C. M. VAN TINE.

FLUID-METER.

No. 191,205. Patented May 22, 1877.

Fig. 2.

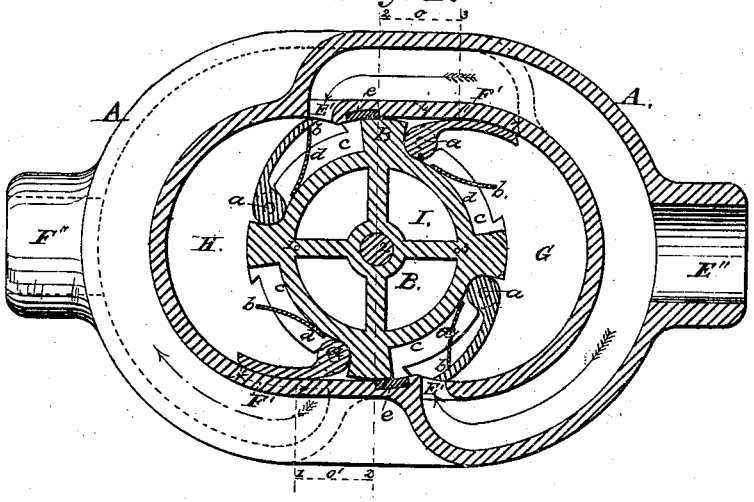
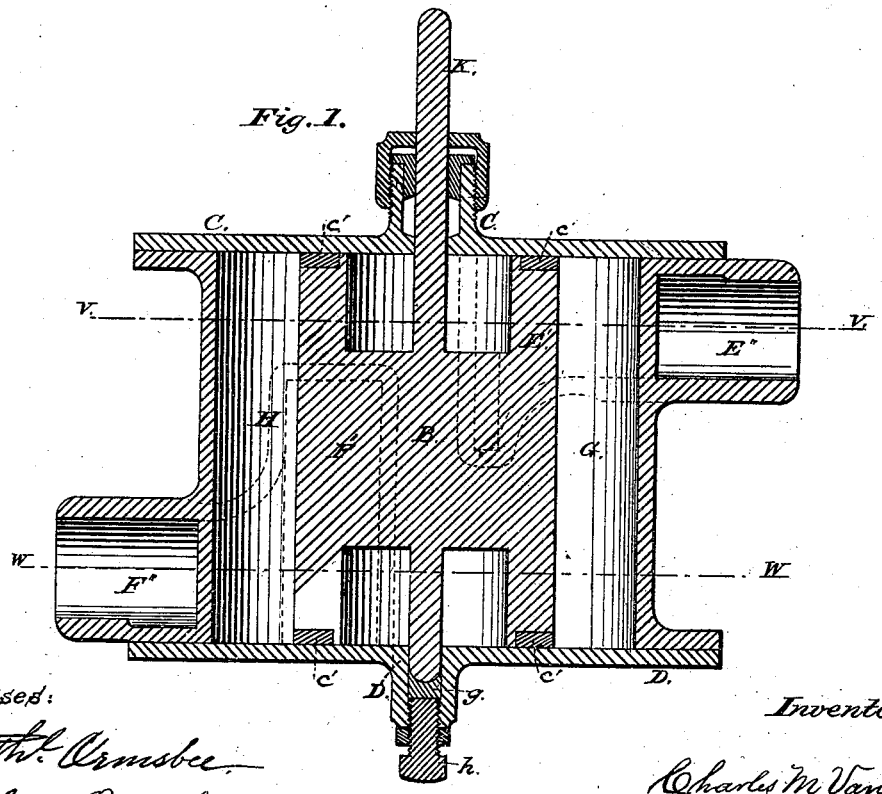


Fig. 1.



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UNITED STATES PATENT OFFICE

CHARLES M. VAN TINE, OF MATTEAWAN, NEW YORK, ASSIGNOR TO ABRAM VAN TINE, OF SAME PLACE.

