

(No Model.)

2 Sheets—Sheet 1.

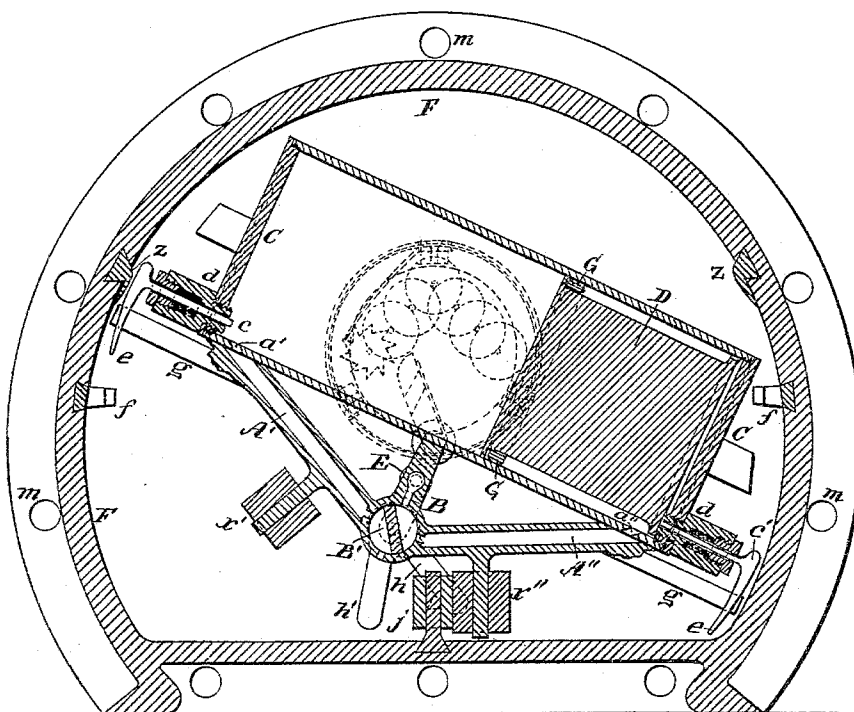
P. T. PUIG.

OSCILLATING WATER METER.

No. 318,926.

Patented May 26, 1885.

Fig. 1.



WITNESSES

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Fig. 2.

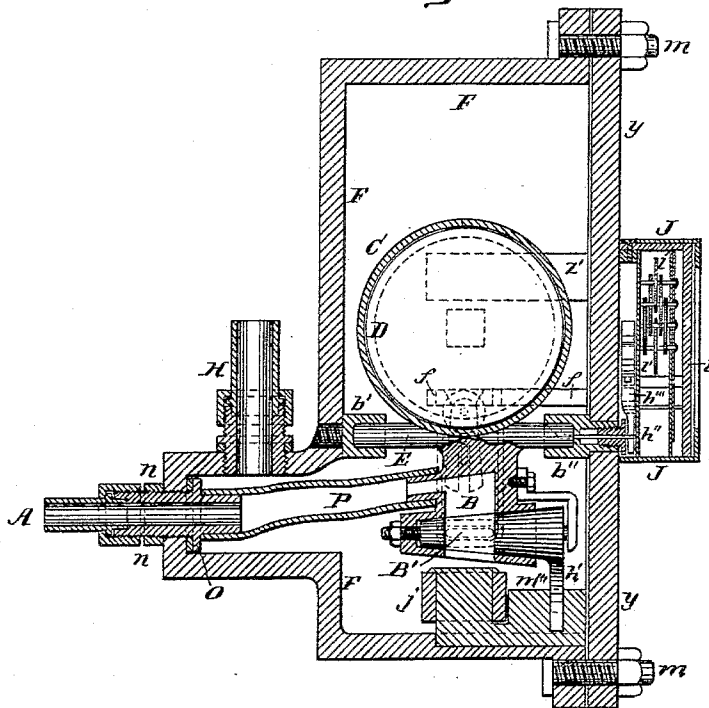
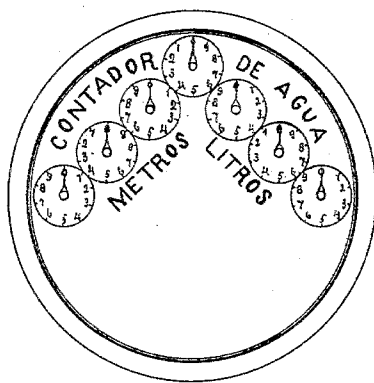


Fig. 3.



