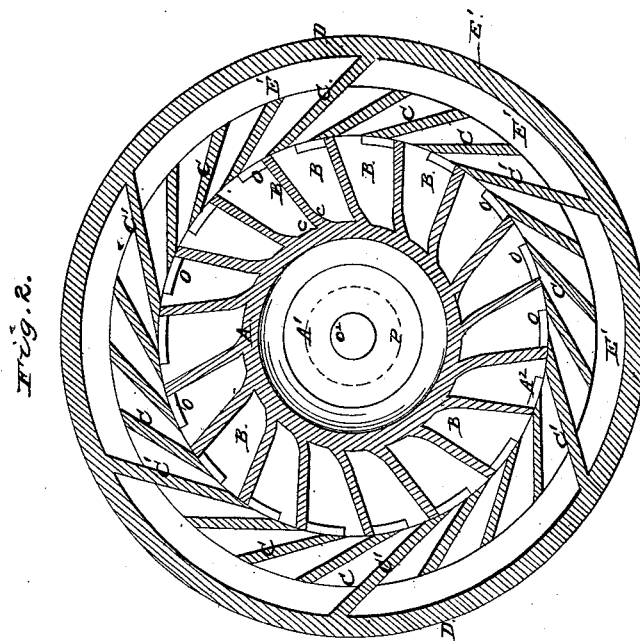
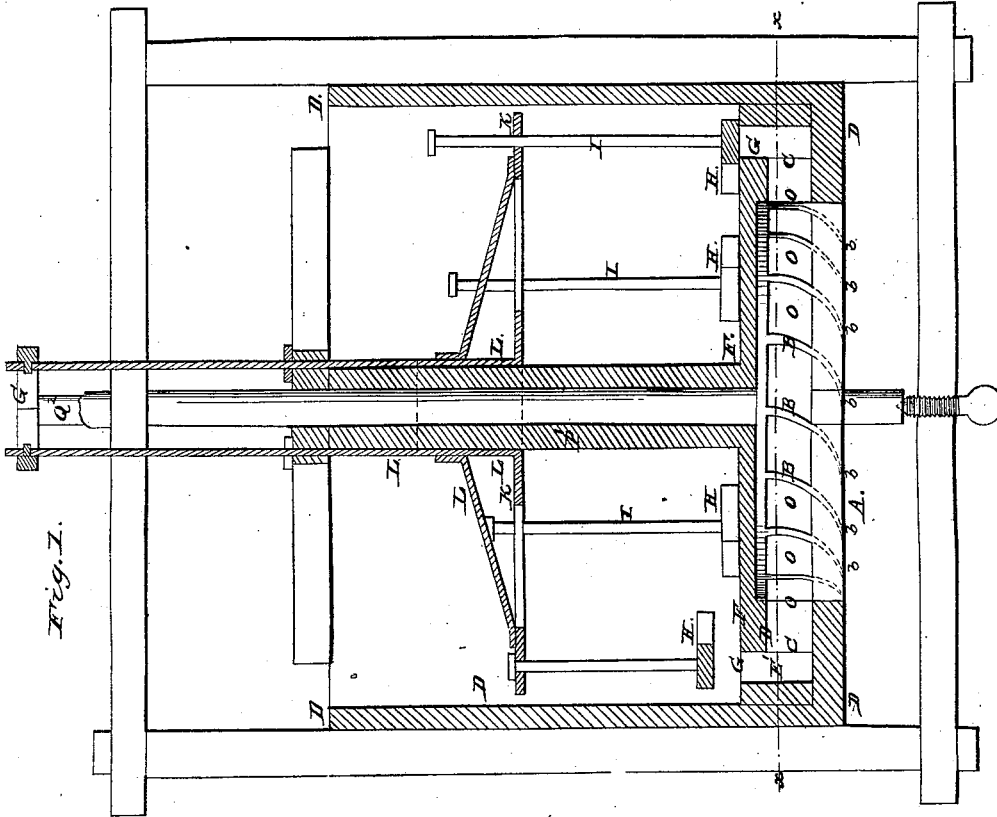


# W. Drijns, Water Wheel

No. 4,286.

Patented Nov. 26, 1845.



W. Drijns,  
Water Wheel,

N<sup>o</sup> 4,286.

Patented Nov. 26, 1845.

Fig. 7.

