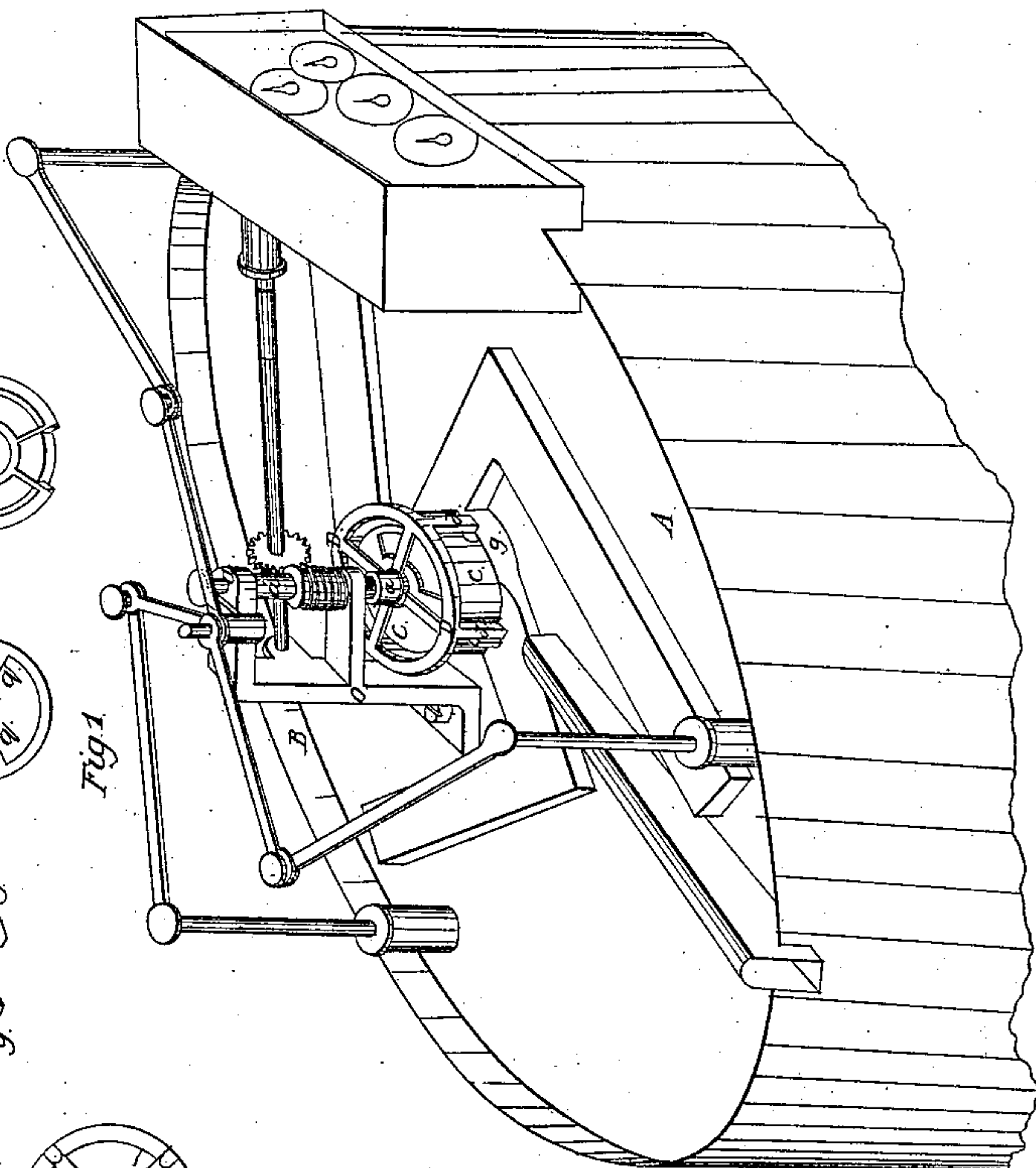