IMPROVEMENT IN FLUID-METERS.

Specification forming part of Letters Patent No. **191,205**, dated May 22, 1877; application filed February 27, 1877.

To all whom it may concern:

Be it known that I, CHARLES M. VAN TINE, of Matteawan, in the county of Dutchess and State of New York, have invented certain new and useful Improvements in Fluid-Meters; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In this specification, Figure 1 shows a transverse sectional, and Fig. 2 a longitudinal sectional, view of my improved meter.

My invention consists of a light cylindrical piston, having wings attached near its periphery, which work or swing on pins or bearings. When these wings are closed to the piston they form a part of the circle of the piston, resting on rings at the sides. The piston is so constructed as to leave water-space underneath the wings, for the purpose of equalizing the pressure, and also to afford space to place springs to insure their opening. This piston is inclosed in a case composed of sections of three hollow cylinders, their centers being in the same line and at equal distances, or nearly so. The piston is placed in the central section, while the outer ones act as the measuring-sections, each outer section having its own induction and eduction ports. These ports, especially the induction-ports, I have long and narrow, for the purpose of facilitating the opening of the wings, as a slight movement of the wings gives a full opening.

By constructing the case of sections of three hollow cylinders, each of the outer or measuring sections having separate induction and eduction ports, I am enabled to place the piston in perfect equilibrium, and thereby prevent all wear from differences of pressure.

In Fig. 2, A represents the case, having the three sections H, I, and G, with their centers at 1, 2, and 3, respectively; B, the piston, fitted to the central section I; *a a a a*, the wings, attached to the piston by the rings *c c* on each side of piston; H and G, the measuring-sections, in which the wings work while the meter is in motion; *b b b b*, springs, to insure the opening of wings; *d d d d*, water-spaces, for the purpose of equalizing the pressure on wings and to place springs; E′ in section H and E′ in section G, the induction-ports, placed at opposite points; the spaces shown by dotted lines at F′ in section H and F′ in section G, the eduction-ports also at opposite points; *e e* in section I, the packing-gibs, pressed out by either springs or water from the eduction side of measuring-sections. They may be used or dispensed with, as practice may require.

The distance *o′* from the point 1 to 2 on the eduction side of section H and section I, also the distance *o* from the point 2 to 3 on the eduction side of section G and section I, I make a straight line, or nearly so, for the purpose of closing the wings gradually.

E″, induction-pipe, leading to channel-ways leading to induction-ports; F″, eduction-pipe, shown leading to channel-ways leading to eduction-ports. (Shown in dotted lines.)

The dotted lines on Fig. 2 represent a longitudinal section through the line V on Fig. 1, and full lines a longitudinal section through the line W on Fig. 1, the first showing the eduction-ports, &c., in dotted lines, and the second the induction-ports, &c., in full lines.

In Fig. 1, A is the case, with the three sections, the piston B, to which is attached the shaft K, occupying the central section I; C C, the upper bonnet or cover, having a stuffing-box gland and nut, for the purpose of holding the piston in position, and to allow the shaft to pass through, for the purpose of attaching registering apparatus; D D, the lower bonnet or cover, with step *g* and set-screw *h*, leaving room for end of shaft to work in; *c′ c′ c′ c′*, section of rings for holding wings in position; the space inclosed by dotted lines at F′, the eduction-port of measuring-section H; the space inclosed by dotted lines at E′, the induction-port of measuring-section G.

What I do claim is—

1. A liquid-meter the casing of which is oval in cross-section, and having the piston located in the center, forming measuring-sections on each side thereof, into both of which the fluid is admitted through induction-ports arranged on opposite sides of the piston, and educted

through ports correspondingly arranged, substantially as set forth.

2. The piston B, provided with rings *c* and wings *b*, and having water-spaces *d*, with springs therein, for both equalizing the pressure and forcing open the wings, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CHARLES M. VAN TINE.

Witnesses:

SIDNEY SCOFIELD,

SAMUEL BOGARDUS.