

2 Sheets—Sheet 1.

J. FARLEY, Administrator.

Patented Jan. 10, 1888.

FIG. 2.

No. 376,311.

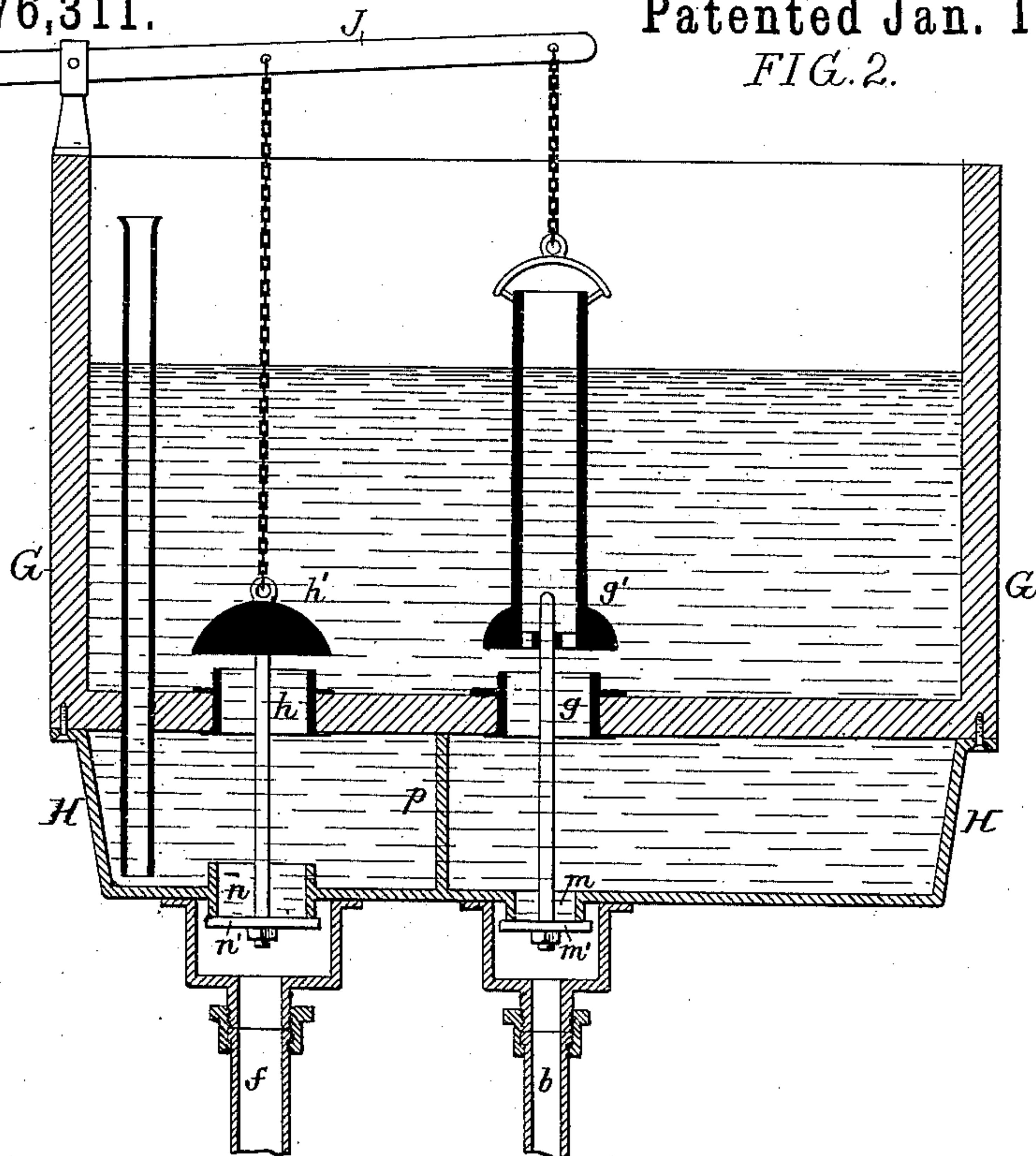
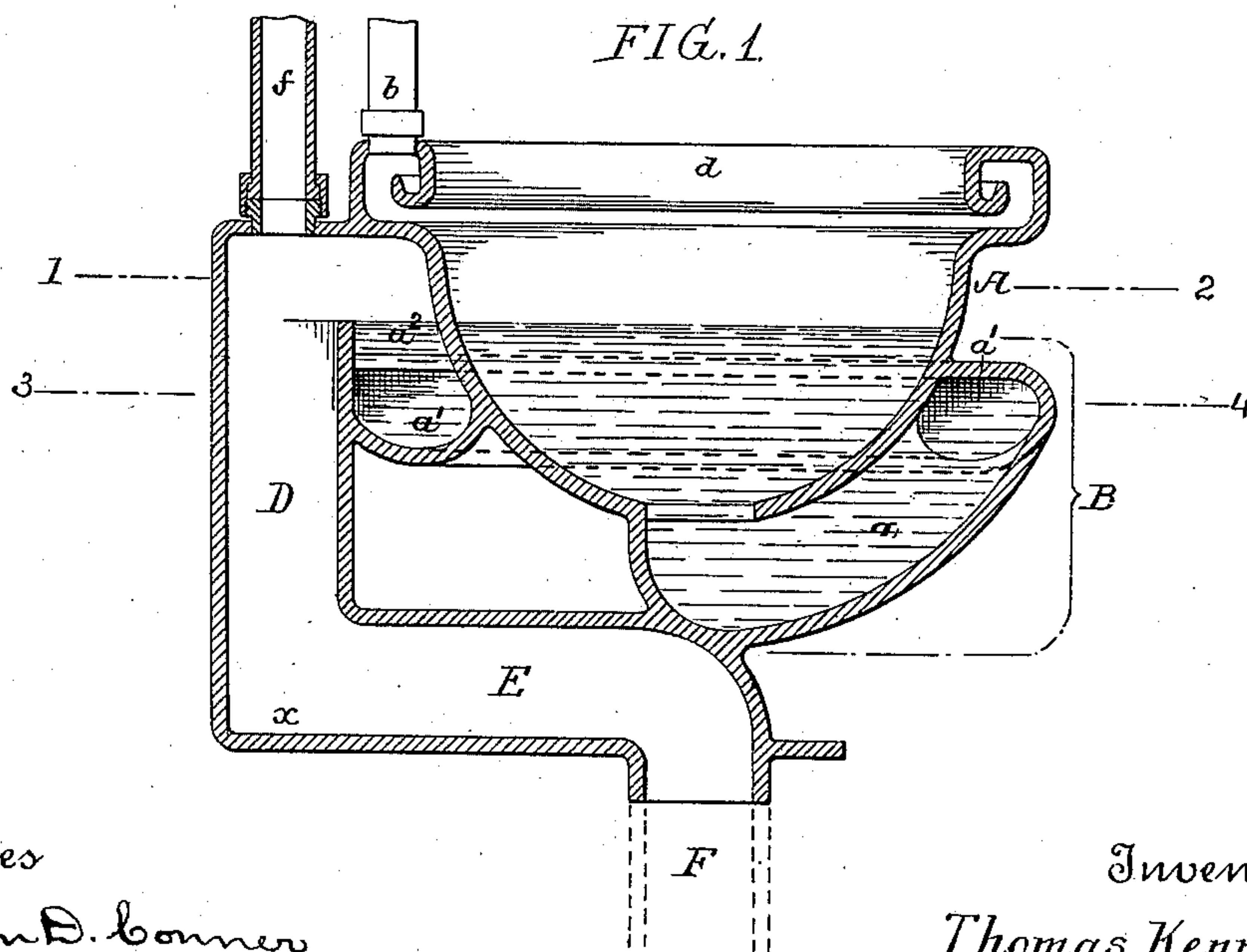


FIG. 1.



