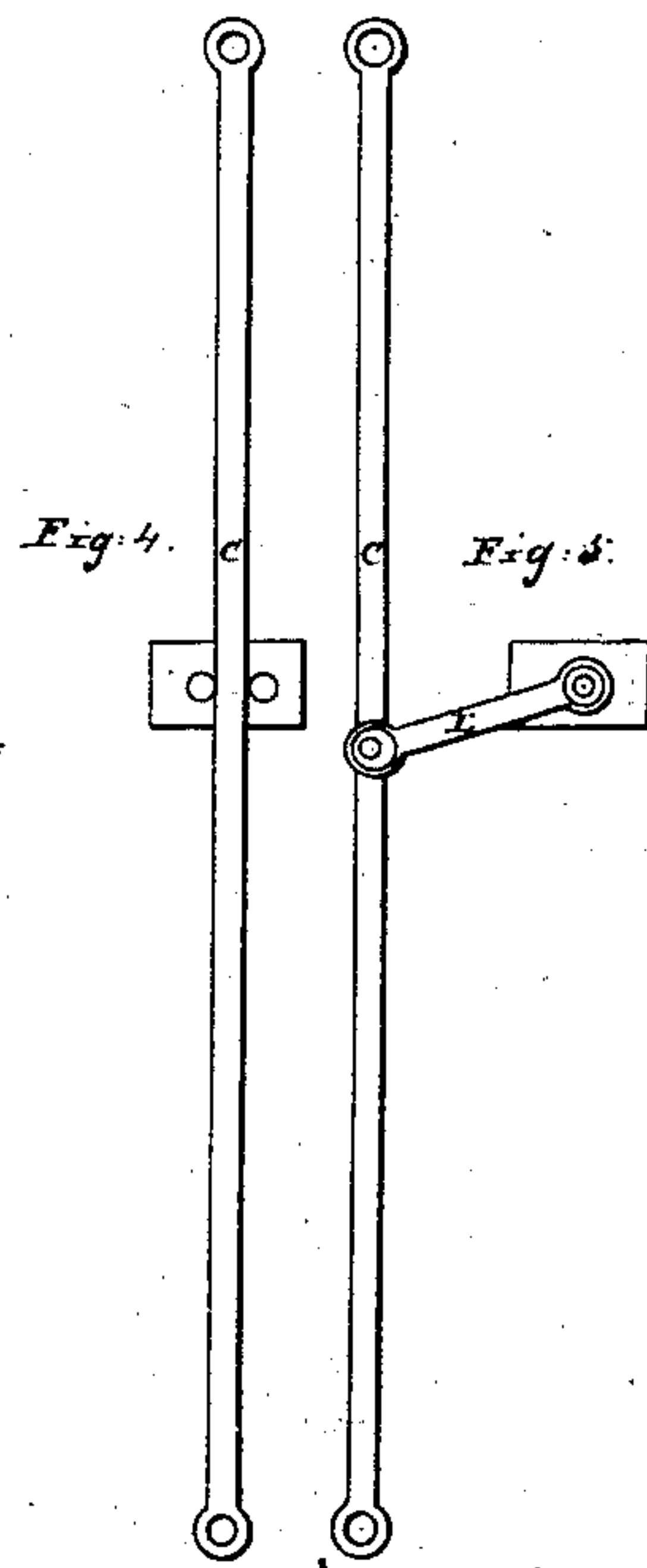
