A. H. BRUBAKER.

Improvement in Water Wheels.

No. 122,809. Patented Jan. 16, 1872.

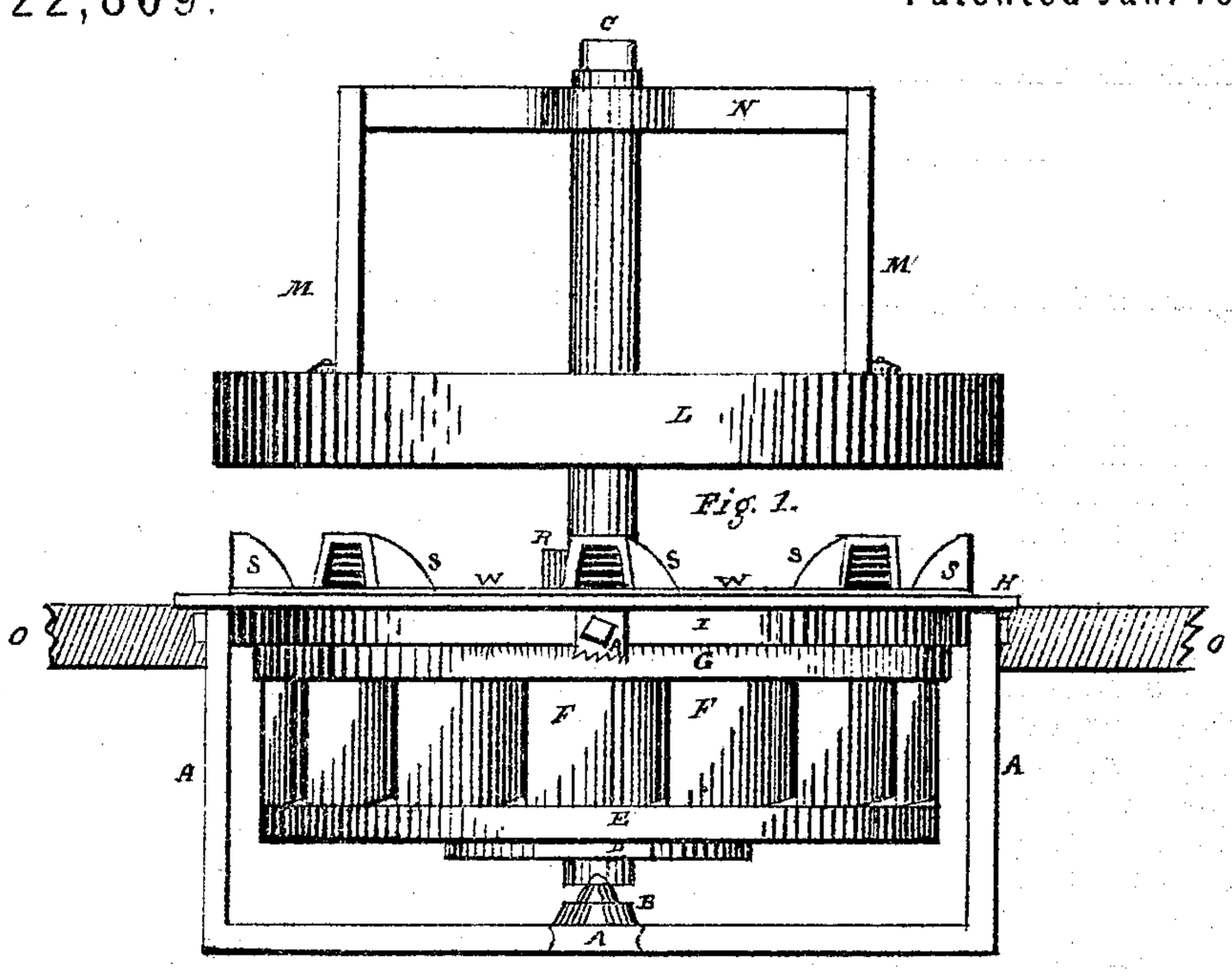

Fig. 1.

