

S. SHULTZ.
WATER WHEEL.

Application filed Oct. 9, 1901.

(No Model.)

2 Sheets—Sheet 1.

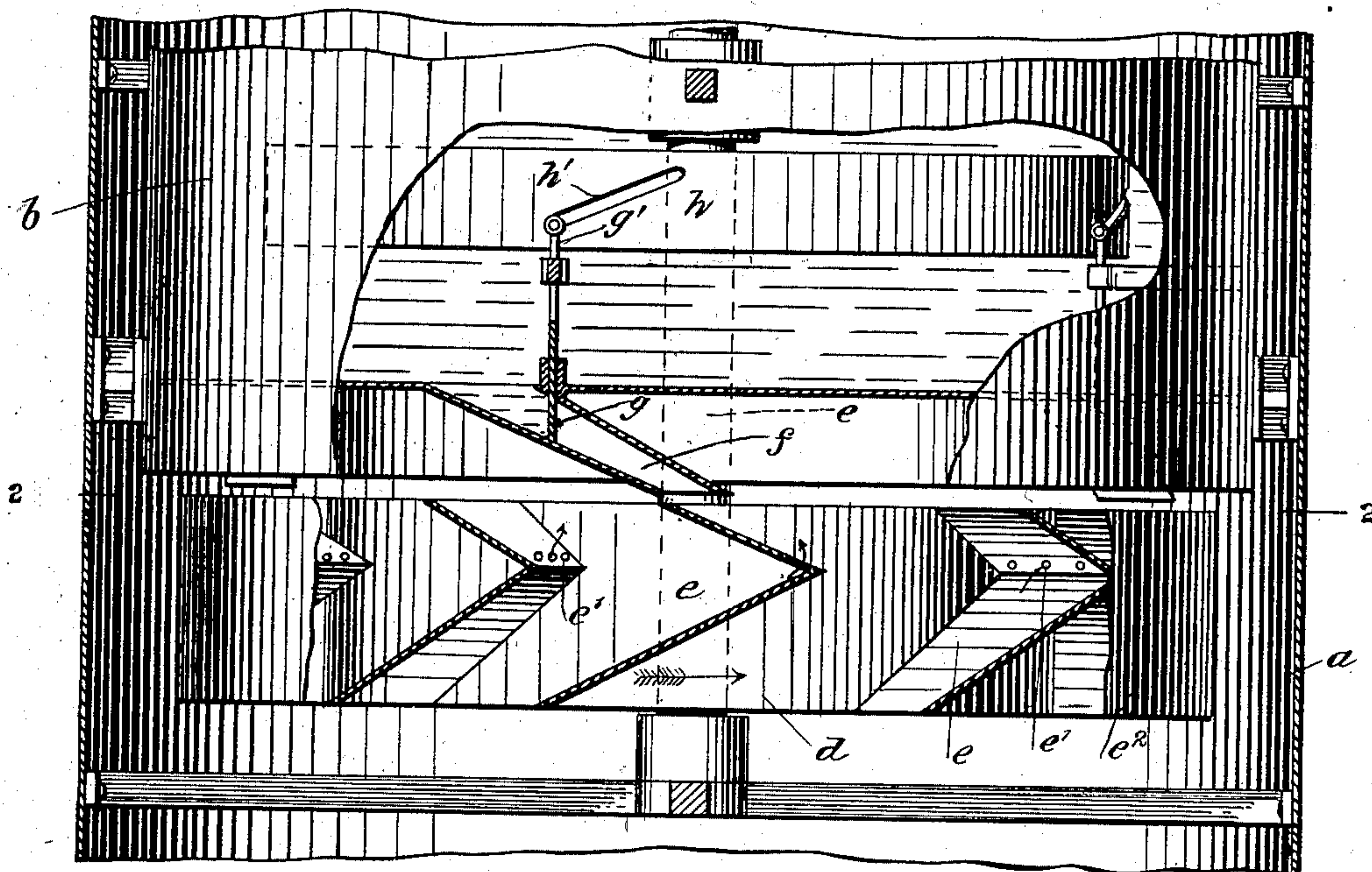


Fig. 1

