

W. WHITNEY.
Water-Wheels.

No. 148,341.

Patented March 10, 1874.

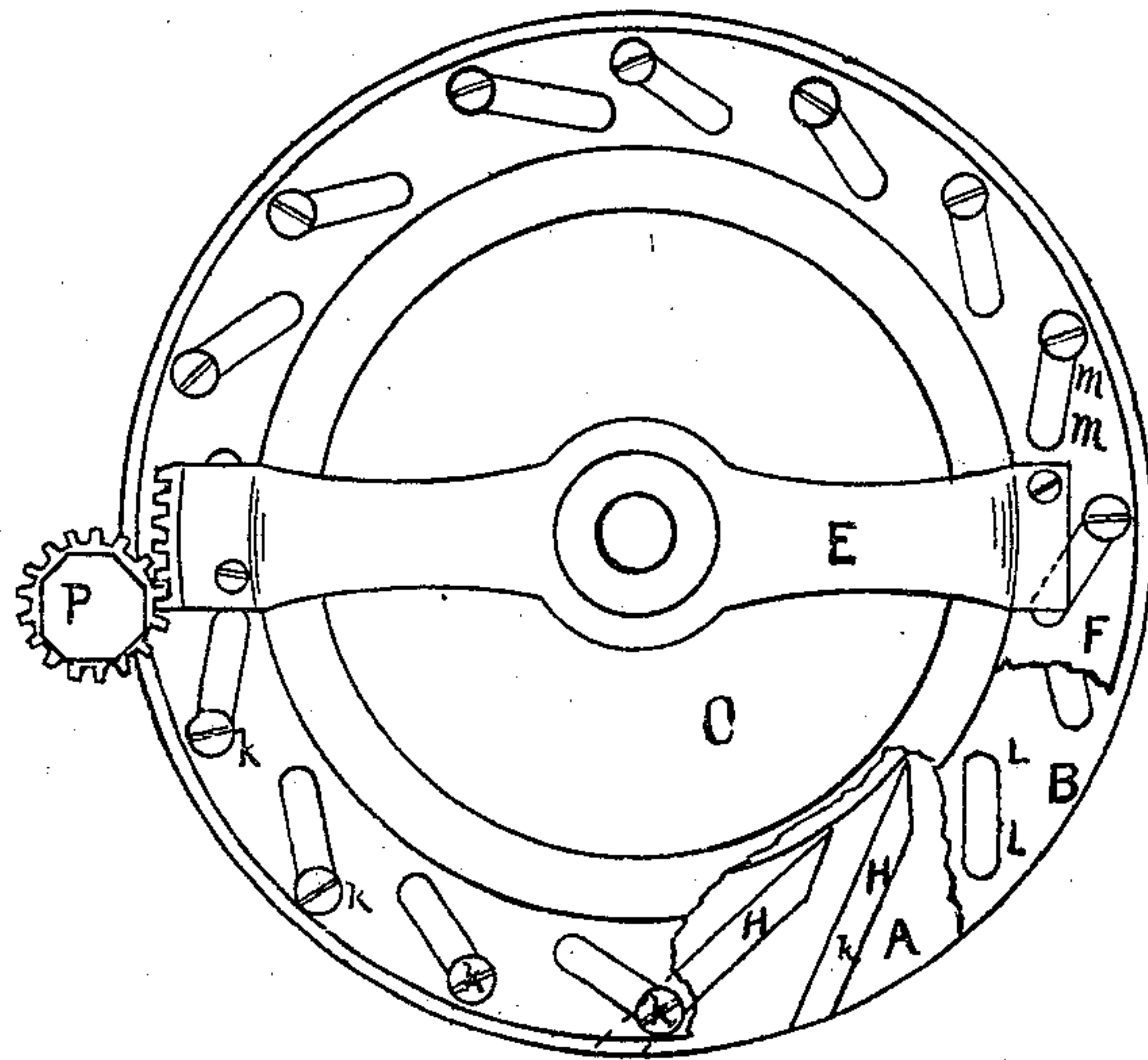


Fig. 1.

