

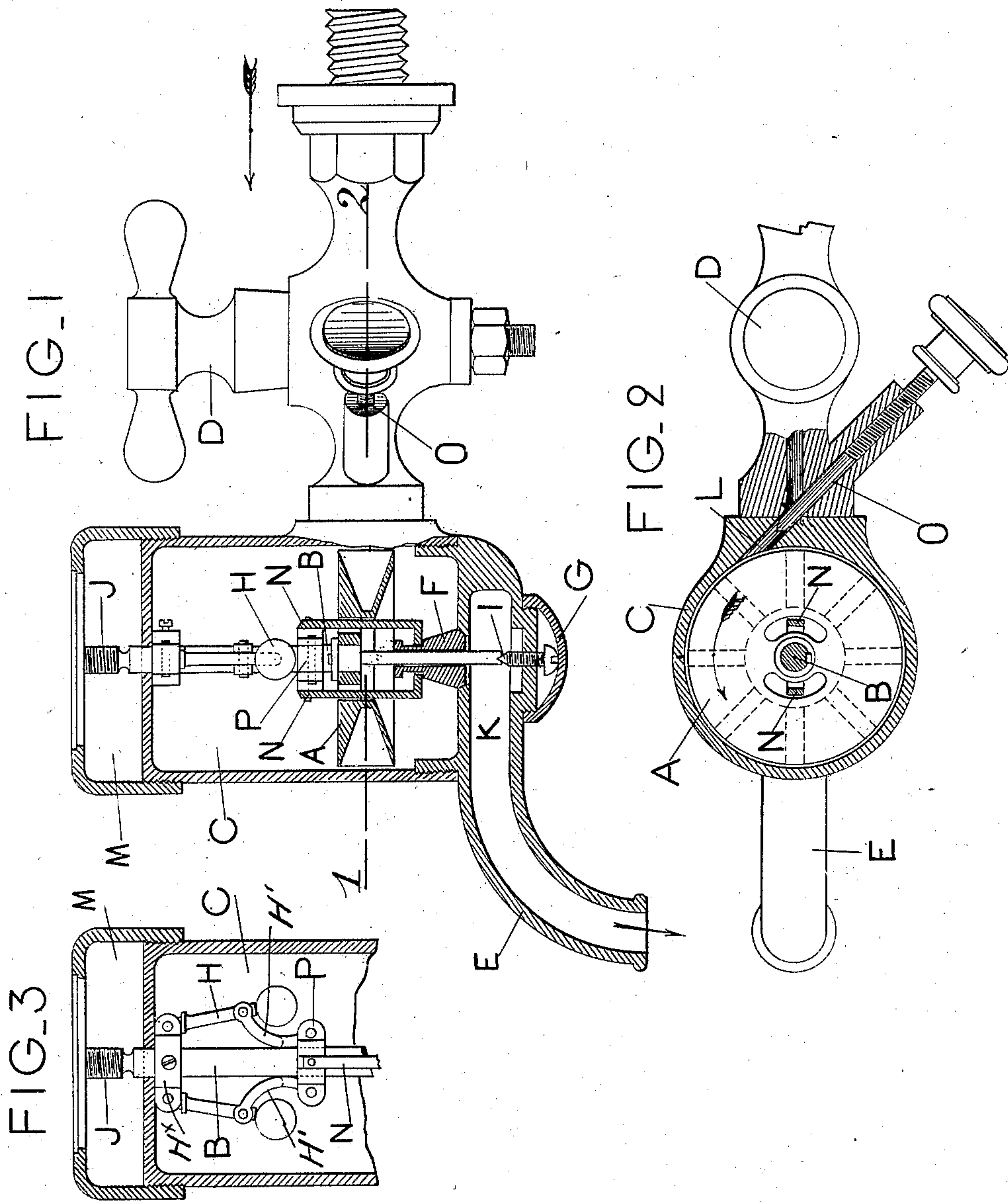
No. 698,625.

Patented Apr. 29, 1902.

S. BOUCHET.  
LIQUID METER.

(Application filed Jan. 14, 1902.)

(No Model.)



WITNESSES:

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*Adelaide Claire Gleason*

INVENTOR.

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# UNITED STATES PATENT OFFICE.

STEPHANE BOUCHET, OF TASSIN-LA-DEMI-LUNE, FRANCE.

