

No. 804,465.

PATENTED NOV. 14, 1905.

E. HAAS.
GAS METER.

APPLICATION FILED JUNE 27, 1902.

2 SHEETS—SHEET 1.

Fig. 1.

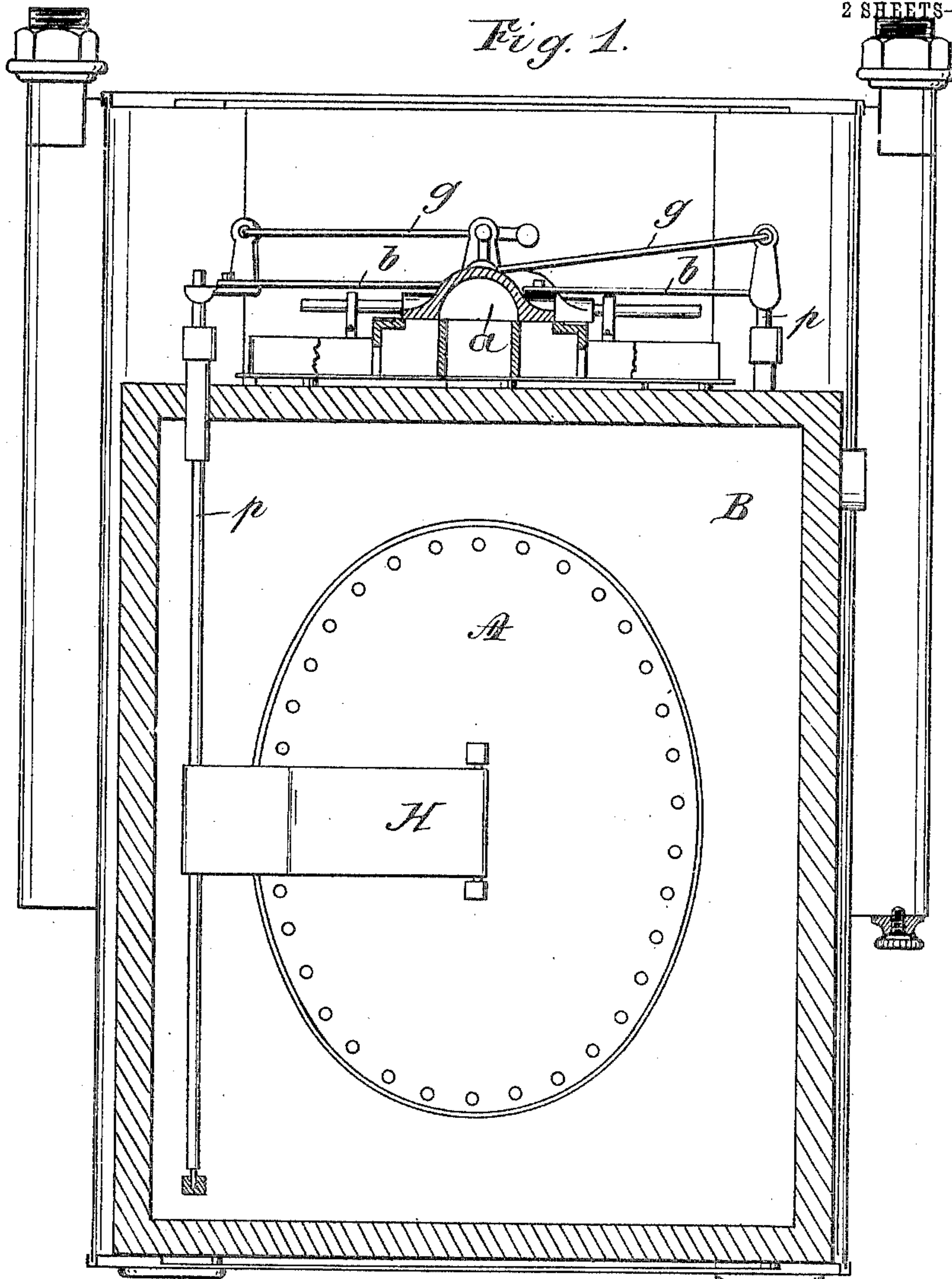
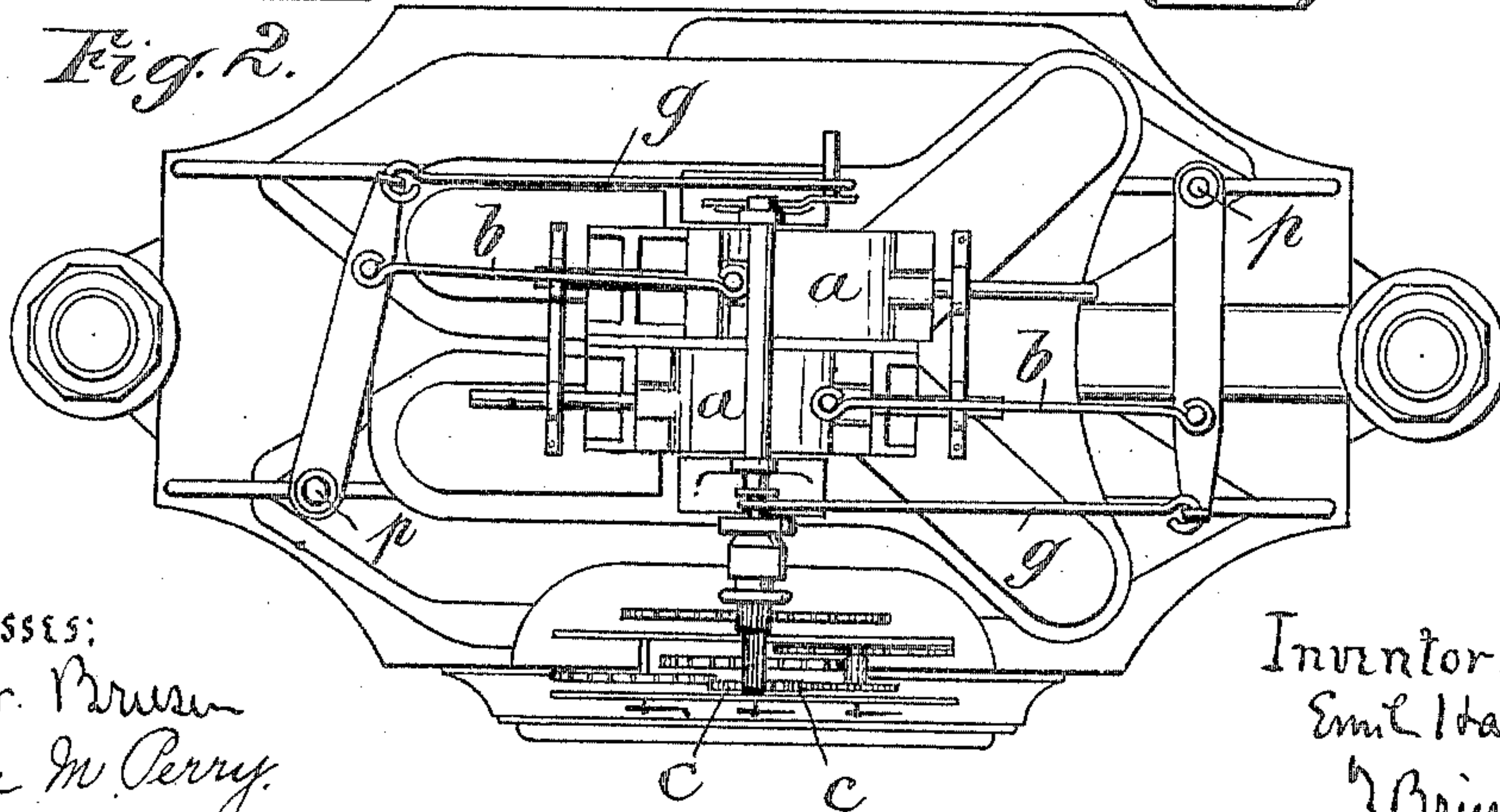


