operate on the shaft within it, which I make of iron. The hub and arms are to be on the upper side of the wheel.

To form the chutes or issues for letting the water upon the wheel, I make two rims F F, Figs. 2 and 3, of cast-iron, about five inches wide, the upper rim one-fourth of an inch thick on the outer edge and half an inch on the inner edge, which encircles the upper rim of the wheel. The lower rim I make of the same diameter and three-eighths of an inch thick. Both rims are to have sixteen grooves, so shaped as to cross at right angles a line drawn from the center to the circumference and calculated to receive cast-iron plates, which form the chutes or issues. I make said cast-iron plates G to put in these grooves about four inches wide and one-fourth of an inch thick till it is within three inches of the inner end, where it is about three-quarters of an inch thick, and then becomes thinner to the inner end, where it comes to an edge. The rims are three and a half inches apart, and the water passes between them and the plates put in the grooves and strikes the buckets of the wheel at right angles, and as the wheel turns the water is discharged under the wheel, and from the curvature of the buckets the water inclines from the center. The rims containing the grooves and plates which form the chutes or issues are made fast and the wheel turns within the same.

For high heads of water a circular trunk P, Fig. 5, for receiving the water through a single opening or two openings Q Q in the periphery thereof, is constructed around the issues G, formed around the inner circumference of said circular trunk, and at the bottom thereof, the water-wheel turning inside said circle of issues, as many of which being left open as may be required, the rest being closed.

The great advantages of wheels and chutes or issues of water on this plan are, first, their

durability; second, their form is such that the water is made to act on the wheel at right angles and is so confined by the concave of the bucket, by the chutes or issues of water, and by the rim of the wheel on the outside of the buckets to which they are fastened that its whole force is applied to the extremity of the wheel without flying off or clogging it until it has performed its office, when it falls off centrifugally; third, it is not liable to get out of repair, and, fourth, the form of the wheel and chutes is such that the water will pass through and operate upon them with but little friction.

The size of the wheel is to be varied according to the head and quantity of water and the force it is necessary to apply, and, also, the

curvature of the buckets and depth of the wheel may be varied.

The invention claimed and desired to be secured by Letters Patent consists—

In the combination of the circular or other trunk with the revolving bucket-wheel constructed in the manner herein set forth, the circular or other trunk having issues near its bottom or inner side, which issues direct the water onto the curved buckets of the water-wheel, formed and operating in the particular manner above described—that is to say, as represented in Figs. 1 and 6.

JOHN R. WHEELER.

Witnesses:

WM. P. ELLIOT,  
W. BISHOP.