

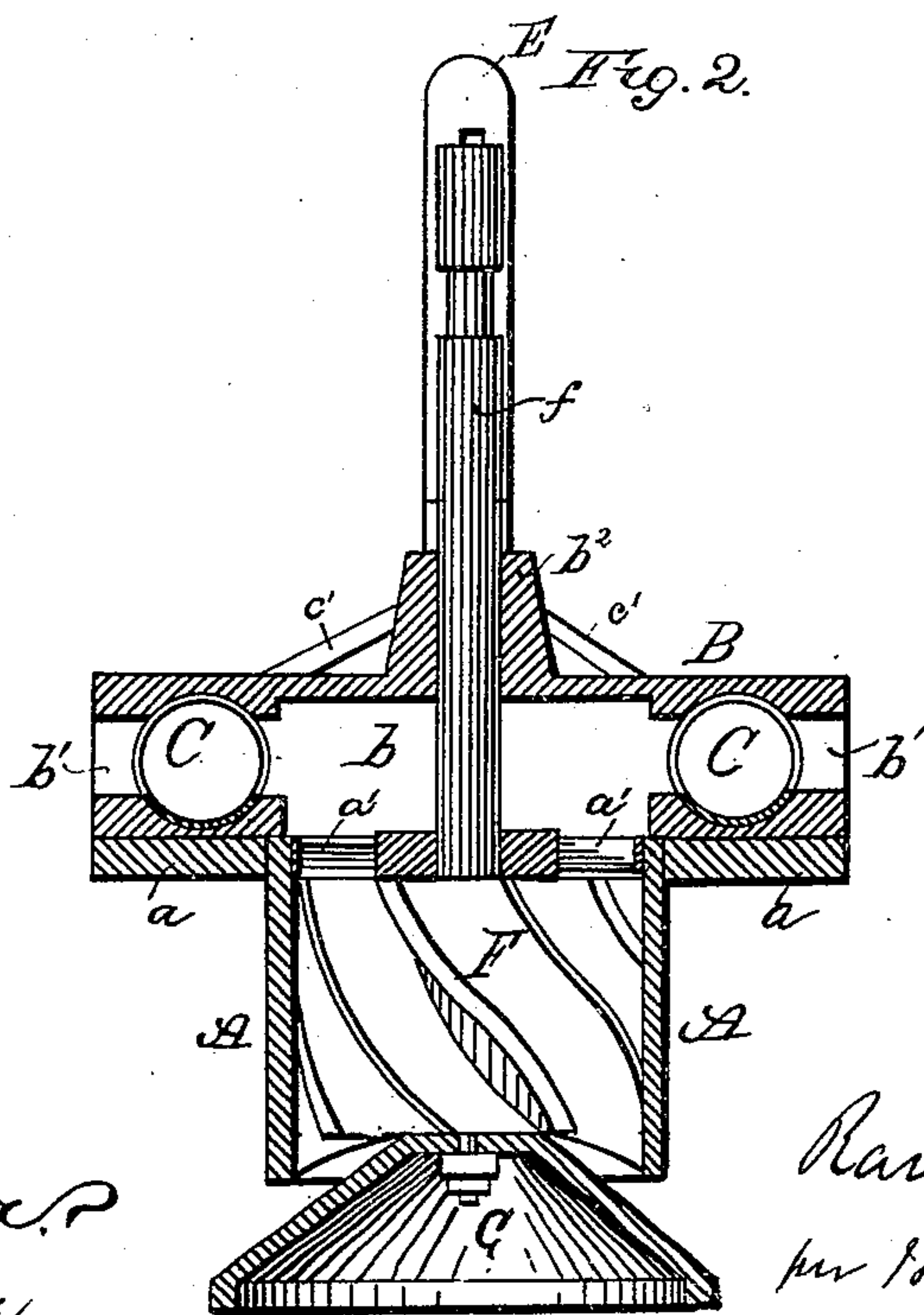
