

(No Model.)

2 Sheets—Sheet 1.

O. C. PUDAN.
GAS METER.

No. 545,816.

Patented Sept. 3, 1895.

Fig. 1.

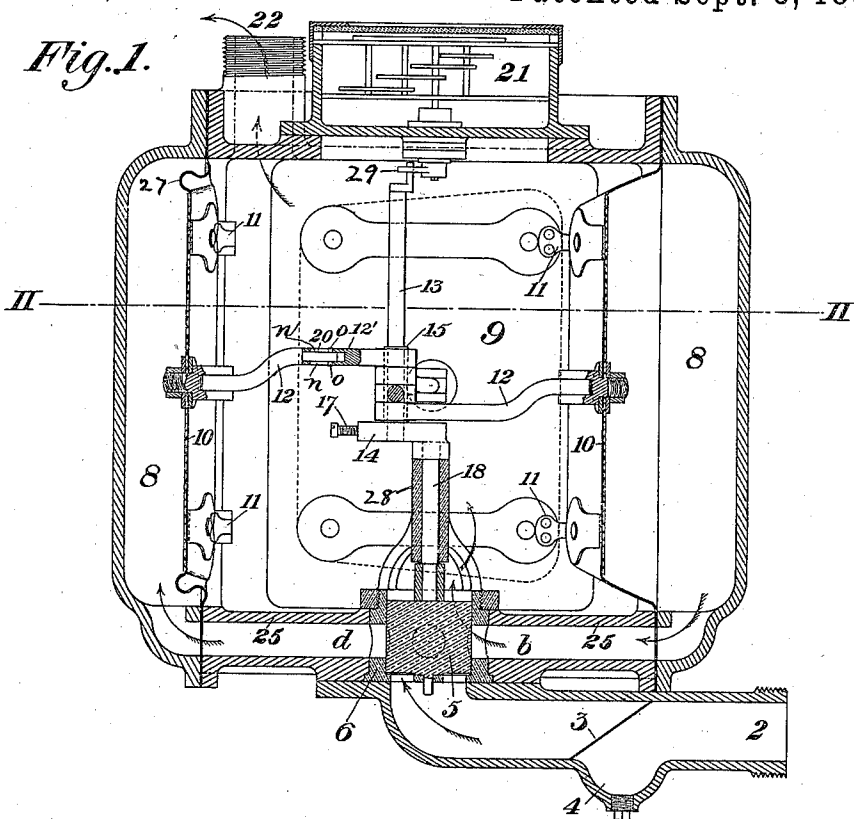
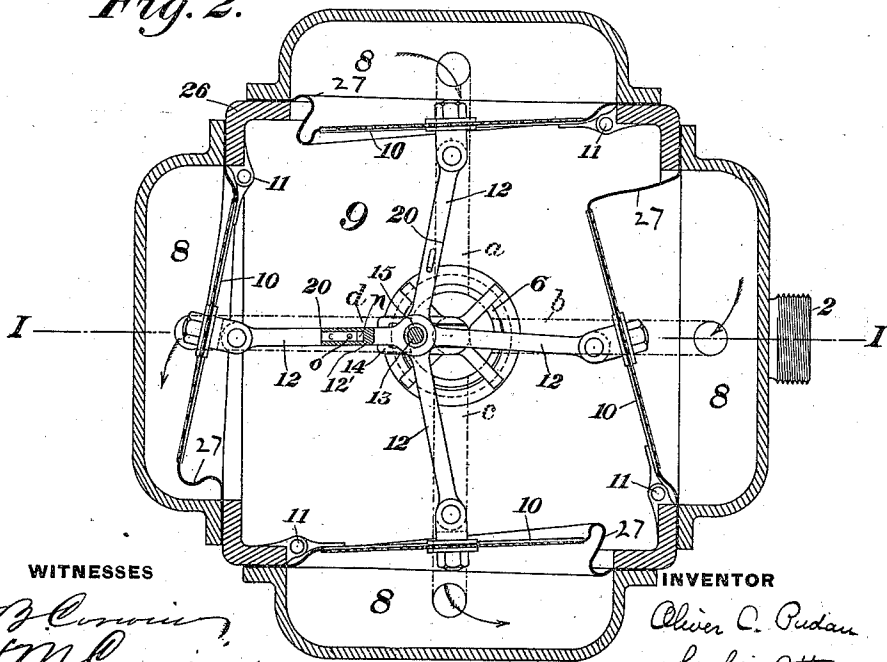


Fig. 2.



