

E. R. ANGELL.
CLOSET FOR PRIVATE PURPOSES.

No. 367,495.

Patented Aug. 2, 1887.

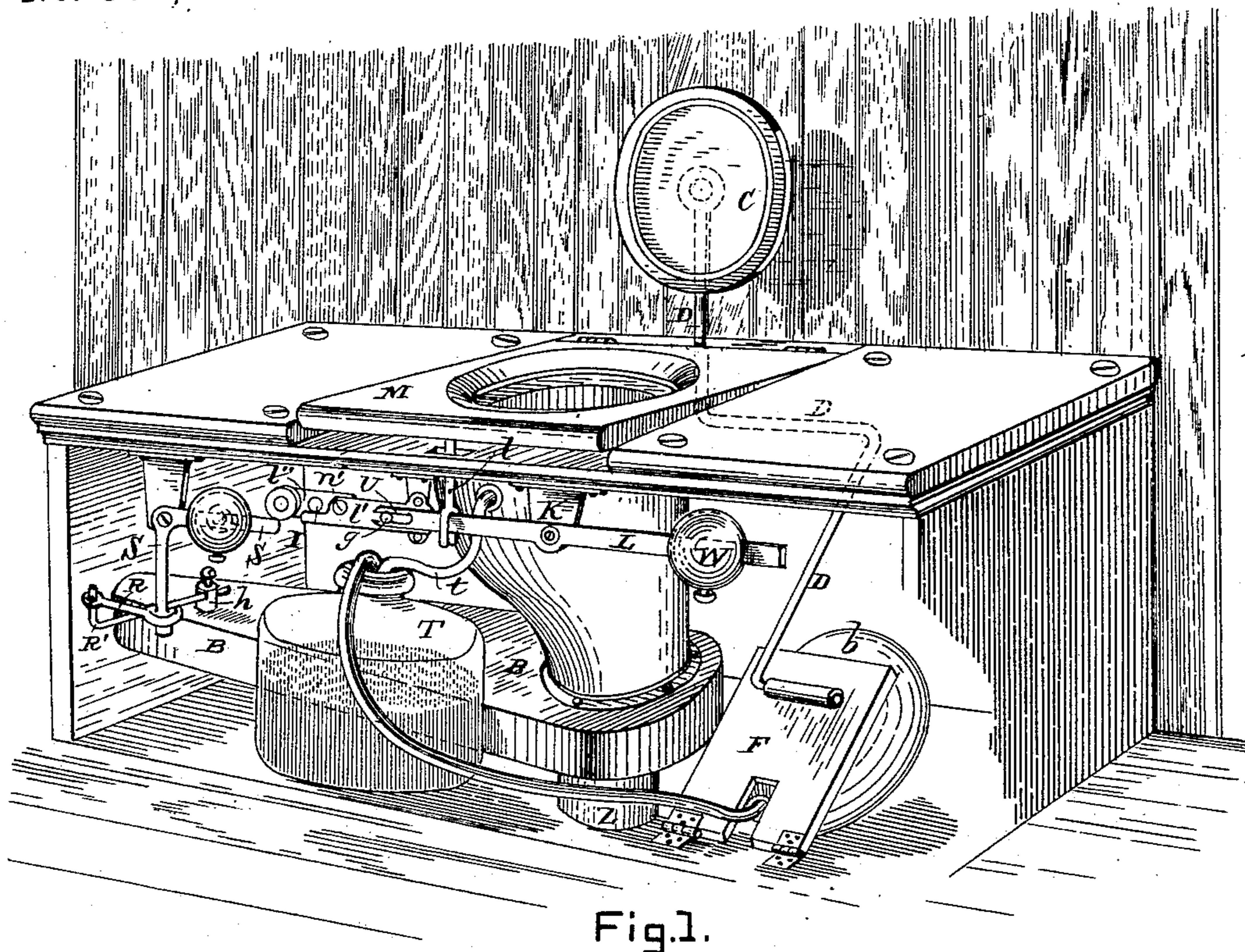


Fig. 1.