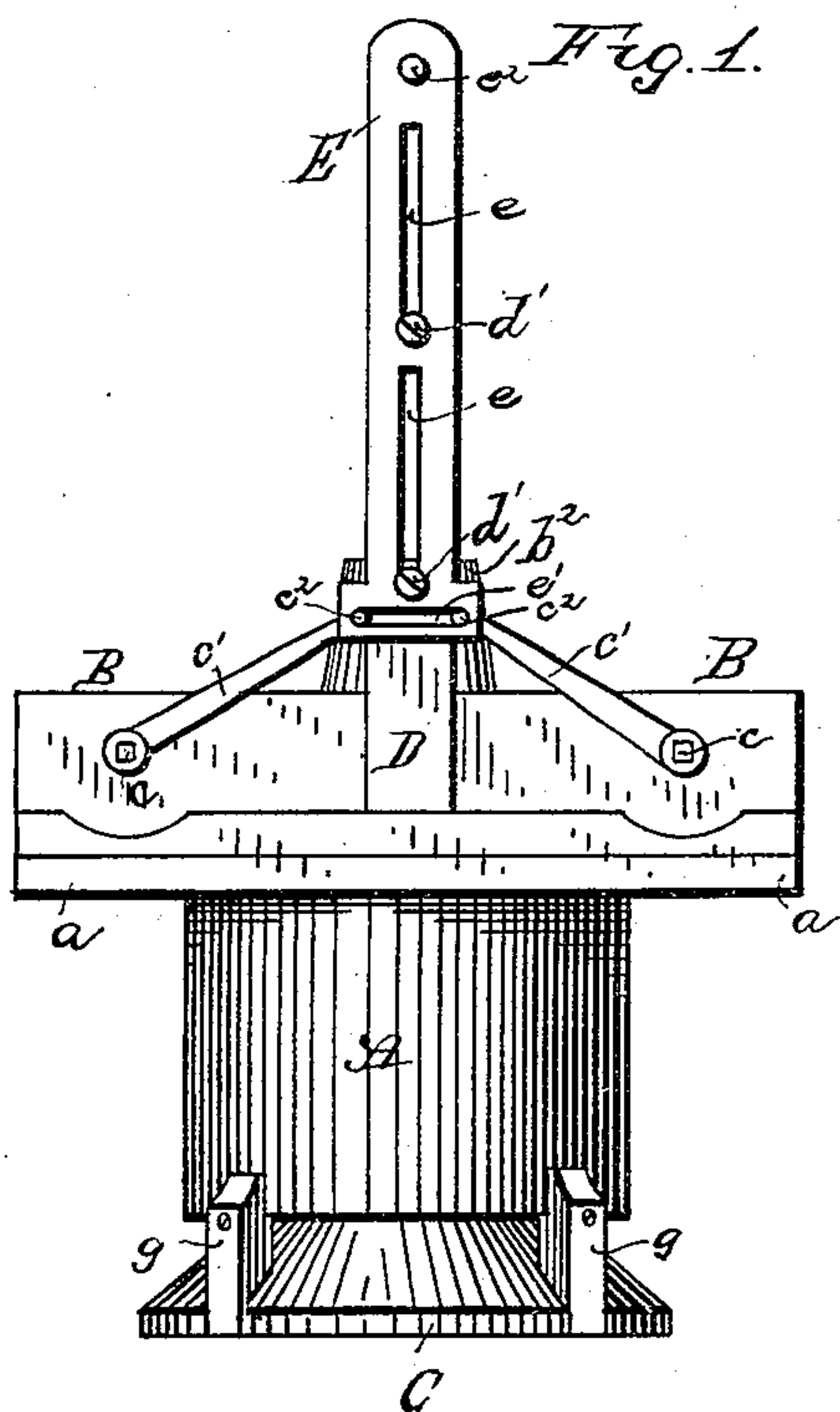
(No Model:)