WITNESSES

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Fig. 3.

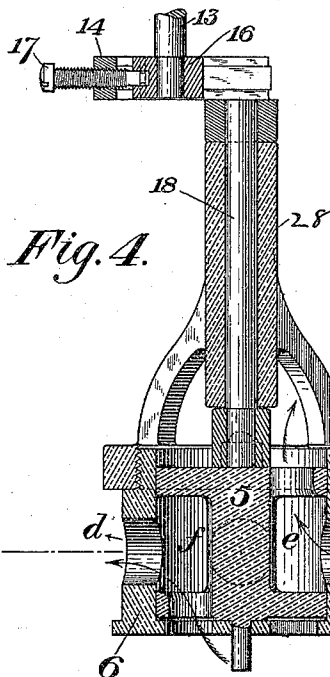
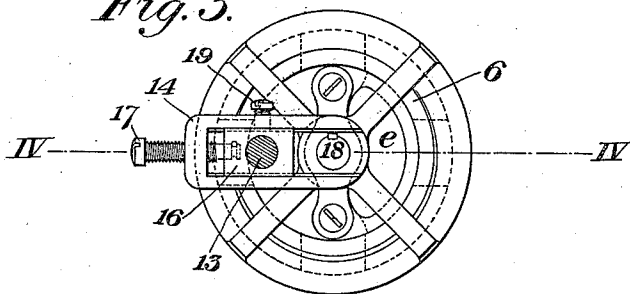


Fig. 4.

Fig. 6.

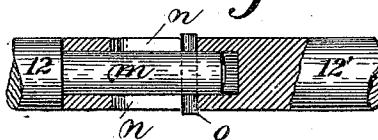
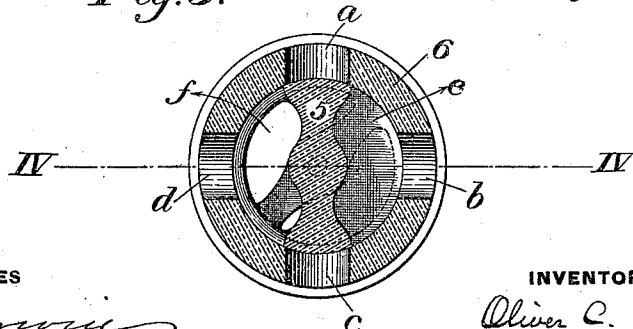


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

OLIVER C. PUDAN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE
CHAPLIN FULTON MANUFACTURING COMPANY, OF SAME PLACE.

GAS-METER.

SPECIFICATION forming part of Letters Patent No. 545,816, dated September 3, 1895.

Application filed December 5, 1892. Serial No. 454,045. (No model.)

To all whom it may concern:

Be it known that I, OLIVER C. PUDAN, of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gas-Meters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a vertical sectional view of my improved gas-meter on the line I I of Fig. 2. Fig. 2 is a horizontal sectional view on the line II II of Fig. 1. Fig. 3 is an enlarged plan view of the valve. Fig. 4 is a vertical sectional view of the valve on the line IV IV of Figs. 3 and 5. Fig. 5 is a horizontal sectional view on the line V V of Fig. 4, and Fig. 6 is a detached sectional view of the joint in the valve-operating arms.

20 Like symbols of reference indicate like parts in each.

My invention relates to an improvement in gas-meters; and it consists in a series of chambers having wings hinged at one side to the inner frame of the chambers and connected with the frame on their other sides by flexible diaphragms, rods, or arms extending from the wings to a crank-arm, which is common to all the rods, and which is connected with a central valve-stem extending from a valve which distributes the flow of gas to the several chambers, the stem of this valve being connected with suitable registering mechanism adapted to register the flow of gas by the rotation of the valve; and the object of the invention is to obtain greater regularity and precision of movement of the parts than has heretofore been attainable in the gas-meters in common use.

