

(No Model.)

2 Sheets—Sheet 1.

O. C. PUDAN.
GAS METER.

No. 545,816.

Patented Sept. 3, 1895.

Fig. 1.

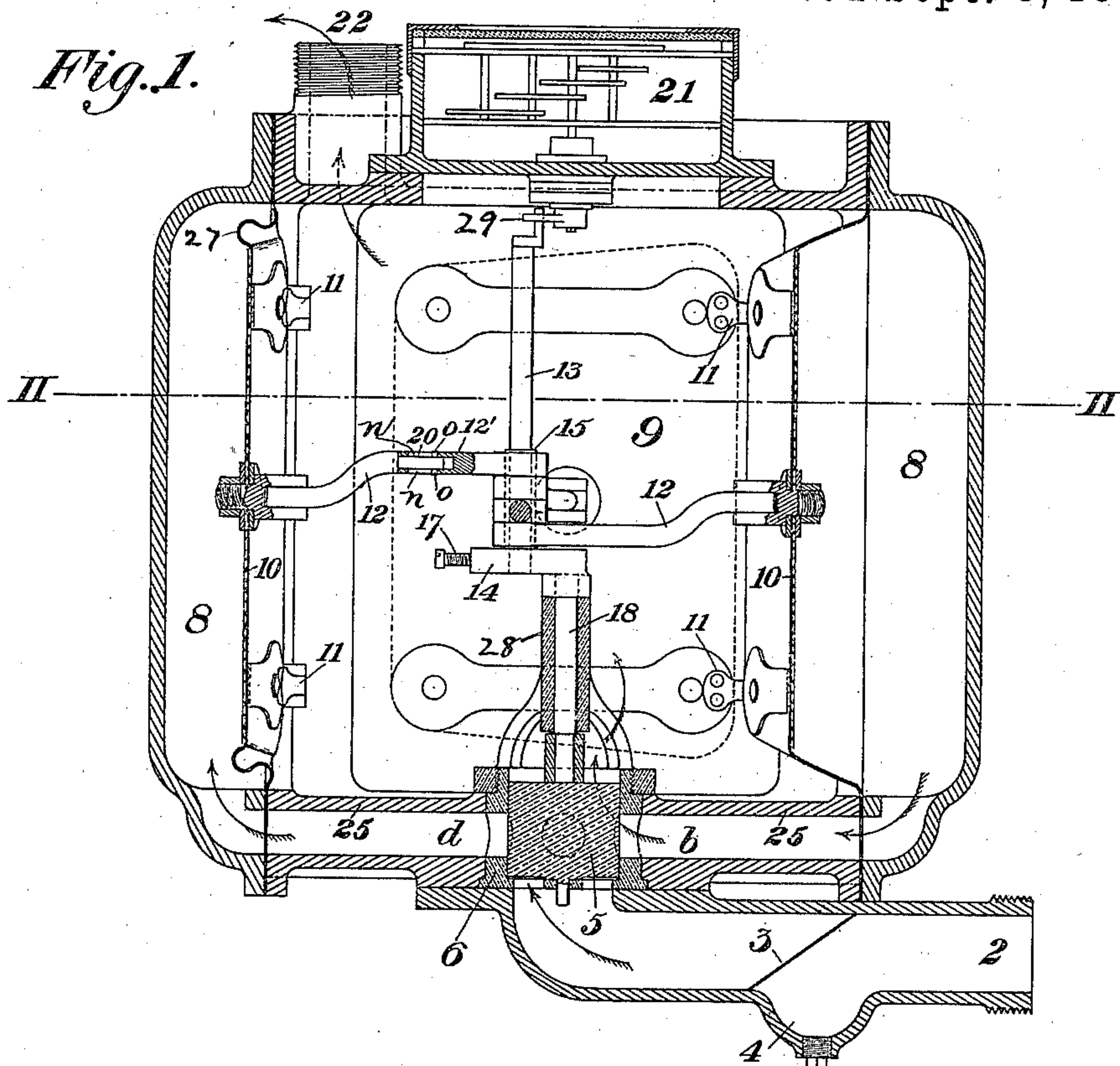
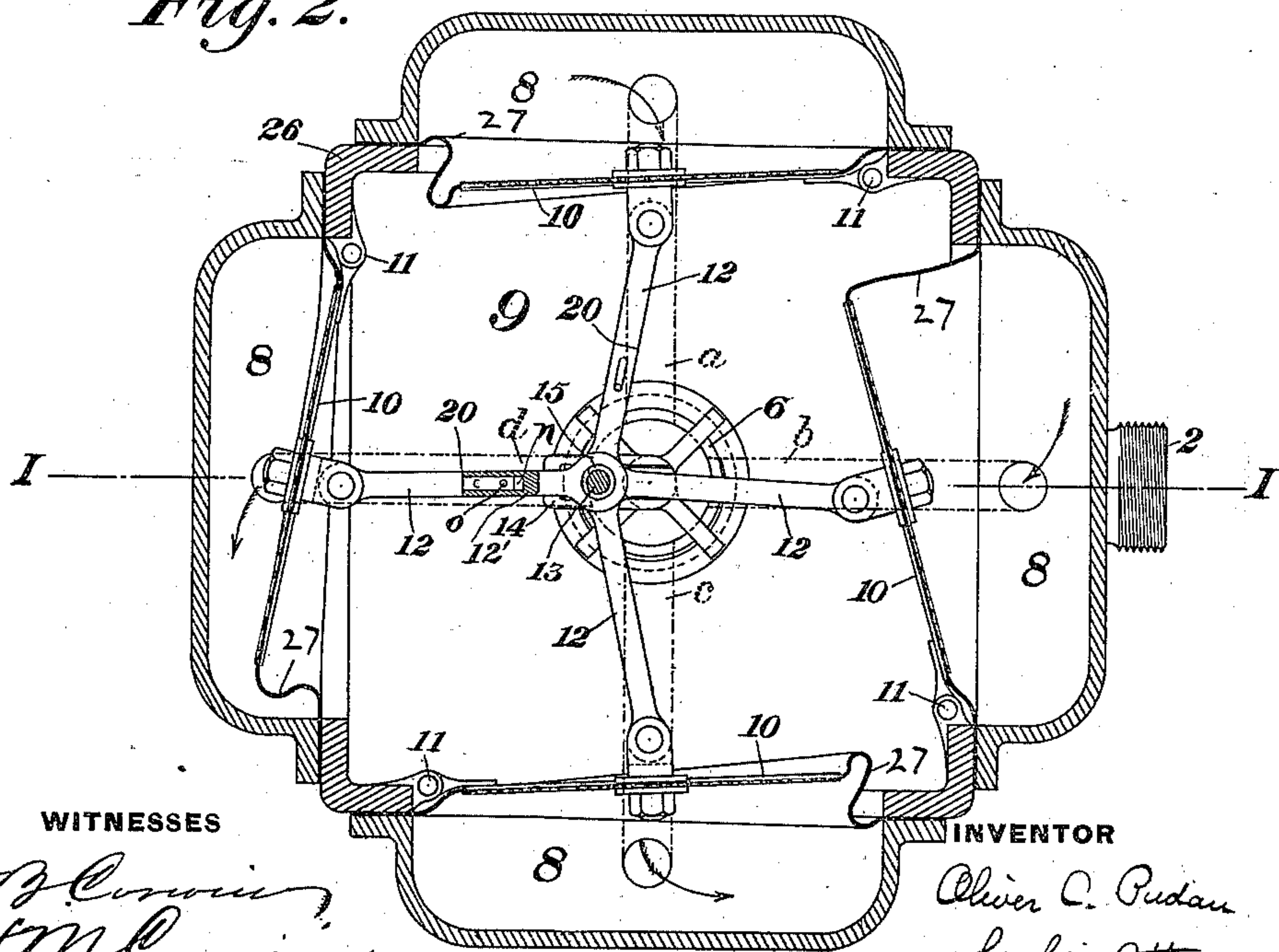


Fig. 2.



