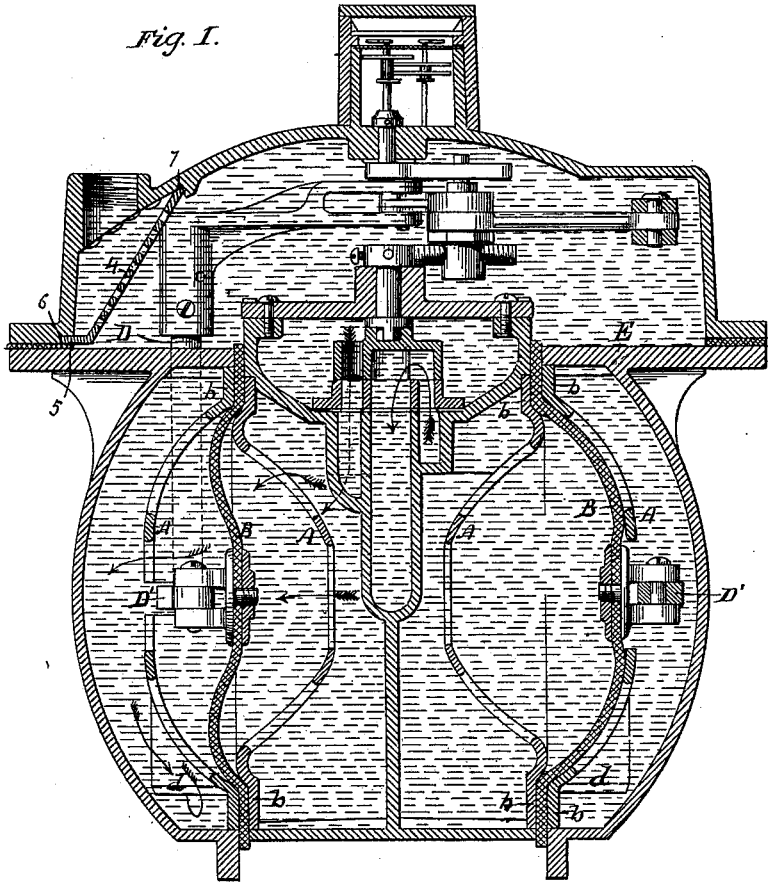
4 Sheets—Sheet 1.

W. B. MOUNTENEY.

Diaphragm-Meter.

No. 213,680. **Patented Mar. 25, 1879.**

Fig. I.



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4 Sheets—Sheet 2.

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Fig. 2.

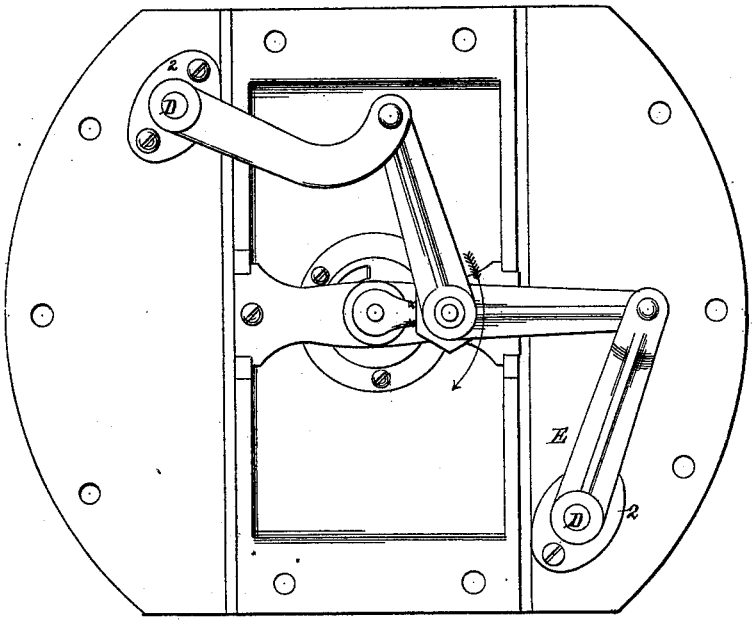
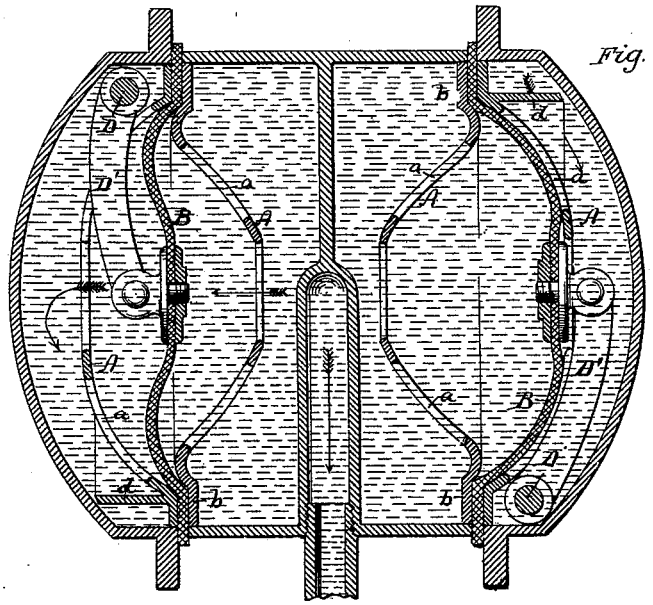


