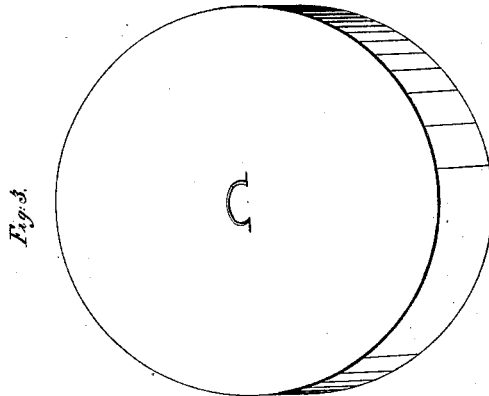


*S. Parsons,*

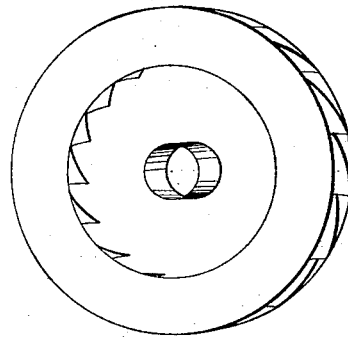
*Water Wheel,*

*Patented Apr. 18, 1839.*

*Nº 1127.*



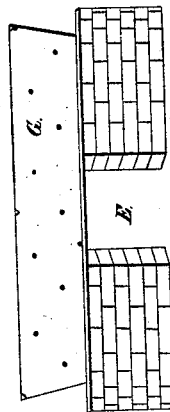
*Fig. 3.*



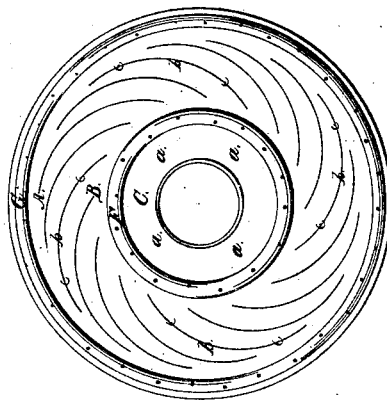
*Fig. 4.*



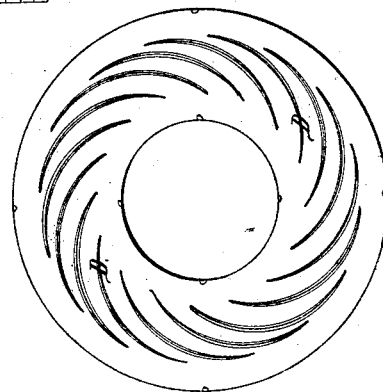
*Fig. 5.*



*Fig. 1.*



*Fig. 2.*



# UNITED STATES PATENT OFFICE.

STEPHEN PARSONS, OF EDGEComb, MAINE.

## IMPROVEMENT IN THE MODE OF MOLDING, PREPARATORY TO CASTING, CURVED VENT OR REACTION WATER-WHEELS.

Specification forming part of Letters Patent No. 1,127, dated April 18, 1839.

### *To all whom it may concern:*

Be it known that I, STEPHEN PARSONS, of Edgecomb, in the county of Lincoln and State of Maine, have invented a new and improved mode of molding and casting very powerful water-wheels on the centrifugal principle, the power of which is given by the action of the fluid operating upon a particular angle, curve, and size of the vents, also from the form of the partitions between the vents and the size for the inlets of the water, and by the exact proportion of all the parts in the construction of said wheel, so that the propelling-power shall be applied to the interior of the wheel; and I do hereby declare that the following is a full and exact description of the same.

The nature of my invention consists in a peculiar mode of molding and casting iron water-wheels that can be applied to any kind of water-works and in any position, either vertical, horizontal, or oblique, and even when wholly immersed by floods.

To enable others to make and use my said invention, I will proceed to describe its construction and operation, reference being had to the annexed drawings of the same, making part of this specification, in which—

Figure 1 is a plan of the trestle-plate; Fig. 2, a plan of the core; Fig. 3, a perspective view of the oven; Fig. 4, a perspective view of the wheel cast, and Fig. 5 a side elevation of the core placed on the furnace.

I construct my centrifugal curved vent-wheel of any size by providing a cast-iron plate of the requisite diameter, usually about five-eighths of an inch in thickness, with a circular hole in its center of sufficient size to let the heat pass through while the core is baking. On said plate, Fig. 1, I sweep the dotted circle A for the diameter of the wheel—say forty inches. I then make a second circle B—say twenty-six inches diameter—for the size of the inlet of the water. I then make a third circle C—say fourteen inches in diameter—to set one foot of the dividers in when sweeping the curve of the vents. I then divide said circle C into sixteen equal parts *a*. I then open the dividers thirteen inches for a wheel of the size designated, set one foot in *a* on circle C, and sweep the curve *b* from circle B to circle A, so as to make the chord of the curve *b* nineteen and one-half inches, and thus proceed until sixteen curves are completed.

Then drill two holes through said plate in each curve *b* of an equal distance from each end of said curve at *c* to receive the dowels in the lower edges of the curve-plates D to hold them in their proper places when molding. I then place the trestle-plate, Fig. 1, on a furnace E about one foot high, and provide sixteen iron plates D, eight inches high, curved so as to conform to the curve *b*, their lower edges somewhat smaller, so as to draw easily from the mold, having two holes *d* in the inner edge of an equal distance from each end for dowels, agreeing with and conforming to the holes *c* in the curve lines *b*. (The reason why the holes in the curves *b* and in the plates D should be at equal distances from each of the ends is in order to use either side of said trestle-plate, which will reverse the turning of the wheel.) Said curve-plates D above specified are nineteen and one-half inches in the chord of the curve and about five-eighths of an inch thick in the middle of the upper edge, and their ends are brought nearly to an edge, in order that the fluid may have free passage in its egress from the center to the periphery of the wheel. I then erect the curve-plates D on the trestle-plate with the dowels *d* in the holes *c* conforming to the curves *b*. I then take conic hoops F and G as high as the curve-plates D and of sufficient strength to raise the core by, which hoops must be perforated with holes to give vent to the gas that will arise while casting. The conic hoop F should be three inches less in diameter than the inlet of the water or fluid inside of the curve-plates D and set with its large end downward. The hoop G should be about three inches larger in diameter at the smallest end and be set with its small end downward outside of said plates D, as in Fig. 1. I then fasten said hoops F and G so as to form concentric circles, said plates D being arranged between them, as shown in the drawings, Fig. 1. I then fasten said plates D and proceed to fill the core, and while filling the same insert a sufficient number of curved nail-rods between each plate to strengthen the core when the plates are withdrawn, and when the core is finished (of which Fig. 2 represents a top view and Fig. 5 a side view) cover it with a cylindrical oven, Fig. 3, and bake it. Said core is lifted from the plate, Fig. 1, by the conic hoops F and G and placed

in a sand mold made in the usual way by a block pattern prepared for that purpose. The mold is now ready, and the process of casting is performed as usual, which will produce the centrifugal curve vent-wheel represented by Fig. 4.

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

The within-described manner of casting a centrifugal curve vent water-wheel constructed as herein set forth.

STEPHEN PARSONS.

Witnesses:

HAZARD KNOWLES,

WM. H. BREWSTER.