Inventor
Thomas Kennedy.

By his Attorneys

Howson & Sons

(No Model.)

2 Sheets—Sheet 2.

T. KENNEDY, Dec'd.

J. FARLEY, Administrator.

WATER CLOSET.

No. 376,311.

Patented Jan. 10, 1888.

FIG. 3.

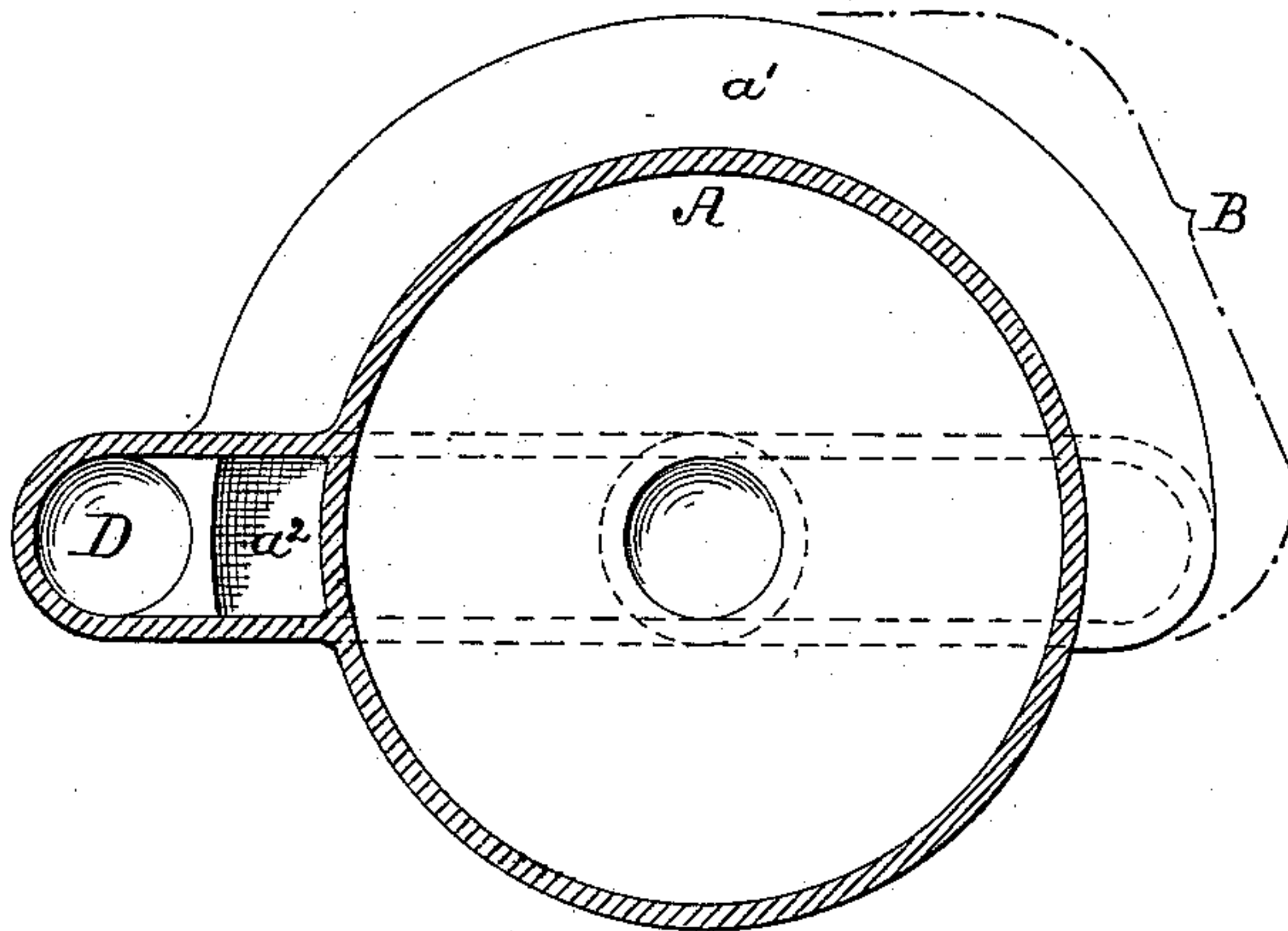


FIG. 4.