Fig. 3.



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4 Sheets—Sheet 3.

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No. 213,680. **Patented Mar. 25, 1879.**

Fig. 4.

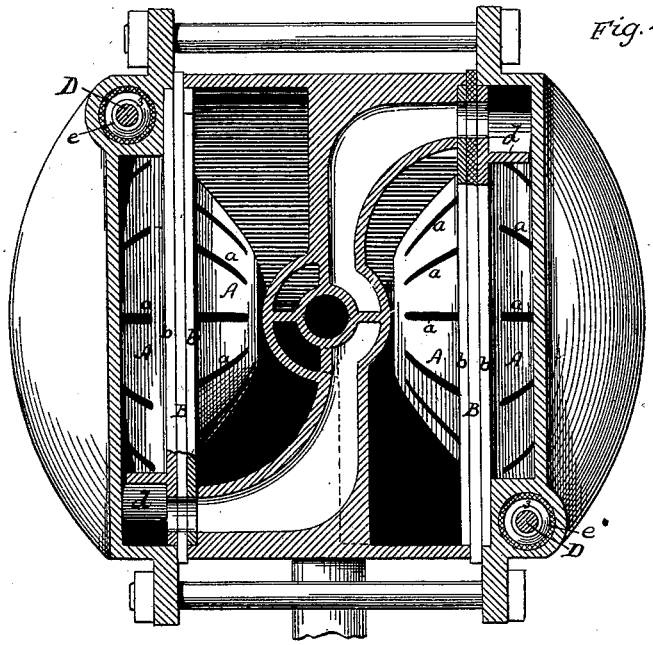
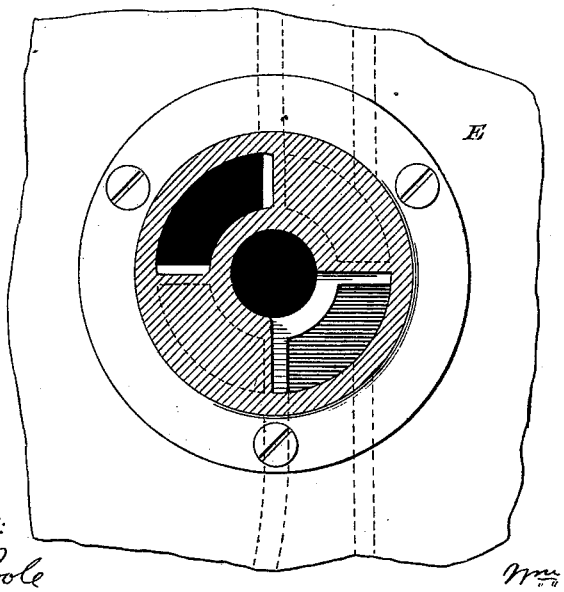


Fig. 5.



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4 Sheets—Sheet 4.

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Diaphragm-Meter.