WITNESSES

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Fig. 3.

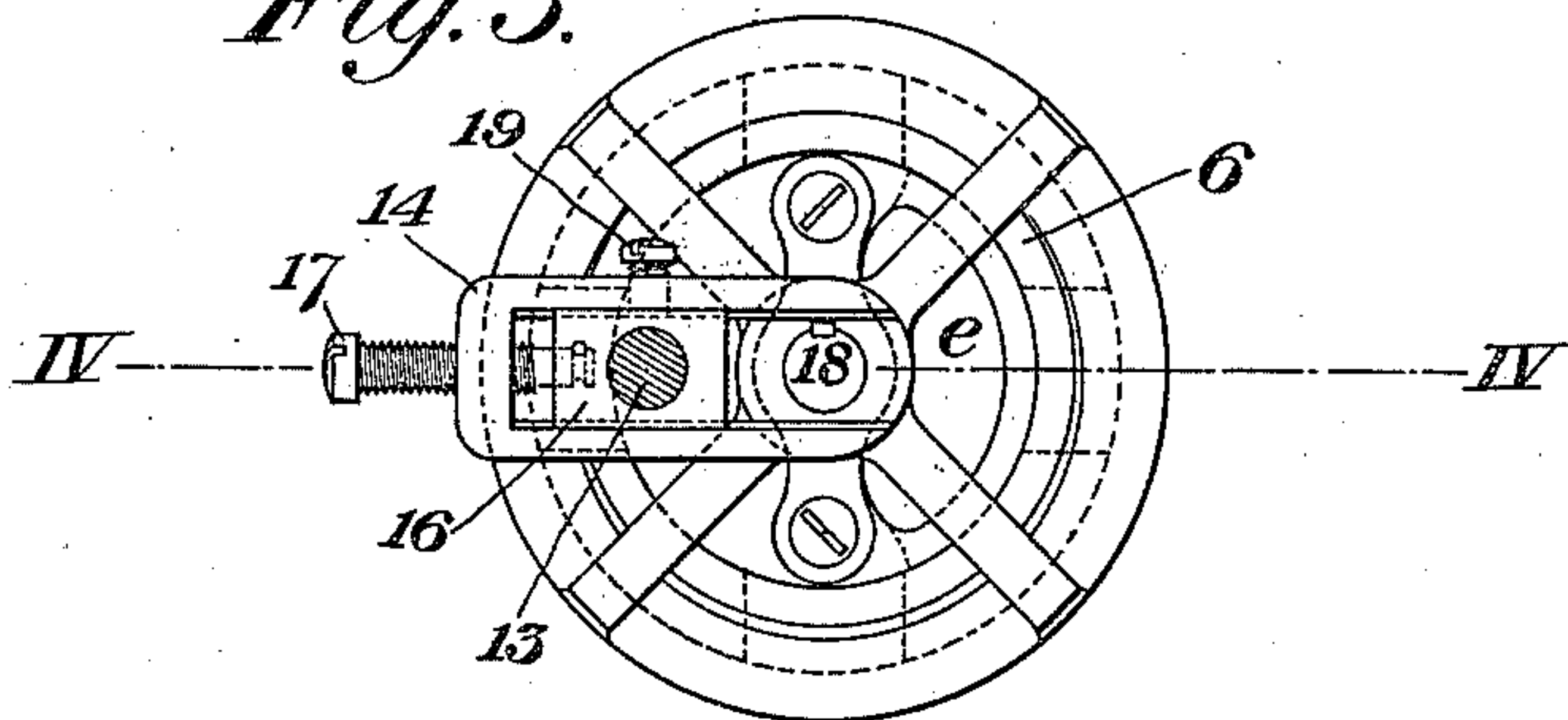


Fig. 4.