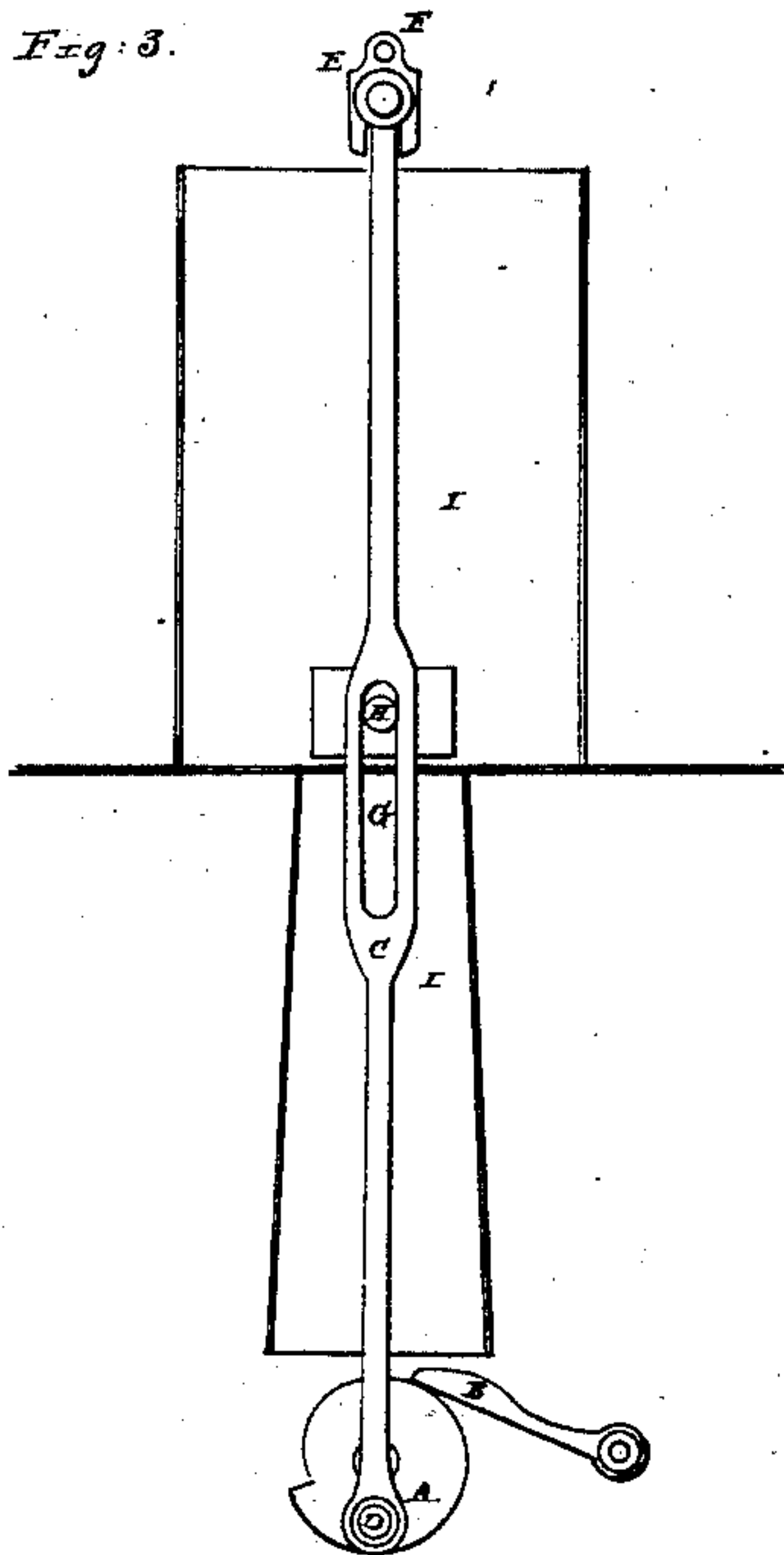