2 Sheets—Sheet 1.

R. H. ARMSTRONG.
TURBINE WATER WHEEL.

No. 262,342.

Patented Aug. 8, 1882.



Witnesses:

J. W. Garner.
W. S. D. Haines

Inventor:

Receiver:
 Hanson & Armstrong,
 per Howard A. Snow
 Attorney

(No Model.)

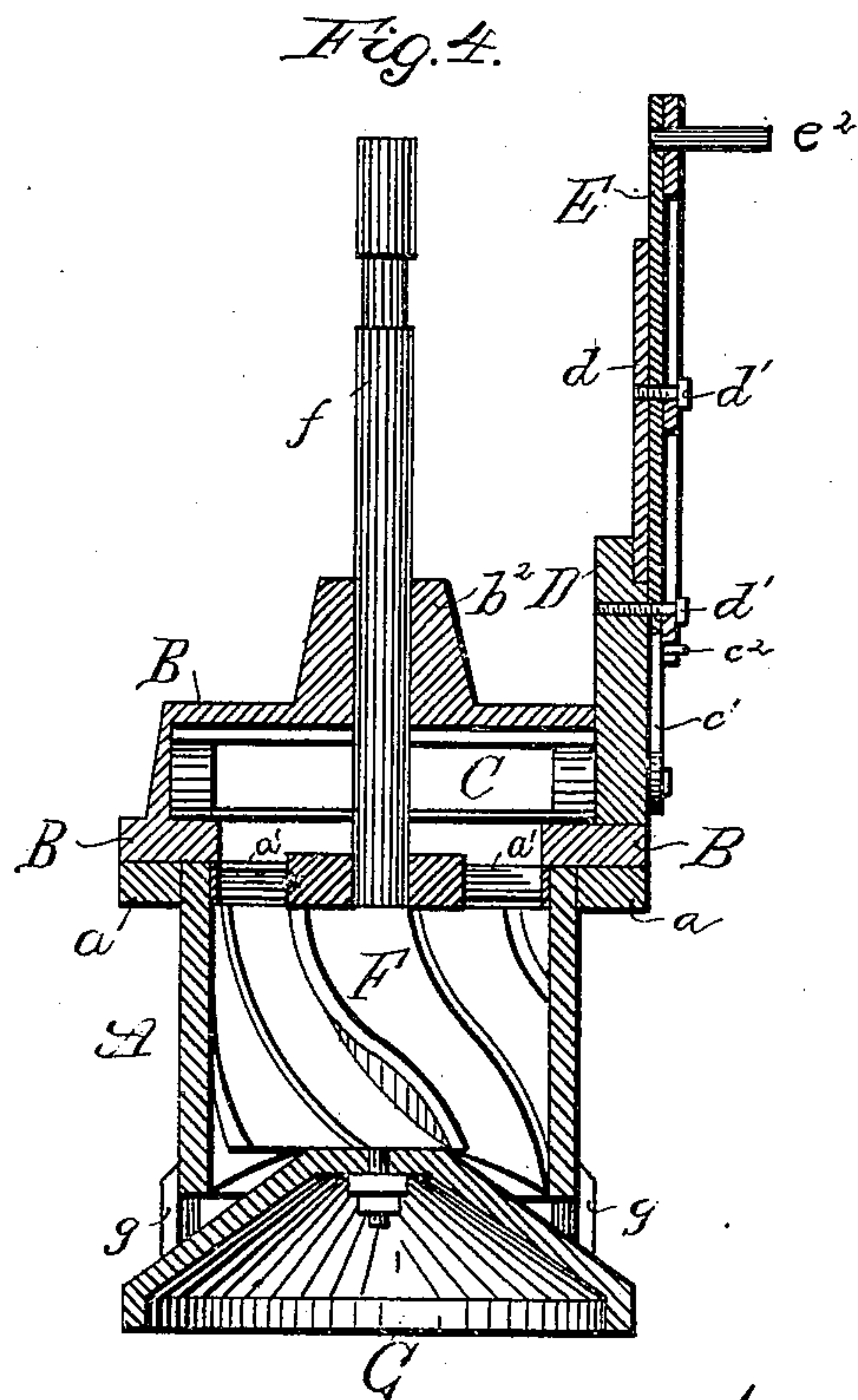
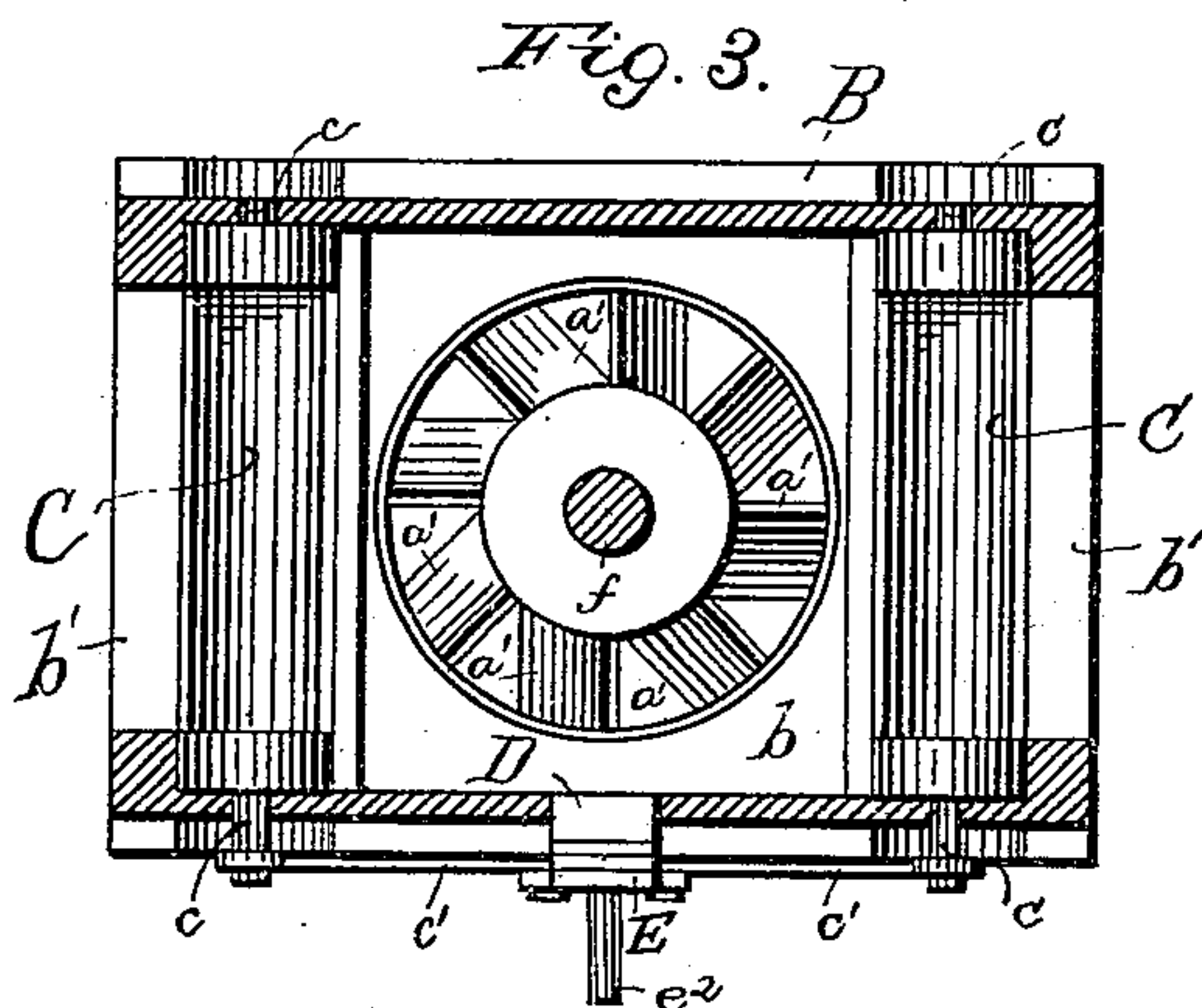
2 Sheets—Sheet 2.

