

Fairchild & Sturgiss,

Water Wheel.

N^o 33,241.

Patented, Sept. 10, 1861.

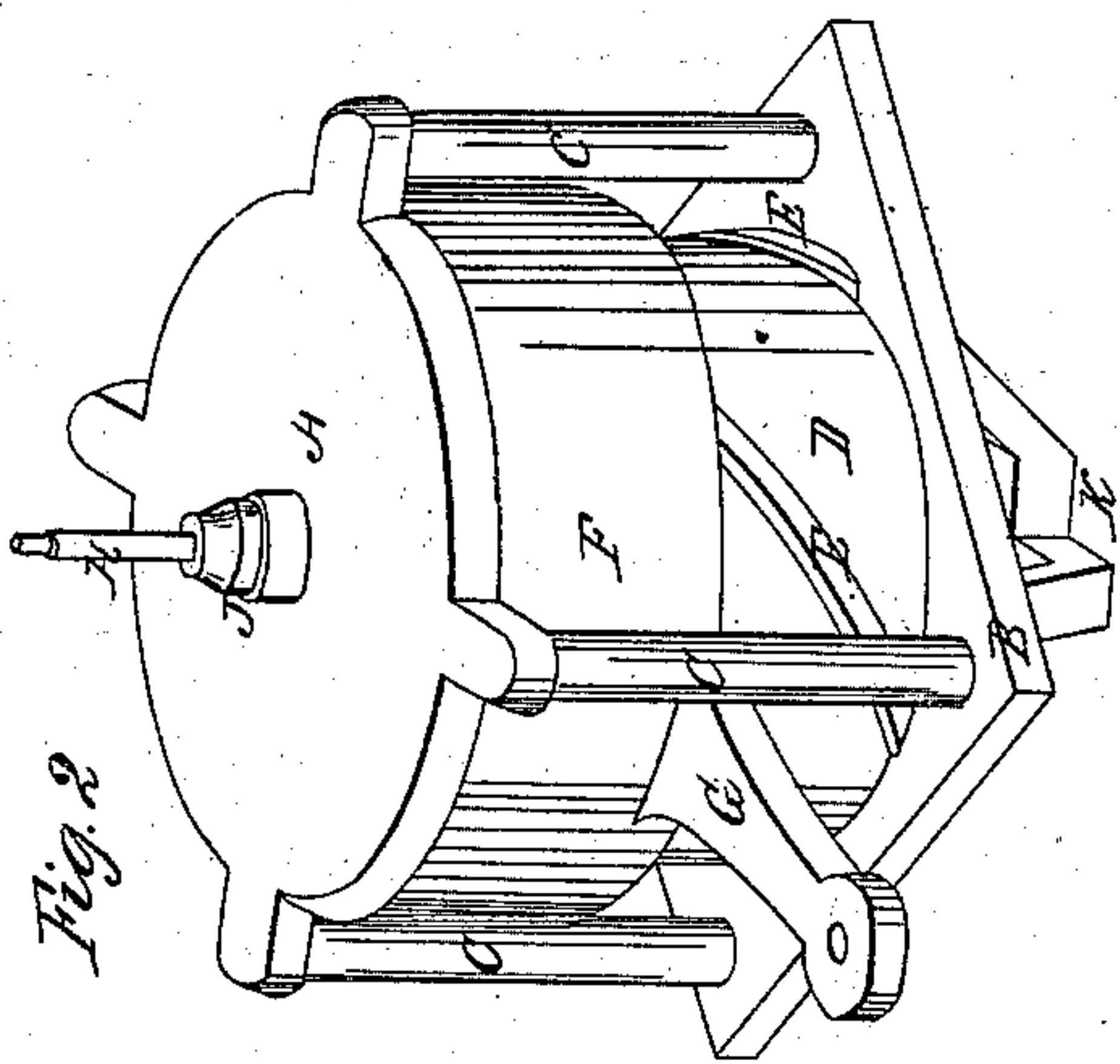


Fig. 2

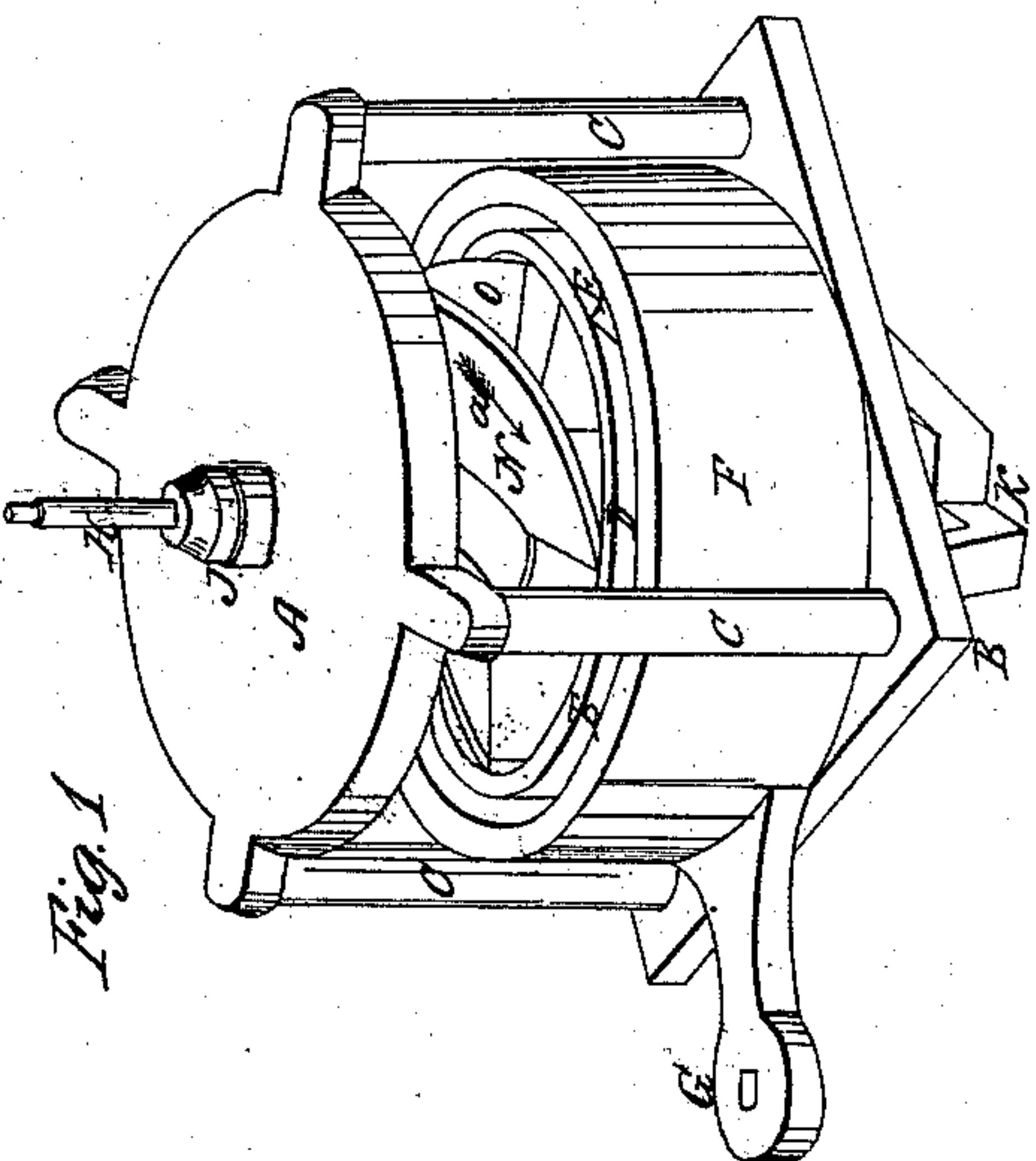


Fig. 1

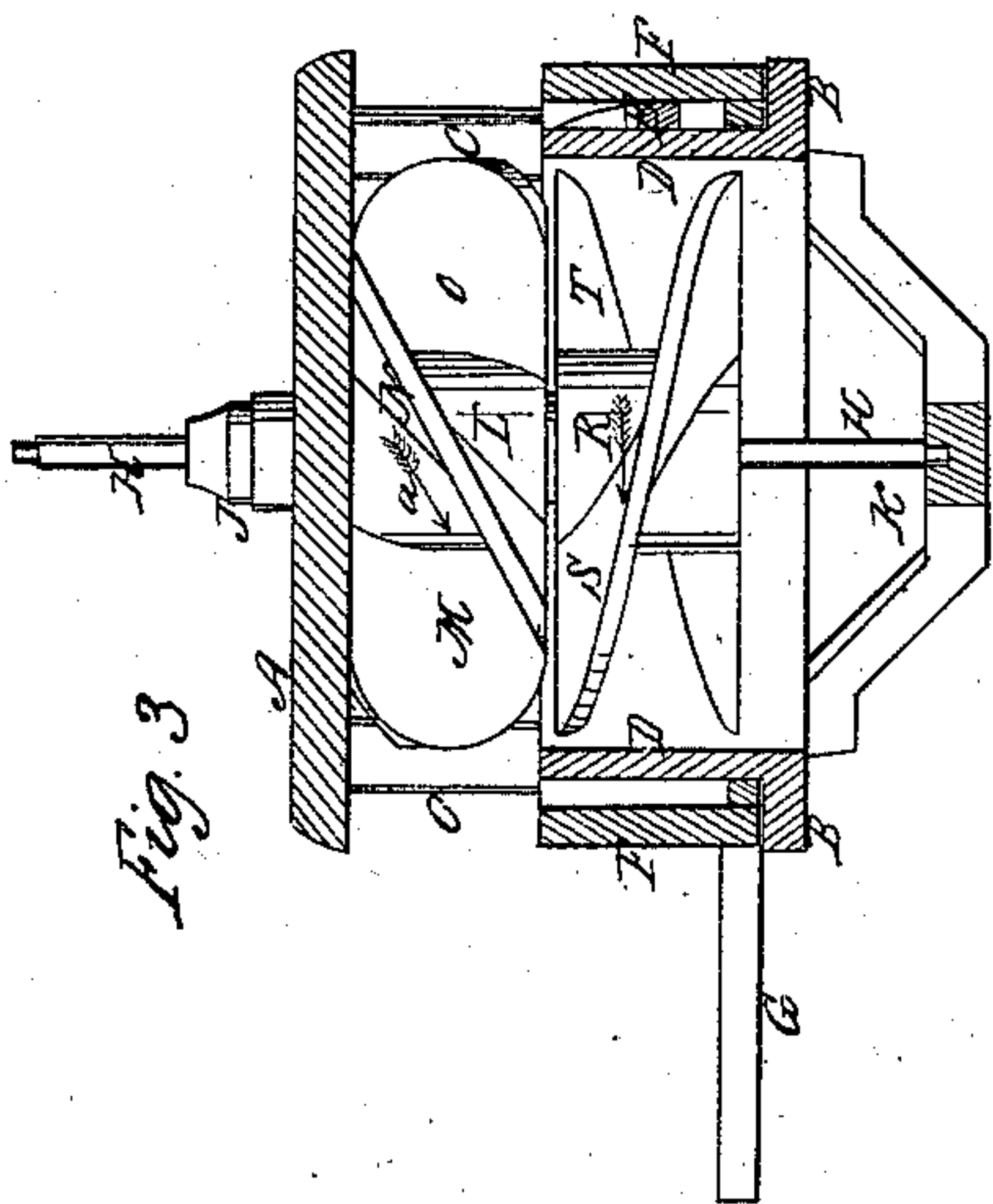


Fig. 3

Inventor;
L. S. Fairchild
H. B. Sturgiss

UNITED STATES PATENT OFFICE.

L. S. FAIRCHILD, OF CLEVELAND, OHIO, AND W. B. STURGESS, OF TROY,
NEW YORK.

IMPROVEMENT IN GATES AND CHUTES FOR WATER-WHEELS.

Specification forming part of Letters Patent No. **33,241**, dated September 10, 1861.

To all whom it may concern:

Be it known that we, L. S. FAIRCHILD, of Cleveland, in the county of Cuyahoga and State of Ohio, and W. B. STURGESS, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Water-Wheels; and we do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figures 1 and 2 are perspective views. Fig. 3 is a vertical section.

The same letters of reference refer to like parts in the different views.

My invention relates to an improvement in water-wheels, which consists of a peculiar arrangement of a circular sliding gate and an arrangement of chutes for the purpose of giving more effective force to the wheel by the action of the water, as hereinafter described.

In the figures, A represents the upper plate; B, the lower plate, connected by the posts C.

