W. Barker, Jr.,

Oscillating Meter.

No. 20,842. Patented July 6, 1858.

Fig. 2.

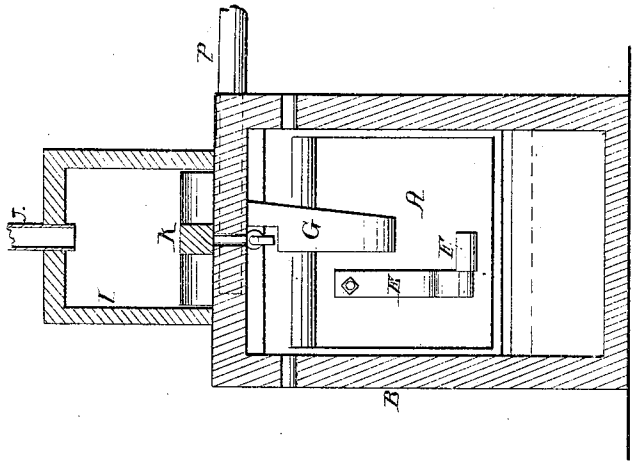
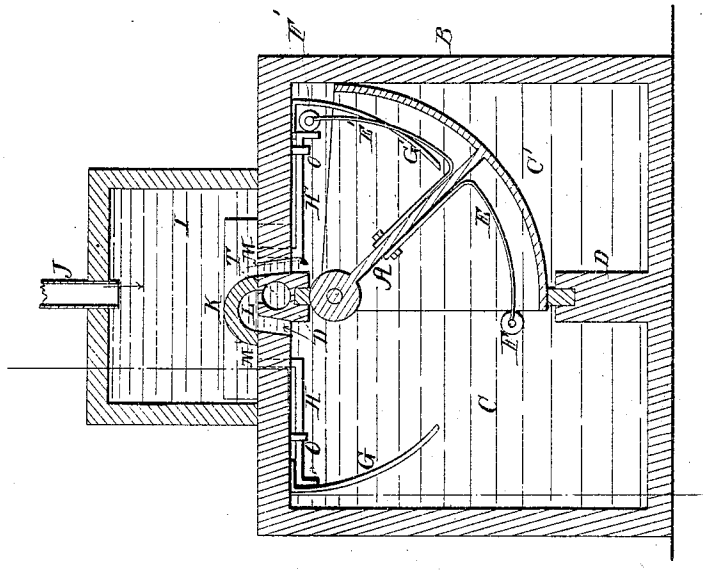


Fig. 1.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WM. DARKER, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO J. B. THOMPSON, OF SAME PLACE.

WATER-METER.

Specification of Letters Patent No. 20,842, dated July 6, 1858.

To all whom it may concern:

Be it known that I, WILLIAM DARKER, Jr., of the city and county of Philadelphia and State of Pennsylvania, 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 of the same, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a vertical longitudinal section through the center of a meter, constructed after the improved plan. Fig. 2, is a vertical transverse section of ditto, at the angular dotted line 1, 1, of Fig. 1.

Similar letters of reference indicate corresponding parts.

The nature of this invention and improvement consists in combining and arranging with an oscillating piston, inclosed in a box, a series of parts for operating a slide valve connected with the registering apparatus, in such a manner as to cause the valve to be moved at the end of each oscillation of the piston.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The oscillating piston A, is suspended on steel center points, entering corresponding openings in the ends of its shaft, and operates in a somewhat corresponding manner to the oscillating piston of my vibratory steam engine, patented July 22d, 1856. It has two plates at its end of the form of a sector, which are connected together at their peripheries by a horizontal segmental plate, extending equal distances from the sides of the piston, so as to form buckets. This piston, with its buckets on either side, is inclosed in a water tight box B, which is divided into two compartments C, C′, between which all escapement of water is prevented by suitable rubber or other packing, between the sides of the box and the end plates of the piston, and the partitions D, D′, and the shaft and segmental plate of the piston. The piston has two springs E, E′, secured to its sides, which springs extend downward on either side of the piston, and are bent at an acute angle near the segmental portion of the buckets, and are extended in segmental curves from the piston to near the edges of the said buckets, and are provided with studs or pins at their ends on which are secured small friction rollers F, F′, projecting from the sides of the same. These rollers F, F′, are caused to roll on the outer surfaces of curved cams G, G′, in their upward motions with the buckets, which cams are secured to the top of the box B, near its ends, and are extended downward from the same eccentrically with the center on which the pistons vibrate, in such a manner as to bring their lower and upper ends in such relative positions to the said center, and the arc of the circle on which the rollers oscillate, as to cause the springs E, E′, to be distended in their upward movement, and the rollers F, F′, to be brought violently against the valve rods H, H′, after being disengaged from the cams, the upper ends of the parts of said cams on which the rollers traverse terminating the required distance below the top of the box B, to enable the rollers to run over the same.

On top of the box is formed a valve chest I, having a pipe J, inserted in its upper part for the admission of water to the meter, and containing a reciprocating valve K, having a channel L, formed at its lower part, which is, alternately, by the reciprocating movement of the valve, made to communicate with openings M, M′, in the top of the box, communicating respectively with the compartments into which it is divided and with the eduction channel or pipe P. Horizontal angular rods H, H′, are attached to the ends of the valve K, which rods extend downward from the same through slots in the top of the box and are bent at right angles and extended horizontally through guides O, O′, toward the tops of the cams immediately opposite and near which they terminate, being bent downward at these ends so as to enable the rollers to strike them fairly, when disengaged from the cams.

The operation is as follows: We will suppose the piston A, and valve K, to be in the position represented in Fig. 1, when the flow of water commences. It descends through the uncovered opening M′, into the apartment C′, immediately under, and by its pressure against the piston causes it to oscillate, and the friction roller F, of the ascending spring E, to press over the outer surface of cam G, and the said spring to be gradually distended until the roller reaches the space at the upper end of the cam G, when it is disengaged therefrom and by the elasticity

of the spring, is brought against the end of the rod H, with a sufficient force to move the valve and cover the opening M′, and open the one (M) leading into the compartment C, and cause the channel L, to be brought in communication with the said opening M′, and the eduction or discharge channel. This will bring the action of the water on the opposite side of the piston and cause it to be oscillated to the right until the roller F′, on the spring E′, reaches the space at the top of the cam G′, when it is disengaged therefrom and is caused to operate on the rod H′, and move the valve K, to the left, in precisely the same manner that it was previously moved to the right, and in this manner a constant oscillation of the piston is kept up.

What I claim as new and desire to secure by Letters Patent, is,

The combination and arrangement of the eccentric cams G, G′, angular rods H, H′, attached to the valve K, and curved springs E, E′, and friction rollers F, F′, on the sides of the piston A, for giving the required reciprocating movement to the valve, substantially in the manner described.

WILLIAM DARKER, Jr.

Witnesses:
Samuel Ross,
William Frost.