# S Munger,
# Water Wheel,

No. 2,949, Patented Feb. 10, 1843.

Fig: 2

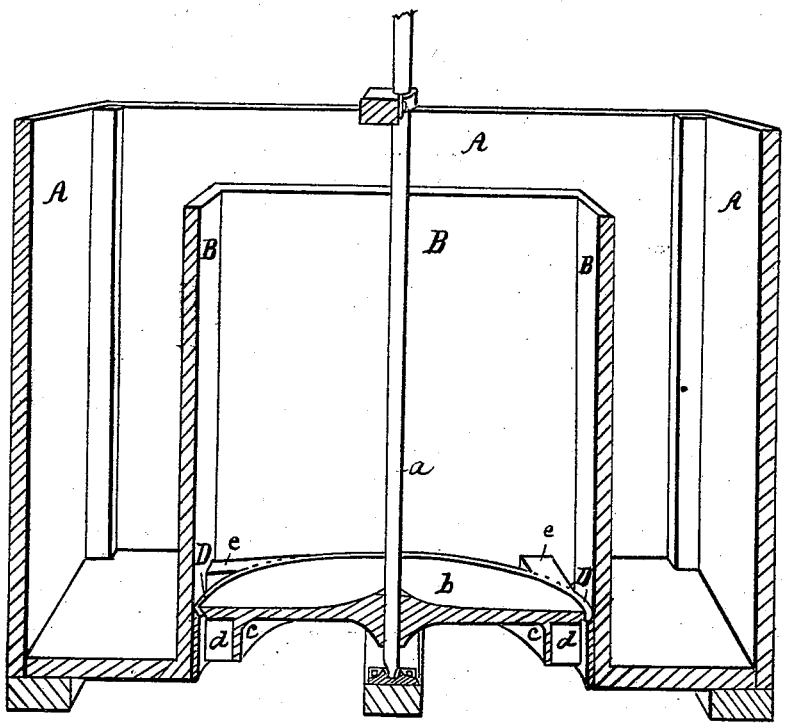



Fig: 1

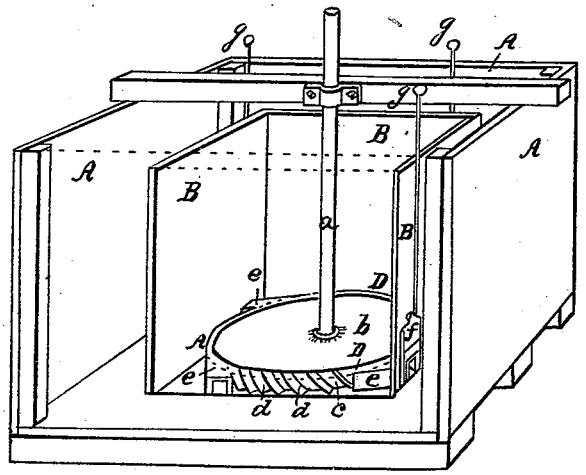
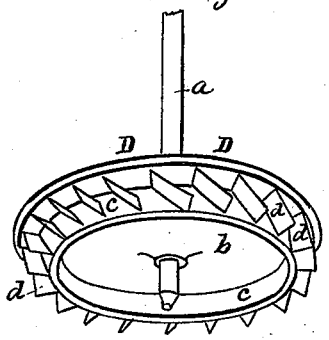



Fig: 3



# UNITED STATES PATENT OFFICE.

STILES MUNGER, OF SHAWANGUNK, NEW YORK.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **2,949**, dated February 10, 1843.

*To all whom it may concern:*

Be it known that I, STILES MUNGER, of the town of Shawangunk, in the county of Ulster and State of New York, have invented a new and Improved Mode of Constructing Water-Wheels and Applying Water thereto; and I hereby do declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 3 is a perspective view of the wheel; Fig. 2, a sectional view in perspective, and Fig. 1 a perspective view of the wheel and flume.

I style my invention the "double cylinder" with inclined circular floats acting both by percussion and gravity water-wheel.

To enable others to make and construct and use my invention, I proceed to describe more minutely its construction and operation.

The wheel (see Figs. 1, 2, and 3) is to be constructed of cast-iron, or wood, or other material, or partly of iron, wood, or other material.

*a* represents the shaft, which may also be constructed of cast-iron, wood, or other material, and to be placed in a perpendicular position.

*b* is the top of the wheel and to which is annexed the inside cylinder *c c*.

*c c* is the inside cylinder, to which are annexed the floats or buckets *d d*.

*d d* are the floats or buckets which are annexed on their sides to *c c*, the inside cylinder, and on their upper end to *b*, the top of the wheel; *d d*, when of cast-iron, to be about one-half an inch thick where they are fastened to *b* and tapering gradually toward the lower end to about one-fourth of an inch in thickness; these buckets or floats to be from ten inches to twelve inches in width, depending on the head of water; *b*, the top of the wheel, to extend beyond *c c*, the inside cylinder, to a distance of about two inches beyond the floats or buckets *d d*, and when *b* is made of iron it ought to be about one-half of an inch in thickness.

D D represent the outside cylinder, and through which the chutes pass, and when of cast-iron to be about one-half of an inch thick and to be placed just clear of the floats or buckets.

A A represent the outside flume, one side thereof to be indefinitely extended to the dam or stream, the space between A and B to be at least two feet in width, the top of the flume to be as high as the top of high-water mark, the bottom to be six inches below the bottom of the wheel. Six inches above the bottom there is to be placed a deck or bottom, and which in the center is to be cut out equal to the size of the wheel in order to permit the water to pass off or escape.

B B represent the inside flume, to be square and of equal height with A A, and to rest upon the deck, to be two inches wider than the diameter of the wheel.

*e e* are the chutes to pass the water, arranged horizontally. They are to be four in number, equidistant, and to be placed in the corners of the inside flume, in height to be equal to the breadth of *c c*, the inside cylinder; their width at the cylinder to be equal to that of the floats or buckets, and at the gate at the inside flume to be about three inches more; the longer side of the chute to be at right angles to the diameter of the wheel, the shorter side at an acute angle to the same. If only two chutes are used, they ought to be those opposite to one another.

*f f* are the gates to stop off the water from the chutes.

I I represent the break to hoist the gates.

Fig. 2 shows a section of the wheel of the inside and outside flume, one side of each of the flumes being supposed to be removed. Fig. 1 is a perspective view of the same, so that the position of the chutes of the floats or buckets and the wheel may be seen. Fig. 3 is a perspective of the wheel.

This wheel is intended to be placed under eighteen inches of water.

The advantages of this wheel are that by the position of the chutes the power may be increased or diminished by using one, two, three, or the whole of the chutes at one time, and it is claimed that the same quantity of water applied through the four chutes will give greater power than if applied through a less number of chutes; that the water passing between the two cylinders from the chutes upon the floats placed in an inclined position the backwater is prevented from interfering with the power of the wheel; that the floats being set in an inclined circular position to an angle of about forty-five degrees the wa-

ter acts both by percussion and gravity. Another advantage is that being eighteen inches under water it will never be liable to be obstructed by ice, and also will run with a less head of water than other wheels.

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

The arrangement of the four chutes, in combination with the floats arranged upon the above wheel and constructed as above described.

STILES MUNGER.

Witnesses:
CLEMT. T. COOTE,
JOHN VAN BUREN.