

R. Ross Water Wheel.

N^o 24435.

Fig. 1. Patented June 14 1859.

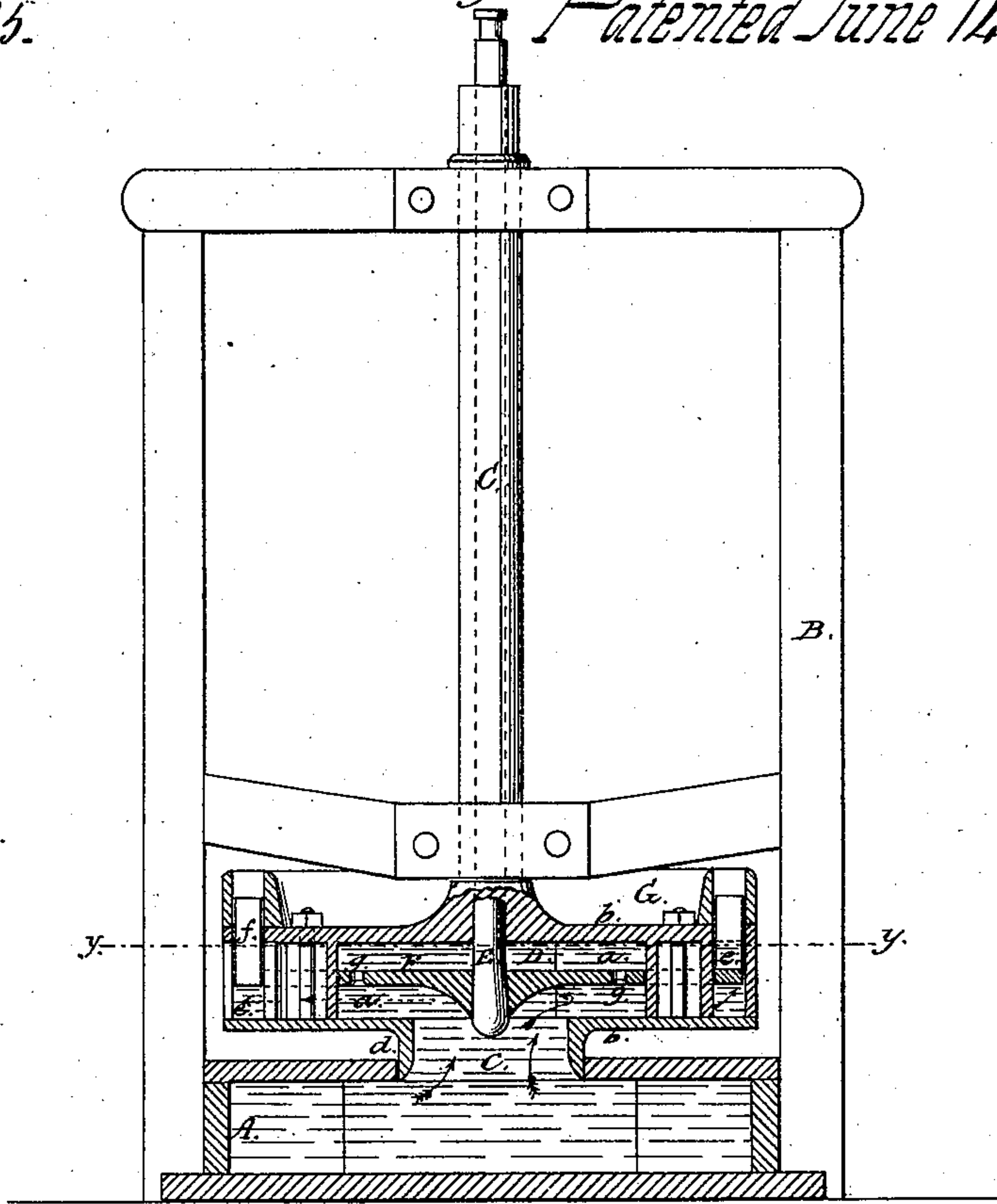
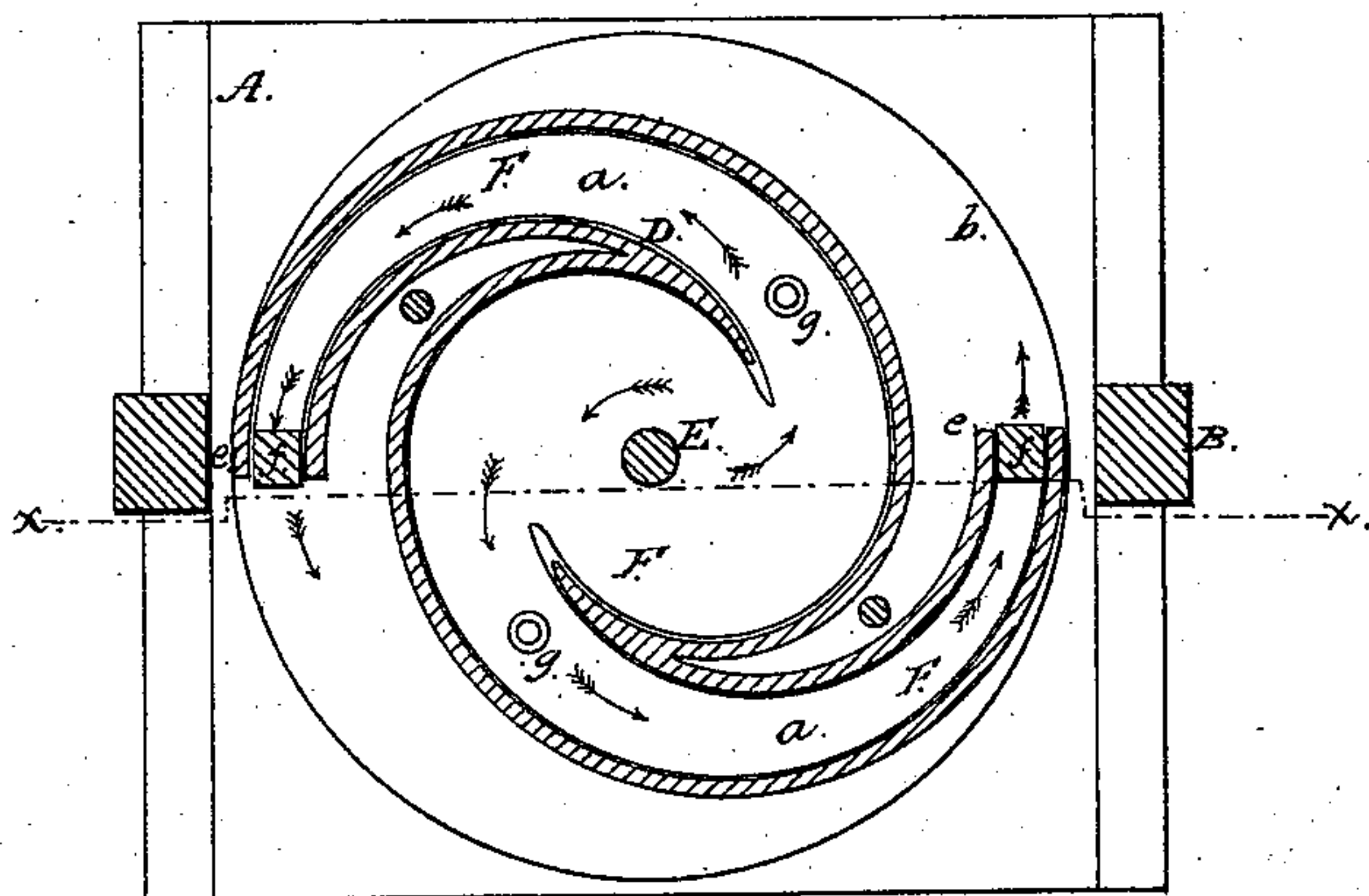