Fig. 2.



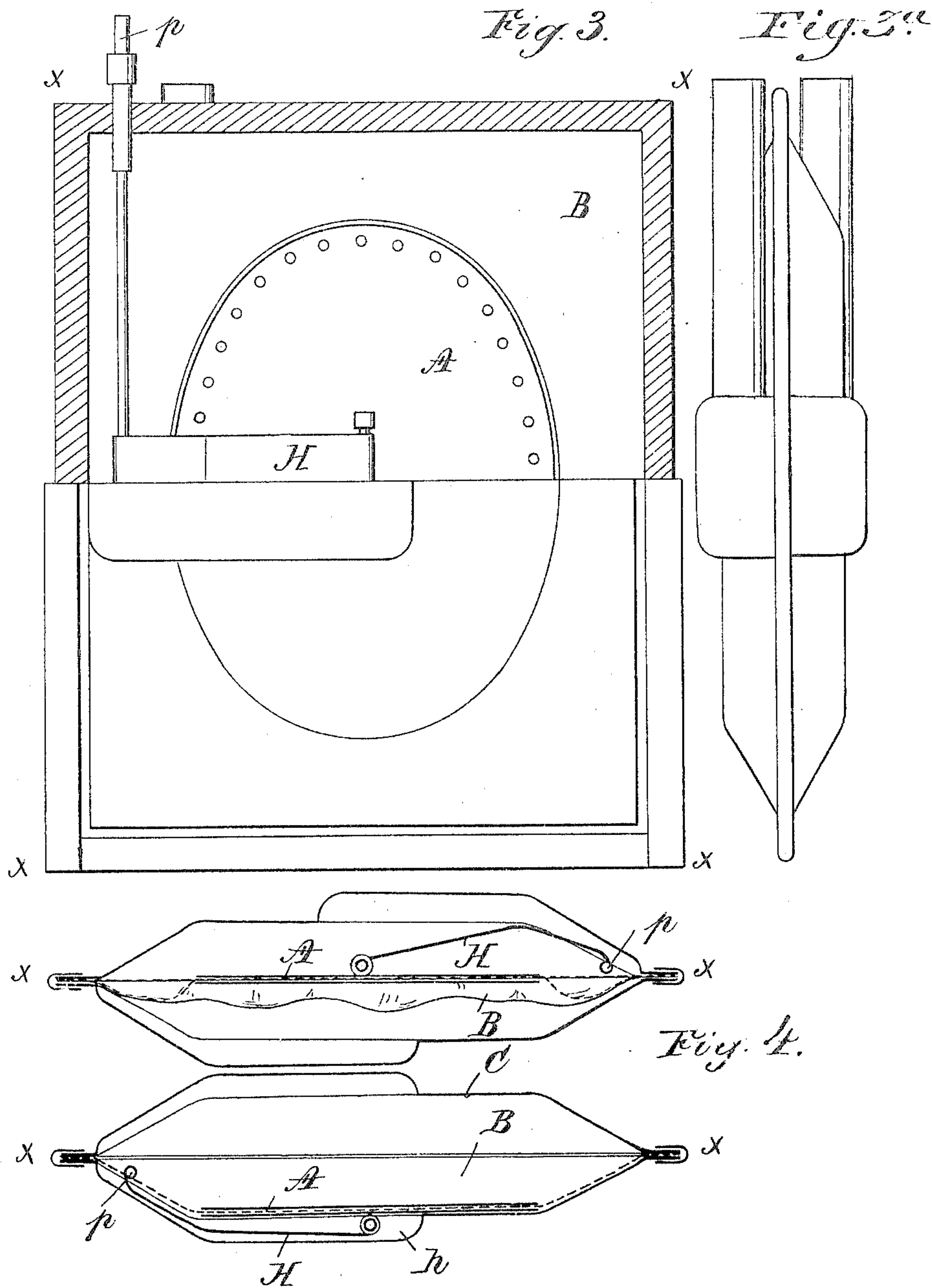
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EMIL HAAS, OF MAINZ, GERMANY.

GAS-METER.

No. 804,465.

Specification of Letters Patent.

Patented Nov. 14, 1905.

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To all whom it may concern:

Be it known that I, EMIL HAAS, manufacturer, residing at Rheinallee No. 31, Mainz, in the Grand Duchy of Hesse, Germany, have
5 invented new and useful Improvements in Gas-Meters, of which the following is a specification.