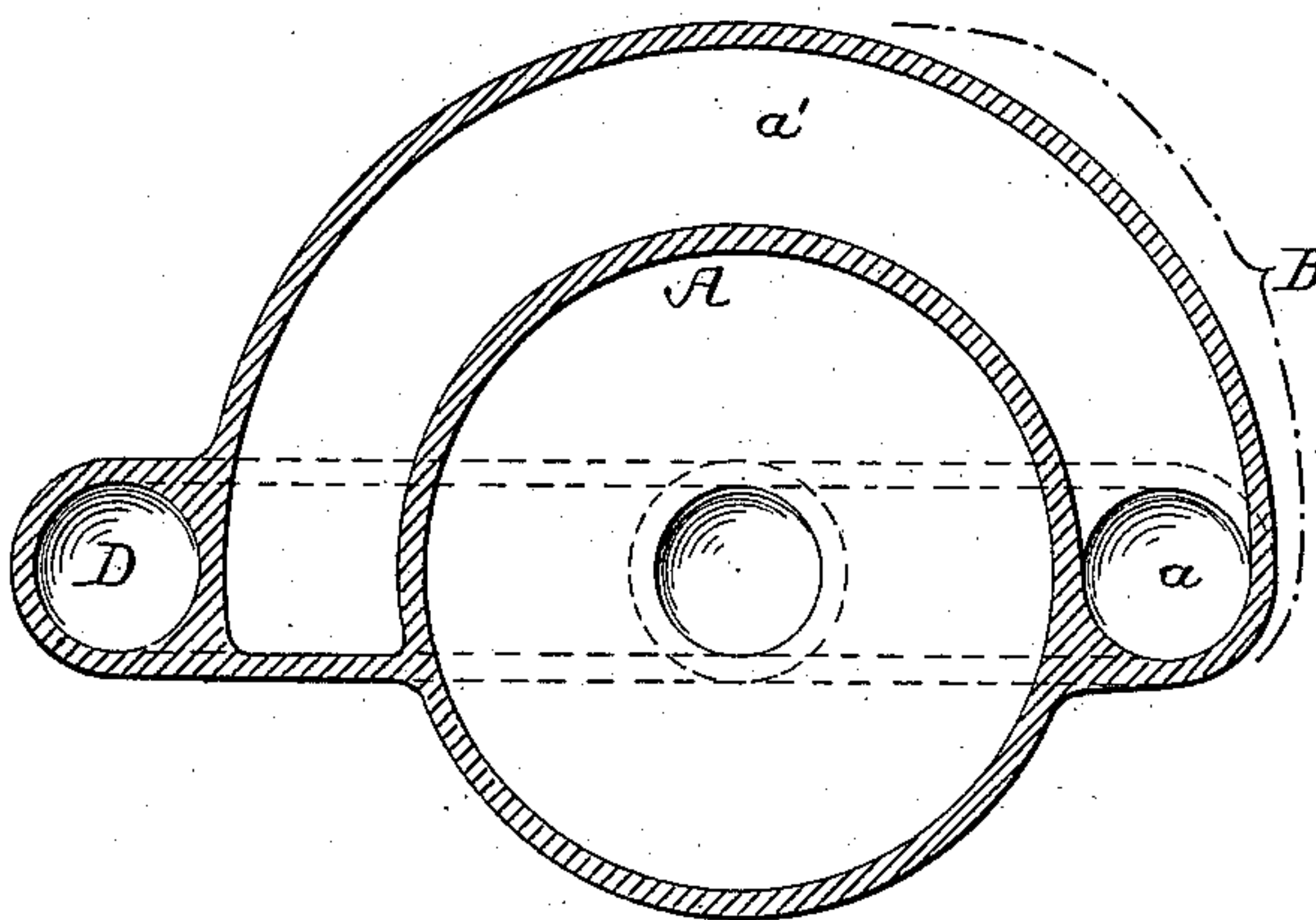
