

C. Aylsworth,

Water Wheel.

N<sup>o</sup> 3,959.

Patented Mar 21, 1845.

Fig. 1.

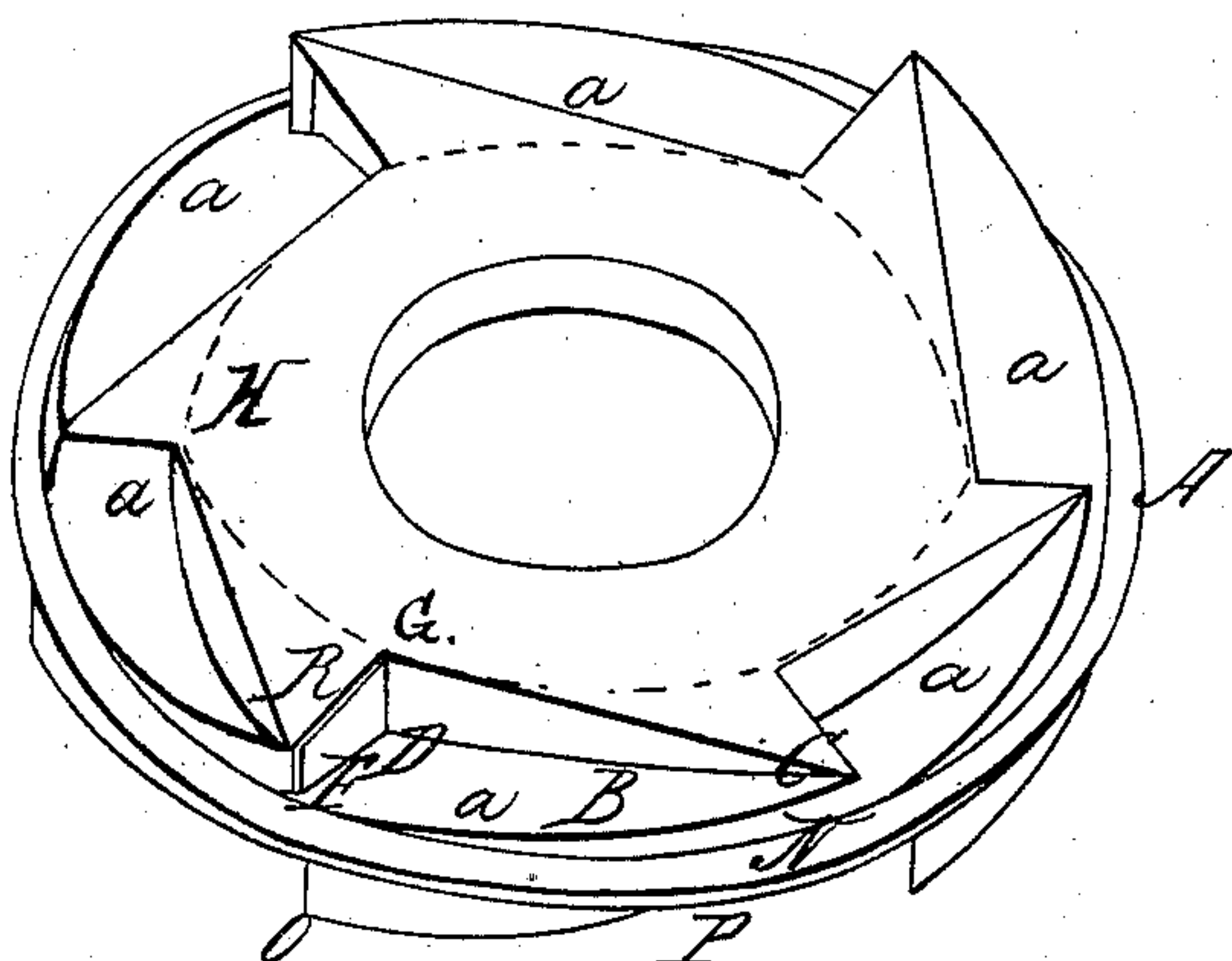
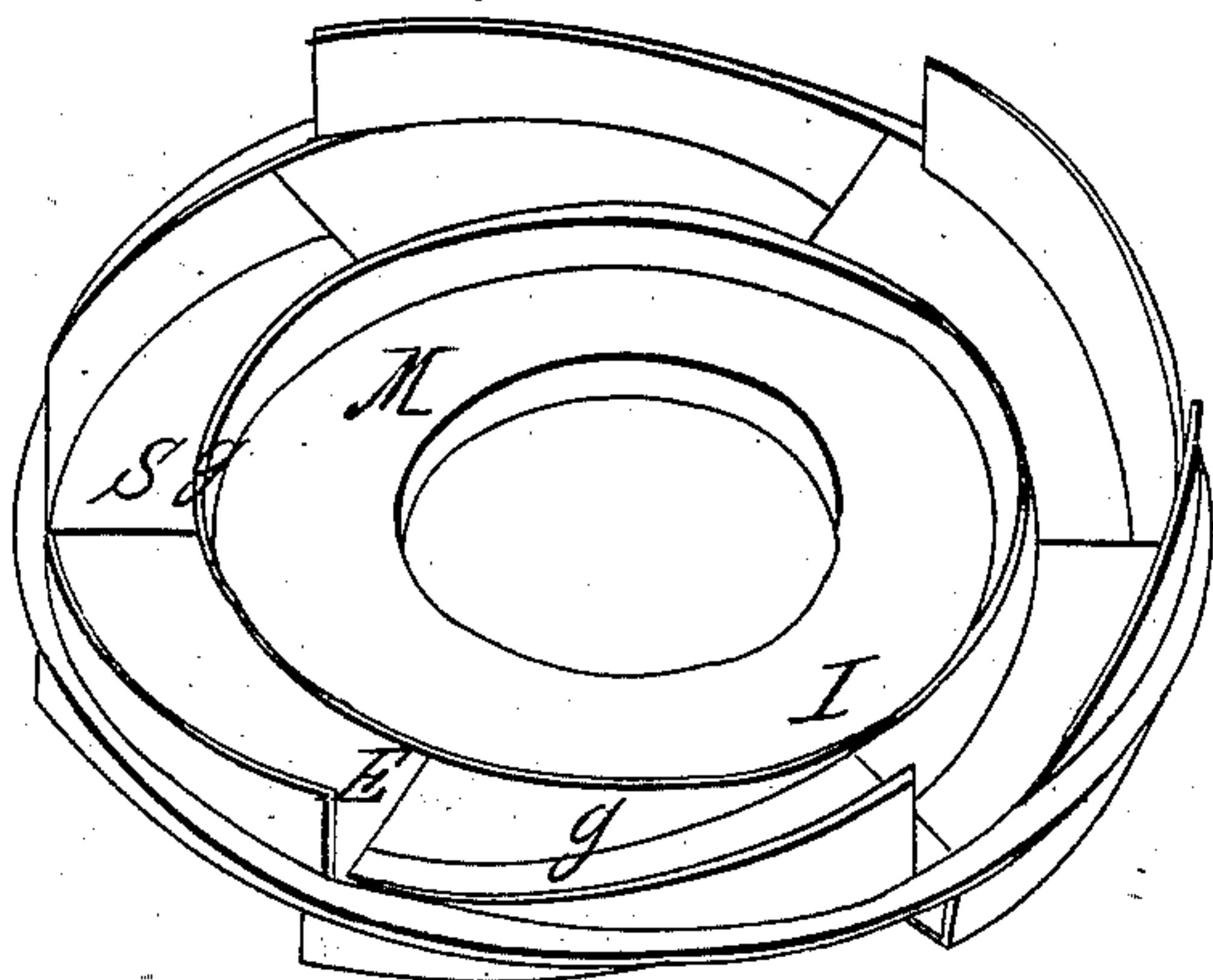