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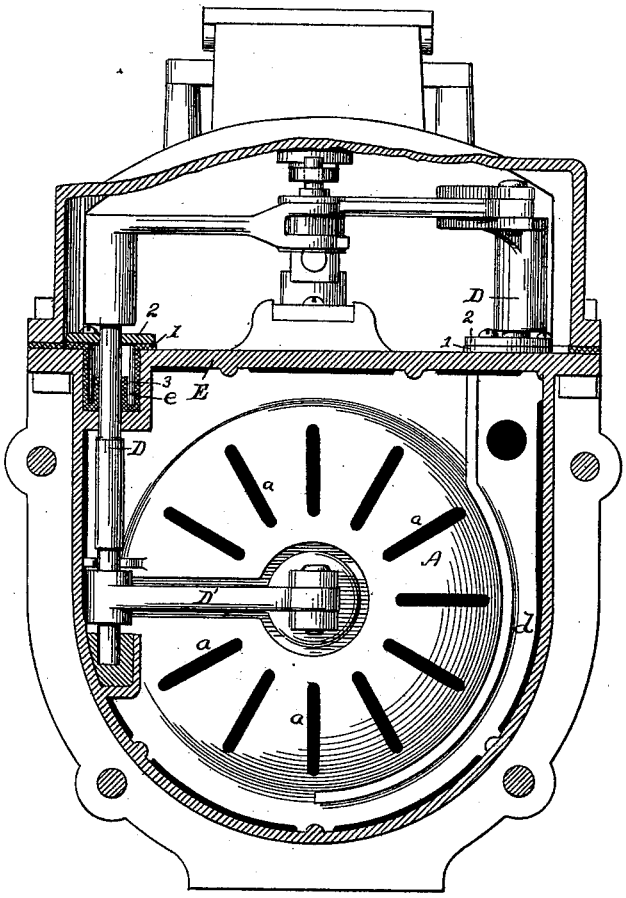
Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM B. MOUNTENEY, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN DIAPHRAGM-METERS.

Specification forming part of Letters Patent No. **213,680**, dated March 25, 1879; application filed June 3, 1878.

To all whom it may concern:

Be it known that I, WM. B. MOUNTENEY, of Chicago, in the State of Illinois, have invented a new and Improved Water-Meter; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical sectional view. Fig. 2 is a plan view. Fig. 3 is a horizontal sectional view. Fig. 4 is a plan view of the meter, with the top plate removed. Fig. 5 is an enlarged view of the valve. Fig. 6 is a side elevation, with the side of the casing removed.

My present invention is a series of improvements upon Letters Patent No. 169,368, issued to me November 2, A. D. 1875; and they consist, first, in an elastic packing of novel construction for the journals of the levers operating the registering mechanism; and, second, in providing the outside one of each pair of slotted diaphragms with a strip or rib to form a water-channel to clear it from mud and other deposits.

In order that those skilled in the art may make and use my invention, I will proceed to describe the manner in which I have carried it out.

In so far as the ingress of the water is concerned, the valve-operation, and the measurement by means of the vibration of the diaphragms, all the operations are substantially the same as in my patent November 2, 1875.

In each compartment of the meter-casing are two thin cast-metal concave diaphragms, A, having radiating slots *a a* and a straight flange, *b*, conforming in shape to the casing. The curve of the diaphragms next to the sides of the casing conforms generally in curvature to the side of the casing, while the diaphragms adjacent to the central partition are more abrupt in curvature.

The elastic diaphragms B are cast or molded in such a shape as to have their lines coincident with the outer metal diaphragms when in their normal condition. The flange on the rubber diaphragms is extended sufficiently to pass in between the vertical joints of the casing and act as a packing when the sides are clamped together. Each of the outer metal diaphragms is provided on its side next to the casing with a strip or rib, *d*, from above the water-opening and curving downward to about the center, thereby creating a trough or tube for a water-channel, to overcome deposits of mud or other sediment.

The rubber diaphragms are attached to the arms and rock-shafts D by means of levers D′, and these rock-shafts pass through the horizontal partition E near the top of the casing. At the points where they pass through the partition I pack the shafts by means of a peculiarly-constructed rubber thimble, *e*. This thimble has a flange, 1, on its upper edge, which is clamped to the partition by means of a plate, 2, and it sits inside a cup-shaped depression cast in the partition-plate, and has its lower end turned inwardly up to one-half the length, as seen at 3. The diameter of the turned-up portion is precisely that of the rock-shaft D.

In the upper compartment of the meter, and over the mouth of the ingress-pipe, is a diagonal perforated plate, 4, provided with lugs 5 5, resting in sockets 6 6 in the upper side or cap of the casings, and its upper edge lying against spurs 7 7, so that when the cap is laid on the lower casing the perforated plate is secured, so as to prevent any extraneous matter entering the meter from the water-supply pipe.

In the operation of the meter the slotted cast diaphragms lead to a churning or agitation of the water that prevents sediment, and when the meter is working under low pressure the slots lead to a more easy detachment of the rubber diaphragm's contact with the metal diaphragm.

The construction of the rubber packing around the rock-shafts allows the rock-shafts to operate without turning in the packing, but gives the packing a sort of torsional strain, allowing the shaft to remain always in close contact with the packing.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The double elastic packing-thimble *e*, constructed and arranged as set forth.

2. The strip or rib *d*, in combination with the diaphragm A and the casing of a water-meter, substantially as described.

W. B. MOUNTENEY.

Witnesses:
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GEO. A. MILLIKEN.