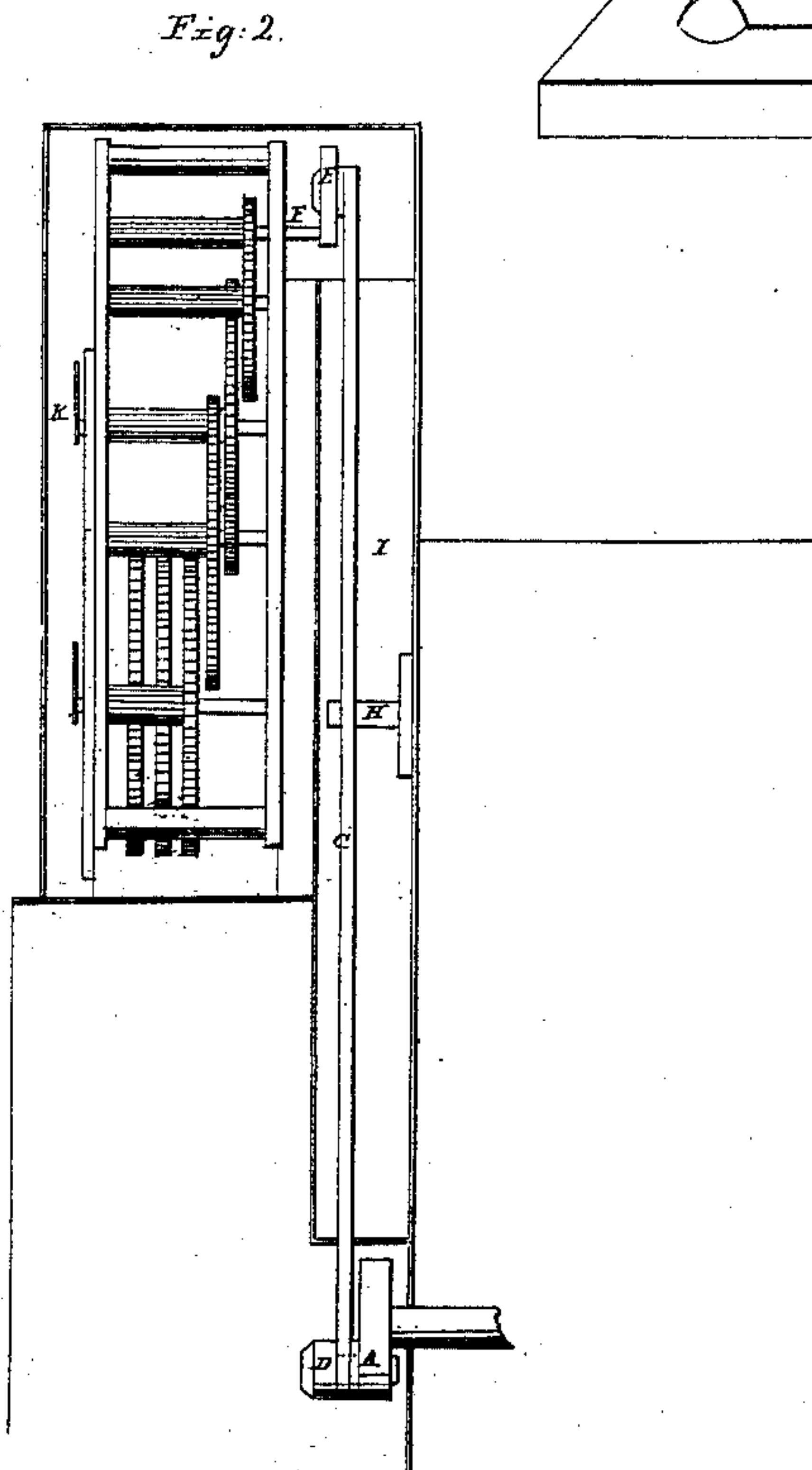
