T. WALSH.

Rotary Water-Meter.

No. 210,378. Patented Nov. 26, 1878.

Fig. 1.

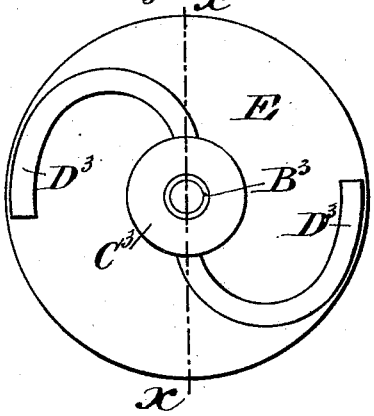


Fig. 2.

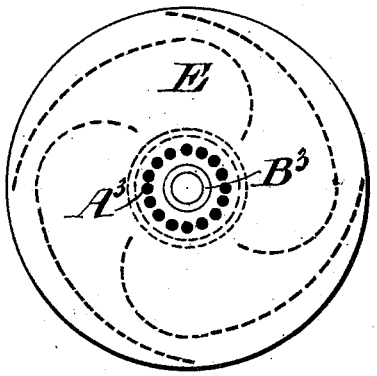


Fig. 4.

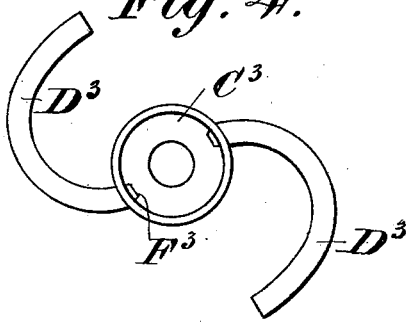
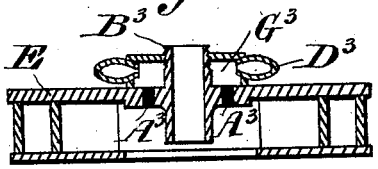


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS WALSH, OF MONTREAL, QUEBEC, CANADA.

IMPROVEMENT IN ROTARY WATER-METERS.

Specification forming part of Letters Patent No. 210,378, dated November 26, 1878; application filed October 21, 1878.

To all whom it may concern:

Be it known that I, THOMAS WALSH, of the city and district of Montreal, Province of Quebec, Canada, have invented new and useful Improvements in Rotary Fluid-Meters; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to a further improvement on the invention set forth and described in Letters Patent of the United States granted me on the 26th of February, 1878, numbered 200,676, and Letters Patent of Canada granted me on the 18th of December, 1877, numbered 8,219.

It consists in the wheel E, situated, constructed, arranged, and operated in a rotary meter in the same manner as set forth and shown in the specification and drawings attached to the aforesaid patents, being combined with a wheel composed of one or more reaction-arms, as will be fully described.

In the drawings hereunto annexed similar letters of reference indicate like parts.

Figure 1 is a plan of my invention. Fig. 2 is a plan the same as Fig. 1, only with the reaction-wheel composed of arms removed to show the perforations in the plate of the wheel E. Fig. 3 is a vertical section of Fig. 1 on line *x x*. Fig. 4 is the reaction-wheel as removed from Fig. 1 and inverted.

Letter E is the reaction-wheel, situated on the inlet of a meter, and is in every respect constructed as described in the aforesaid patents, except that in this case it is provided with perforations A^3 and a projecting sleeve, B^3, which is screwed to engage with the screwed hole in the hub C^3 of the wheel, consisting of one or more reaction tubular arms, D^3. The ends of the tubular arms D^3, situated at the periphery of the wheel E, are made to nearly agree with the curve of the said periphery.

The inner ends of the tubular arms D^3 are each formed with a nipple, F^3, very slightly projecting within the hub C^3. This is for the purpose of more readily adjusting their action by pinching the said nipples to close them to the amount required to give the required amount of rotating action of the arms by thus controlling the amount of water passing through them, thereby giving a much easier means of adjustment than would be obtained without the nipples.

It will therefore be understood that the action of rotation caused by the arms D^3 or arm D^3 is under given or equal pressure in proportion as the area at the inlet or nipple F^3 is to the area at the outlet or end of the arm D^3 at the periphery of the wheel E. For example, if the area of the inlet at F^3 is one-fourth the area of the said outlet, the stream of fluid escaping at the outer end of D^3 will flow with one-fourth the velocity, and thus reduce the revolutions given.

When the stream passing through the meter is very small it principally passes through the openings A^3 into the chamber G^3 formed by the hub C^3, which is so fitted as to have no escape except through the arm D^3 in case only one is used, or through the arms D^3 in case more are used, as shown in the drawings. When, however, the flow of fluid is considerable, as the wheel composed of C^3 D^3 can only pass a very small volume of water, the wheel E and it act in combination; and when the volume of fluid is very small the principal part of the revolving of the wheels will be done by the arms D^3.

By actual experiment I have found that taking the minimum column of fluid that can be indicated correctly by my aforesaid patented invention, by adding to that invention the now-described contrivance the meter will with equal accuracy measure a column of fluid one-fourth of the volume that my previous invention will do.

What I claim is as follows:

1. The wheel E, constructed, arranged, and operated as described, in combination with the wheel C^3 D^3, substantially as and for the purposes set forth.

2. In a water-meter, the wheel composed of parts C^3 and D^3, arranged for part of the fluid to pass through, and having the nipple F^3, substantially as and for the purposes set forth.

Montreal, 16th day of October, A. D. 1878.

T. WALSH.

Witnesses:

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