

(No Model.)

2 Sheets—Sheet 1.

J. B. WEST.
Water Meter.

No. 238,011.

Patented Feb. 22, 1881.

Fig. 1.

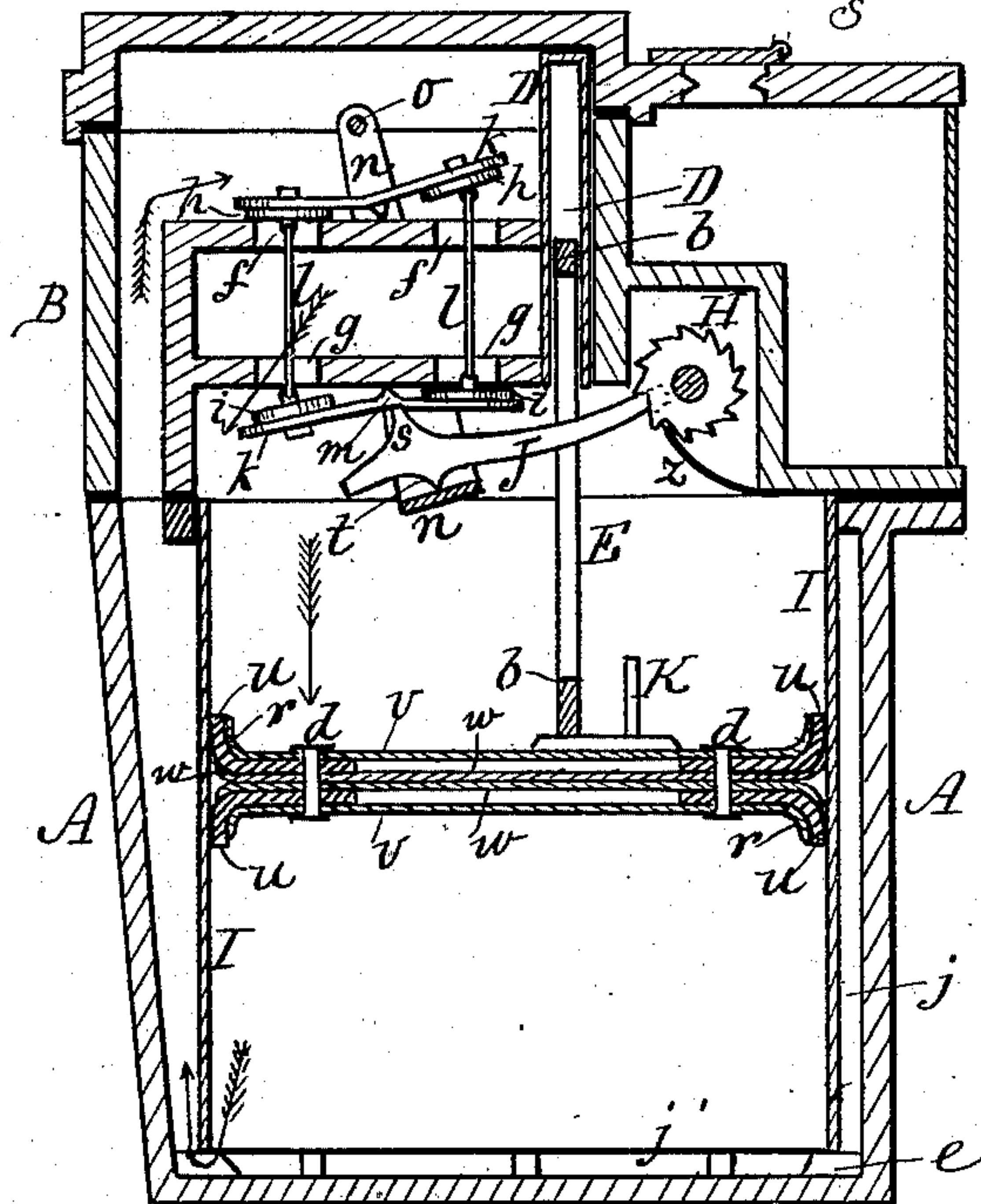
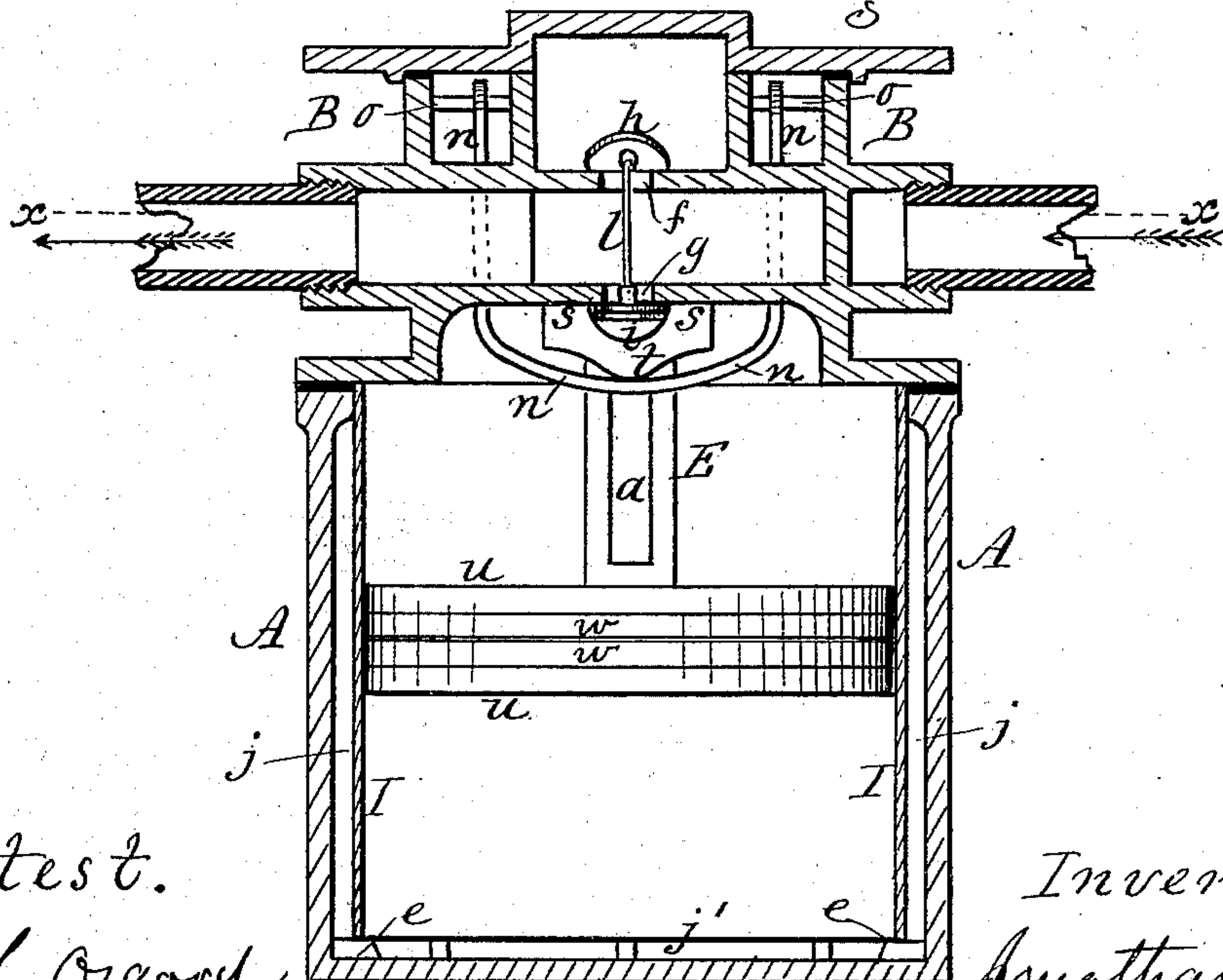


