R. WILSON.

Water-Wheel.

No. 168,202. Patented Sept. 28, 1875.

Fig. 1.

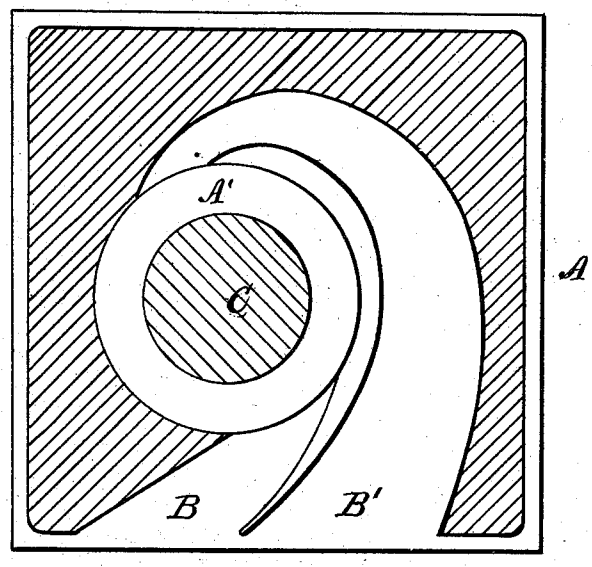
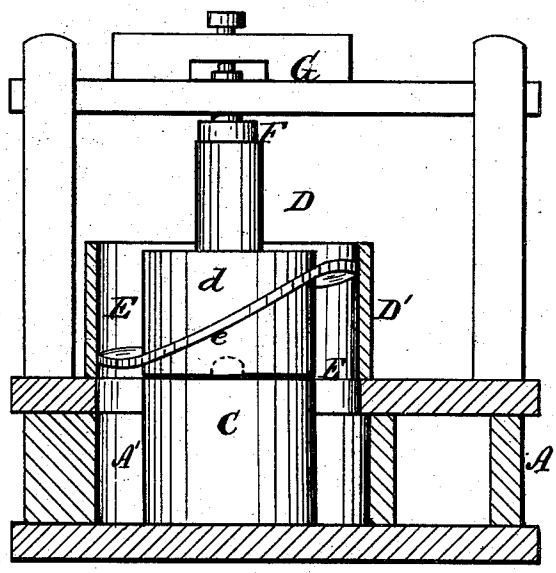


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

ROBERT WILSON, OF McLEANSVILLE, NORTH CAROLINA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **168,202**, dated September 28, 1875; application filed July 28, 1875.

To all whom it may concern:

Be it known that I, ROBERT WILSON, of McLeansville, in the county of Guilford 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 invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to water-wheels; and consists of an inclosed or tight water-wheel mounted upon or over a water-chest, the water-chest receiving and feeding the water to the bottom of the wheel through peculiar wedge-shaped channels in the water-chest, and, passing up through the wheel, is discharged at the top, as and for the purposes hereinafter more fully set forth and claimed.

My invention relates particularly to the water-chest for conducting the water to the wheel, in connection with the inclosed top-discharge wheel.

In the drawings, Figure 1 is a sectional plan view of the chest; Fig. 2, a transverse vertical section through wheel and chest.

A A′ is the water-chest, of any external form and construction, provided with two wide openings or channels, B B′, which taper and curve gradually around as they enter and approach the central opening A′ of the chest, the one B′ continuing around until it enters the opening A′ at a point directly opposite the entrance thereto of the channel B. C is a solid central head-block or pivot-bearing, upon which the water-wheel is supported and revolves, secured in the center of the opening A′ of the chest. This block is to give the proper rotation to the water before it enters the wheel. D is the water-wheel, composed of a central large solid hub, *d*, long gradually-inclining blades *e*, which commence at the top of the hub and extend down around to the bottom and opposite side thereof, and an inclosing-case, D′. The large central portion or hub is made of such a height and diameter that the discharges E will be of about one-third greater height than width, as shown in Fig. 2. F is the shaft of the wheel, secured at the top in suitable bearings G.

I have shown this wheel as provided with only two inclines or blades and discharges; but more may be provided, if desired, and also the chest may be provided with several receiving-chambers, if desired or found necessary.

The operation of the parts is as follows: The chest is placed in proper position to receive the full head or fall of water from the water-house, flume, or other place. The water enters the chest by the large-mouthed channels B B′, and is carried and forced around these channels, which being wedge-shaped as they proceed, the water is gradually condensed as it is carried around, until it enters the circular opening A′. In this opening it is given an additional rotary velocity around the central hub C. From this opening the rapid revolving water enters the narrow openings E into the wheel, communicating rotation thereto as it is carried up and around the blades, and escaping over the top edge of the wheel.

The advantage of this is, that by providing the channels with very large mouths or entrances, and giving them a gradually-converging curved or wedge shape as they proceed into the chest, the water, if it be a small or low head, is condensed or brought together before it enters the wheel. The water is thus delivered to the wheel in a dense compact body, which has received a powerful impulse. Thus the entire force and head can be used, and a greater amount of power obtained than by any wheel of which I am aware.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The water-chest A, provided with central circular opening A′, solid head-block C, and wide mouth, gradually-converging curved channels B B′, discharging into the space A′ at opposite sides thereof, as and for the purposes described.

2. In combination with the chest A, constructed with the central circular opening A′, solid head-block C, and wide-mouthed, gradually-curved, converging or wedge-shaped channels B B′, the top-discharge inclosed wheel D *d e*, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of July, 1875.

ROBERT WILSON. [L. S.]

Witnesses:

S. D. McLEAN,

A. P. McDANIEL.