## LIQUID-METER.

SPECIFICATION forming part of Letters Patent No. 698,625, dated April 29, 1902.

Application filed January 14, 1902. Serial No. 89,739. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHANE BOUCHET, a citizen of the Republic of France, residing at Tassin-la-Demi-Lune, Rhône, France, have  
5 invented a certain new and useful Improvement in Liquid-Meters, of which the following is a full and exact description, and for which I have made application for Patent in France, dated October 28, 1901.

10 The apparatus forming the subject of the present application relates to the class of meters in which the delivery is indicated by the number of revolutions of a turbine traversed by the liquid to be measured. It is characterized by the application to the axle of the  
15 turbine of a centrifugal regulator acting upon a valve of special form, which more or less opens the discharge-orifice, according as the delivery is greater or less. This apparatus  
20 may be applied to the control of the delivery of various descriptions of cocks, either for water or for other liquid contained in vats, tuns, bidons, &c.

The invention is illustrated in the accompanying drawings, in which—

25 Figure 1 is an axial vertical section through the turbine; Fig. 2, a horizontal section on the line 1 2 of Fig. 1, and Fig. 3 a front view of the regulator.

30 The turbine A is preferably of aluminium. It is fixed to the vertical shaft B and rotates within the interior of the closed chamber C, carried by the cock D, screwed on the conduit or on any vessel containing the liquid.  
35 The outlet-orifice L of this cock is bent (see Fig. 2) and directed tangentially onto the turbine A. Its delivery is regulated by a screwed pointed pin O.

40 The shaft B above the turbine is fitted with the regulator H, the ring P of which is connected by small connecting-rods N N, which pass through the body of the turbine to a valve F, which closes an orifice communicating with the chamber K, whence the liquid  
45 flows through the spout E. The regulator comprises, besides the weighted arms H, a bracket or ring H', to which the said arms are pivoted, and the links H', connecting the weighted arms with the ring P.

50 The valve F is provided with a circular groove within which the connecting-rods N N pass, and this groove allows a certain amount

of vertical play or lost motion, so that the valve is only raised by the ring P of the regulator when the latter has commenced to rise. 55  
The shaft B is carried at its lower end by a screw-point I, the height of which can be regulated and the head of which is covered by a cap G to prevent the regulation being interfered with. At its upper part the shaft 60  
B passes through the head of the chamber C and enters the box M, containing the counting apparatus, which it operates by the endless screw J.

The operation of the apparatus will be readily understood from the following description: 65  
The liquid passing through the orifice L, after the opening of the cock, operates the turbine, which, by reason of the compression of air in the chamber C, commences to rotate before 70  
the valve F is raised. Then the regulator rotating with the turbine raises the valve F in proportion to the speed of the turbine—that is to say, with the delivery of the cock—and the flow will continue with the speed due to 75  
the pressure of arrival. The pointed pin O serves to limit the maximum delivery of the meter according to the conditions of subscription. When once regulated, it can be sealed 80  
by any suitable means.

It is to be remarked that in this apparatus no delivery can take place before the turbine is in motion, while in ordinary turbine meters a small stream of water can be passed, which is insufficient to operate the turbine, but 85  
which will furnish in a given time important quantities of water which escape measurement.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is— 90

1. In a liquid-meter of the turbine class, a turbine, a regulator revolving with the turbine and operating a valve which opens the discharge-orifice in proportion to the quantity delivered and which at rest completely 95  
closes this orifice, the putting in motion of the turbine on the opening of the cock being permitted by the compression of air in the turbine-chamber.

2. In a liquid-meter of the turbine class, the combination with a cock of any suitable character of a closed chamber containing the turbine, a centrifugal regulator mounted on and 100

rotating with the turbine-shaft, a valve operated by connections from the regulator, a play or lost motion existing between the connections from the regulator and the valve, an  
5 opening forming a seat for the valve and communicating with the delivery-spout, means for regulating the height of the turbine-shaft, a passage delivering the liquid from the outlet of the cock to the turbine tangentially to

the latter, and a screwed pointed rod controlling the cock-outlet, substantially as herein set forth. 10

In witness whereof I have hereunto set my hand in presence of two witnesses.

STEPHANE BOUCHET.

Witnesses:

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THOS. N. BROWNE.