Fig. 2.



Attest.

R. F. Osgood
J. C. Trux

Inventor.

Jonathan B West

(No Model.)

2 Sheets—Sheet 2.

J. B. WEST.
Water Meter.

No. 238,011.

Patented Feb. 22, 1881.

Fig. 3.

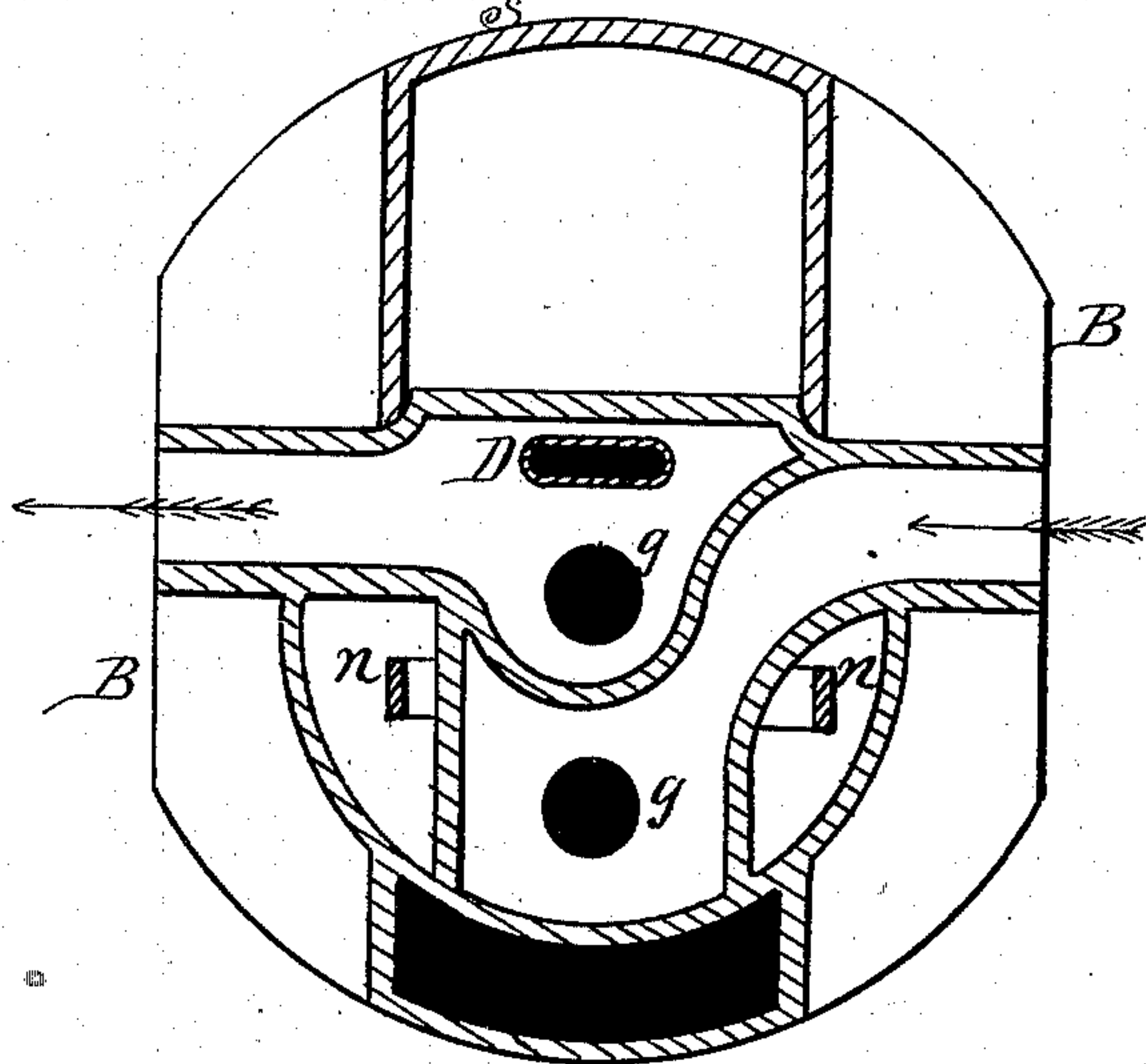


Fig. 4.