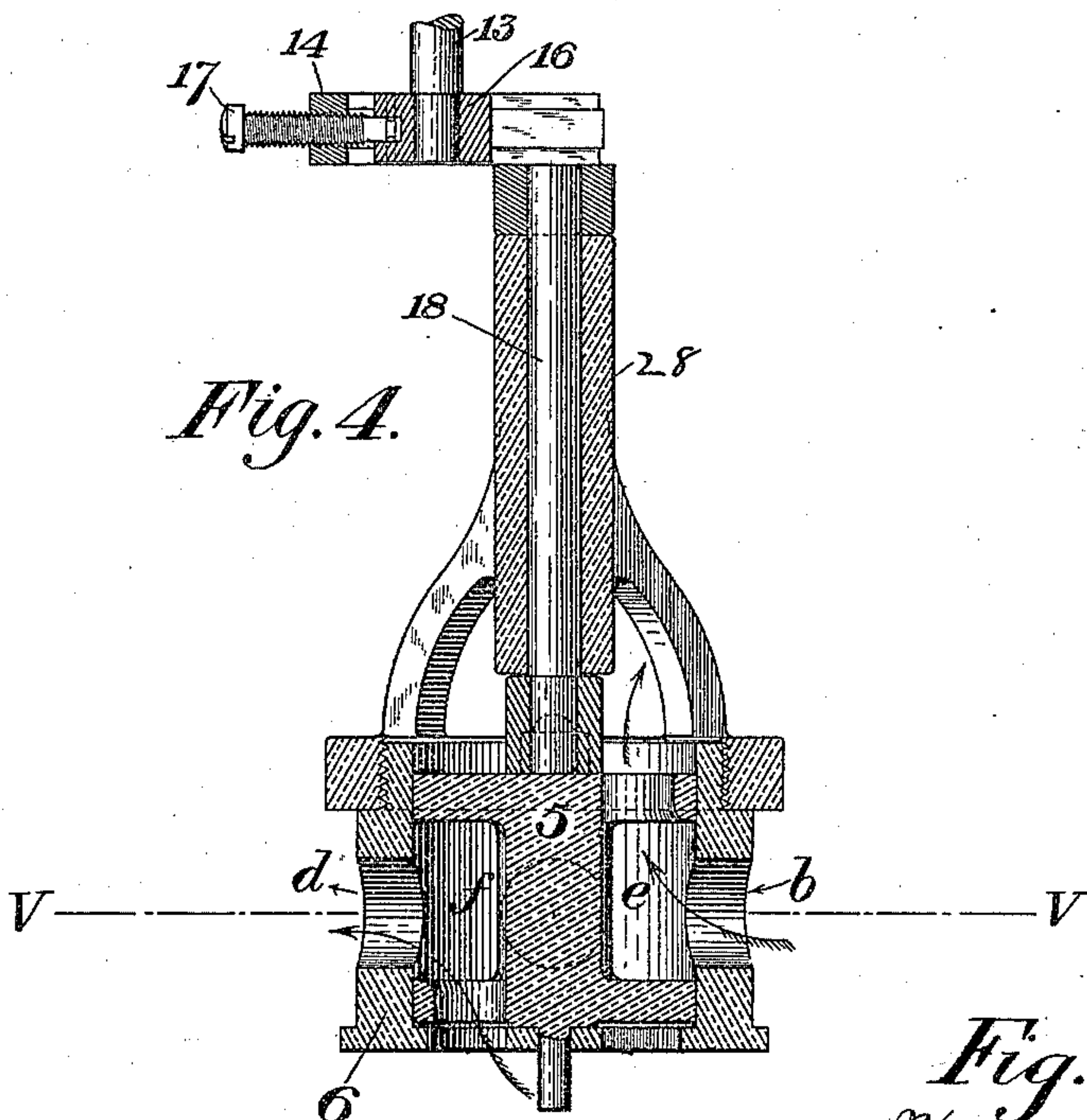


Fig. 6.