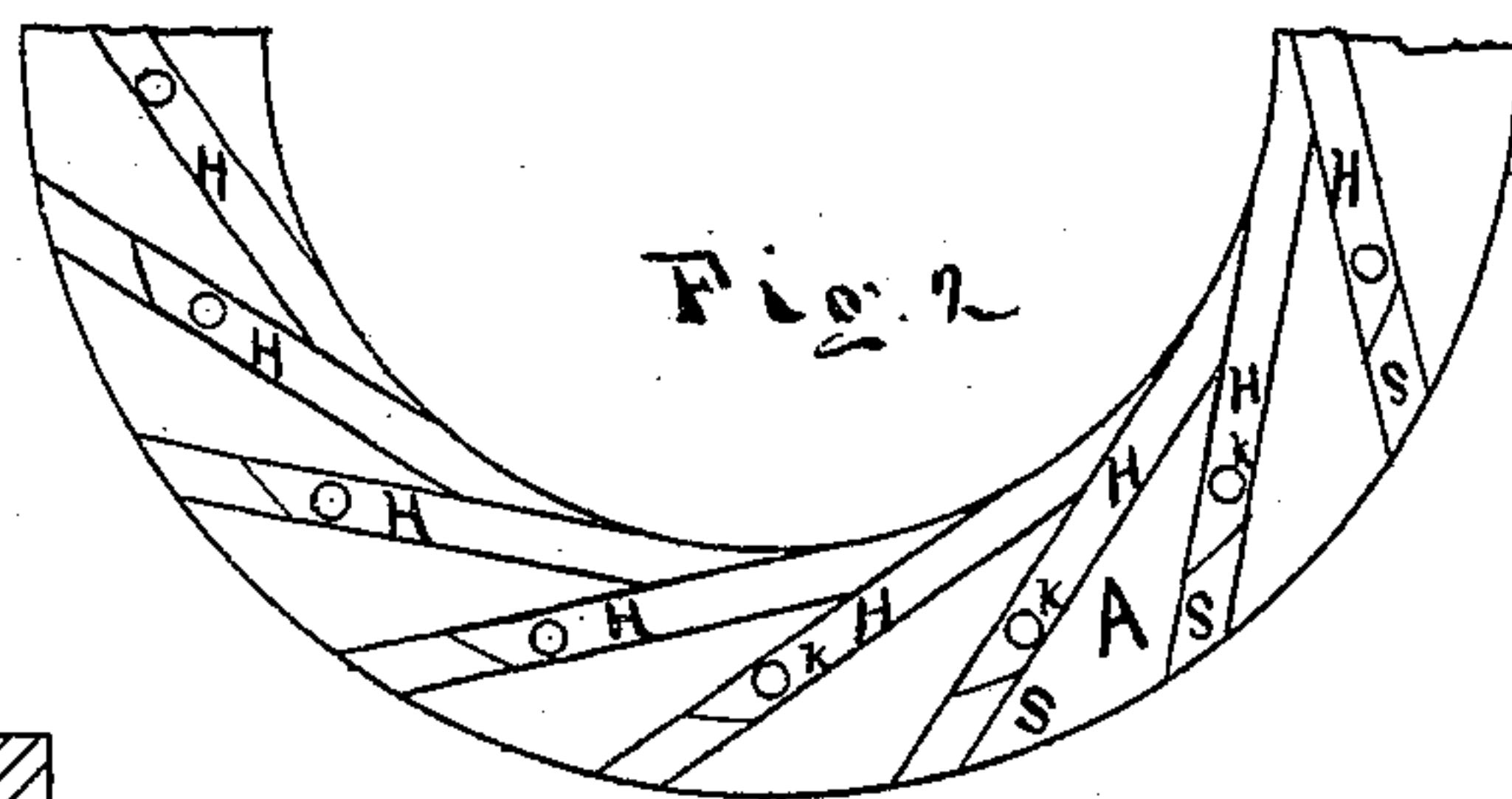


Fig. 2.