Fig. 2.



Witnesses;
Thomas G. Blison
S. Brigham

Inventor;
Robert Ross

UNITED STATES PATENT OFFICE.

ROBERT ROSS, OF ST. ALBANS, VERMONT, ASSIGNOR TO HIMSELF AND
GEO. J. STANNARD, OF SAME PLACE.

IMPROVED WATER-WHEEL.

Specification forming part of Letters Patent No. 24,435, dated June 14, 1859.

To all whom it may concern:

Be it known that I, ROBERT ROSS, of St. Albans, in the county of Franklin and State of Vermont, have invented a new and useful Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a horizontal section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to an improvement in that class of horizontal water-wheels in which the water passes through curved passages in the wheel and are generally known as "reaction-wheels."

The invention consists in having a gate fitted in the water-passages of the wheel and arranged, substantially as hereinafter fully shown and described, so that the dimensions of said passages may be varied by an ordinary regulator or governor and the speed of the wheel rendered uniform.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a box or penstock, which may be of rectangular form and to which a suitable framing B is attached to sustain the shaft C of the wheel D, which is placed on top of the box or penstock A. The wheel D is attached to the lower part of the shaft C, said wheel being formed by having two or more water-passages *a* of curved or robate form placed between circular disks *b b*, the inner ends of the water-passages communicating with an induction-passage *c*, which is encompassed by an annular flange *d*, that fits into the top of the box or penstock A, as shown clearly in Fig. 1. The shaft C of the wheel is hollow, and a rod E is fitted therein and allowed to slide freely up and down.

To the lower end of the rod E a plate or

gate F is attached. This plate or gate corresponds precisely in form with the water-passages *a* and is fitted snugly therein, but allowed to slide freely up and down.

At the issues *e* of the water-passages *a* there are vertical projections *f*. These projections are attached to the ends of the plate F, and they work up through a rim G, attached to the upper disk *b*, as shown clearly in Fig. 1.

Through the plate or gate F two apertures *g g* are made.

From the above description of parts it will be seen that by raising and lowering the plate or gate F the size or dimensions of the water-passages *a a* may be varied as desired, and if a regulator be applied to the top of the rod E the speed of the wheel may be rendered uniform. In consequence of having the vertical projections *f* attached to the ends of the plate or gate F and passing up through the rim G, the wheel may be submerged and not have its operation interfered with. The perforations *g* in the plate or gate F permit water to pass above the plate or gate and keep the same in a state of equipoise. (See Fig. 1.) The projections *f*, it will be seen, permit such result, as they cover the issues *e* above the plate or gate F and prevent the water escaping above the gate. The gate by which water is admitted to and cut off from the wheel may be placed at the junction of the sluice with the box A or at the induction-passage *c*.

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

The plate or gate F, placed within the water-passages *a*, and the wheel provided with the vertical projections *f* at the issues *e* and attached to the rod E within the shaft C of the wheel, substantially as and for the purpose set forth.

ROBERT ROSS.

Witnesses:

THOMAS G. ALISON,
S. S. BRIGHAM.