UNITED STATES PATENT OFFICE.

WEBSTER PARK, OF NORWICH, CONNECTICUT.

IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. **187,233**, dated February 13, 1877; application filed July 27, 1874.

To all whom it may concern:

Be it known that I, WEBSTER PARK, of Norwich, in New London county, and State of Connecticut, have invented a certain Improved Water-Meter, of which the following is a specification:

My invention has for its object to furnish a cheap, accurate, and durable meter, which will measure any size of stream with substantial correctness, without sensible loss of head of water, and without being subject to any objectionable wear; and it consists of a weighted circular valve having a sufficient number of small inclined floats, and adjusted over an opening in the case, so that the valve will be lifted up, and caused to revolve by the least appreciable stream, according to the velocity of the discharge under and past the valve; and also in the combination of the foregoing with a comparatively-large vertical plate secured upon the valve-shaft, and revolving within a cylindrical case, this plate being of sufficient size both to operate as a drag to slow up and regulate the small wheel whenever a small stream is passing, and also, when a large stream is running, to present a large surface to the current, so as to possess ample power to run correctly.

Figure 1 is a vertical section through the center of my improved meter, showing all its parts, except the index, and that part of the case which covers the index, and to which the outlet or discharge pipe is attached. Fig. 2 is a horizontal section of the same through the center of the inlet-pipe, showing also a top view of the small wheel or valve.

A is an ordinary shallow cylindrical case, having the inlet-pipe B, which is made larger next to the case, entering into its side, tangent to its circumference. C is a circular valve, resting by its own weight upon and closely fitting the opening or valve-seat D in the top of the case A. This valve C has very small floats *c c c* upon its circumference, close above the valve-seat, all having the proper inclination to secure the maximum effect of the water. The bottom of this valve C, preferably, should be made pointed or conical in form, so as to present less resistance to the rapid discharge of the water through the opening D. The shaft E of the valve slides loosely through the guides *a* and *b*, which are secured to the case A, so as to keep the shaft E exactly in a vertical position. F is a large plate, made of thin sheet metal, and secured fast upon the shaft E. This plate should be somewhat shorter than the diameter of the case A, and also much narrower than the height of the case, thus allowing the valve C to rise sufficiently, and obviating any necessity for accurate fitting of the interior of the case, as well as all danger of its becoming clogged by mud or grit. The shaft E has the long worm *e* upon its upper end, by which its revolutions are communicated to any ordinary registering mechanism.

Now, it is evident that when water enters the case by the pipe B, it will whirl around within the case, carrying with it the large plate F, faster and with more force, according to the quantity of water coming in, but that, when the entering stream is reduced, its effect upon the plate F will become feebler, until it ceases to move it at all, but at the same time even the very smallest stream, being compressed by the weight of the tight valve C, raises it slightly, and leaves an annular crevice, through which the water impinges upon the small floats *c c c*, tending to give the valve C a much too rapid rotation; but, by means of the large plate F, it is held back, so that it can revolve no faster than the very sluggish current in the case below, and allows the plate to revolve, thus developing the maximum force of the small flow.

The weight of the entire combined wheel and shaft C E F is sustained by the pressure of the water escaping under the valve C, which should be only large enough for the maximum supply, and the supports *a b* simply guide the vertical shaft, so that the friction and wear are very small.

The floats *c c c* upon the valve are made very small, because their influence is most needed upon the thin annular jet; and when the discharge is large the valve and its floats are raised so high that an entirely free and unobstructed wide annular opening is gained, allowing any foreign substances to pass through without clogging the wheel. It is evident that the valve C, having its floats *c c c* close above its valve-seat D, when connected with a suit-

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ICE-CREEPER.

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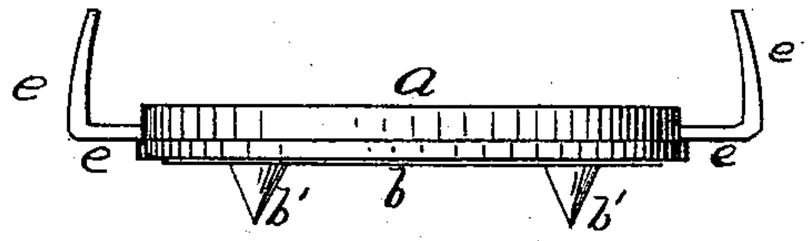

Fig. 1.