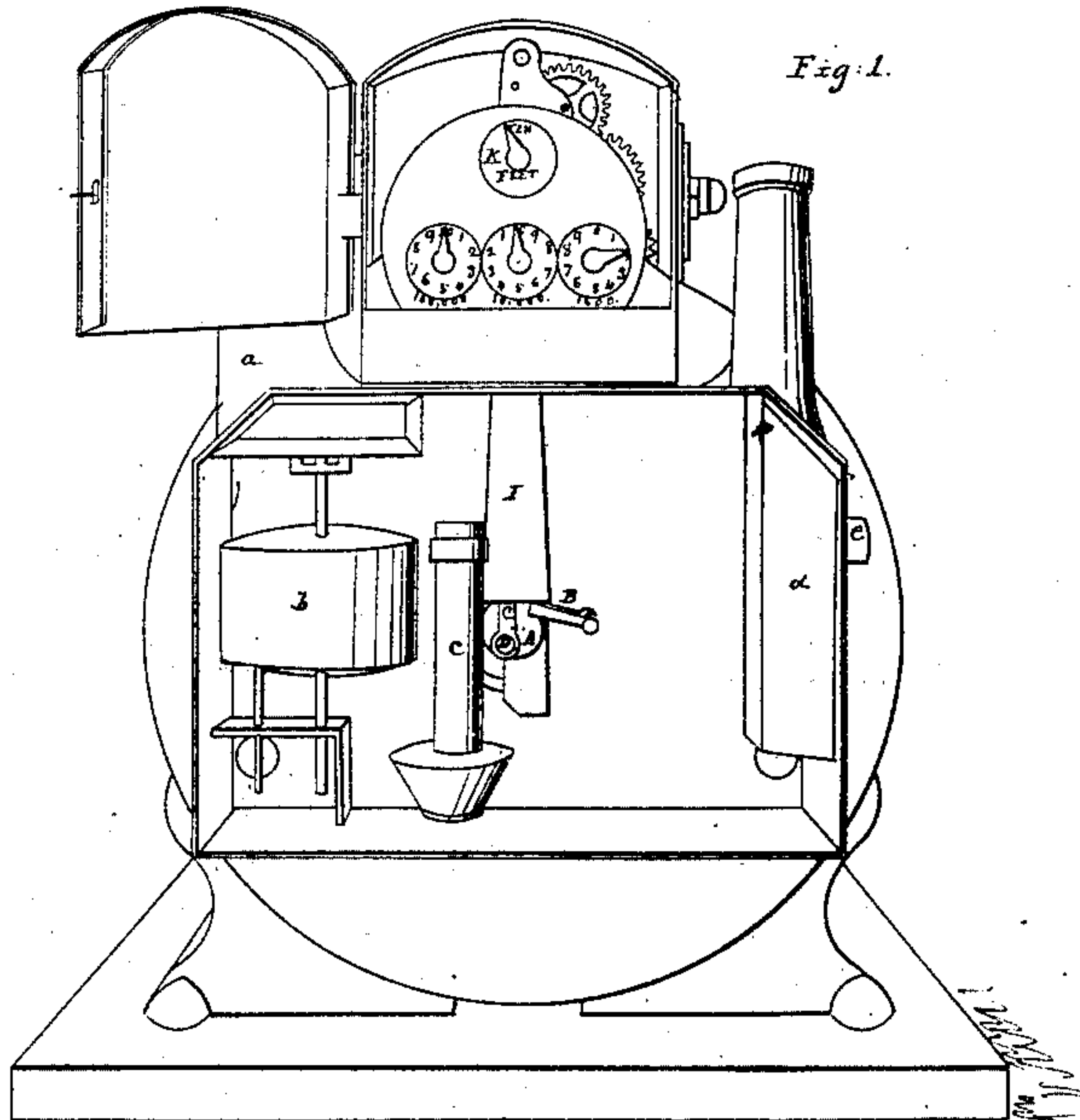


