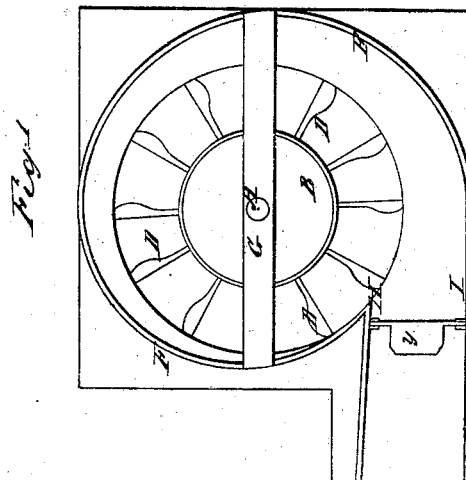
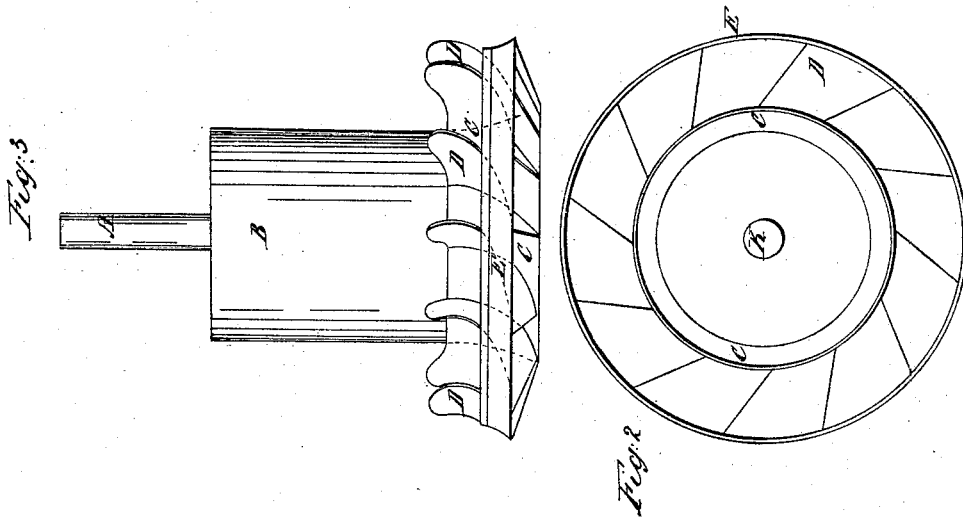


J. Lesfel,
Water Wheel.

N^o 4,056.

Patented May 21/1845.



UNITED STATES PATENT OFFICE.

JAMES LEFFEL, OF SPRINGFIELD, OHIO.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 4,056, dated May 21, 1845.

To all whom it may concern:

Be it known that I, JAMES LEFFEL, of the town of Springfield, county of Clark, and State of Ohio, have invented a new and useful Improvement on Bevel Centrifugal Water-Wheels; and I do hereby declare that the following is an 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—

Section 1 is a perspective view of the wheel; Sec. 2, a view of the bottom of the same, and Sec. 3 a view of the penstock.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Sec. 1 is a top plan view of a bevel centrifugal water-wheel placed to run horizontally on the vertical shaft A, which wheel is used for propelling millstones and for other purposes. This wheel is five and one-half feet in diameter, and is constructed to suit about five feet head and fall, the apertures being five times as great as those of ordinary wheels. B is a drum affixed round the shaft for the purpose of forming the inside of the conductor and resting upon the core C of the wheel, which core C is of a conical or flaring shape, as shown by dotted lines in Sec. 3, so as to be at right angles with the apertures of the bevel-shaped floats D, which are attached to the core C in a substantial manner. E is a flat outer rim of conical form, which surrounds the floats D, parallel with the core C, the upper ends of said floats being extended up above the core C and rim E in order to throw up more surface into the drift of the water admitted through the gate *y* of the penstock, Sec. 1. The floats D, which resemble somewhat the mold-board of a plow, are so arranged that their tops stand square to the drift of the water which is thrown in toward the wheel by the scroll form of the penstock and passes off through the apertures in the wheel, the floats meanwhile winding against the centrifugal action of the water and preserving their position in relation to it. By having the apertures five times greater than usual the water of one or two hundred inches can be applied on the periphery of this wheel to greater advantage than upon any other known. For the same reason it will run in low and sluggish streams with less fall than any other wheel. Experiment has proved,

also, that in times of freshets or high water, when other wheels refuse to act or lie at rest, this wheel will do good business, the high water being overcome by letting on more water from above, which inclines toward the center of the wheel and does not materially diminish its speed.

Sec. 2 is a bottom view of the bevel centrifugal water-wheel, showing the apertures or space between the floats and the manner in which the water is discharged. By its construction it will be seen that the water escapes in a conical form, the opposite of that which it assumes in passing into the penstock, and consequently serves to repel backwater, which enables the wheel to perform better than any other under like circumstances. E is the outer rim, as seen in Sec. 3, attached to the floats D. C is the inner core, and is of a conical or flaring shape, in order, as was said before, to square the floats, and K is the lower end of the wheel-shaft A, which is hollow in the end, resembling a bowl turned upside down. The end K rests on a pivot made of some good hard wood boiled in tallow, which pivot may be inserted in a sill, a rock, or any other good foundation. These are obvious and not necessary to represent.

Sec. 1 is a top view of a penstock in which said wheel is to run. The bottom or platform is made of four thick planks firmly united together and resting upon four posts. (Not shown in the figures.) The center is then cut out to the diameter of the wheel, which is placed through the platform and so adjusted to it as to prevent the escape or loss of water between the wheel and platform. The penstock F is then built of staves, commencing about a foot from the wheel on one side and extending round in a kind of scroll gradually approaching the wheel, leaving sufficient width for a gate at the entrance thereof or sluiceway, as shown by the letters H and I. The head-block G is intended to receive the top of the wheel-shaft A, to which a cog-wheel may be attached to run any kind of machinery.

Having thus fully described my invention in the bevel centrifugal water-wheel and shown the manner in which the same operates, what I claim therein as my invention, and desire to secure by Letters Patent, is—

The projecting of the beveled floats of the beveled centrifugal water-wheel up into the

funnel drift of the water in the scrolled penstock, combined and arranged as described in the specification.

I do not intend to confine myself to the above-sized wheel, which is suited only to the head and fall referred to, for the size of the wheel must correspond with the head and

fall, and the inclination of the floats (which may be varied from ten to eighty degrees) must change accordingly.

JAMES LEFFEL.

Witnesses:

J. J. GREENOUGH,
LAFAYETTE CALDWELL.