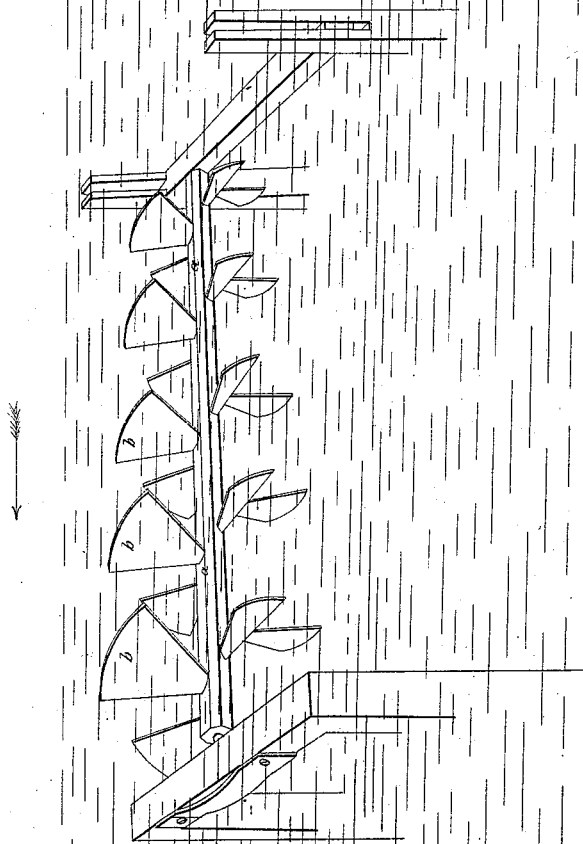


*W. F. Wing,
Water Wheel.*

N^o 403.

Patented Sep. 22, 1837.



UNITED STATES PATENT OFFICE.

WARREN P. WING, OF GREENWICH, MASSACHUSETTS.

IMPROVEMENT IN HYDRAULIC CURRENT-WHEELS.

Specification forming part of Letters Patent No. 403, dated September 22, 1887.

To all whom it may concern:

Be it known that I, WARREN P. WING, of Greenwich, in the county of Hampshire and State of Massachusetts, have invented certain Improvements in the Hydraulic Current-Wheel, by means of which the flowing of a current or tide may be more efficiently applied to the raising of water or to other purposes for which power is required; and I do hereby declare that the following is a full and exact description thereof.

For the sake of facility of description I will give the form and dimensions of one which I have put into operation.

The wheel consists of a shaft upon which are placed flights or buckets, against which the water is to strike and give motion to the shaft, the flights being placed obliquely thereon.

In the accompanying drawing, *a a* is the shaft of the wheel, which is thirty feet long and eight inches in diameter. Its form is octagonal. Into four of the sides I insert seven flights or buckets *b b b*, making twenty-eight in the whole. At one end of the shaft the flights are twenty inches long and at the other end forty, the intermediate flights increasing equally in length from the shortest to the longest. They are each about eight inches wide near the shaft and spread out in a fan-like form, so that their extremities occupy about one-eighth of the circle or circumference of the wheel. The flights or buckets are flat on the face, and they are set so as to form an angle with the axis of the shaft usually of about thirty degrees; but this angle will vary according to the velocity of the current and accordingly as the shaft varies more or less from the line of direction of the current.

A distinguishing characteristic of my wheel is the placing of the shaft so as to form an angle with the direction of the stream both vertically and horizontally.

The buckets or flights may be of iron or other material.

The wheel is to be placed so far below the surface as to be out of the way of floating ice, &c.

The shaft, as above intimated, is to be placed obliquely to the direction of the current. In a wheel of the size mentioned it may vary about six feet from this line, both horizontally and vertically, by which means the force of the water upon the flights will be greatly increased. Two or more such shafts may be coupled together, and to prevent inconvenience from their great depth in the water the angles of the shafts with the current may be reversed, so that whatever their numbers their depths below the surface will remain the same. From the gudgeons of the shafts the power may be communicated in any convenient way.

I do not claim the employment of wheels consisting of a shaft furnished with flights or buckets, these having been used; but

What I do claim is—

The increase of the length of the flights so as to give to the outline of the wheel the form of the frustum of a cone, and also the placing of such shafts in the current so as to form a decided angle therewith, in the manner described.

W. P. WING.

Witnesses:

LINTON THORN,
W. THOMPSON,