J Thatcher, Gas Meter.

N^o 11,767.

Patented Oct. 3, 1854.



Witnesses:

Benj. Morton
Geo. C. Loper

Inventor:

Joseph Thatcher

UNITED STATES PATENT OFFICE.

JOSEPH THATCHER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MOVEMENTS OF GAS-METERS.

Specification forming part of Letters Patent No. 11,767, dated October 3, 1854.

To all whom it may concern:

Be it known that I, JOSEPH THATCHER, of the city of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement on the Gas-Meter; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation 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 a gas-meter with the improvement applied; Fig. 2, a transverse section of the index-box and sealing-tube, showing the improvement applied; Fig. 3, a plan view of the improvement, being a lever, steady-pin or fulcrum, and cranks for connecting the measuring-wheel with the index; and Figs. 4 and 5 are plan views of two modifications of the lever and fulcrum. All the figures except Fig. 1 are drawn to about the full size for a "three-light" meter.

The same letters refer to like parts in the different figures.

A is a ratchet-shaped crank, of hard metal, secured firmly upon the outer end of the measuring-wheel shaft, and has a notch on it adapted for a pawl, B, to prevent the wheel being fraudulently driven the wrong way.

C is a long straight lever, (about seven inches long,) which is connected at its lower end with the crank A by means of a wrist-pin, D, fastened in the crank-block, and at its upper end with a small slotted or forked crank, E, which is fastened on the end of the first pinion-shaft F of the index gearing, the lever C and crank E being connected by means of a wrist-pin working in the slot of the crank.

About the middle of the lever C a slot or long opening with parallel sides G is made a little longer than twice the length of one of the cranks, and in width adapted to slide easily on the fulcrum-pin H, which is about an eighth of an inch in diameter. This pin projects through the lever-slot, and is fastened in a block of metal, which is soldered onto the tin plate on the inside of the sealed tube I and controls the direction of the revolution of the upper crank. The sealed tube I extends from near the upper edge of the crank A upward to a point a little below the lowest position of the upper crank, E, and is made wide enough to allow the lever C to vibrate, as the cranks revolve, without touching on either side. In

the drawings the upper part of the sealed tube is made wider than necessary, and in the model the tube at the upper part is left off, as also the back of the index-box, in order to expose the improvement to view.

The usual mode of giving motion to or operating the index-gearing of gas-meters is by means of a worm or spiral on the end of the measuring-wheel shaft, which works in and drives a spur-wheel with a vertical shaft extending upward within the sealed tube and having on its upper end a worm or spiral which gears into and drives the first wheel of the index-gearing; but as the lower spiral and spur wheels are always in water they require to be made of very hard and imperishable materials, and with great accuracy and delicacy of construction; consequently any improvement or invention whereby these difficulties are obviated is of useful importance. This principal object is attained by my invention, as the improved parts can easily and readily be made of harder and more durable materials. There are also other advantages derived from it, as having less friction, being of more simple construction, and less liable to be clogged by deposits from the gas, and also affording a higher sealing-tube and preventing an overflow from excessive pressure without the necessity of raising the height of the index-box.

The supply-pipe *a*, float *b*, dry well *c*, the outlet-pipe, the water-line seal-pipe *d*, and tube *e*, and the general arrangement of the receiving-chamber and measuring-wheel are all constructed in the usual manner; but the index movements in my meters have been somewhat modified in order to reduce speed, inasmuch as the first pinion-shaft from my improvement has the same speed as the measuring-wheel shaft; but this modification and increase of gearing is more than counterbalanced in the cost by the saving of time and labor in the construction of the more simple connecting lever and cranks. There is another advantage also derived from this modification of the gearing, in the fact that it affords an index, K, showing distinctly to an observer every foot of gas passing through the meter.

The mode of operation of my improved meter is very simple. The lever C, connecting the measuring-wheel with the first pinion-shaft F of the index-gearing by means of the two cranks A and E, slides up and down (dur-

ing the revolutions of the measuring-wheel) on the fulcrum or steady pin H, causing a revolution of the first pinion-shaft for every revolution of the measuring-wheel, and this pinion-shaft, connecting with the other gearing, gives motion to the several index-hands on the dial.

In Fig. 4 the lever C is made to slide between two steady-pins or fulera, instead of the center pin and slot.

In Fig. 5 the lever is controlled in the middle by means of a horizontal tie-rod, L, having one end turning upon a fixed point; but these two modifications, though capable of answering the purpose, are not considered so perfect or appropriate as the one before described.

The upper crank, E, is made with a fork or slot, within which the connecting pin on the lever C works, as before described. The object of this is to compensate for any little inaccuracy of construction in the lever or length of the cranks, and also to compensate for any

inaccuracies which may arise from the wear of the lower wrist-pin or that of the measuring-wheel shaft or any other parts in connection immediately with the lever C.

Having thus fully described the construction and mode of operation of my improved gas-meter, I proceed to state that I do not claim the modification of the index-gearing, nor the extension of the sealed tube, nor the foot index; but

What I claim as my invention, and desire to secure by Letters Patent, is—

Operating the index of gas-meters by means of the lever C, adapted to move or slide against a controlling pin or fulcrum, or its equivalent, the measuring-wheel and index movements being connected with the lever by means of the cranks or their equivalents, substantially as herein described and illustrated.

JOSEPH THATCHER.

Witnesses:

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