

(No Model.)

M. E. HASKINS & G. L. EVANS.
WATER WHEEL.

No. 546,663.

Patented Sept. 24, 1895.

Fig. 1.

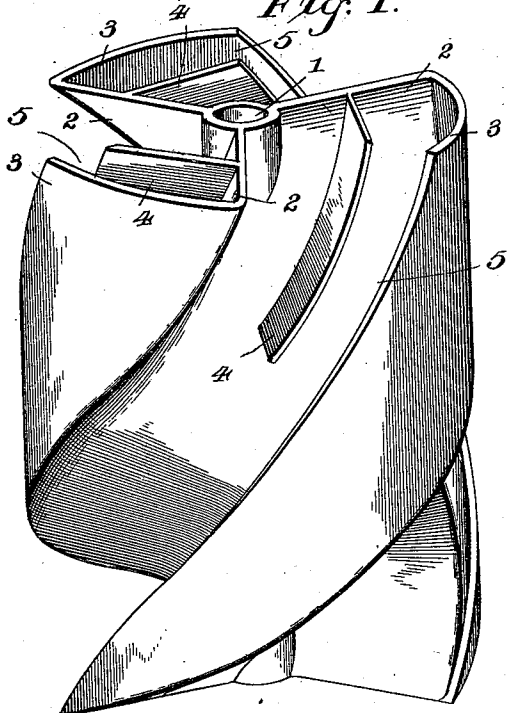


Fig. 3.

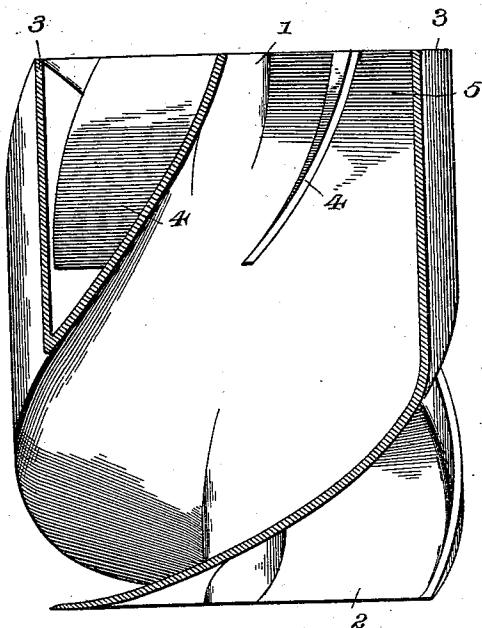
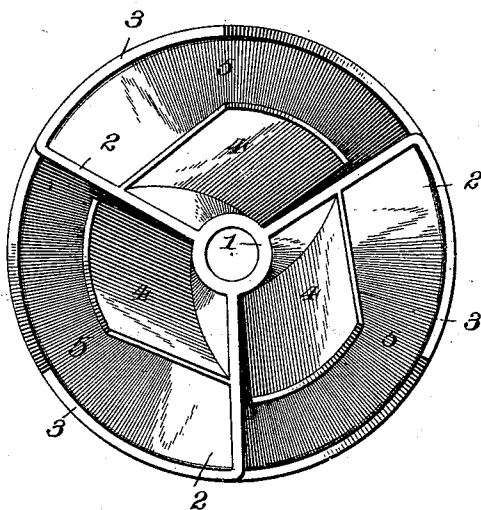


Fig. 2.



Witnesses

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By their Attorneys,

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UNITED STATES PATENT OFFICE.

MELVIN E. HASKINS AND GEORGE L. EVANS, OF LOWELL, ARKANSAS.

WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 546,663, dated September 24, 1895.

Application filed February 26, 1895. Serial No. 539,786. (No model.)

To all whom it may concern:

Be it known that we, MELVIN E. HASKINS and GEORGE L. EVANS, citizens of the United States, residing at Lowell, in the county of Benton and State of Arkansas, have invented a new and useful Water-Wheel, of which the following is a specification.

