

*I. Carey,*

### *Oscillating Meter.*

*N<sup>o</sup> 84,533.*

*Patented Dec, 1868.*

Fig:1.

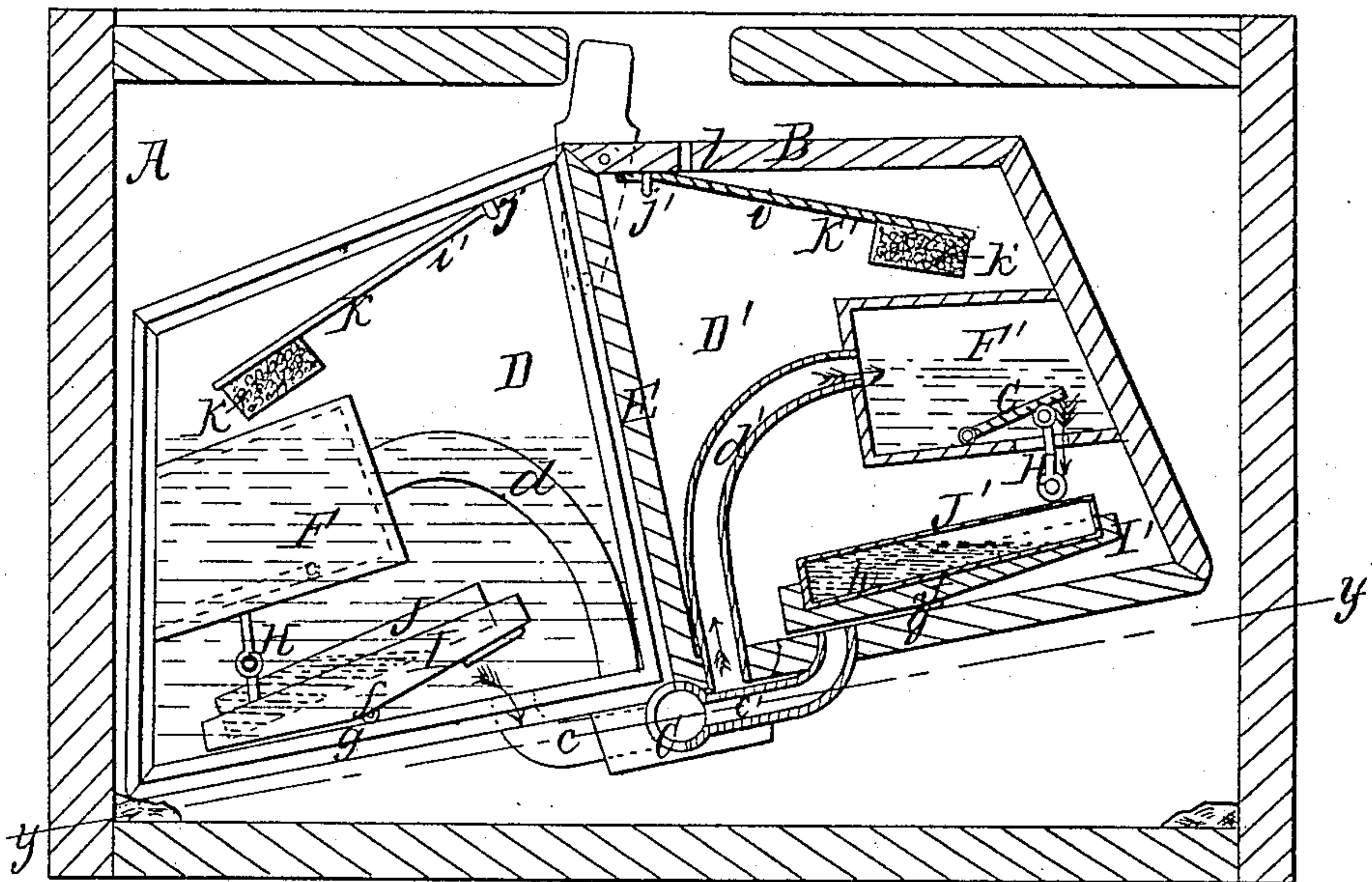
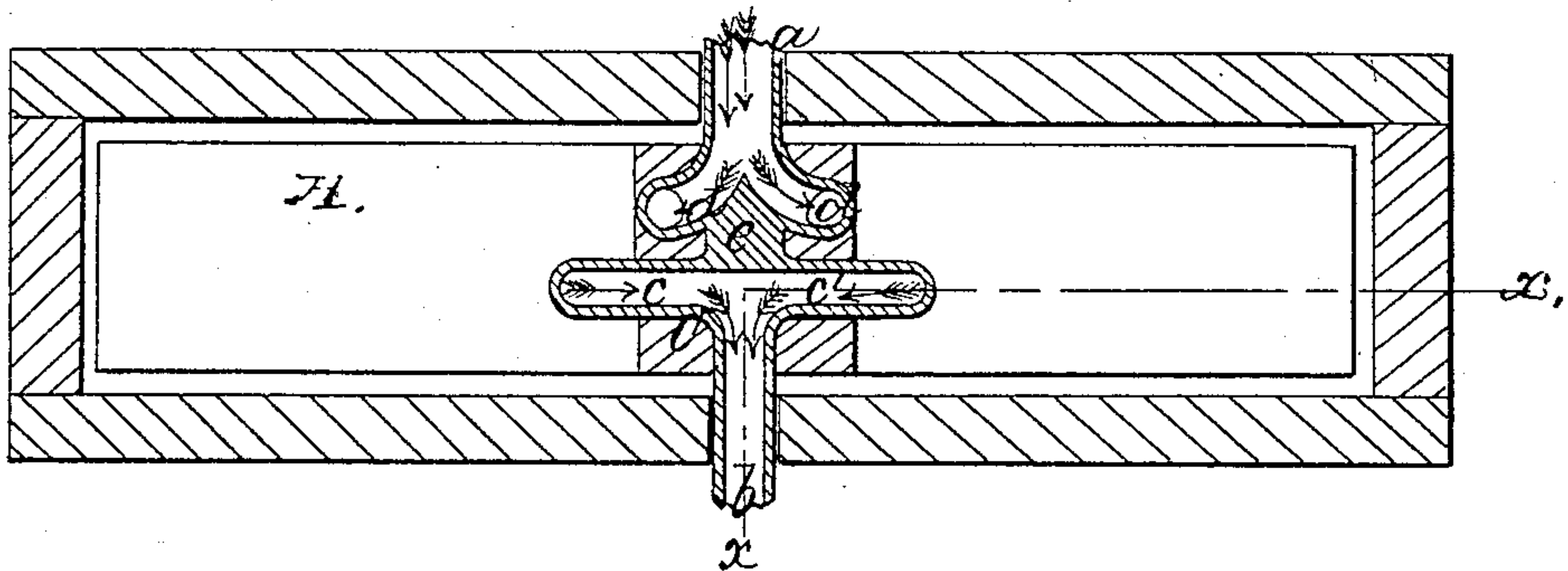