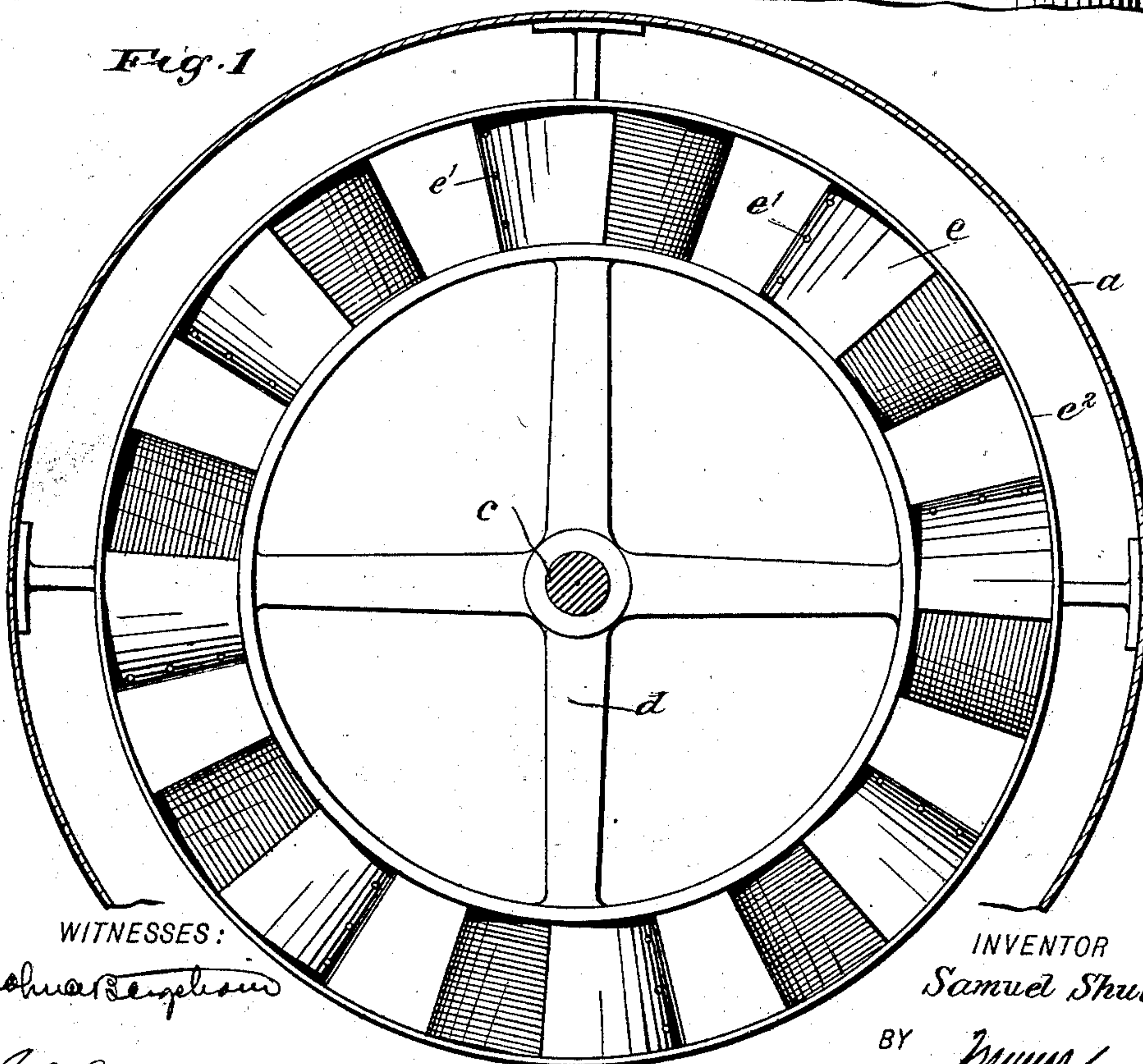


Fig. 2

WITNESSES:

John A. Reynolds

J. B. Owens.

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ATTORNEYS

No. 702,251.

