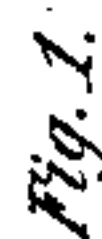
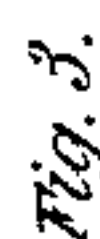


W. Henley,

Water Wheel.

N^o 18,507.

Patented Oct. 27/1857.



UNITED STATES PATENT OFFICE.

WILLIAM HENLEY, OF NEW SALEM, NORTH CAROLINA.

WATER-WHEEL.

Specification of Letters Patent No. 18,507, dated October 27, 1857.

To all whom it may concern:

Be it known that I, WILLIAM HENLEY, of New Salem, in the county of Randolph and State of North Carolina, have invented certain new and useful Improvements in Water-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents in perspective the wheel as arranged in its curb, or case. Fig. 2 represents in perspective the wheel removed from the case or curb, and Fig. 3 represents a vertical central section through the wheel and the curb.

The object of this invention is to make a water wheel as efficient as possible under a low head of water, and at the same time shield it from back water, so as to make a very small head of water in a sluggish stream available; and the nature of my invention consists in the peculiar manner in which I have arranged the wheel and curb, so as to avail myself of the live water, without being over flooded or clogged with the dead or back water as will be hereafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with references to the drawings.

A, is the curb or case of the wheel, composed of two cylinders *a*, *b*, the outer one *a*, being a plain cylinder, and the inner one *b* a frustum of an inverted cone, so as to leave a greater area of water way at the bottom than at the top of the curb. The space between the cylinders *a* and *b*, at the bottom of the curb is closed tight, and open at the top, while the space between the sides of the cylinder *b* is open at top and bottom both, as shown in Fig. 3, a step *c* being arranged on a bridge tree, for the lower end of the shaft B of the wheel C, to rest and turn in. The wheel C, is composed of an outer narrow ring or band *d*, and an inner and wider ring or band *e*, between which rings or bands the buckets *f*, are placed. Arms *g* extend from this inner ring to a common center or hub *h*, which is secured to the shaft B, said shaft being supported at its top part by a bridge tree D. The wheel C, is placed on top of the curb A, and snugly fits into the space between the tops

of the cylinders *a* *b*, and so that the lower portions of the buckets *f*', shall project into the curb, to be struck by and acted upon by the live water within the curb. The wheel is of the kind known as "top-vent," and the object of widening the water way at the bottom of the curb is that more water shall be contained within the curb than the wheel will actually pass, causing it to pile toward the point where it strikes the projecting parts of the buckets. The hollow interior cylinder *b*, prevents the weight of the water from resting on the wheel, and the tendency of the escaping water is to raise or lighten the wheel upon its step. The water is admitted through the chute E, placed tangential to the curb. The water fills the curb, and then strikes the buckets and turns the wheel by escaping through them. A flange *i* on the wheel, overlaps a flange *j* on the inner cylinder *b*, and while the inner ring *e*, of the wheel projects down into the water way in the curb, the outer ring *d* extends only far enough to make a neat joint with the top of the outer cylinder *a*, as shown at *k*, Fig. 3, but the points of the buckets *f*' project into the water way so as to be acted upon by the live water in the water way and the whole force of the live water tends to lift up the wheel and counteracts the dead weight of any back water that might be overlying it.

Having thus fully described the nature and object of my invention, I would state that I am aware that the shafts of water-wheels have been passed through cylinders, and that a top vent wheel has been devised. These I do not claim independent of each other or of the manner in which I arrange them with the curb and water way; but

What I do claim as new, and desire to secure by Letters Patent is,

So arranging a wheel on the top of a curb that has an open center, and the water way of which diminishes from its bottom toward the point where it meets the buckets of the wheel, as that the points of the buckets shall project into and be struck by the live water, and the whole wheel lifted up to counteract the weight of the dead or back water, as herein set forth.

WILLIAM HENLEY.

Witnesses:

A. B. STOUGHTON,
THOS. H. UPPERMAN.