J. H. SWARTZ
Rotary Water-Meter.

No. 197,949. Patented Dec. 11, 1877.

Fig: 1

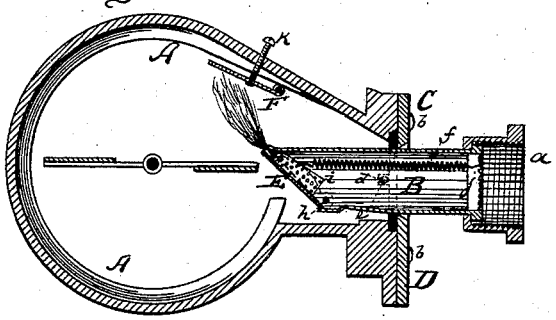


Fig: 2

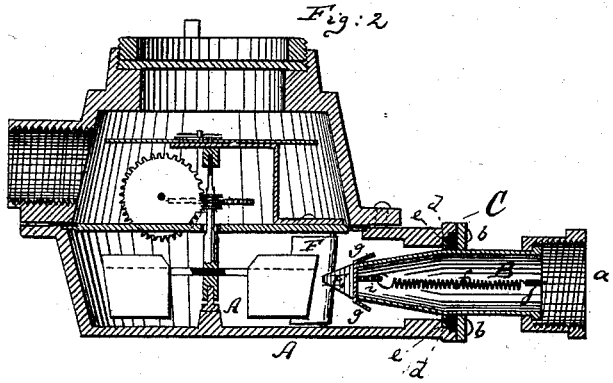


Fig: 3

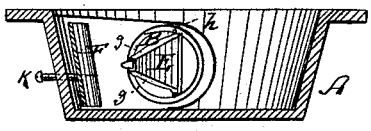
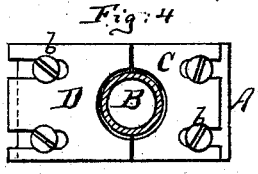


Fig: 4



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UNITED STATES PATENT OFFICE.

JOHN H. SWARTZ, OF BROOKLYN, ASSIGNOR TO HIMSELF AND WILLIAM G. WINANS, OF NEW YORK, N. Y.

IMPROVEMENT IN ROTARY WATER-METERS.

Specification forming part of Letters Patent No. **197,949**, dated December 11, 1877; application filed September 17, 1877.

To all whom it may concern:

Be it known that I, JOHN H. SWARTZ, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Water-Meter, of which the following is a specification:

Figure 1 is a horizontal section of the lower portion of my improved water-meter. Fig. 2 is a vertical central section of the same; Fig. 3, a cross-section on the lower part of the meter; and Fig. 4 a detailed face view of the plates for holding and adjusting the inlet-pipe.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to certain improvements in the construction and arrangement of the inlet-pipe of a water-meter; and has for its principal object to obtain a current of water at such an angle within the meter as will utilize to the best effect the power of the water upon the mechanism of the meter.

To this end I make a vibrating inlet-pipe, and place it adjustably within the mouth of the meter, so that it extends into the body of the meter, and so that its angle may be varied according to the size or power of the current; and I further provide this inlet-pipe with an angular or tapering end, and also with a similarly-shaped lid or valve, which is held against the mouth of the pipe by a spring, so that the water opens the said lid or cover to an extent corresponding to the degree of pressure and the size of current.

By virtue of the tapering form of the pipe and valve or cover, the stream that enters the meter is automatically retained compact, and its size regulated and made quite small where there is but a small amount of water admitted to the pipe, and correspondingly larger where more water is admitted.

The invention further consists in other details of improvements hereinafter more fully pointed out.

The letter A represents the meter-box, or rather the lower part of the same. B is the inlet-pipe, connected, by a suitable coupling, *a*, with the supply-pipe. The pipe B is inserted into the mouth of the meter-box, and extends into the body of the meter-box, within the periphery thereof, as shown.

