

D. L. TOWER.
Improvement in Water Meters.

No. 119,671.

Patented Oct. 3, 1871.

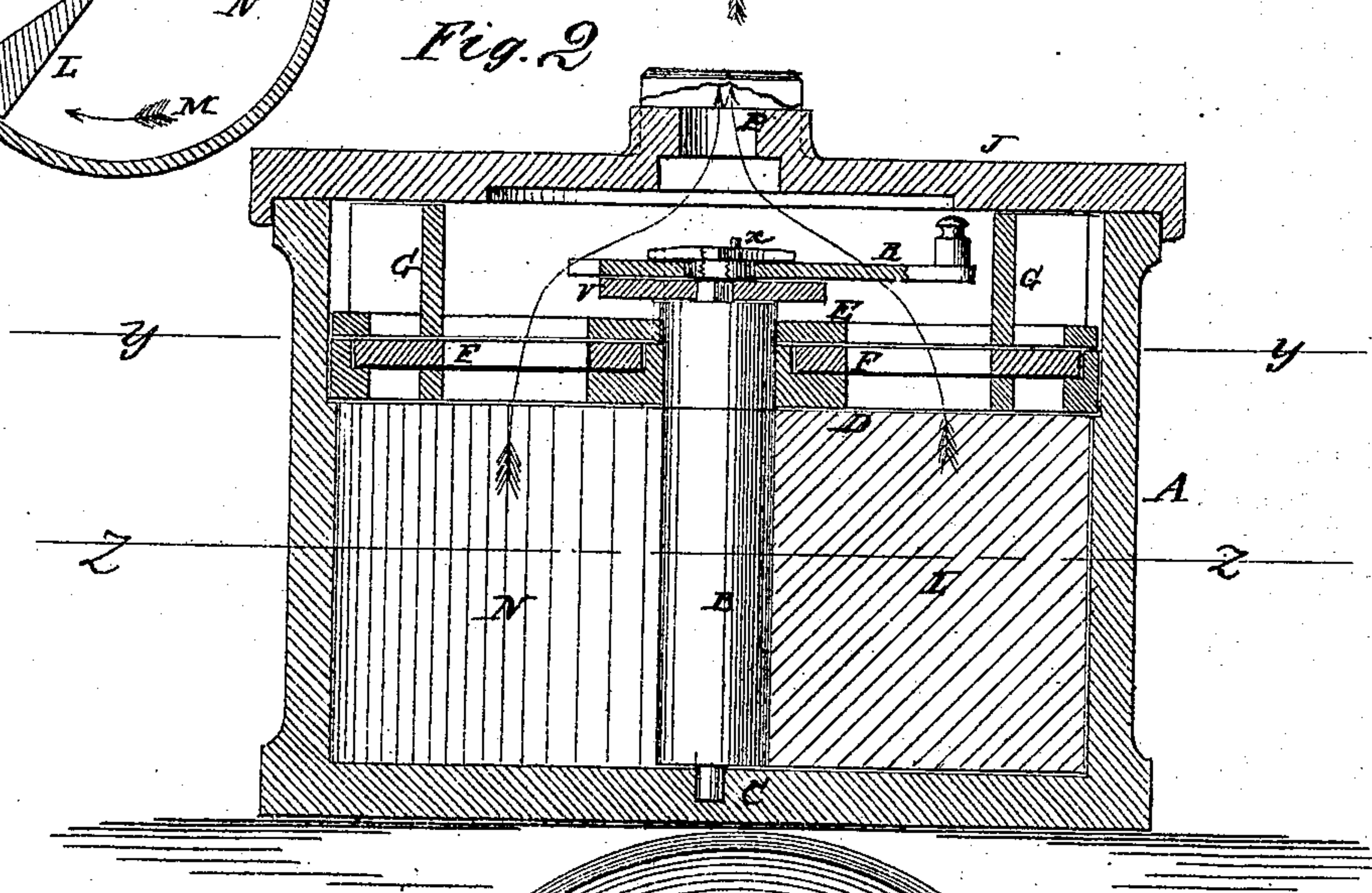
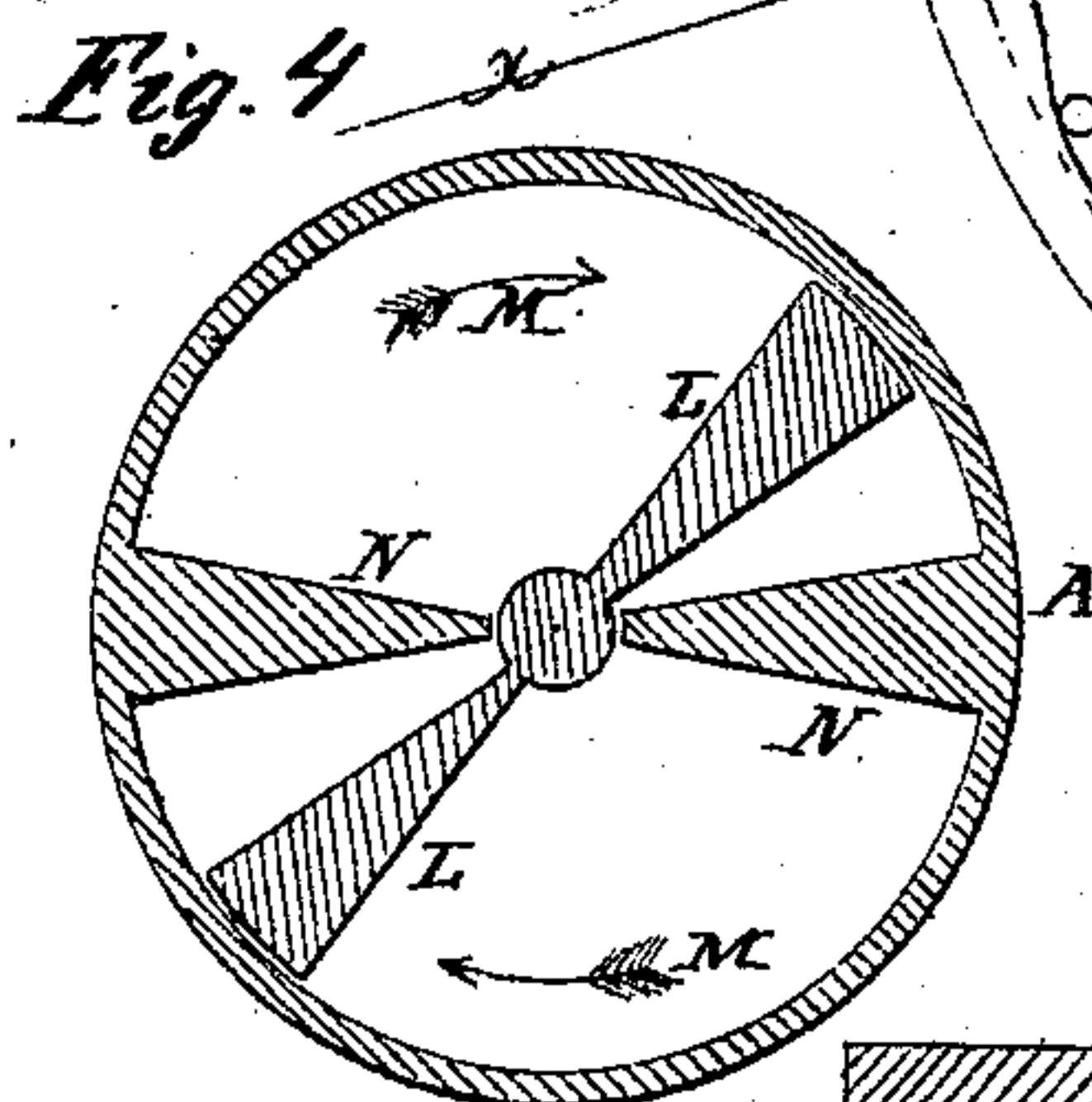