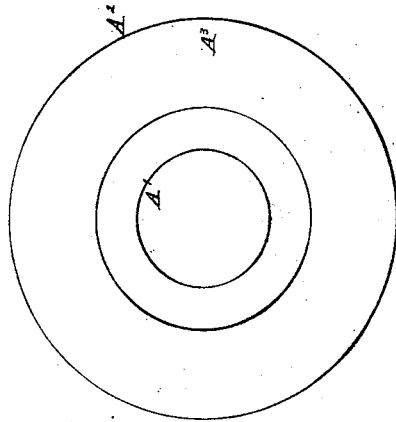
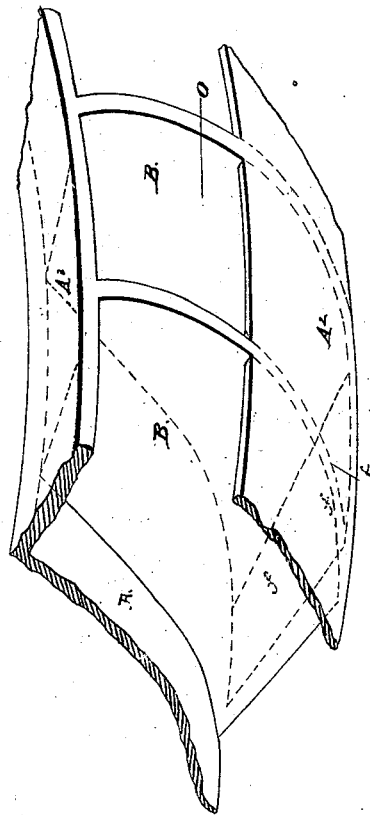


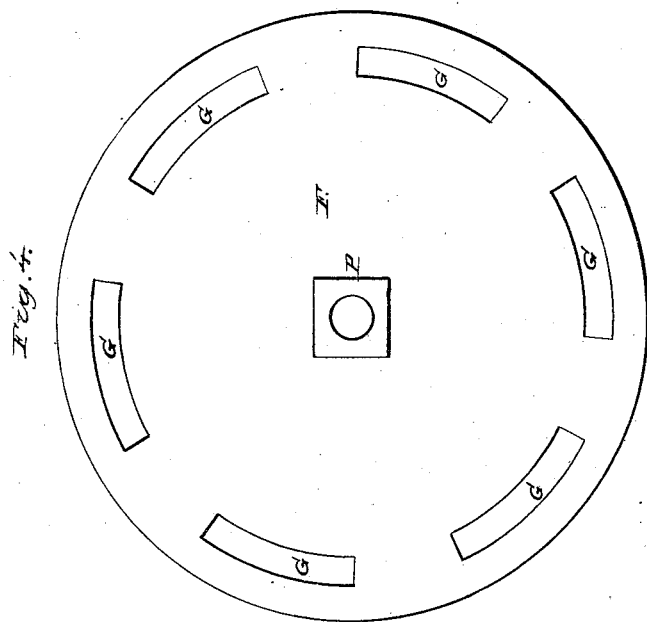
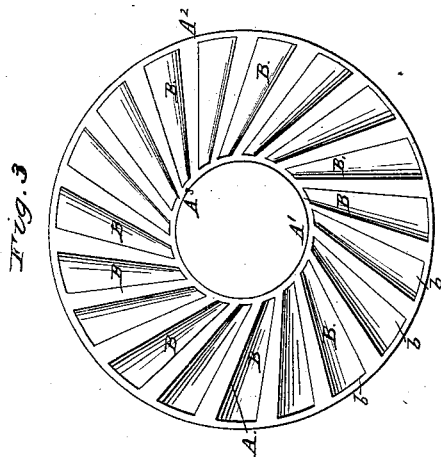
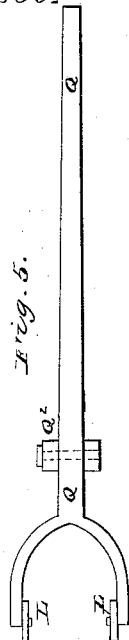
Fig. 6.



# W. Briggs, Water Wheel,

Patented Nov. 26, 1845.

No. 1,286.



# UNITED STATES PATENT OFFICE.

WILLIAM DRIPPS, OF COATESVILLE, PENNSYLVANIA.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 4,286, dated November 26, 1845; antedated May 26, 1845.

*To all whom it may concern:*

Be it known that I, WILLIAM DRIPPS, of Coatesville, in the county of Chester and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Water-Wheels, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a side elevation of the wheel and vertical section of the chutes. Fig. 2 is a horizontal section of the wheel and chutes at the line  $xx$  of Fig. 1. Fig. 3 is a view of the bottom of the wheel; Fig. 4, a top view of the bottom of the tube or perforated disk under which the wheel revolves and through which the water passes to the wheel. Fig. 5 is a top view of the forked lever, showing its attachment to the frame L. Fig. 6 is a perspective view of a section of the wheel, showing one of the buckets. Fig. 7 is a top view of the wheel.