40 I will now describe my invention so that others skilled in the art may manufacture and use the same.

In the drawings, 2 represents the gas-inlet pipe, in which is a wire-gauze screen 3, placed in an inclined position adjacent to a cup or receptacle 4, the purpose of which is to collect any dirt or foreign matter that may be stopped by the screen. This pipe 2 opens into a valve-chamber 6, which is centrally located in the bottom of the meter and is provided with a rotatory valve 5, having ports

f and *e*. In the sides of the valve-chamber are ports *a*, *b*, *c*, and *d*, (see Figs. 4 and 5,) which open into four separate gas-chambers 8, which are formed in the bottom and at the sides of the meter. The inner portion of the meter is separated from these chambers 8 by the bottom partition 25 and the four wings 10, which are hinged at one side to the corner-pieces 26 by the hinges 11, and are provided on their other sides with flexible diaphragms 27, the partition 25 and the wings and diaphragms cutting off direct communication between the chambers 8 and the inner chamber 9 of the meter. The port *f* in the valve 5 is open at the bottom and side, so as to form a passage from the gas-supply pipe 2 to the chambers 8, and the port *e* in the valve 5 is open at the top and side, so as to form a passage from the chambers 8 to the inner chamber 9. Extending vertically from the valve 5 into the chamber 9 is the valve-stem 18, which is supported by the sleeve 28, extending from the valve-chamber 6. Keyed or otherwise firmly fixed to the upper part of the stem 18 is the horizontal crank-arm 14, which is in the form of a yoke or link and is provided with an adjustable block 16 and a set-screw 17, which passes through a threaded socket in the crank-arm and is journaled in the adjustable block, by which means the position of the block away from or toward the valve-stem may be adjusted. Fixed to the block 16 is the vertical rod 13, the upper end of which is connected with a crank-arm 29, which is connected with the mechanism 21 of the registering devices. Extending from the inner sides of the wings 10 and pivoted thereto in the chamber 9 are the lever-arms 12, the inner ends of which encircle the rod 13. These arms 12 are formed in two parts 12 and 12', which parts are connected with each other by a telescopic joint, as shown in Fig. 6, the part 12' having a tubular cavity for the reception of a stem formed on the end of the part 12, the stem being of such size as to slide in the cavity, its movement, however, being limited by the stop-pin *o*, which passes through the stem and the vertical slot *n* in the part 12'. The purpose of this arrangement is to permit a push movement inwardly from the wings 10 and arms 12 to be imparted to the arms 12' by the pin *o* bearing against

the end of the slot *n*, while a backward movement of the arms 12 is lost, and is not imparted to the arms 12', as the stem *m* and pin *o* move freely in the slot.

5 The operation is as follows: The gas passes from the supply-pipe 2 through the ports *f* and *a* into one of the chambers 8, and there pressing on the wing 10 of that chamber presses it inwardly into the chamber 9, the
10 wing swinging easily on its hinges, and the arm 12 12', which is pivoted to this wing, presses against the crank-arm 14 and imparts a quarter-revolution to the valve-stem 18 and valve 5, which closes the port *a* and brings
15 the port *f* opposite the next of the ports *a*, *b*, *c*, and *d*, and allows the gas to pass into the next of the chambers 8, and the wing 10 of this chamber imparts a second quarter-revolution to the valve-stem and valve, which
20 brings the port *f* opposite the third port *c*, leading to the third of the chambers 8, and also brings the port *e* of the valve opposite the port *a* of the chamber 8 first filled, which allows the gas to pass from this chamber into
25 the central chamber 9, and thence to the service-pipe 22 leading therefrom, and so on, the chambers 8 being filled through the port *f* and emptied through the port *e*, the valve-stem 18 making a quarter-revolution as each volume
30 of gas passes into the meter. Unless some provision is made to prevent it, it would be possible to run a meter backward by merely connecting the gas-supply pipe with the socket 22 and the service-pipe with the valve-cham-

ber 6, and thereby bring the pointer of the 35 registering-dial back to the starting-point. This is prevented in my improved meter by the telescopic joint in the arms 12 12', which allows the wings 10 to be pressed outwardly from the chamber 9 without rotating the valve-stem 18 and valve 5, and without the rotation of this valve the gas cannot pass through the meter.

The advantages of my invention will be readily seen by those skilled in the art, friction of the parts is lessened, and a greater 45 regularity and precision in the movements of the parts are obtained.

What I claim is—

In a meter, the combination of a central 50 discharging chamber and a series of outer gas receiving and measuring chambers, each having a movable partition separating it from the central chamber, an outlet port connected with the central chamber, and an inlet port, 55 and a valve operated by said partitions and adapted to connect the inlet port successively with the several outer chambers for the inlet of gas to the latter, and the several outer chambers successively with the central cham- 60 ber, for the passage of gas therethrough to the outlet port; substantially as described.

In testimony whereof I have hereunto set my hand.

OLIVER C. PUDAN.

Witnesses:

JAMES K. BAKEWELL,

W. B. CORWIN.