The herein-described gas-meter belongs to that class of dry gas-meters in which a disk
10 is moved to and fro parallel to itself, the edge of the disk being attached to a membrane, which in turn is fastened by its outer margin to the boundary of the measuring-chamber. This kind of gas-meter has hitherto been constructed on the principle of the bellows-pump
15 in so far that the reciprocating disk was of about the same area as the bottom plate of the apparatus to whose edge the other end of the bag-shaped membrane was fastened. In
20 practice this form involves various disadvantages. The folds formed in the membrane are very close and sharp, so that the material of the membrane suffers very much. Whether the membrane be distended or folded, the internal gas-pressure exerts a certain outwardly-expansive action, so that the internal capacity varies slightly with the pressure, and the exactitude of the measurement is consequently effected. Finally, the direction in
30 which the disk always moves is only to and from the bottom surfaces of the measuring-chamber, so that the measuring-space is comparatively restricted.

According to the present invention the gas-meter is far improved, so that with a single disk and a single membrane nearly twice the volume of gas can be measured. This is attained by making the disk considerably smaller than the bottom surface of the measuring-chamber to whose edge the outer margin of the membrane is fastened. The disk is thus enabled to move freely toward either side of the middle plane and the membrane can be readily deflected toward first one side
45 and then the other. In order, however, that this result may be attained without injury to the membrane or prejudice to the exactitude of the measurement, it is necessary that a rounded disk be used and that the wall of the measuring-chamber be so constructed that the membrane may cling as closely as possible to this wall in both of the extreme positions. The standard rectangular shape of the measuring vessel (which is for many reasons advantageous) can then be adopted for
55 the attachment of the margin of the mem-

brane. Both sides of the measuring vessel then take the form of bags separated by a central flat partition.

In the accompanying drawings, which show
60 an arrangement of the kind described and in which two measuring vessels of this kind are combined, Figure 1 is an elevation of the gas-meter, one-half thereof being removed. Fig. 2 is a plan view, the wall of the vessel being
65 removed. Fig. 3 is an elevation showing half of the disk with its membrane and half of the outer wall of the measuring vessel, including the corresponding side elevation of the membrane with disk. Fig. 3^a is an edge
70 view of one of the measuring vessels. Fig. 4 shows by a sectional view the relative positions of two measuring vessels in one gas-meter.

A is the disk, movable to and fro parallel to
75 itself and connected with the measuring-chamber through the medium of the membrane B along the edges X X X thereof. The disk A is substantially circular in the form illustrated, while the bag-shaped casing or
80 measuring-chamber C has a substantially rectangular outline. The to-and-fro movement of this disk is transmitted, by means of an arm H, to the axle *p*, which is thus caused to oscillate, its motion being transmitted by
85 a rod *b* to the slide-valve *a* and by a rod *g* to the registering device *c*, constructed in any suitable manner. It will be observed that the valve is connected with each of the disks A, and the same thing is true of the reg-
90 istering device *c*. Thus when one of the membranes or diaphragms is moved by the pressure of the gas the other will by the afore-said connections be brought back into the proper position for the next operation. The
95 operative movement of each diaphragm therefore effects the return movement of the other diaphragm.

The upper part of Fig. 4 shows the mid-position of the disk A, in which the membrane B
100 extends in gentle undulations from the edge of the disk along the edges X X X.

In the lower part of Fig. 4 the disk is shown as having reached one of the two extreme positions, wherein the lever H enters a hollow
105 space *h*, provided in the wall of the vessel.

Now what I claim, and desire to secure by Letters Patent, is the following:

1. A fluid-meter comprising a polygonal casing or chamber with walls which in cross-
110 section are straight and parallel at their central portions and curved and converging at

their edges, an annular diaphragm of polygonal outline the outer edge of which is secured to the meeting portions of said walls, a flat plate or disk the rounded periphery of which is secured to the inner edge of said diaphragm, the said disk being arranged to move against said straight parallel walls of the casing while the diaphragm is adapted to move against the converging wall portions, and indicating mechanism operatively connected with said disk.

2. A fluid-meter comprising a polygonal casing, an annular diaphragm of polygonal

outline the outer edge of which is secured to said casing; a flat plate or disk of curved outline secured to the inner edge of said diaphragm, and indicating mechanism operatively connected with said disk.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL HAAS.

Witnesses:

ROBERT BÜHL,
EVA SATTLER.