The purpose of the present invention is to utilize the head of water to the best possible advantage in that class of turbine water-wheels which are constructed with especial reference to be operated by a stream of water from a flume or sluiceway, the said wheel being vertically disposed and operating without being incased. In the improved form of wheel the wings extend in radial lines from the hub or axial line, the outer ends being provided with flanges which curve in cross-section to correspond with the circular outline of the wheel and which gradually diminish in width from the receiving to the discharging end of the wheel. Short supplemental blades are disposed at the receiving end of the wheel, and are secured at their inner edges to the wings, their outer edges terminating a short distance from the flanges of their respective supporting-wings, and the said blades being disposed at approximately an intermediate point between the hub and outer flanges of the said wheel. These short blades curve in their length, and occupy a position approximately parallel with the free edges of the flanges provided at the outer edges of the wings supporting the respective blades.

For a full understanding of the invention reference is to be had to the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of a water-wheel embodying the essential principles of the invention. Fig. 2 is a top plan view of the same. Fig. 3 is a view similar to Fig. 1, having the flanges on the near side broken away.

The wheel comprises, essentially, the hub 1, wings 2, having the flanges 3 at their outer edges, and the short supplemental blades 4. The wings 2, which may be provided in any desired number, extend in radial lines from the hub 1 and appear as straight lines in plan elevation or in plan section taken at any point in the length of the wheel. These wings 2 occupy an approximately spiral position

relative to the length of the wheel, in the usual manner, so as to impart a rotary movement to the wheel on impact of the water therewith. The flanges 3 curve to correspond with the circular outline of the wheel, as shown most clearly in Fig. 2, and gradually diminish in width from the receiving to the discharge end of the wheel, as plainly indicated in Fig. 1. These flanges serve to retain the water in contact with the wings 2, so as to attain the best possible results and the greatest power from the head of the water. The short supplemental blades 4 are disposed at the receiving end of the wheel, and are secured at their inner edges to the wings 2. The length of these blades will depend upon the nature of the wheel, and the peculiar conditions for which the same is designed. Usually they will be about one-third the length of the wheel. Obviously, the dimensions will vary according to the design and work for which the wheel is especially constructed. The blades 4 occupy a position midway between the hub and the flanges 3, and have their outer edges terminate a short distance from the circular outline of the wheel, so as to provide an escape 5 between their outer edges and the adjacent edges of the flanges 3. These blades curve in their length, and occupy a position approximately parallel with the edges of the flanges 3, carried by the wings to which the respective blades are attached. The blades 4, in conjunction with the opposing flanges 3, confine the water at the receiving end of the wheel in such a manner as to attain the best possible results and the maximum amount of power from the descending stream. The blades being disposed at the receiving end prevent the outward splashing of the water when it first comes in contact with the wheel and serve to maintain the same in a compact body, so as to secure the greatest amount of force from a given head and bulk of stream.

In the operation of the invention the wheel will be vertically disposed and arranged beneath a stream of water descending from a flume or other water-way, and the power is derived from its shaft in any desired and convenient manner.

In the organization and disposition of the parts of the wheel changes in the form, proportion, and the minor details of construction

may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described our invention, what we claim is—

1. A water-wheel having its wings disposed in straight radial lines and having curved flanges at their outer edges, said flanges gradually diminishing in width from the receiving end to the discharging end of the wheel, and short blades carried by the wings and disposed at an intermediate point between the hub and flanges, and extending and curving in their length to correspond with the curved edges of the said flanges, substantially as set forth.

2. The herein shown and described water-wheel composed of a plurality of wings extending in straight radial lines from the hub and running spirally in the direction of their

length, and having curved flanges at their outer edges which gradually diminish in width from the receiving to the discharging end of the wheel, and short blades attached to one face of the wings and occupying an intermediate position between the hub and the adjacent flanges, the outer edges of the blades terminating a short distance from the circular outline of the wheel and extending approximately parallel with the free edges of the adjacent flanges, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

MELVIN E. HASKINS.
GEORGE L. EVANS.

Witnesses:

SAMUEL L. FLEMING,
C. C. PHILIPS.