D is a circular case or rim secured to the plate B, having spiral planes E on the outside to guide the gate F as it is moved up and down. The gate is of a circular form, the lower part of which is notched, so as to fit on the planes E, and G is a handle or rim secured to it, which may be connected to any desirable arrangement of devices for operating the gate.

H is the shaft of the wheel, passing through a journal-box J, secured to the plate A, the other end terminating in a point and step in the bail K, attached to the under side of the plate B. Underneath the plate A, around the shaft, but disconnected, is the stationary hub L, around which are arranged four chutes M N O P, Fig. 3 representing three of them, that are curved and inclined downward, as shown in Figs. 1 and 3.

R, Fig. 3, is the hub of the water-wheel, to

which are secured the wings S T, revolving inside of the case D.

When the wheel is in place for operation, the gate is lowered, as in Fig. 1, and the water flows in, passing down the chutes or incline planes, as indicated by the arrow *a* in Figs. 1 and 3, acting upon the wheel by the percussion and weight of the water. These forces are combined, and the power and advantage derived from both are secured in this manner. It is found in practical operation that the amount of power gained in this way is a large per cent. over that of the wheel in ordinary use. The chutes also prevent the water from having a circular motion above the wheel when it is not running at full speed or when under hard labor. The water is shut off from the wheel by raising the gate, as shown in Fig. 2, when it ceases to revolve. The pressure of the water above and below the gate causes it to be easily opened and closed, overcoming in part the resistance arising from moving it either way.

This gate is very simple in its construction and durable, not liable to get out of order, as are those in ordinary use, the gears of which are apt to fill up with dirt and sticks, while in this arrangement there is no place for the accumulation of rubbish, and it is also much less expensive.

What we claim as our invention, and desire to secure by Letters Patent, is—

The circular gate F, the spiral planes E, and the chutes M N O P, when these parts are constructed as described, and arranged in their relation to the wheel R S T as specified, and operating in the manner and for the purpose set forth.

L. S. FAIRCHILD.
W. B. STURGESS.

Witnesses:

W. H. BURRIDGE,
A. McCLELLAND.