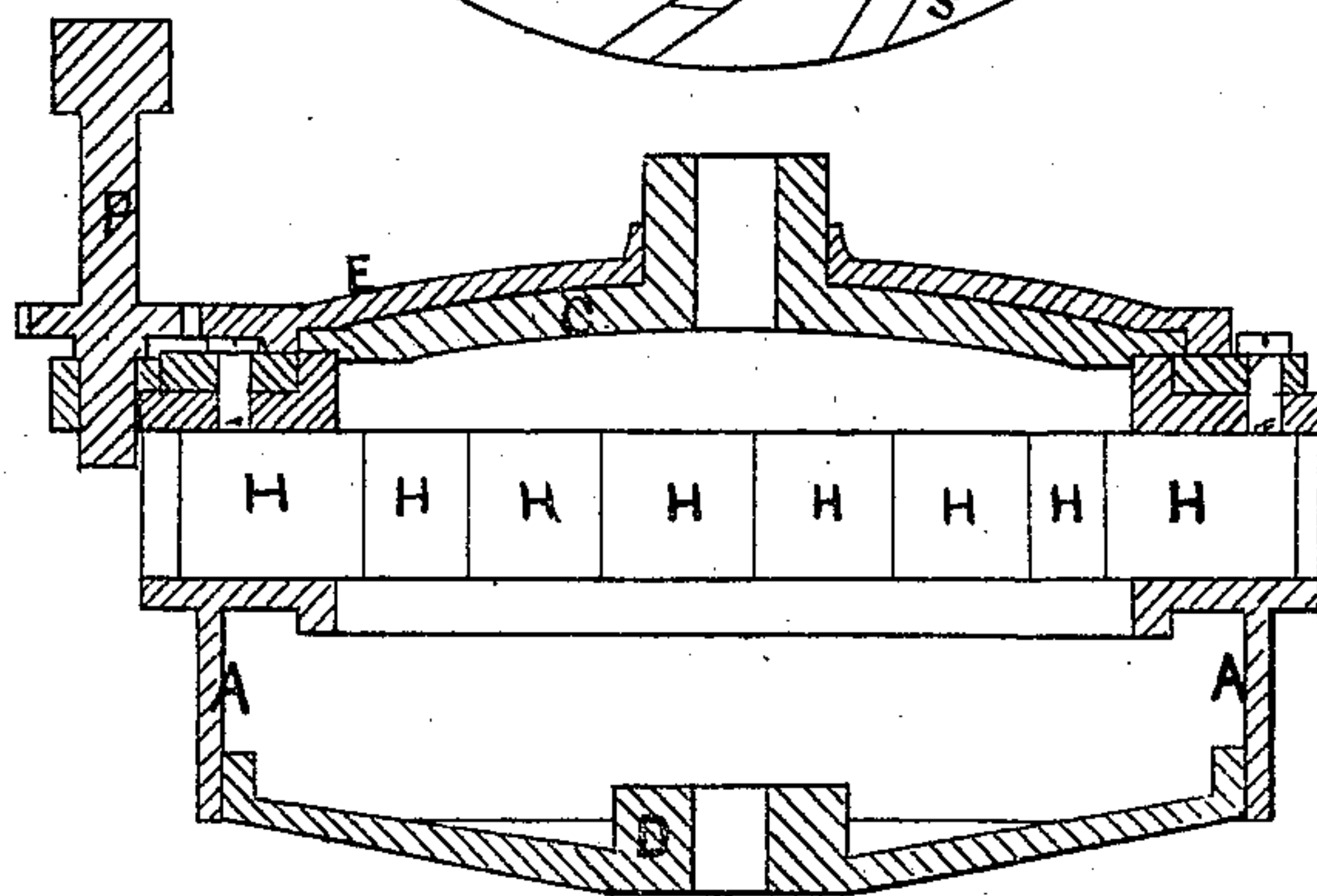


Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

WALDO WHITNEY, OF LEOMINSTER, MASSACHUSETTS.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **148,341**, dated March 10, 1874; application filed August 24, 1872.

To all whom it may concern:

Be it known that I, WALDO WHITNEY, of Leominster, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Water-Wheels, of which the following is a specification:

The nature of my invention consists in constructing, in connection with a turbine water-wheel, a series of tangentially-sliding gates, arranged to open and close simultaneously by the aid of a cam-disk or other device, the object being to cause the water to flow upon the whole depth of the bucket at part as well as full gate.

Figure 1 is a plan, a part being broken into to show the interior. Fig. 2 is a plan, showing a part of the lower gate-plate, the gates H H being represented as closed. Fig. 3 is a vertical section.

Let A represent the lower circle and gate-plate. To this circle the upper gate-plate, B, is attached by suitable standards. (Not shown in the drawings.) The upper face of the plate A and the lower face of the plate B are provided with tangential grooves. (Shown at S S, Fig. 2.) Into these grooves I fix a series of sliding gates and guides, H H, &c., so located in relation to each other that when they are thrown in toward the circumference of the water-wheel, their ends contact with each other, as shown in Figs. 1, 2, and 3, thus completely closing the water-way; but when these gates H H are thrown out, as shown at the broken portion of Fig. 1, the ends withdraw from each other, so as to allow free passage of water.

By this arrangement, upon the slightest opening of the gates, the water flows in a thin sheet upon the whole depth of the bucket.

This is true at whatever extent the gates are open.

It will be observed that these gates also serve as guides for directing the water upon the wheel.

These gates may be opened and closed by the following-described device: Immediately over the gate, and in the direction of its line of motion, I make an opening, L L, in the plate B. (See Fig. 1.) A pin, *k*, passes through each of these openings, extending from the gate H, to which it is fixed, through the plate B, and also through the tangential openings M M in the cam-plate F, Figs. 1 and 3. This cam-plate F is an annular ring, revolving freely about the center plate C.

The openings M M in the cam-plate F are arranged, as shown, so as to cross the corresponding openings L L in the plate B; and as the pins *k* extend through both openings—that is, the opening in B and F—it is evident that if F is moved upon B, then the pins *k*, taking with them the gates H H, must also move the ring F, moving in one direction closing the gates, and in the other opening the same.

The ring F may be revolved by any suitable device. I use for that purpose the rack O, made at the end of the cross-arm E, which is rigidly attached to the ring F, and a pinion, P, the pinion being hung to the upper plate B.

I claim as my invention—

The combination of the plates A and B, having the tangential grooves, as described, with the gates H, the latter being adapted to slide in the grooves by means substantially as described.

WALDO WHITNEY.

Witnesses:

FRANK G. PARKER,
JAMES THOMPSON.