Fig. 2.



Witnesses.

Geo. Park  
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Inventor.

Charles Aylsworth

# UNITED STATES PATENT OFFICE.

CHADIAH AYLSWORTH, OF BAINBRIDGE, NEW YORK.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 3,959, dated March 21, 1845.

*To all whom it may concern:*

Be it known that I, CHADIAH AYLSWORTH, of Bainbridge, in the county of Chenango and State of New York, have invented a new and useful Improvement on the Water-Wheel called the "Reaction Water-Wheel;" and I do hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in combining a strength and facility of construction of the wheel with a capability of greater reactive motion with a given head of water than any now in use.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, reference being had to the annexed drawings, which represent both sides of the wheel.

The wheel is of iron, cast entire at one operation, and is about three and one-half feet in diameter, and consists of plate, buckets, and rim. The rim A N is a circular flange surrounding the buckets, from which it projects about an inch horizontally parallel with the plane of the plate and about three inches below it. The plate H is the upper surface of the wheel, having six indentations, as represented in the drawings, Figure 1. These are designed as follows: A circle of about thirty inches in diameter is drawn upon the plate, (represented by the dotted line,) and that portion of the plate outside of this circle is divided into six equal parts by lines radiating from the center. One of these lines is marked G R. Then from G another line is drawn (being nearly tangent with G R) to C, where the next right-hand radius intersects the periphery of the plate. Similar lines are drawn on each part or division, and then so much of the plate as is outside of these lines is removed or cut out, thus making the indentations in which the buckets *a a* are placed.

Each bucket (marked *a*) is formed of three parts—viz., inner side, bottom, and outer side—and as they (the buckets) are all alike I will describe only one. C D F B is that part of a bottom which can only be seen on the upper side of the wheel and corresponds in shape with the portion of the plate removed

for its insertion. It is placed at an inclination of about ten degrees to the plane of the plate. Its highest part is at C on a level with the plate. Thence it descends to D F, which is about four inches beneath the said level and in the plane of the rim. Here it (the bottom) passes under the plate or that part of it described by the line G R, and is hid from view on the upper side, but may be seen at S, Fig. 2, and terminating at E. On the lower side of the wheel the plate is marked I M and is inclosed by a short cylinder *g g*, two inches in length and of the diameter of the dotted circle. This cylinder forms so much of the inner side of the buckets as is seen on this (the lower) side of the wheel, C G D being that part of the inner side seen on the upper side of the wheel. C N O F is the outer side of a bucket, the upper and lower edges of which are parallel with the bottom. The plate has a hole in the center about eighteen inches in diameter for the shaft. This is secured in the ordinary manner. The water is let upon the upper side through a trunk or case fitting the rim as nearly water-tight as may be.

The degree of power operating on the reaction-wheel with a given head and discharging a given number of cubic inches per minute is increased in proportion to the length of the bucket. The object of my invention is therefore, with wheels of ordinary size and cost, to form a long bucket whose action would mainly be caused by the perpendicular pressure of water, (this being the case with the inclined bottom,) and also to construct the upper side in a manner which could be easily cast and also of a shape which, holding no dead-water, would produce the least resistance to the incumbent water in its rotary motion.

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

The construction of the buckets, above described, either larger or smaller than herein described, but not varying their relative size.

CHADIAH AYLSWORTH.

In presence of—

B. N. LOOMIS,  
GEO. PARK.