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TURBINE WATER WHEEL.

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J. W. Garner
W. S. D. Haines

Inventor:
Ransom H. Armstrong,
per Howard A. Irons,
Attorney.

UNITED STATES PATENT OFFICE.

RANSOM H. ARMSTRONG, OF HUDSON, MICHIGAN, ASSIGNOR OF ONE-
FOURTH TO LEVI R. PEIRSON, OF SAME PLACE.

TURBINE WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 262,342, dated August 8, 1882.

Application filed May 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, RANSOM H. ARMSTRONG, a citizen of the United States, residing at Hudson, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Turbine Water-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to water-wheels, and in the construction and arrangement of its several parts, as will be hereinafter fully set forth, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation, Fig. 2 a longitudinal section, Fig. 3 a top-plan view of the interior parts, and Fig. 4 is a vertical cross-section, of my wheel.

A is a circular base or band of the water-wheel, around the top of which is secured a rectangular cap or plate, *a*. Cut in the plate is an annular recess, through which the water flows into the wheel below, and in it are set inclined plates *a'*, as shown, which direct the water onto the plates of the wheel.

B is the cap. It fits upon the top of the plate *a*, and is provided with a water-space, *b*, and entrance-chutes *b'*, arranged upon opposite sides of the cap, as shown. It is also provided with a central projection, *b*², through which runs the wheel-shaft.

Across each of the chutes *b'* are arranged water gates or valves C. They are semi-cylindrical in form, except where journaled in the sides of the chutes, at which point they are made cylindrical to give steadiness of movement and strength. They have journal-pins *c*, one of which on each gate projects from the side of the cap B, and have attached to them the levers *c'*.

Secured centrally to the side of the cap from which the journal-pins project is a vertical standard, D, and projecting vertically from its top is a guide-plate, *d*.

E is the gate or valve rod. It is made preferably flat, and slides upon the standard D and guide-plate, being secured thereto by the pins *d'*, which pass through slots *e* in the rod, as shown. The lower end of the rod is provided with a horizontal slot, *e'*, which receives the ends of the levers *c'*, they being provided with pins *c*², adapted to enter said slots and slide therein, as shown. The upper end of the rod E is provided with a handle, *e*², by which it is operated.

F is the water-wheel, and revolves with the barrel A. It is of ordinary construction, and is provided with a shaft, *f*, which projects vertically through the cap B, as shown. The lower portion of the wheel is journaled in the base G, which is attached to the lower portion of the band A by cleats *g*, a suitable space remaining between them for the escape of the water.

In the operation of the gates C it will be seen that when the gate-rod F is drawn upwardly the ends of the levers *c'* will be drawn upwardly, causing the gates to open and allow the water to enter the water-space *b*. When the valve-rod is depressed the ends of the levers *c'* will be carried downwardly, causing the gates C to revolve and close the chutes *b'*. The outer edges of the gate are sharpened, so that any obstructions to the complete closing of the gates will be cut in two.

The advantages of these gates and their mode of operation are that friction will be lessened and ease of operation be secured by reason of the powerful leverage secured by this arrangement.

What I claim is—

1. In a water-wheel, the gates C, having semi-cylindrical ends journaled in the sides of the cap B by the pivot-pins *c*, one end of which extends beyond the cap, and has secured thereto the levers *c'*, adapted to enter the slot *e'* of the valve-rod E, substantially as and for the purposes set forth.

2. The combination of the gates C, journaled in the cap B, and provided with levers *c'*, having pins *c*², with the valve-rod E, sliding upon the standard D and guide-plate *d*, and provided with a slot, *e'*, adapted to receive the pins *c*² of the levers *c'*, substantially as shown and described.

3. In a water-wheel, the valve-rod E, in combination with the cap B, its standard D, guide-plate *d*, pins *d'*, the gate C, levers *c'*, and pins *c*², all arranged to operate substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

RANSOM H. ARMSTRONG.

Witnesses:

ROBERT P. WOOD,
LEVI R. PEIRSON.