I propose to close the mouth of the meter-box by means of two sliding plates, C D, which are more fully shown in Fig. 4, and which are, by suitable screws *b*, fastened to the end of the box. They have semicircular recesses cut into their contiguous ends to properly embrace the inlet-pipe, and are slotted where the screws *b* pass through them. They are in consequence laterally adjustable on the meter-box, to permit a corresponding adjustment of the angle of the inlet-pipe. The inlet-pipe itself is provided with two projecting pins, *d d*, which are diametrically opposite each other, and which enter into recesses *e* that are formed in the end of the meter-box, as indicated by the dotted lines in Fig. 1, and on these pins or pivots *d* the inlet-pipe B can be vibrated, so that its angle of entrance into the meter-box may be varied at will, the plates C D serving to hold it at any desired angle.

By this adjustment of the inlet-pipe I am enabled to incline the stream of water that enters the meter more or less, as may be required under varying circumstances. By extending the pipe B into the body of the meter-box, I am enabled to direct the water against the wings of the registering mechanism at the most preferable angle. The inner end of the inlet-pipe is made with a tapering or rather triangular discharge-opening, of which the smaller end projects farthest into the meter, and is nearest to that side of the meter-box or mechanism which is the first to be reached by the current of water. This triangular or tapering opening is covered by a similarly-shaped valve or cover, E, which is by a spring, *f*, held over the opening, to entirely close the same if no water is admitted. The valve E has two lips, *g g*, that lap over the sides of the tapering aperture above referred to, and prevent the lateral discharge of water from the pipe B. The valve E is at its base or broader portion pivoted or hinged to the broader portion of the discharge end of the inlet-pipe, as indicated at *h*, in Fig. 1.

It will be readily seen that a stream of water entering the pipe B will, by pressing

against the valve E more or less, open the same according to the size and power of the current, and that the smallest possible current will still be maintained compact, because a small and narrow opening only will be formed by a partial opening of the valve. This is in contradistinction to those constructions of inlet which only vary the size of the current in thickness and not in the breadth, whereas in my meter the opening will become wider and broader the more the valve is opened, and it will be narrower and thinner the more the valve is closed, thus maintaining the power of the current properly collected for effect upon the mechanism of the meter. The spring *f* should, of course, have its power regulated according to the locality in which the meter is set up, and for this purpose I provide the inner face of the valve E with an inwardly-projecting perforated plate *i*, and I also provide the outer end of the inlet-pipe with a notched or perforated cross-bar, *j*. The power of the spring is regulated by hooking its ends into any one of the different apertures of the plate *i* and into any desired one of the several notches or apertures of the cross-piece or bridge *j*. Nearly opposite the discharge end of the inlet-pipe I also place into the meter-box a hinged plate, F, which I term the direction-plate, and which is regulated in its angle or inclination by a suitable set-screw, *k*. In place of the said set-screw, a suitable cam or lever may be used. This plate F may be adjusted at any suitable angle, and is so located that it may receive the impact of the current of water that enters the meter, and to throw the same off against the mechanism within the meter at such an angle as may be desired. It is quite evident that this improved inlet-pipe, and the other features of the invention which I have pointed out, may be used either alone, in the manner shown in the drawing, or on meters having additional passages for carrying part of the current past the meter. In the illustration, a meter is shown which carries the entire current through the meter.

I claim as my invention—

1. The inlet-pipe B, made to project into the meter-box proper, and extend within the inner periphery thereof, in line with the buckets of the wheel, substantially as and for the purpose shown and described.

2. The inlet-pipe B, placed adjustably into the mouth of the meter-box, and combined with regulating-plates C D, substantially as specified.

3. The inlet-pipe B, made with a triangular or tapering discharge-opening within the inner periphery of the meter-box, and in line with the buckets of the wheel, substantially as specified.

4. The tapering or triangular valve E, provided with the lips *g g* and combined with the inlet-pipe B, having the tapering openings, substantially as specified.

5. The pivoted inlet-pipe B, hung on trunnions or pins *d d*, having tapering discharge-opening, and combined with a meter-box, substantially as herein shown and described.

6. A water-meter provided with the pivoted direction-plate F, which is combined with the adjusting-screw *k*, substantially as herein shown and described.

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