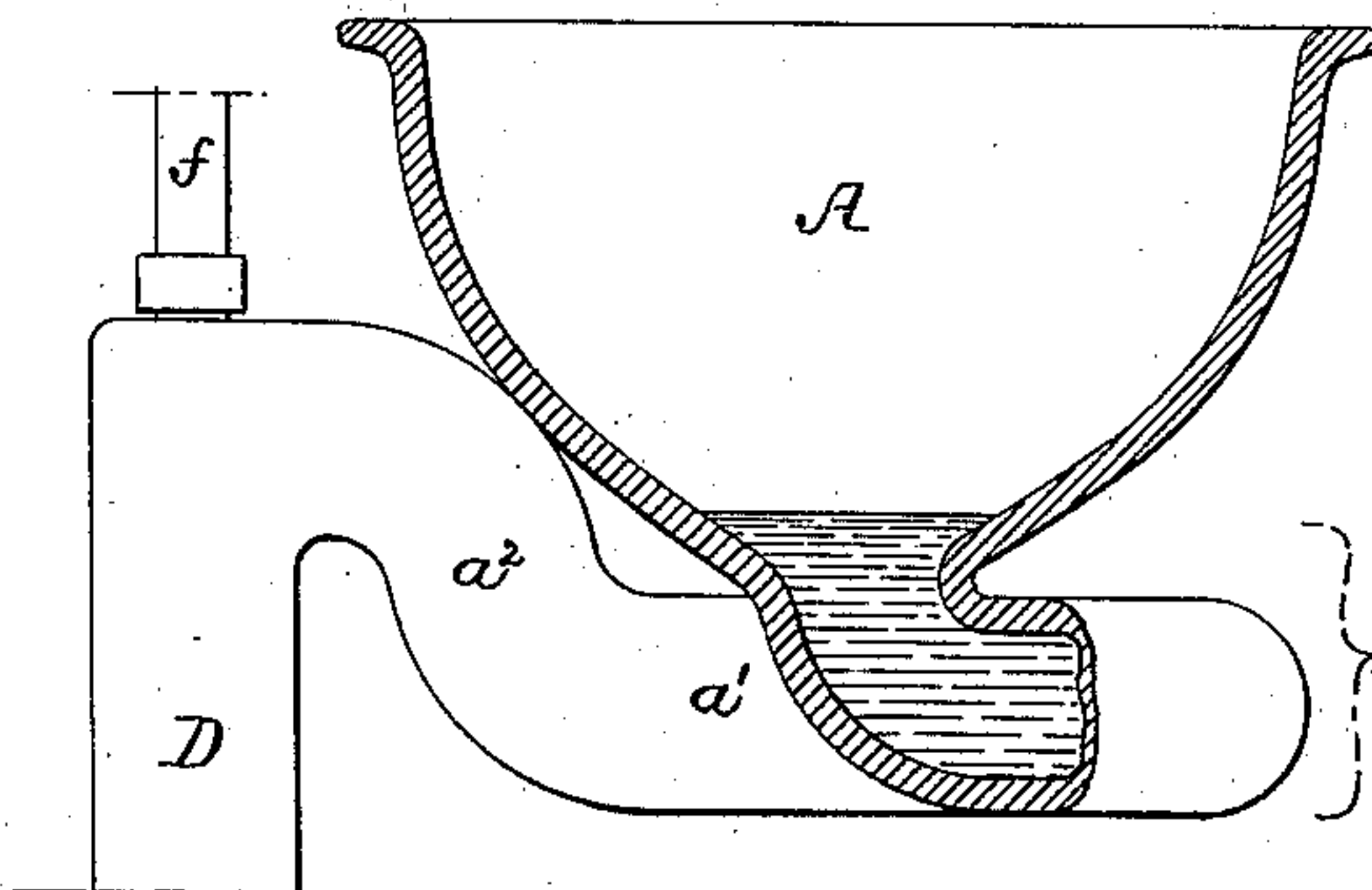