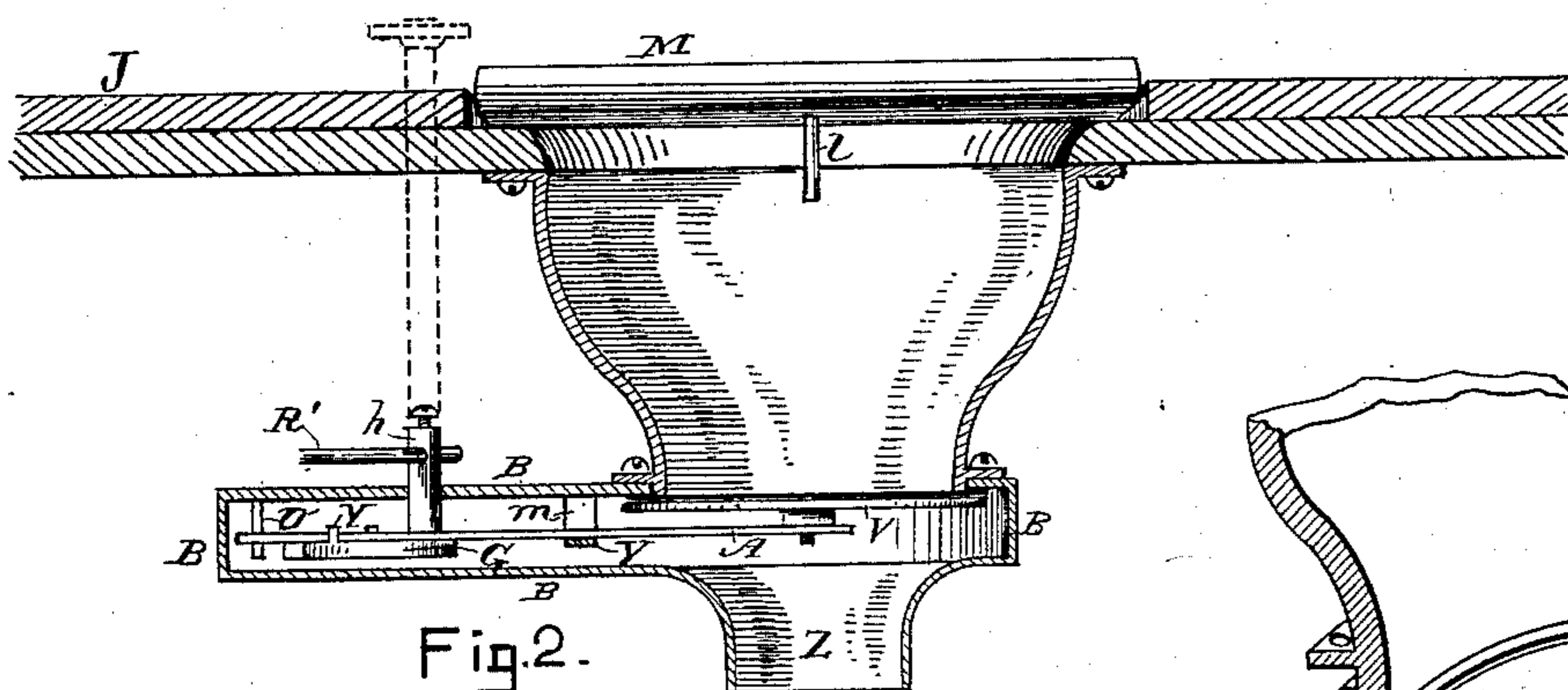


Fig. 2.