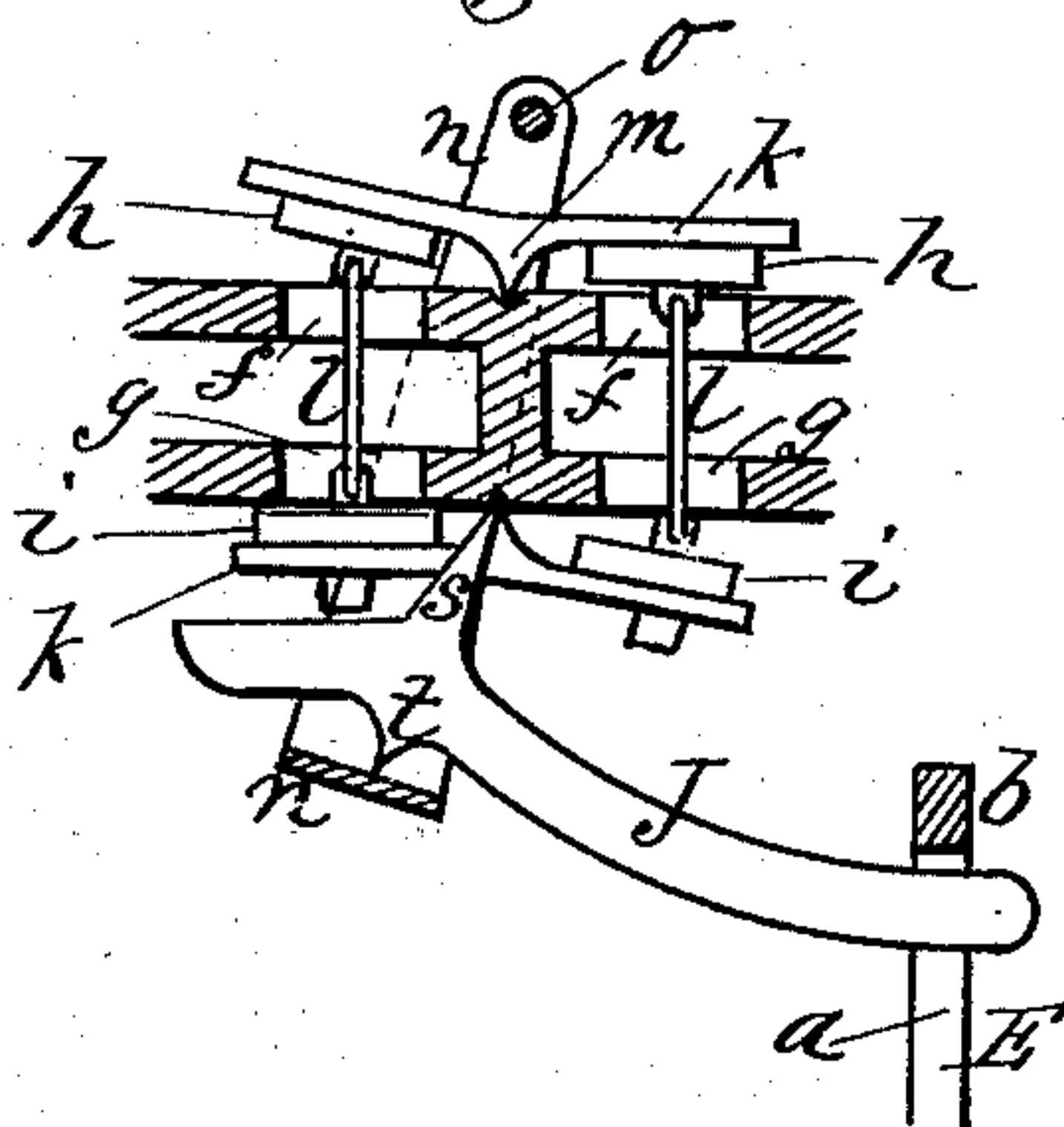
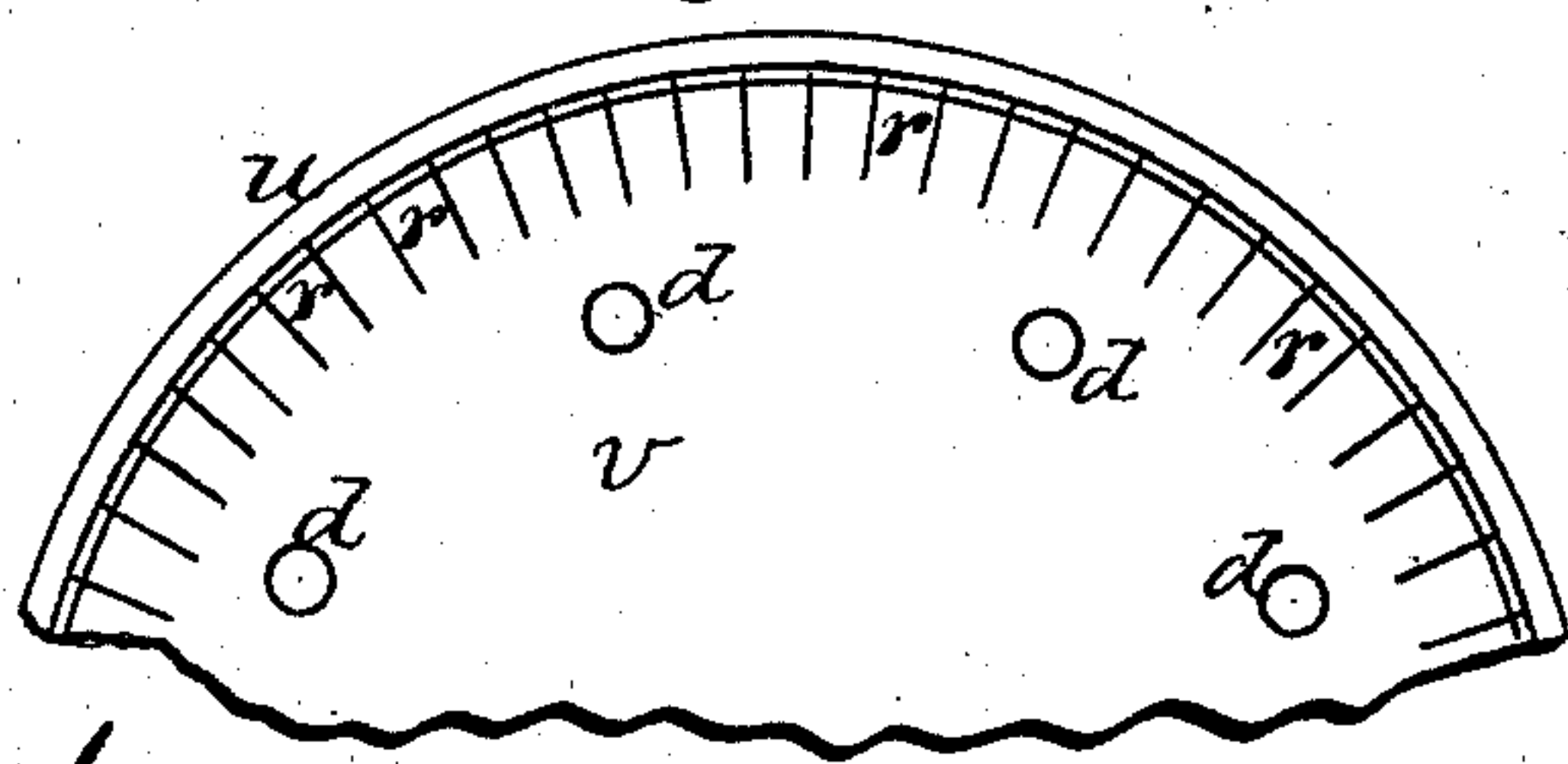