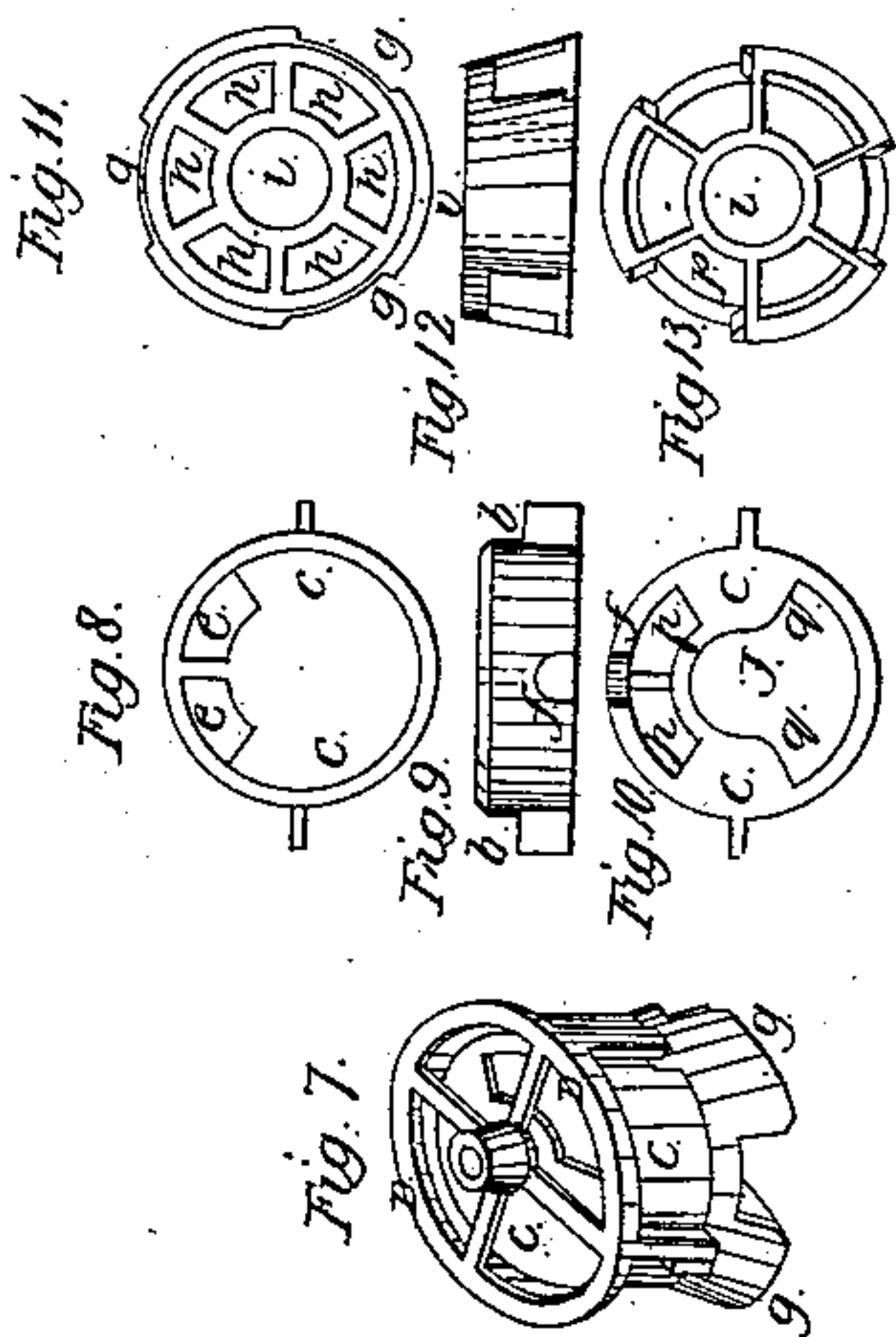
