

United States Patent Office.

ALBERT A. EASTON, OF KILLINGLY, AND ARNOLD J. HARRINGTON, OF
PLAINFIELD, CONNECTICUT.

Letters Patent No. 97,065, dated November 23, 1869.

IMPROVEMENT IN WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that we, ALBERT A. EASTON, of Killingly, and ARNOLD J. HARRINGTON, of Plainfield, county of Windham, and State of Connecticut, have invented certain new and useful Improvements in the Manufacture of Water-Wheels; and to enable others skilled in the art to make and use the same, we will proceed to describe its construction, referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this invention will be fully understood from the specification and drawings.

The object desired to be attained thereby is to simplify and cheapen the construction, and thereby render it more efficient and durable for use.

In the accompanying drawings—

Figure 1 is a perpendicular side view.

Figure 2 is a top or plan view.

Figure 3 is an edge view of the wheel.

A is the top plate of the wheel, through which the shaft D passes, and to which the wheel is firmly secured, by means of keys or nuts.

The lower end of said shaft is fitted to and works in or on a step, *a*, formed in or on the bridge C, and is secured to the wheel-box, underneath and near the centre of the wheel.

B is the bottom plate or rim of the wheel, the outside diameter of which is the same as that of the plate A. The inside diameter or opening is about five-sevenths of its whole diameter, or the width of this plate or rim B is about one-seventh of the whole diameter of the plate or rim B. The distance between the plates A B is ascertained by the desired capacity or depth of bucket required.

To show the shape and construction of the several buckets, we will single out one and describe it, showing at the same time its relative position with the line *x*, and the several buckets which make up the wheel.

E is a perpendicular plate, forming one side of the bucket, and fills the space between the top plate A and rim B, and in the line *x x*, from the point 1 on the outer edge of the plate or rim, to the point 2 on the inner edge of the same, plate B.

E' is a perpendicular, angular, inward-projecting portion of the bucket or plate E, arranged in its relative position, (see line *x x x*;) and connected with said plate, as shown at 2.

The relative position and angle of the plates E and E' with each other, and the several buckets of the wheel, will be seen by the lines *x x*, *x x x*.

F is a sloping or downward-inclined bottom from the lower edge of the plate E'.

G is a perpendicular plate, extending down from the inside edge of the rim-plate B, and intersects with the lower or outer edge of the bottom plate F, which forms the entire bucket.

All the other buckets are formed in the same way.

H is a spiral water-conducting box, inside of which the wheel is arranged, the upper and lower plates of which are the same distance apart as the upper and lower plates A B of the wheel, the outer edges of which, or the space between the outer edges, is closed up by a partition or wall, I.

J is a gateway, through which the water is allowed to flow into said box, and nearly or quite surround the wheel.

Thus the pressure of the water is brought to bear on all or nearly all the buckets at the same time, and is allowed a free and unobstructed discharge or exit from the wheel.

K is a dome or bridge, which arches the wheel-opening of the box H, and forms a support for the upper end of the shaft D. This wheel being of equal depth with the box H, the lower end of its shaft D is set in or on the step *a*, and the upper end in the box or bearing L, so as to bring the upper and lower surfaces of the wheel and water-box flush with each other and allow the water to expend its force and power upon the wheel, and a free unobstructed exit therefrom.

In the construction or manufacture of these wheels, we propose to cast the wheel in one piece of metal. We also propose to cast the spiral case or box in one piece of metal, by means of patterns and moulds, constructed or formed in the common way of making patterns and moulds for producing castings.

By this improvement, we are enabled to greatly cheapen the manufacture of water-wheels, and produce a more perfect and economical wheel.

We believe we have thus shown the nature, construction, and advantage of this invention, so as to enable others skilled in the art to make and use the same therefrom.

What we claim, therefore, and desire to secure by Letters Patent, is—

The arrangement of the plates E, E', G, and F, with the plates A B, in combination with the spiral water-box H, substantially as set forth.

ALBERT A. EASTON. [L. S.]

ARNOLD J. HARRINGTON. [L. S.]

Witnesses:

E. W. BLISS,

J. W. BLISS.