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UNITED STATES PATENT OFFICE.

PLÁCIDO TARDÁ PUIG, OF BARCELONA, SPAIN.

OSCILLATING WATER-METER.

SPECIFICATION forming part of Letters Patent No. 318,926, dated May 26, 1885.

Application filed March 3, 1885. (No model.) Patented in Spain June 3, 1884, No. 4,266.

To all whom it may concern:

Be it known that I, PLÁCIDO TARDÁ PUIG, a subject of the King of Spain, residing at Barcelona, Spain, have invented certain new and useful Improvements in Water-Meters, of which the following is a full, clear, and exact description, such as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters and figures of reference marked thereon, in which—

Figure 1 is a longitudinal vertical section of the water-meter, taken through the axis of the measuring-cylinder, and showing it in one of its lowest positions. Fig. 2 is a cross-section of the water-meter, taken through the middle of the measuring-cylinder and showing it at its horizontal position in the meter. Fig. 3 is a front view of the register.

This invention relates to water-meters provided with an oscillating cylinder; and it consists in the detailed construction and combination of the parts hereinafter fully described and claimed.

In the drawings, similar letters of reference indicate corresponding parts in all the figures.

F is a cast-iron box, made flat at the bottom and sides and cylindrical at the top and ends. The open side of it is provided with a flange, and with a cover, *y*, fastened to the said flange by bolts *m*.

J is a small box, secured upon the cover, and containing a train of wheels combined with revolving hands and index-plates for registering the quantity of water which passes through the meter. The particular construction of this registering apparatus does not form a part of this invention, as it does not materially differ from those ordinarily used on meters.

A is the pipe through which the water enters the meter. This pipe is connected to the box F by means of the coupling-nuts *n* and a screwed stem projecting from the said box. This screwed stem is provided with a flange, *o*, inside the box, which is drawn up tight against a rubber washer.

B is a four-way cock for distributing the water in the interior of the meter. P is a flexible rubber pipe, which connects the nozzle of the screwed stem with a nozzle on the said cock.

C is the oscillating cylinder, provided with pivots E, journaled in the blocks *b'* and *b''*, which are attached to the inside of the box F. The four-way cock B oscillates with the cylinder, but is situated below the pivots E, and is connected to the ends of the said cylinder by the pipes A' and A".

B' is the plug of the four-way cock, provided with two projecting arms, *h'* and *h''*. One of these strikes against the boss *m'''* at every oscillation of the cylinder and holds the plug B' stationary. The continued movement of the cylinder then moves the cock about the plug, and causes the pipes A' and A" to communicate with the inlet-pipe A, according to which end of the cylinder is lowest.

D is a piston, which works back and forth within the cylinder C by the pressure of the water. This piston may be made hollow for lightness, if required.

G is a rubber packing-ring for keeping the piston water-tight.

Pins *c* are provided in the ends of cylinder C, which work through suitable stuffing-boxes, *d*, and are provided with heads *c'*, terminating in points *e*, which work between two guide-strips, *g*, extending outward from the pipes A' and A", and which prevent the said heads from turning round.

Two hollow bosses, *f*, are provided in connection with the heads *c'*. These bosses are in the form of a hollow rectangle, projecting from the ends of box F, with an opening in that side of them which faces the cylinder, the use of which will be more fully explained hereinafter.

Two arms, *x'* and *x''*, project from pipes A' and A", respectively. These arms are covered with rubber, and strike against the rubber-covered boss *j*, projecting from the bottom of box F at the extremity of each oscillation of the cylinder. The use of the rubber coverings is to deaden the shock or jar which would otherwise take place. Two bosses, *z*, project from the box F. When one end of the cylinder rises, the head *c'* strikes against one of these, so that the pin *c* is pushed inward into the cylinder.