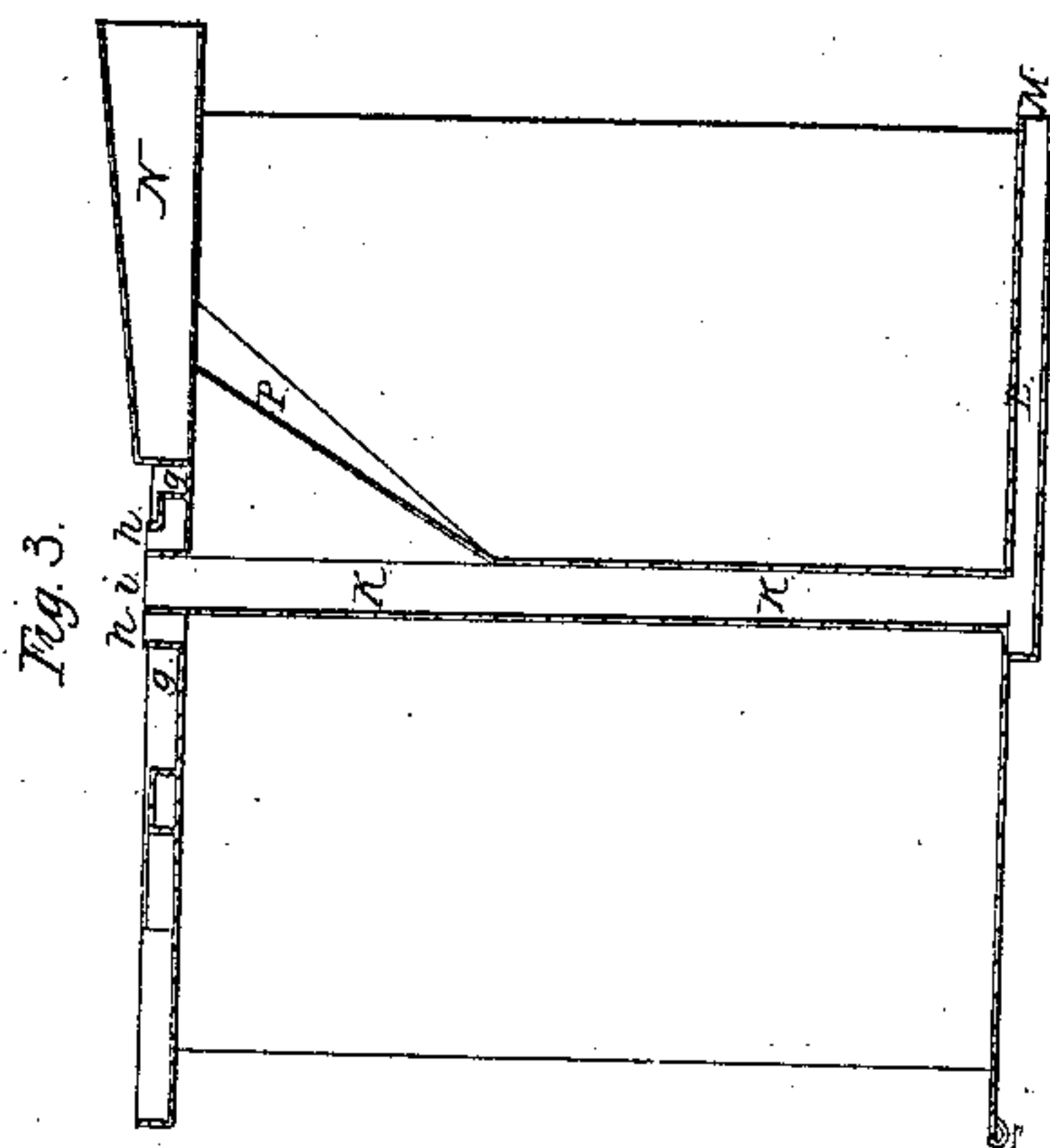