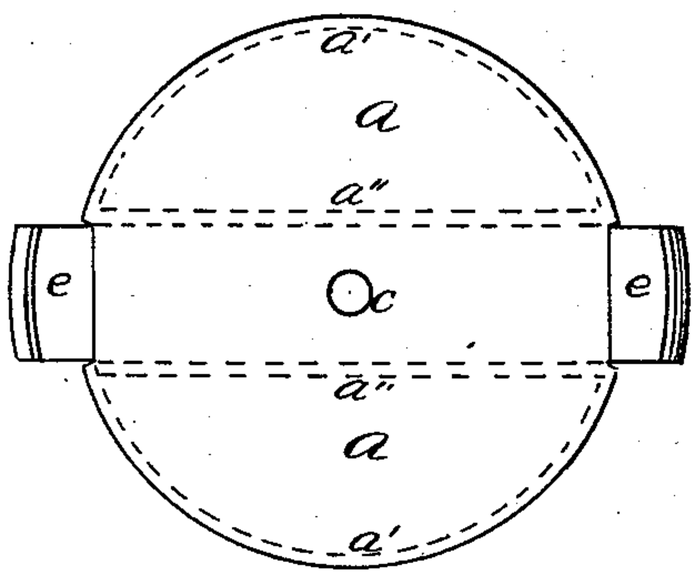

Fig. 2.

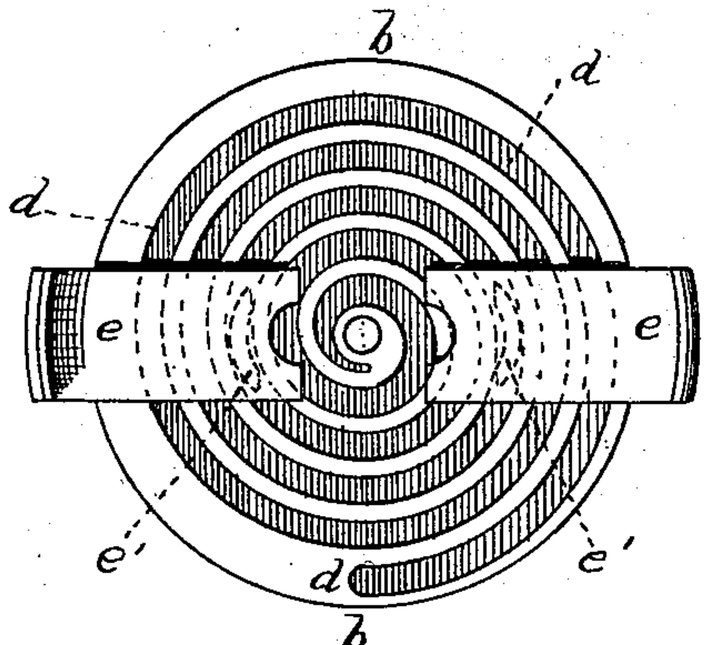

Fig. 3.

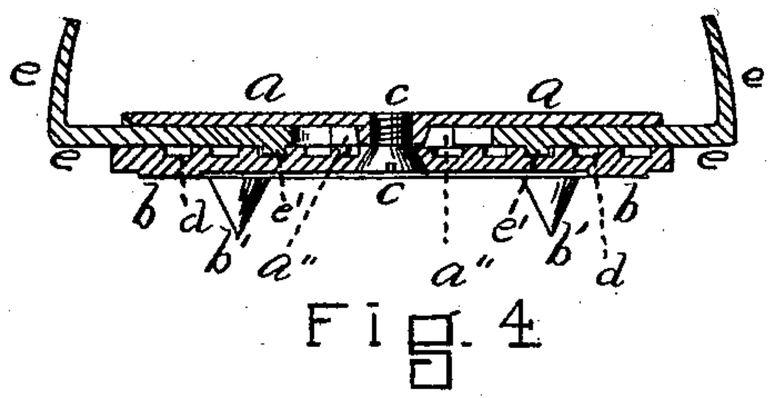

Fig. 4.

WITNESSES.

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