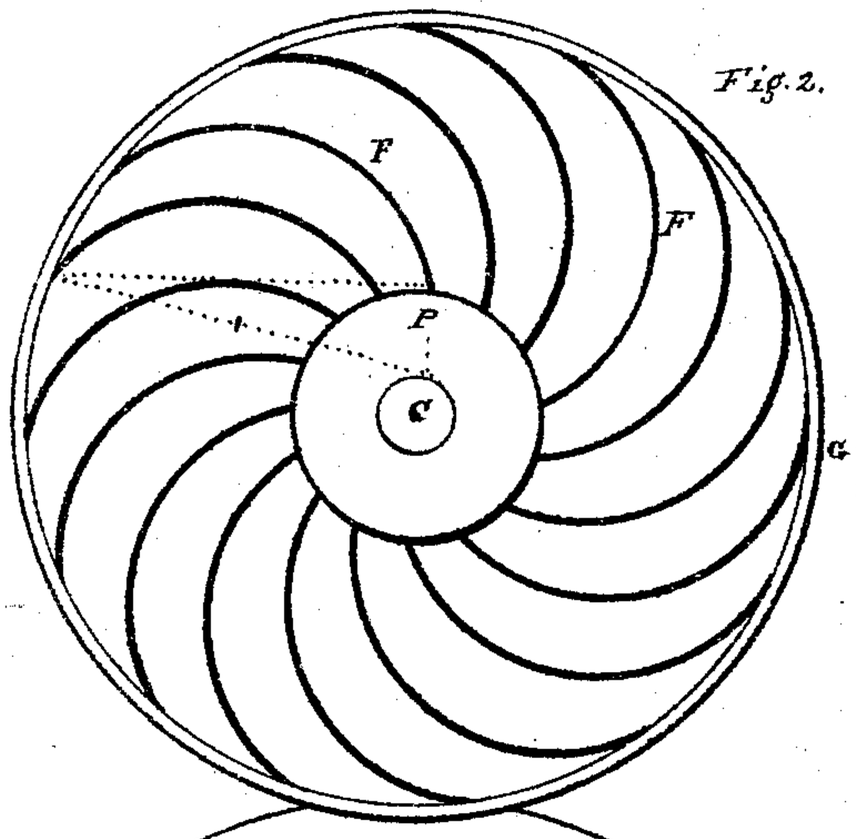

Fig. 2.

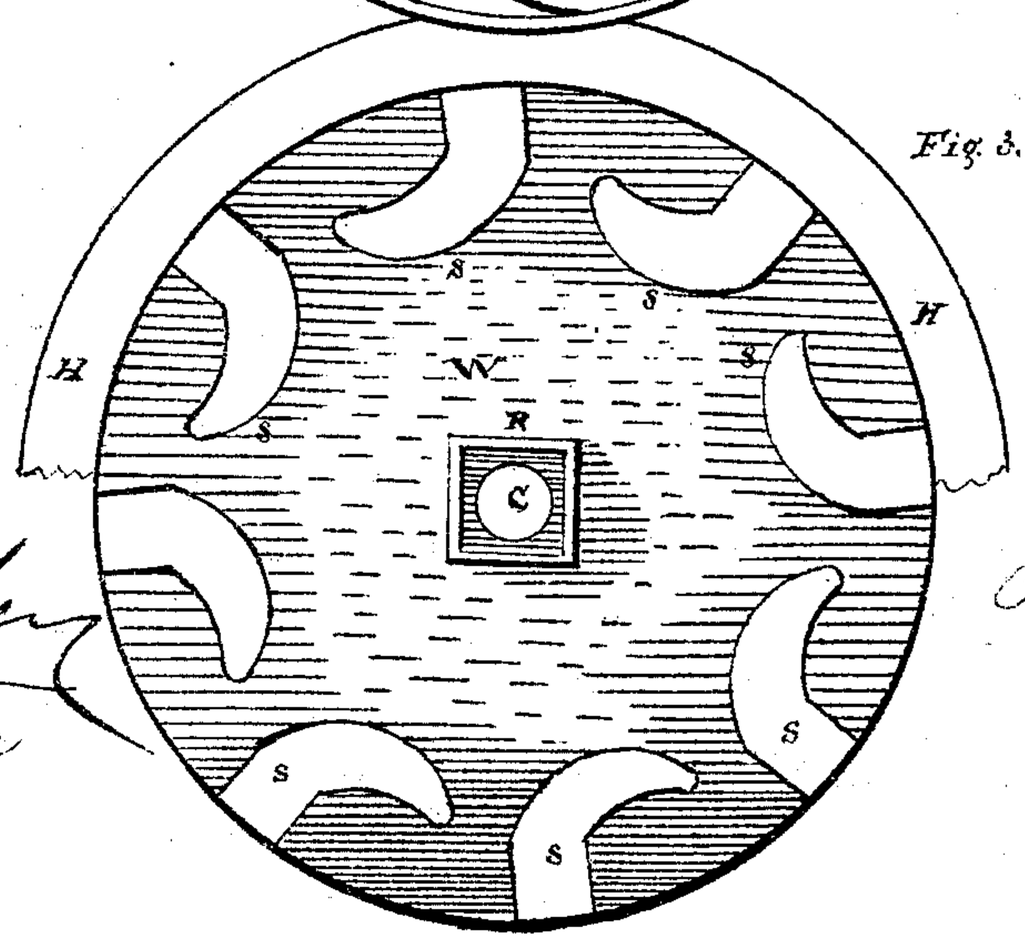

Fig. 3.