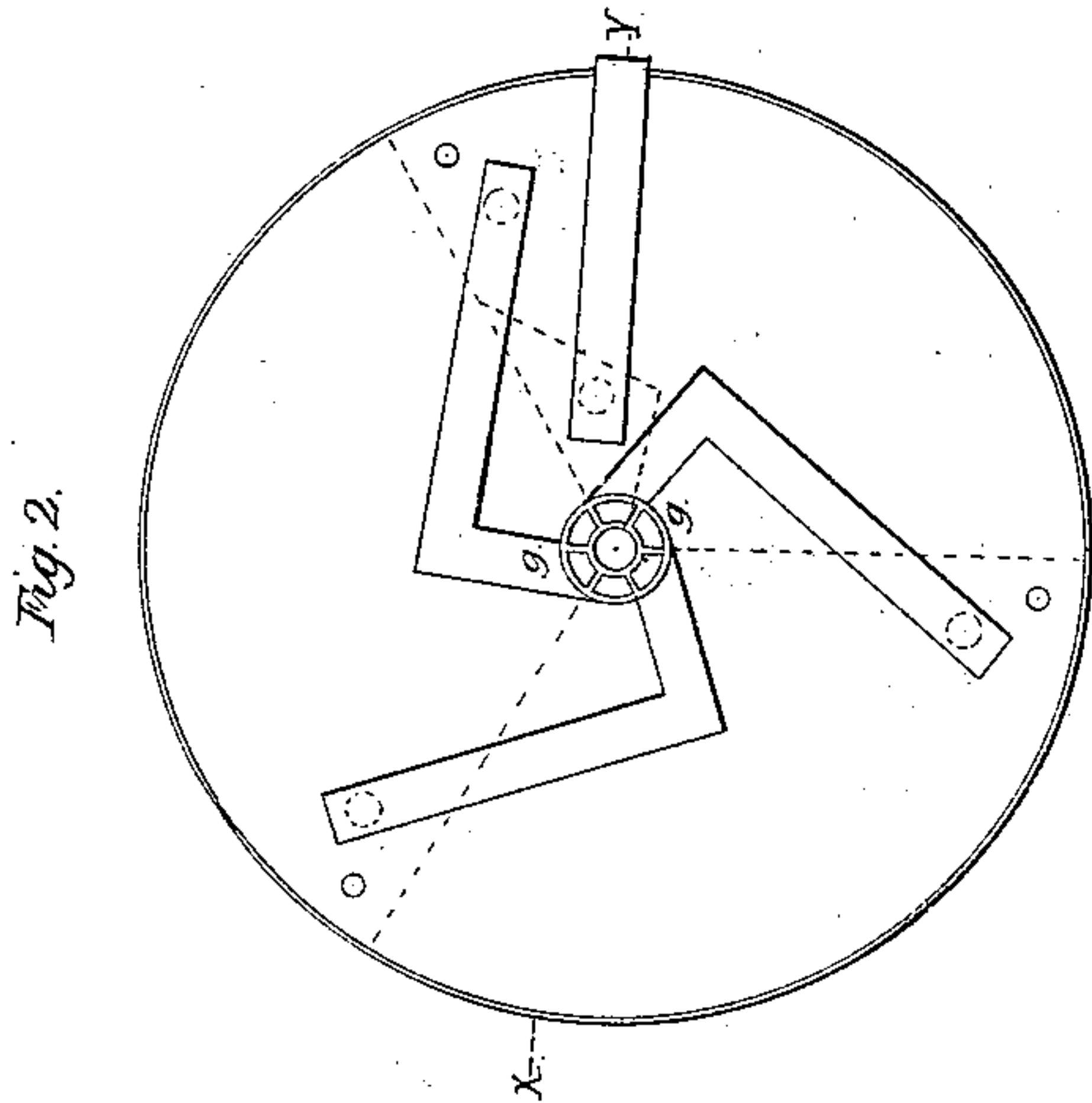