Fig: 2.



Witnesses;  
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# United States Patent Office.

ISAAC CAREY, OF WARWICK, NEW YORK.

Letters Patent No. 84,533, dated December 1, 1868.

## IMPROVEMENT IN WATER-METERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, ISAAC CAREY, of Warwick, in the county of Orange, and State of New York, have invented a new and useful Improvement in Water-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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front sectional view of my invention, taken in the line *x x*, fig. 2.

Figure 2 is a section of the same, taken in the line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new and improved water-meter, and is designed to measure and register the amount of water used by the occupants of a building.

The invention consists of a tilting measure, arranged in connection with valves and water-supply and discharge tubes, as hereinafter fully shown and described, whereby the device is operated by the gravity of the water, as the latter passes through it, and a correct measurement of the water which passes through the device obtained.

In the accompanying sheet of drawings, A represents a case, of any suitable or desired dimensions, and B is a box, fitted in the case, and counterpoised or balanced on a tube, C, attached to the centre of its under side, said tube being allowed to turn freely in the front and rear sides of the case, and having the supply or water-induction pipe attached to one end, *a*, and the discharge-pipe attached to the opposite end, *b*.

This counterpoised or balanced box B is divided into two compartments, D D', by a central partition, E, which is at right angles to the bottom of the box, as shown in fig. 1, and these compartments communicate respectively with the tube C by means of pipes *c c'*, shown in both figures.

In the compartments D D' there are placed and firmly secured small boxes, F F', and these boxes communicate, by means of pipes *d d'*, with the tube C, the latter being provided with a partition or abutment, *e*, between the pipes *c c'* and *d d'*, as shown in fig. 2.

In the bottom of each box F F' there is a valve, G, opening upward. Ordinary flap-valves will answer the purpose. These valves are connected respectively, by links H, to tilting-bars I I', which are secured to transverse rods *f*, the latter being at the centre of their under sides, and having their ends fitted in bearings *g*. In these bars there are secured tubes J J', which are partially filled with mercury, *h*. (See fig. 1.)

K K' are valves, fitted respectively in the upper part of the compartments D D'. These valves are each composed of a plate, *i*, connected at one end, by a joint, *j*, to the under side of the top of the compartments, and having a float, *k*, at their outer or disengaged ends. These valves, when closed, cover holes *l* in the tops of the compartments.

The tilting-bars I I' are valves, and, when closed, cover the orifices of the pipes *c c'*.

The operation is as follows:

Suppose the box B to be tilted in the position as shown in fig. 1, with the compartment D down, and D' elevated. In this position of the box, the valve G of the small box F in D will be closed by the bar I, the gravity of the mercury *h* in tube J effecting this, and, at the same time, keeping the orifice of pipe *c* open, so that the water in D will pass down, through *c*, into tube C, and thence into the discharge-pipe, attached to C at the end, *b*, the closed valve G in F cutting off all communication between F and D.

In the elevated compartment D', the bar I' covers the pipe *c*, and cuts off all communication between the tube C and D', a result due to the mercury *h* in tube J', and, at the same time, the valve G, in the small box F', is kept open, so that the water will flow up, through the pipe *d'*, into box F', and thence into the compartment D', the latter gradually becoming filled, and increasing in weight, while D is gradually discharging, and becoming lighter. This operation continues until D' overbalances D, when the box B tilts, and D' is depressed, and D elevated, the valve G in box F' closing, and the corresponding valve in box F opening, the bars I I' also tilting, under the change of the position of the mercury *h* in them, so that the orifice of the pipe *c'* will be open, and the orifice of *c* closed. The water from D' will then flow down *c'* into C, and water from tube C will flow up through *d* into F, and thence into the compartment D. The mercury-tubes J J' cause the bars or valves I I' to act very efficiently, a result due to the movement and gravity of the mercury.

By this simple arrangement, the water will be measured with great exactness, any suitable indicating-apparatus being connected with the tilting box B.

The valves K K' are simply to admit air escaping from the compartments D D' as they are filling, and admitting of the entrance of air as the water escapes from the same, the valves closing just prior to the filling of the compartments, in order to prevent any escape of water through the holes *l*.

This meter may be constructed at a small cost, and will operate in a perfect manner.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The tilting box B, divided into two compartments, D D', with the boxes F F', fitted within said compartments, and provided with valves G G, the boxes F F' communicating with the tube C by the pipes *d d'*, in connection with the tilting-bars or valves I I', arranged in relation with the discharge-pipes *c c'*, to operate in the manner substantially as and for the purpose set forth.

2. The mercury-tubes J J', applied to the tilting-bars or valves I I', substantially as and for the purpose specified.

ISAAC CAREY.

Witnesses:

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E. S. COLWELL.