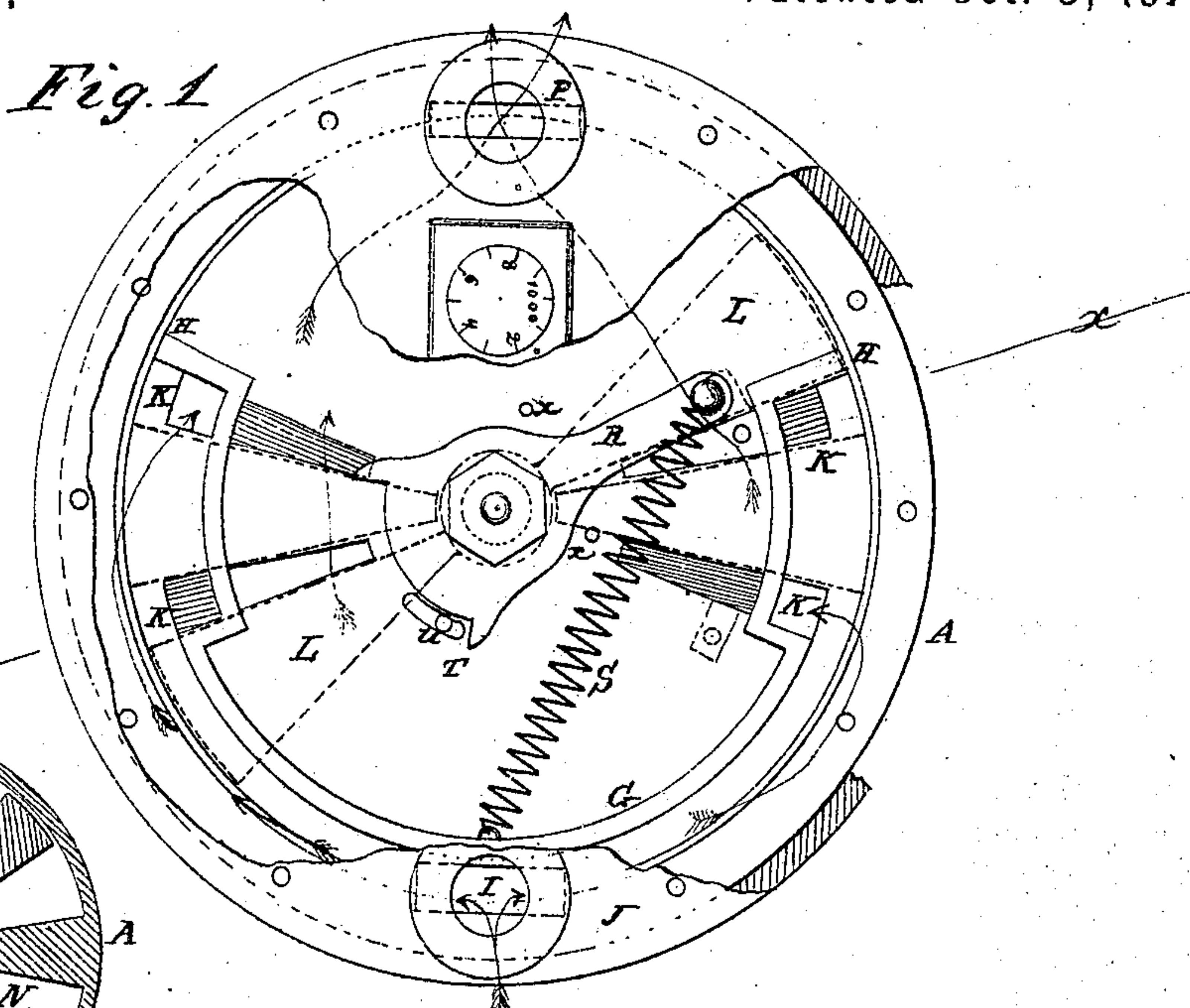
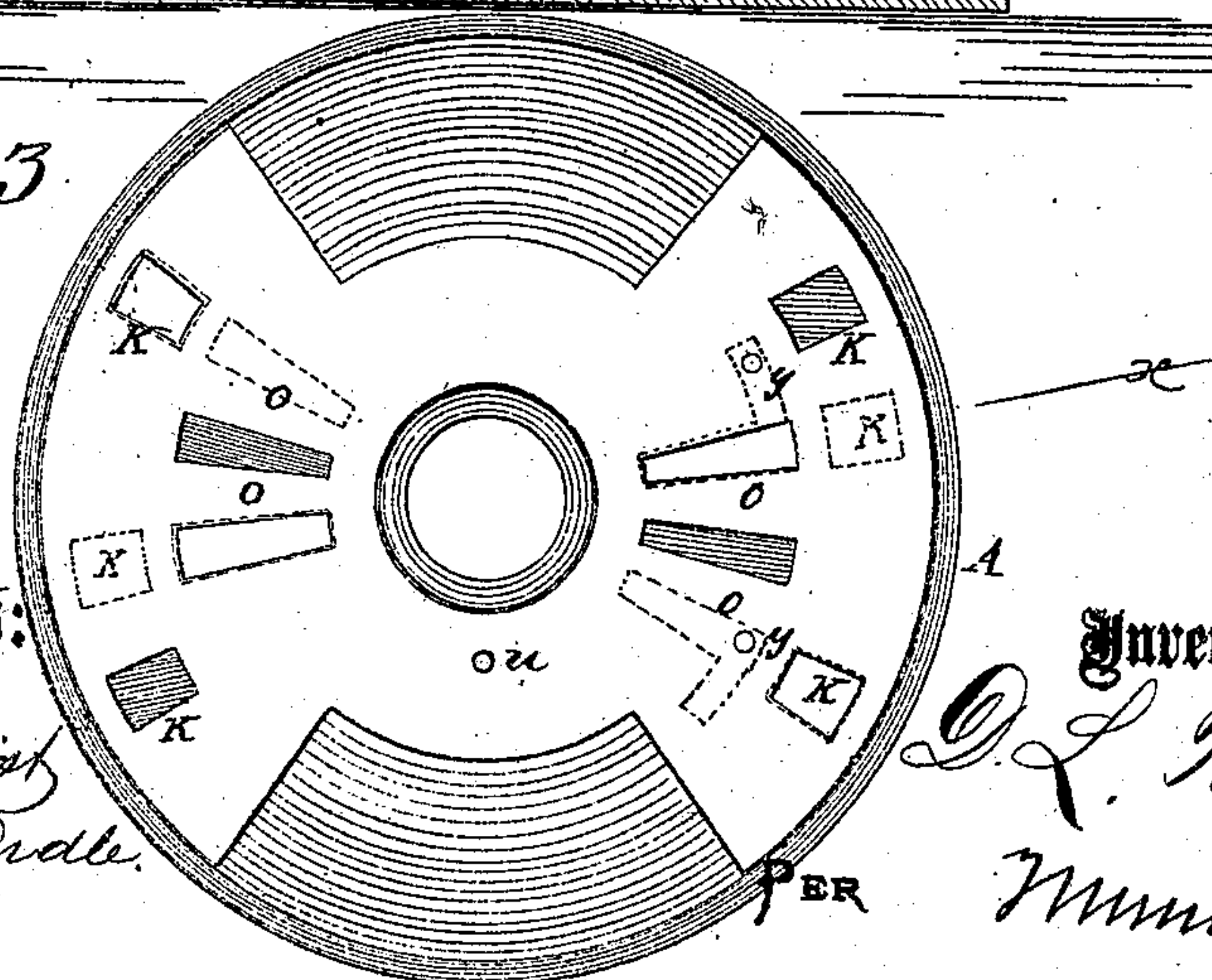