The wheel (lettered A) is made of cast-iron or other suitable material and of convenient size.

A' is the inner rim of the wheel, made in the form of a section of a funnel or of an inverted cone. A<sup>2</sup> is the outer rim, made in the form of a section of a vertical cylinder and of greater diameter than the rim last named and placed concentric therewith, having openings O in the said section of a cylinder for the introduction of the water to the buckets, said openings being of a form and size corresponding with the form and size of the smaller ends of the chutes C. Between these two rims are placed a series of curved buckets B, arranged in a circle with their upper edges on lines drawn tangential to a circle P, Fig. 2, about one-fourth the diameter of the wheel, and they are placed at equal distances from each other and corresponding with the size and shape of the openings in the outer rim of the wheel. The buckets gradually lengthen as they descend toward the bottom and approach the lower or convex surfaces of the buckets, at the same time decreasing the width and increasing the length of the issues for the water, and are thus continued until their lower edges are made to coincide with lines tangential to a circle of greater diameter than the circle P, being also gradually reduced in thickness from the upper or narrow end to

the lower or wide end, the water being made to act on said buckets by percussion as well as reaction, percussion as it leaves the chutes and strikes the face of the buckets nearly at right angles, and reaction as it flows down over the concave spiral surface of the buckets to the contracted tangential issues, through which it escapes in a direction contrary to that at which it strikes the wheel and to the turning of the wheel. The upper ends of the buckets are united and the spaces between them closed by a circular solid rim A<sup>3</sup>, Figs. 1 and 7, the diameter of the wheel and the passages through the wheel for the circulation of the water being made in the manner above described through the perimeter of the wheel and down spirally through between the buckets, as described.

In Figs. 1 and 7 the top of the wheel is represented as being solid and circular.

The water may be introduced to the buckets from the inside of the wheel by making the inlets in the funnel-shaped or inner rim A' instead of the outer or cylinder rim A<sup>2</sup> and produce the same result.

The chutes C are formed in a circular case D, surrounding the wheel, and stand nearly tangential to the periphery of the wheel, so that the jets of water passing through them shall strike the buckets of the wheel at or very near a right angle and then pass obliquely downward between the buckets and escape through the issues in the bottom of the wheel and in discharging react on the wheel.

A circular space E' is left outside the chutes, which is divided into six or more segmental apartments E' by extending six or more of the blocks or boards C' forming the chutes across said circular space E', and cut off a communication from one side of said blocks to the other. This circular space and the space occupied by the chutes and wheel are covered by a circular platform or deck F, Figs. 1 and 4, perforated or made with a series of segmental openings or gates G, one over each segmental space E' surrounding the chutes, through which gates the water is admitted from the tub D to said segmental spaces E', and thence through the chutes to the wheel. These openings are covered by a series of segmental valves H, provided with rods extending upward through openings in a circular metallic

rim K, attached to a sliding frame L, arranged around a central vertical post P' inside the flume or tub D and over which it slides vertically. These rods I are of unequal lengths and have heads formed on their upper ends, by which, when the sliding frame L is raised by a forked lever Q, the valves H are also raised one at a time from the aforesaid segmental openings G. By having the rods of unequal lengths one or more of the segmental valves can be removed from the segmental openings and the remainder left closed, and no more water admitted to the wheel than the machine to be propelled requires.

The frame L, to which the circular rim K, containing the valves H and rods I, is attached, may be varied in its construction and may be raised by a forked lever Q, having its fulcrum in an upright post Q', or by rack and pinion and crank, or by any suitable mechanical means, the same forked lever Q, circular rim K, and frame L serving to raise all the valves, but in succession as may be required. The

valves will be closed by their own weight and the pressure of the water upon them.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Making the apertures O in the wheel for the introduction of the water to the buckets to extend through the outer or cylindrical perimeter A<sup>2</sup> thereof near the top and then spirally down through between the buckets to the bottoms thereof in the manner described, in combination with the funnel-shaped inner rim A' and curved buckets B, as set forth, whether the water be introduced from the inside or outside of the wheel, as before stated.

2. The combination of the sliding frame L and segment-valves H, connected therewith by rods or stems I of unequal lengths, for letting on the water by degrees, in the manner set forth.

WILLIAM DRIPPS.

Witnesses:

ALBERT E. H. JOHNSON,  
ISAAC DRIPPS.