C. C. Lloyd,

Gas-Meter Valve,

No. 20,680,

Patented June 22, 1858.



Witnesses:  
J. B. Jenkins  
L. H. Walraven

Inventor:

Charles C. Lloyd



# UNITED STATES PATENT OFFICE.

CHARLES C. LLOYD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
WILLIAM HOPPER AND ROBERT H. GRATZ, OF SAME PLACE.

## IMPROVEMENT IN VALVES FOR DRY GAS-METERS.

Specification forming part of Letters Patent No. 20,680, dated June 22, 1858.

*To all whom it may concern:*

Be it known that I, CHARLES C. LLOYD, of the city of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Dry Gas-Meters; and I do hereby declare the following to be a full and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the gallery (or upper part) of the gas-meter. Fig. 2 is a view of the seat of the gallery, showing the channels and valve seat, more particularly described hereinafter. Fig. 3 is a vertical section through the meter-case on the line X Y of Fig. 2. Figs. 4, 5, 6 show the valve-carriage detached, as described hereinafter. Fig. 7 shows the carriage valve-seat and valve in their proper relative position. Figs. 8, 9, 10 are different views of the valve. Figs. 11, 12, and 13 are different views of the valve-seat.

My improvement relates to the mode of constructing and operating the valve of the dry meter, so as to cause the valve to keep the valve-seat free from deposit, and also so as to cause the rotary motion to be always imparted to it in the plane parallel to that in which it is to be rotated.

A B represent the lower surface or bottom of the gallery of the gas-meter.

CC represent a circular valve, by which the gas is caused to pass into and out of the six compartments of the meter by which it is measured. Fig. 8 shows a top view of this valve CC detached, showing the two passages *e e'* for the gas to escape alternately from one or the other cells into the gallery of the meter, whence it passes to supply the burners.

Fig. 9 is a side view of the valve CC, showing the notch or break *f*. This notch is intended to break the continuity of the lower surface of the valve CC, as shown by Fig. 10, which represents the valve CC inverted. This valve CC rests upon a seat, *g g'*, which is shown in the small top view in Fig. 2, and also detached in Fig. 11. This valve-seat is circular and corresponding in size with the lower surface of the valve *c c*, as shown at Fig. 10. The series of passages *h h h* lead to or from the interior of the cells, according to the position of the valve on its seat.

Fig. 12 is a vertical sectional view of the

valve-seat, and Fig. 13 an inverted view of the valve-seat.

When the valve *c c* is placed upon the valve-seat *g g*, as shown in its proper relative position in Fig. 1, the lower surface of the valve *c c* fits accurately to and slides upon the seat, except at the notch *f*. The edge of this notch *f* being a square corner or sharp edge scrapes or removes the resinous or other deposit which would otherwise remain and collect upon the seat, causing the valve to rise from the seat, and thereby to leak. In like manner the edges at *p p* scrape the surfaces of the radial divisions between *h h h* in the valve seat, as in Fig. 11, and the edges of *q q* aid *p p* in doing this, and also scrape and clear the surface of the valve-seat immediately surrounding the central aperture, *i*.

Connected with the central or supply passage, *i*, of the valve-seat *g g*, Fig. 3, there is a drip, *k*, which is a vertical tube extending to the bottom of the meter and discharging into a horizontal tube, L, which is closed at its extremity, M, by a screw-cap. The gas enters from the main through the inlet-pipe to N, from which it passes by the funnel P into the vertical tube K, and thence up through the central aperture, *i*, in the valve-seat and into the central part, J, of the valve, and thence it passes alternately through one or the other of the passages *h h h* into the compartments of the meter. As the gas passes into the tube K and thence into the valve, any vapors which may be condensed in the gas on its entrance to the meter will be conveyed by the vertical tube K and will collect in the passage L, and can be removed therefrom at intervals by opening the screw-cap at M. The removal of these condensed vapors prevents the accumulation of liquid in the meter, which would be liable to freeze and otherwise interfere with the accurate action of the meter.

The rotary movement is imparted to the valve by means of a circular carriage, D D, having vertical projections *d d d*, which fit against the horizontal lugs or projections *b b* of the valve. This carriage is shown in top view at Fig. 4, in vertical section at Fig. 5, and an inverted view at Fig. 6.

Fig. 7 shows a view of the valve-seat, valve, and valve-carriage in their proper positions. The valve-carriage is connected at the center

of its upper surface by a small shaft or spindle, *a a*, which revolves through small journals in the two arms of the king-post *o*. A crank is attached to the upper extremity of the shaft from which it receives its motion. The carriage being thus suspended independently of the valve, and the rotary motion being communicated only through the medium of the projection *d d* and *b b* to the circumference of the valve, it prevents the valve from tilting and causes the rotary motion always to be applied in a plane parallel to the seat.

Having thus described my improvement, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The construction of the rotary valve *C C*, with a series of breaks or edges, as at *f*; *p p*, and *q q*, arranged and operating so as to scrape the upper surface of the valve-seat.

2. The drip *k* and valve-seat *g g*, arranged and operating so as to collect and carry off any liquid deposit in the meter.

3. The valve-carriage *D D*, arranged and operating substantially as above described.

CHARLES C. LLOYD.

Witnesses:

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L. Y. WATRAVEN.