Fig. 5.



Attest.

R. L. Osgood
J. H. Trux

Inventor:

Jonathan B West

UNITED STATES PATENT OFFICE.

JONATHAN B. WEST, OF GENESEO, NEW YORK.

WATER-METER.

SPECIFICATION forming part of Letters Patent No. 238,011, dated February 22, 1881.

Application filed March 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN B. WEST, a citizen of the United States, residing at Geneseo, Livingston county, New York, have invented a certain new and useful Improvement in Water-Meters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of the meter. Fig. 2 is a similar view at right angles to Fig. 1. Fig. 3 is a cross-section in line *xx* of Fig. 2. Fig. 4 is a detail sectional view, showing the valves, the spring and lever for operating the same, and the upper end of the piston-rod for operating the lever. Fig. 5 is a horizontal section of the piston.

My improvement relates to piston-meters, and is similar in general construction to that patented by Barton and West, November 4, 1879. The object is to dispense with the chain which connects the piston with the operating-lever in that case and substitute a more effective arrangement; also, to provide a simple and effective means for operating the registering apparatus.

In the drawings, A represents the cylinder of the case, and B the upper part of the case which contains the valves and connecting mechanism.

I is the brass barrel set into the cylinder, and C is the piston, which runs up and down therein. An annular space, *j*, is left all around the barrel for the passage of the water, and a space, *j'*, is also left beneath the barrel for the same purpose, the barrel resting upon lugs *ee* of the case. *hh* and *ii* are the valves which cover the ports *ff* and *gg*, and alternately open and close to change the currents of water. The upper and lower valves are respectively attached to angular spring-plates *kk*, having fulcrum-points *mm*, which bear on the butments of the water-chamber, and the valves are connected by links *ll*, which extend vertically through the ports. The opposite valves of the upper and lower sets open and close together as the valves are thrown. *n* is a spring, in the form of a bow or loop, attached at its upper ends to fulcrum-pins *oo*, so as to swing freely, the closed portion of the bow extending down under the lower valves.