Patented June 10, 1902.

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WATER WHEEL.

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2 Sheets—Sheet 2.

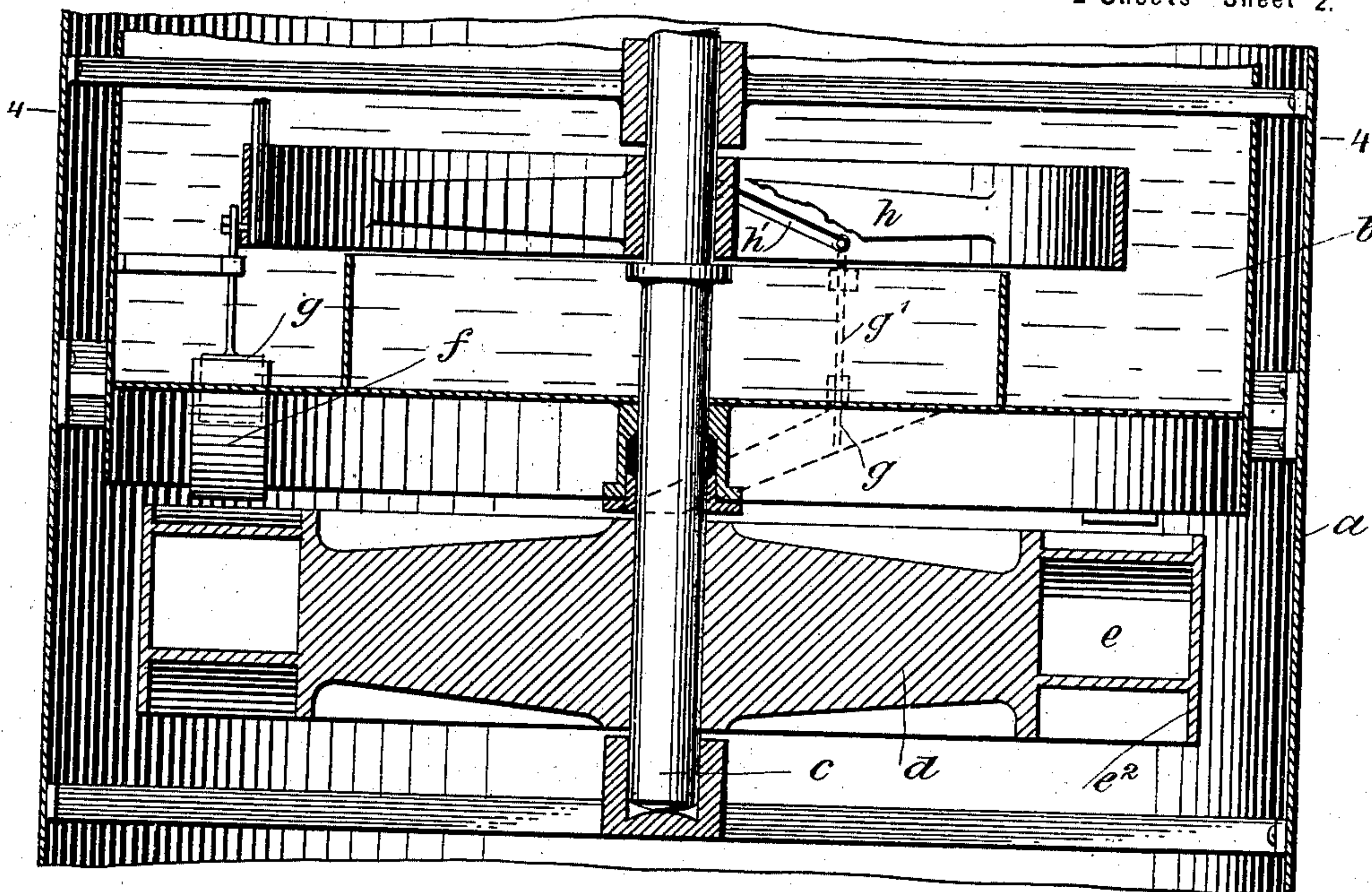
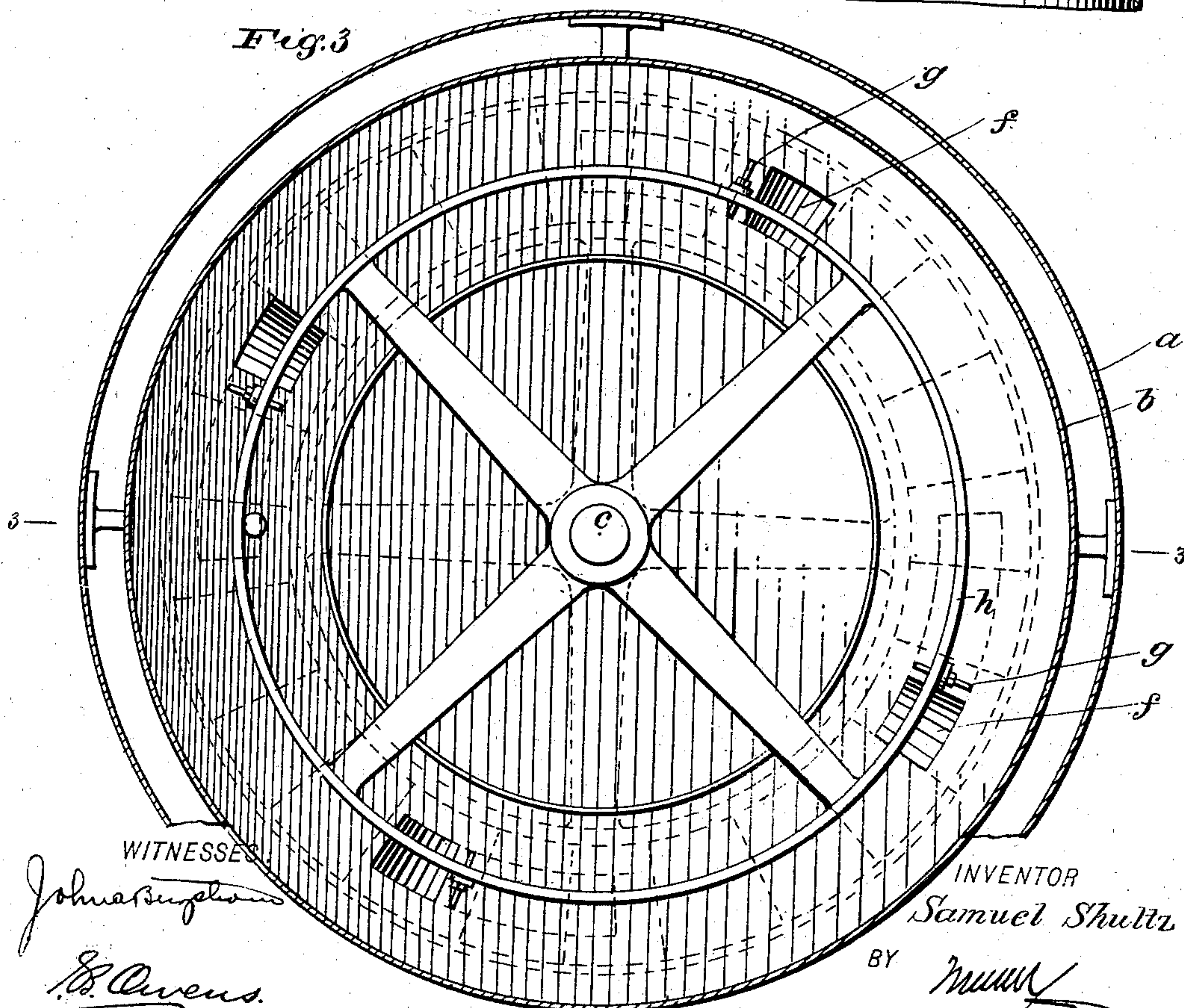


Fig. 3



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Fig. 4

UNITED STATES PATENT OFFICE.