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

DANIEL L. TOWER, OF NEW YORK, N. Y.

IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. 119,671, dated October 3, 1871.

To all whom it may concern:

Be it known that I, DANIEL L. TOWER, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Water-Meters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

The object of this invention is to furnish a water-meter which shall be composed of but few parts and be subject to but little friction while accurately measuring the water; and it consists in the construction and arrangements of parts as hereinafter described.

In the accompanying drawing, Figure 1 is a top or plan view with the cap-plate broken away to show the water-ways and the mode of operating the valve, and in the act of tripping the valve. Fig. 2 is a vertical section of the meter on the line *x x* of Figs. 1 and 3, but showing the water-discharge orifice. Fig. 3 is a top view of the lower valve-plate looking down from the line *y y* of Fig. 2. Fig. 4 is a diminished section taken on the line *Z Z* of Fig. 2.

Similar letters of reference indicate corresponding parts.

A is the shell or cylinder of the meter. B is the central shaft, to which the vibrating arms are attached, which shaft is supported in the shell by the step C. D is the lower valve-plate. E is the upper valve-plate. These plates are stationary, and form a box between which the valve F works. As the valve is subject to pressure from the water from the inlet and outlet-ports at the same time the pressure thereon is counterbalanced. The wings of the shaft are vibrated by the pressure of the water. Valve-ports are made through each of the plates D and E which correspond with each other. G is a vertical flange springing from the upper valve-plate E and making a water-tight joint with the cap of the meter, and also with the cylinder at H H. As seen in Fig. 1, the water enters the orifice I in the cap J behind the flange G and passes to the chambers of the meter through the ports K K. The wings on the shaft are seen in Figs. 1 and 4, where they are marked L L. The water thus admitted operates upon opposite sides of these wings, or upon each,

so as to turn the shaft and change the valves, closing one set of ports and opening another set (as seen in Fig. 3) alternately. In the shell A are two abutments, N N, (see Fig. 4,) which divide the interior into two chambers. The wings L L are vibrated or thrown by the pressure of the water back and forth in their respective chambers M M, changing the induction-ports K K at each vibration, and opening and closing one of the eduction-ports O O at the same time. The water is discharged from the cap J through the orifice P. The course of the water from its entrance into the meter to its discharge therefrom is indicated by arrows. R is a crank-arm, which turns on the shaft B, to the end of which is attached the spiral spring S. The other end of the spring is attached to the flange G. This spring is designed to operate the valve. The crank-lever has fingers T T which strike the pins U at each movement and operate the valve. V is a disk, fast on the shaft, upon which the crank-arm rests. As the shaft turns the arm is carried back and forth by pins X X on the disk. Pins *y y* (see Fig. 3) are in the valve, and project through slots in the valve-plate E and limit the motion of the valve. The slots are seen in dotted lines. The quantity of water which passes through the meter is registered by a system of gear-wheels connected with the crank-arm, and indicated on dial-plates in the usual manner.

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

1. The wings L L, abutments N N, and chambers M M arranged in a water-meter, substantially as and for the purposes described.
2. The flange G and ports K and O, when arranged to operate substantially as and for the purpose described.
3. The arrangement of the valve F between the valve-plates D and E, thereby relieving it from undue pressure, substantially as described.
4. The crank-lever R, fingers T T, and pins U.
5. The disk V and pins X X combined with crank-arm R and spring S, substantially as and for the purpose specified.

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Witnesses:

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