Witnesses.

W. B. Wiley

Jacob Stauffer

Inventor.

A. H. Brubaker

122,809

UNITED STATES PATENT OFFICE.

AARON H. BRUBAKER, OF BRUNERSVILLE, PENNSYLVANIA.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 122,809, dated January 16, 1872.

To all whom it may concern:

I, AARON H. BRUBAKER, of Brunersville, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Water-Wheels, of which the following is a specification:

The nature of my invention consists in casting the crown or head-plate in one piece with its central stuffing-box, raised disk, and curved chutes, fastening-flange, and ring, to which latter the hangers and step of the wheel are bolted, and the whole suspended in the bottom of an ordinary trunk with the end closed to form a cistern or pen-stock. The gate consists of a cap, the ring of which fits over the open mouths of the chutes around the circumference of the raised disk, forming a shoulder, as herein more fully described.

The drawing clearly shows the arrangement and construction of the parts.

Figure 1 shows the gate L, crown-plate W, flange H, by which it is fastened to the bottom O of the water-cistern, the hangers A, which cross beneath centrally with a boss for a step, B, for the spindle C, to which the wheel is keyed. Fig. 2 shows the upper ring G that confines the buckets or turbine-plates F, which are cast to a water-tight bottom and discharge from the circumference of the wheel. Fig. 3 shows the upper face of the crown-plate W, with its chutes S, stuffing-box R, and flange H. The foot-flange or ring I beneath the flange is shown in Fig. 1.

The novelty consists in the arrangement of the parts. A brief explanation will enable any one skilled in the art to make and use the same.

The crown-plate or head W, already described, is fitted into the bottom of the trunk or pen-stock, and the upper face of the flange H may be let flush into the wood. The ring or rim I penetrates below the bottom. To this ring the four arms of hangers A are bolted, they crossing each other centrally in a raised boss, B, for the step of the spindle C, to which the wheel is keyed. D is a boss or supporting-plate to the bottom E of the wheel. This shows fifteen buckets curved with a radius of one-fourth the diameter of the wheel, drawn at right angles from a vertical line to intersect the tangent of the shaft on the circumference, shown by the dotted lines, Fig. 2. It is believed, and sustained by experiments made at considerable cost, that, the water entering the chutes S from the circumference or outer edge of the crown-plate W, leading first toward the center, thence deflected down and almost at right angles to one side, the impact of the water thus delivered, with all its head and pressure, produces a greater impulsive force against the hollow faces of the turbine-plates or buckets F than when otherwise admitted to the buckets, opening and discharging from the circumference, the curve being calculated to allow the water to recede from the center of motion, so as to escape outward with an increased force and velocity, unobstructed by any impediment or back water. The upper ring G of the wheel is inside, in part, of the flange or rim L of the crown-plate W and chutes S. The arrangement of the gate L consists of a ring, which fits closely against the openings or water-way of the chutes S, and over the shoulder or raised central disk down onto the flange H, shutting out the water effectually. This ring I is closed above, forming a water-tight cap or lid, and is provided with side brackets M, united by a cross-piece, N, which is fitted around the spindle C, forming a vertical guide for raising or lowering the gate by means of a rack and gear, or leverage, not shown, as any of the mechanical devices can be applied to perform that office or function.

I am aware that there is an endless variety of water-wheels of this class patented, each claiming a specific construction and arrangement. In adding this to the number I am not aware that a crown-plate with chutes, boot-shaped, on a disk and flange, for being attached, and to deliver the water against the curved plates, in the manner shown and described, was ever before known or used. Nor do I know of a cap-gate that will regulate or close all the chutes simultaneously, and guided by its connection with the spindle C and yoke or cross-piece N; therefore,

What I desire to secure by Letters Patent is—

1. The crown-piece or head-plate W, with its curved chutes S, shouldered disk, and flanges H and I, in combination with the united hangers A, forming the step B for the spindle

C, to which the water-wheel is keyed, having a bottom, E, buckets F, and ring G, all arranged in relation to each other substantially in the manner shown, and for the purpose specified.

2. In combination with the crown-plate W and chutes S, I claim the cap-gate L, with its brackets M and yoke or cross-piece N, made to embrace and slide on the spindle C for a guide, as shown, for the purpose mentioned.

A. H. BRUBAKER.

Witnesses:
W. B. WILEY,
JACOB STAUFFER.

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