J is a rock-lever, which rests inside the bow, having a fulcrum-point, *s*, on the inside, which bears up against the butment of the water-chamber, and another one, *t*, on the outside, which bears upon the spring. As the lever is thrown in one direction or the other the valves will be correspondingly shifted by the striking of the lever against the under side of the valves. The water follows the course indicated by the arrows. Entering the water-chamber from the induction-pipe it passes down through the port *g* (shown at the left in Fig. 1) and forces the piston downward. The water beneath the piston passes up the space *j*, thence over the top of the water-chamber, and down through the port *f*, (shown at the right in Fig. 1,) whence it escapes through the education-tube. The water-chamber is divided by a partition, which separates the two currents of water. When the valves are shifted the reverse motion through the ports is produced. Thus far the construction is the same as in the patent of Barton and West, before referred to.

My improvement is as follows:

D is a small flat tube, located in the upper part of the case, having its bottom open and its top closed water-tight.

E is a stiff flat rod, attached rigidly to the piston and moving up and down with it. This rod has a longitudinal slot, *a*, through which passes the outer end of the lever J. The upper and lower ends of the rod form stops *bb*, which strike and tilt the lever as the rod runs up and down. The upper end of the rod rests and slides in the open-ended tube D, which thus forms a way and guide to the rod.

By the means above-described the use of a chain connecting the lever with the piston is avoided, which prevents the difficulty arising from the kinking and twisting of the chain, and by this means, also, there is but very little lost motion of the piston, and the machine can be considerably shortened, which takes less space and reduces the cost. One great advantage is that a regular and uniform action is produced, and there is very little liability of the piston to fail to give motion to the shifting mechanism. The top of the tube D being closed, no water can escape. By this means, also, the piston can be made of less thickness, as it is not of itself self-guiding, but is held in

true position by the stiff rod attached thereto resting in the tube. Where a chain is employed the piston has to be made of such thickness as to sustain and guide itself, as it has no
5 guide above.

His a ratchet-wheel secured in the case above the piston, and having a shaft which extends through the case into a side chamber and connects with the registering apparatus. (Not
10 shown.) K is an arm attached fast to the top of the piston and arranged in line with the teeth of the ratchet-wheel. The ratchet-wheel is prevented from turning back by a detent, z. At the end of every upstroke of the piston the arm
15 K strikes the teeth of the ratchet-wheel and moves said ratchet-wheel forward one notch. The shaft of the ratchet-wheel may pass through a stuffing-box to prevent escape of the water.

The piston is composed of two reverse leather
20 cups, *u u*, having two exterior metallic covering plates or disks, *v v*, and two interior plates, *w w*, the whole secured together by rivets or screws *d d*. The exterior plates, *v v*, are turned up at the edges, so as to press and hold against
25 the upturned flanges of the leathers, and from this edge they are slitted back radially some distance, thereby forming separate lips or strips *r r*, Fig. 5. These lips constitute a series of springs all around the circle of the flange of
30 the leather cup, and constantly press the same outward tight against the cylinder, thereby keeping a close contact, compensating for wear, and preventing any loss of water. The inner plates, *w w*, are also turned outward at their

edges, so as to bear on the lower part of the
35 upturned leather flange, so that the latter is embraced by the metal plates on the two opposite sides, which stiffens the leather and prevents it from reversing, which it might do if unprotected.
40

Having thus described my invention, I do not claim an arm attached to the piston and operating the ratchet-wheel by means of a pawl at the end of the arm; but

What I claim as new, and desire to secure
45 by Letters Patent, is—

1. In a water-meter, the combination, with the valves *h h i i*, of the rock-lever J for shifting the valves, the rod E, attached rigidly to the piston and provided with a slot through
50 which the rock-lever passes, and a tube, D, in the top of the case, in which the rod rests and slides, the whole arranged to operate in the manner and for the purpose specified.

2. In a water-meter, the stiff projecting arm
55 K, attached to the piston and moving directly up and down with it, in combination with the ratchet-wheel H, arranged in line above the arm so that the arm will act upon it in the upstroke without the use of a pawl or other con-
60 necting parts, as herein shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JONATHAN B. WEST.

Witnesses:

R. F. OSGOOD,
JACOB SPAHN.