FIG. 5.



Witnesses
Wm. D. Bonner.
John E. Parker.

Inventor
Thomas Kennedy
by his Attorneys

Howson & Sons

UNITED STATES PATENT OFFICE.

THOMAS KENNEDY, OF PHILADELPHIA, PENNSYLVANIA; JAMES FARLEY
ADMINISTRATOR OF SAID THOMAS KENNEDY, DECEASED.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 376,311, dated January 10, 1888.

Application filed July 11, 1887. Serial No. 243,918. (No model.)

To all whom it may concern:

Be it known that I, THOMAS KENNEDY, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Water-Closets, of which the following is a specification.

My invention relates mainly to that class of water-closets in which the contents of the bowl are discharged by siphon action, one object of my invention being to effect the starting of the siphon with the use of but a small quantity of water, and a further object being to provide an extended water seal for the closet.

In the accompanying drawings, Figure 1 is a longitudinal section of a water-closet bowl and siphon constructed in accordance with my invention; Fig. 2, a longitudinal section of the supply-tank therefor; Fig. 3, a sectional plan on the line 1 2, Fig. 1; Fig. 4, a sectional plan on the line 3 4, Fig. 1; and Fig. 5 a view illustrating a modification.

A is the bowl of the closet, which may be of any desired shape consistent with the free discharge of its contents, this bowl communicating at the bottom with the short leg B of the discharge-siphon. This short leg comprises the portion *a*, extending up along one side of the bowl, a portion, *a'*, extending part way around the bowl, and a portion, *a''*, extending upward from said portion *a'* and communicating with the upper end of the long leg D of the discharge-siphon.

Under ordinary circumstances the bowl and short leg of the siphon are filled with water up to the level shown in Fig. 1, so that a water seal equal in extent to the depth of water in the bowl and the aggregate length of the three passages *a*, *a'*, and *a''* is provided.

Although the construction shown in Fig. 1 is preferred, the passage *a'* may, if desired, be inclined upwardly from the upper end of the passage *a* to the point of communication with the long leg D of the siphon, in which case the passage *a''* will be unnecessary; or the parts may be arranged as shown in Fig. 5, in which case the discharge end of the trap is not above the bottom of the bowl, and the coiled or bent portion of the pipe, although extending part way around the axis of the bowl, is not carried around the bowl itself.

Owing to the large volume of water in the

trap, the contents of the bowl are withdrawn with force when the siphon action is established, and there is an effective flushing of the soil-pipe on each operation of the closet.

The long leg D of the siphon is in the present instance bent at right angles at the lower end, so as to form a lateral discharge-branch, E, which is bent downward at its outer end in order to communicate with the soil-pipe F.

The entire structure comprising the parts A, B, D, and E may be in one piece; or the bowl A may be separate and the parts B, D, and E may, if desired, be made by pipes, bends, and elbows properly joined together.

Above the water-closet is the usual supply-tank, G, with a service-box, H, the latter communicating through a pipe, *b*, with the flushing-rim *d* around the top of the water-closet bowl, and also, through a pipe, *f*, with the upper end of the long leg D of the siphon. The reservoir has two openings, *g* and *h*, through which it communicates with the service-box beneath, and the latter has openings *m* and *n*, through which it communicates, respectively, with the pipes *b* and *f*. Around each opening is a flange, forming a valve-seat, and to the seats around the openings *g* and *m* are adapted valves *g'* and *m'*, suspended from the operating-lever J, the valve *g'* closing on the downward movement and the valve *m'* on the upward movement. To the valve-seats around the openings *h* and *n* are adapted similar valves, *h'* and *n'*, likewise suspended from the lever J and operating in the same manner as the valves *g'* and *m'*. On the elevation of the long arm of the lever, therefore, the valves *g'* and *h'* will be lifted and the valves *m'* and *n'* closed, the service-box being filled with water from the reservoir, and on the descent of the long arm of the lever the upper valves will be closed and the lower valves opened, so as to permit a flow of water through the pipes *b* and *f*.