SAMUEL SHULTZ, OF STRONGTOWN, PENNSYLVANIA.

WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 702,251, dated June 10, 1902.

Application filed October 9, 1901. Serial No. 78,069. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL SHULTZ, a citizen of the United States, and a resident of Strongstown, in the county of Indiana and State of Pennsylvania, have invented a new and Improved Water-Wheel, of which the following is a full, clear, and exact description.

This invention relates to a water-wheel arranged to turn on a vertical axis and having peripheral buckets acted on by a stream or streams of water directed into or against the buckets diagonally to the plane of the wheel.

This specification is a specific description of one form of the invention, while the claim is a definition of the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the invention, partly broken away. Fig. 2 is a horizontal section thereof on the line 2 2 of Fig. 1. Fig. 3 is a section on the line 3 3 of Fig. 4, and Fig. 4 is a sectional plan view on the line 4 4 of Fig. 3.

a represents an exterior casing or framing, which may be of any construction desired, and within which is supported a reservoir b for carrying the water. This reservoir may be a continuation of a flume or aqueduct conveying the water to the motor, or it may be a separate tank into which the flume discharges. I have here illustrated it as a separate tank, although it will be fully understood that this feature may be changed radically without departing from the spirit of my invention. A vertical shaft c is revolvably mounted below the reservoir b and carries the wheel d , which is provided on its periphery with a number of V-shaped buckets e , extending radially and opening at the base of the V. Opposite the openings, or, in other words, at the point of the V, the buckets are formed with air-holes e' for permitting the ready escape of air, as will be more fully described hereinafter.

e^2 represents a peripheral ring extending around the buckets to close their outer ends and brace them one against the other.

The casing or framing a extends below the flume and may be supported therefrom or

in any other suitable manner and serves as a support for the reservoir b and the bearings for the shaft of the wheel.

The shaft c extends upwardly through the reservoir b and is adapted to have the power of the motor taken from its upper end. f indicates a number of spouts, four of which are shown in the drawings, although in practice eight of such spouts are preferably employed. These spouts extend diagonally from the bottom of the reservoir b and concentric with respect to the wheel d , and are adapted to discharge streams of water against the open or hollow sides of the buckets e , (see Fig. 1,) thus driving the wheel in the direction of the arrow shown in Fig. 1. The water striking the buckets diagonally to the plane of the wheel forces itself into the contracted portions of the buckets, and after its energy is spent the water flows from the lower sides of the buckets. The perforations e' permit the free passage of air into and out of the buckets, and thus facilitate dropping the dead water. This prevents carrying the dead water around or partly around with the buckets, which operation would otherwise take place and which would materially detract from the efficiency of the motor.

The spouts f are commanded by gates g , attached to rods g' , which are suitably carried to move vertically and provided with transverse pins working in the slots h' of a band or wheel h , mounted to turn around the shaft c . The slots h' are diagonal, and when the band or wheel h is given a slight turning movement in one direction or the other the gates g are simultaneously raised or lowered, according to the direction in which the band or wheel is turned.

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

The combination with a casing, of a reservoir supported therein, a vertical shaft revolvably mounted in the casing, and extending upwardly through the center of the reservoir, a wheel carried by said shaft and arranged below the reservoir and having buckets on its periphery, discharge-spouts extending diagonally downward from the bottom of the water-reservoir, a gate commanding each

spout, vertically-extending rods carrying said gates and provided with transverse pins at their upper ends, and a band or wheel mounted to turn on the shaft within the reservoir
5 and provided with a series of similar diagonal slots engaging said pins, whereby the gates may be simultaneously raised or lowered.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL SHULTZ.

Witnesses:

S. A. E. BRALLIER,
JAMES B. GRAHAM.