A pin, *h''*, projects from one of the pivots E, upon which the cylinder oscillates, and passes through a stuffing-box and into the box J. A small arm, *h'''*, is fastened upon the end

of the pin h'' , inside box J, which operates in connection with the teeth of the first wheel of the recording mechanism inside the said box, and works the revolving hands. The arm h''' is so adjusted that it moves the first wheel through the space of one tooth when one of the ends of cylinder C rises, and when the same end descends it passes through the wheel without turning it back again. To effect this, the teeth of the first wheel are made slanting, and the arm h''' is made with a hinge in it, and provided with a little spring to keep it in place.

H is the delivery-pipe, through which the water passes out of the meter.

The operation of the mechanism is as follows: When the moving parts are in the position shown in Fig. 1, water enters the meter through the pipe A, passes up the flexible pipe P, through the four-way cock B, up the pipe A', through the hole a'' , and into the cylinder C. The pressure of this water forces the piston to travel to the other end of the cylinder. When the piston has passed over the axis on which the cylinder is pivoted, the weight of it causes the end of the cylinder toward which it is moving to be depressed until the point e of pin c at that end of it rests upon the edge of the hollow boss f beneath it. The cylinder is held in this position until the piston arrives at the end of its stroke, when it strikes the pin c and pushes it out, so that the point e enters the hollow central portion of boss f , and, passing completely through it, followed by the head c' , allows the cylinder to oscillate until the arm x' strikes against the boss j . The oscillation of the cylinder also brings the arm h' , which projects from the plug B of the four-way cock, against the boss m'' . This holds the said plug stationary. The continued movement of the cylinder then moves the cock about the plug, so that the pipe A is brought into communication with the pipe A', which is connected to the opposite end of the cylinder, and the motion of the piston is reversed.

While the pipe A was in communication with the pipe A', the other end of the cylinder was in communication with the outlet-pipe H by means of the pipe A' and the other passages in the four-way cock. Each oscillation of the cylinder is registered on the index-plates by the revolving hands, which are operated by the pin h'' , projecting from the pivot E, and the arm h''' secured upon it, as hereinbefore described.

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

1. In a water-meter, the combination of an oscillating cylinder, a piston sliding back and forth within it, a four-way cock for controlling the admission and discharge of water to and from the said cylinder, and pivots situated between the said cylinder and four-way cock, so that they move in opposite directions about the said pivots as a center during each oscillation, substantially as described and shown, and for the purpose set forth.

2. In a water-meter, the combination of an oscillating cylinder, a piston sliding back and forth within it, a four-way cock for controlling the admission and discharge of water, the arms h and h' , secured to the plug of the said four-way cock, and the boss m'' , for reversing its movement, substantially as described and shown, and for the purpose set forth.

3. In a water-meter, the combination of the cylinder C, oscillating upon pivots E, the piston D, the pipes A' and A'', the four-way cock B, having plug B' provided with arms h and h' , boss m'' for operating said arms, the rubber-covered arms x' and x'' , and the rubber-covered boss j , for arresting the motion of the said cylinder, substantially as described and shown, and for the purpose set forth.

4. In a water-meter, the combination of the oscillating cylinder C, the piston D, the striker-pin c , provided with a head, c' , having a point, e , the guides g , which prevent said pin-head from turning, and the hollow boss f , attached to the side of the casing-box F, substantially as described and shown, and for the purpose set forth.

5. In a water-meter, the combination of the oscillating cylinder C, the piston D, the striker-pin c , provided with a head, c' , having a point, e , the guides g , the hollow boss f , and the boss z , for forcing inward the said pin when the end of the cylinder which carries it is raised, substantially as described and shown, and for the purpose set forth.

The foregoing specification of my improvement in a water-meter named "Carda's system," signed by me this 15th day of December, 1884.

PLACIDO TARDÁ PUIG.

Witnesses:

JUAN TOLIBA,
JAMES CASTELLO.