The flow of water from the pipe *f* into the upper end of the long leg D of the siphon drives the air therefrom and creates a partial vacuum in said long leg, so as to start the siphon and forcibly withdraw the contents from the bowl A, the flow of water into the bowl through the pipe *b* continuing long enough to refill said bowl after the contents have been siphoned from the same, for it will be observed

that the service-box is divided by a partition, *p*, into two chambers, one feeding the pipe *f*, and the other, which is somewhat larger, feeding the pipe *b*.

5 The lateral discharge-branch E at the lower end of the long leg D of the siphon is of advantage, because the stream of water, striking at *x* a surface at right angles to the direction of said stream, is caused to splash into the
10 branch E, and thus carry along the same the air carried down from the leg D, any flow of air back through the branch being effectually prevented.

I do not in this application, however, make
15 any special claim upon this construction of the delivery end of the long leg of the siphon, as it forms the subject of a separate application filed by me on the 28th day of February, 1887, Serial No. 229,160, nor do I limit my present
20 claims to this construction, as the soil-pipe may, if desired, be connected directly to the lower end of the siphon-leg D.

I am aware that a jet of water has been projected into the lower trap of a siphon-closet
25 for the purpose of driving the water therefrom in order to start the siphon, and also that an annular jet of water has been discharged into the long leg of the siphon near the delivery end of the same; but these devices, if operative
30 at all, must act on the principle of the ejector and the air must be drawn from that portion of the long leg of the siphon which is above the ejector, in order to create a partial vacuum therein—an operation which necessitates the
35 use of a large volume of water to supply the ejector. In my closet, on the contrary, the jet is discharged directly into the upper end of the long leg of the siphon and drives the air from the same, instead of having to draw the
40 air after it. A partial vacuum is thus instantly created, and the jet need be maintained for a much less time than if it supplied an ejector of the ordinary form, so that but a small quantity of water from the service-box
45 is required to feed the jet, the larger volume being available to fill the bowl after the contents have been withdrawn from the same by

the siphon action. It will be observed, also, that in my improved closet there is no lower trap or weir chamber, a free and unobstructed
50 passage between the soil-pipe and the bowl of the closet being provided, so that the closet will not be clogged when wads of paper, towels, or other large bodies are, through carelessness, ignorance, or malice, thrown into the closet. 55

I claim as my invention—

1. The combination of the water-closet bowl and its siphoning-ducts, the reservoir having a service-box divided into two compartments, one of which is smaller than the other, and
60 pipes whereby the contents of the smaller compartment are directed to the long leg of the siphon and the contents of the larger compartment to the bowl, all substantially as specified.

2. The combination of the bowl of a water-
65 closet, with a discharge-pipe comprising long and short siphoning-ducts, the short duct having a coiled or bent portion extending part way around the axis of the bowl and delivering at the top into the long duct, all substan-
70 tially as specified.

3. The combination of the bowl of a water-closet, with a discharge-pipe comprising long and short siphoning-ducts, the short duct having an upwardly-extending portion at one side
75 of the bowl, and a coiled or bent portion extending part way around the bowl and delivering at the top into the long duct of the siphon, all substantially as specified.

4. The combination of the bowl of a water-
80 closet, with a discharge-pipe comprising long and short siphoning-ducts, the short duct having at each end an upwardly-extending portion, and between the two a coiled or bent portion extending part way around the bowl and
85 discharging at the top, all substantially as specified.

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

THOS. KENNEDY.

Witnesses:

WILLIAM D. CONNER,
HARRY SMITH.