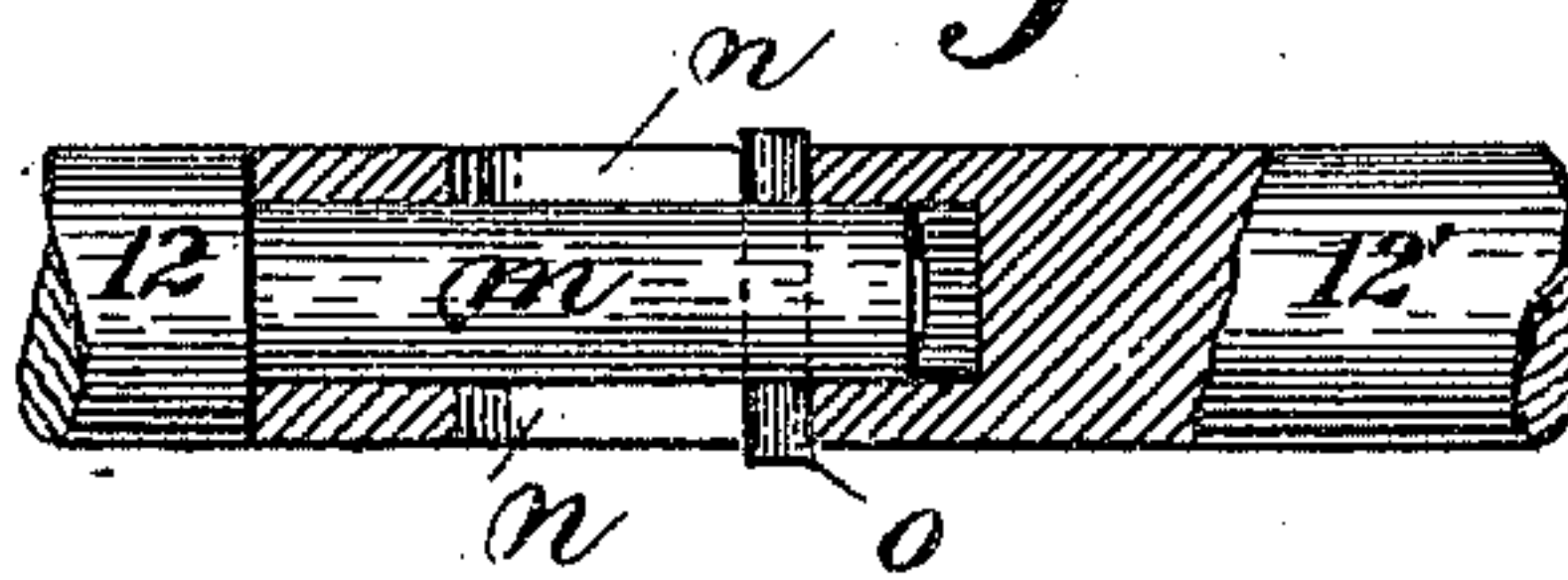
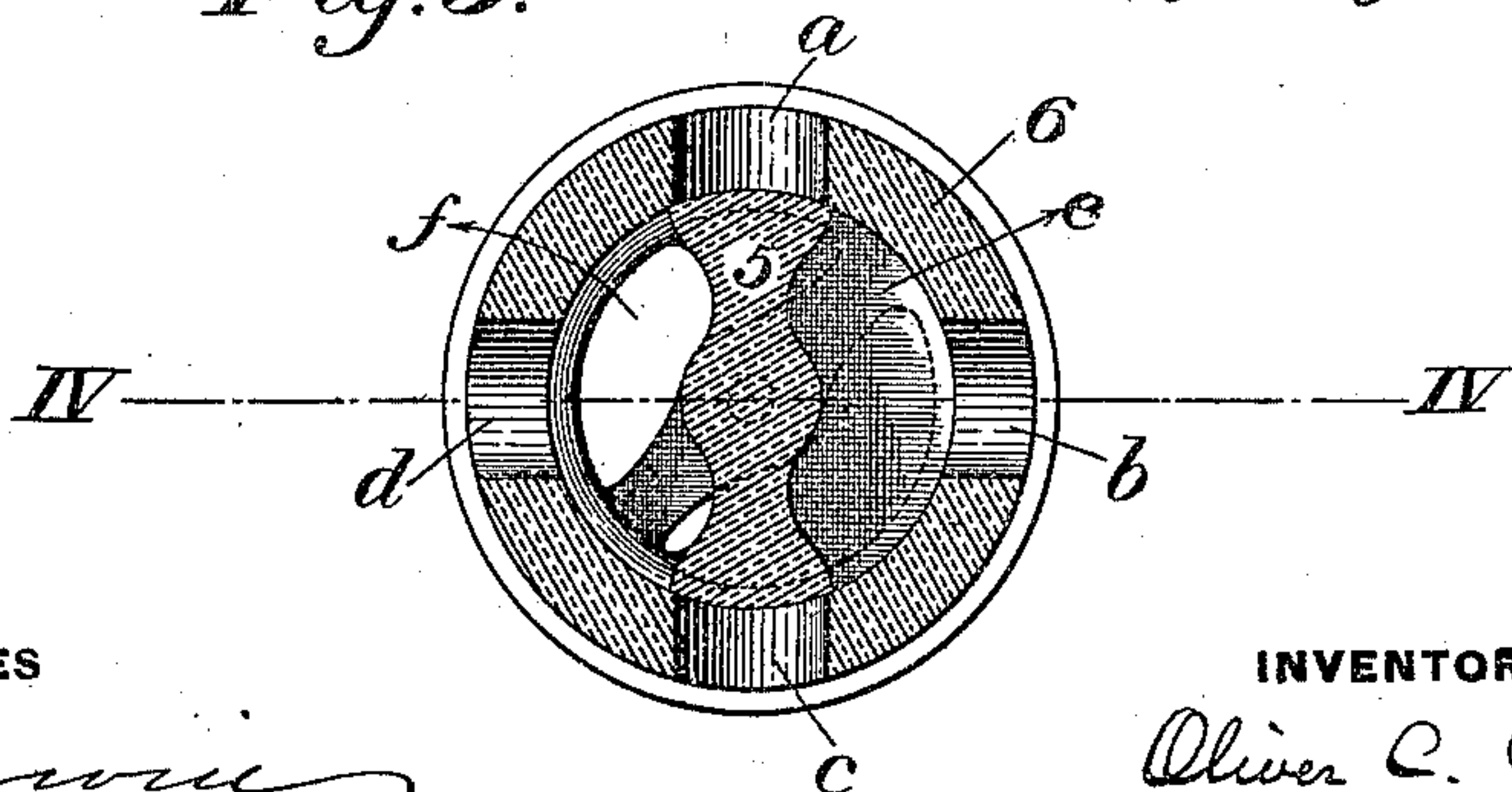


Fig. 5.



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
Pittsburg, 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 accom-
panying drawings, forming part of this speci-
fication, in which—

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 sec-
tional 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.

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 cham-
bers 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 cen-
tral valve-stem extending from a valve which
distributes the flow of gas to the several cham-
bers, 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.

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 col-
lect 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 bot-
tom 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. Extend-
ing vertically from the valve 5 into the cham-
ber 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 hori-
zontal crank-arm 14, which is in the form of
a yoke or link and is provided with an ad-
justable 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 en-
circle 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 arrange-
ment 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- 40 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, fric- 45 tion of the parts is lessened, and a greater 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.