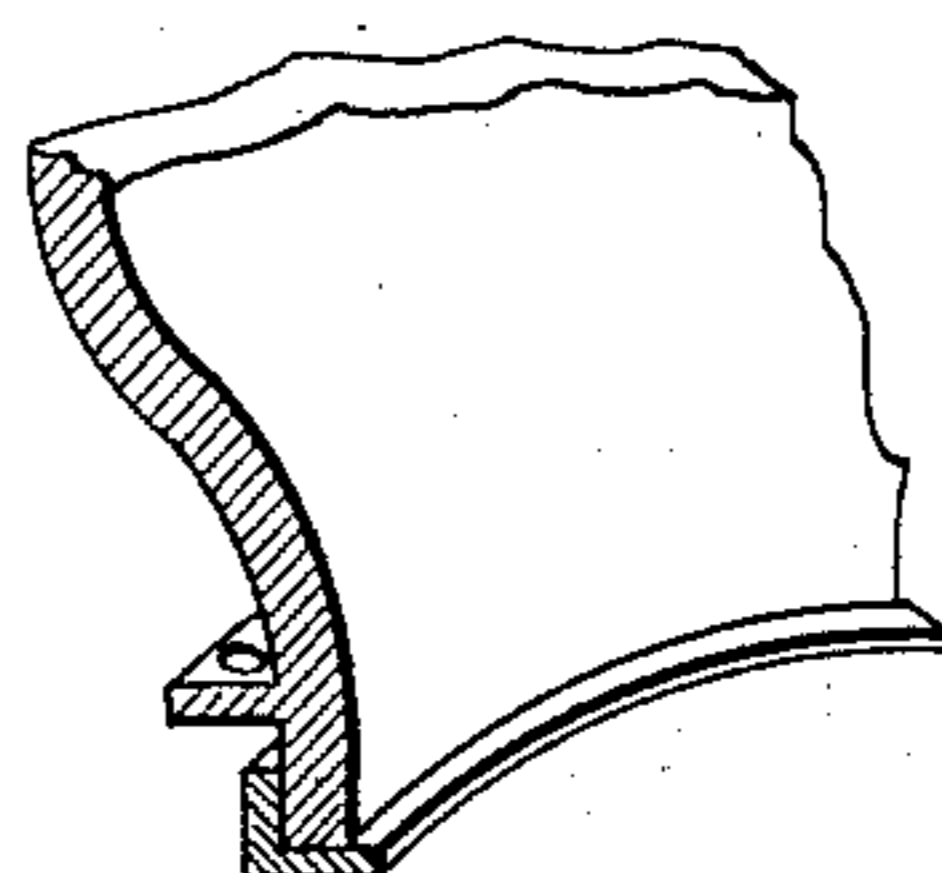


Fig. 4.

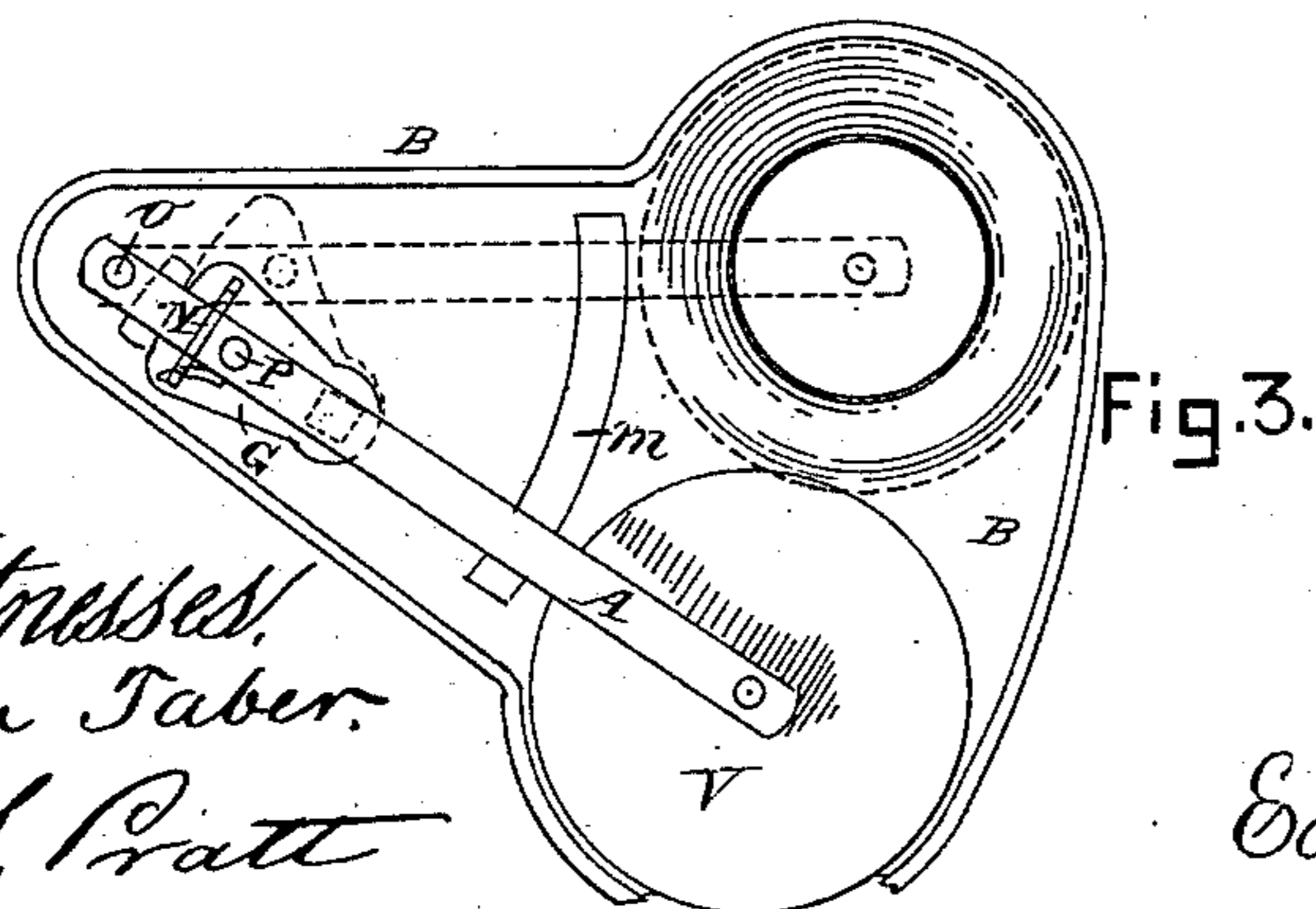


Fig. 3.

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Chas. Allen Taber.
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(No Model.)

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Fig.6.

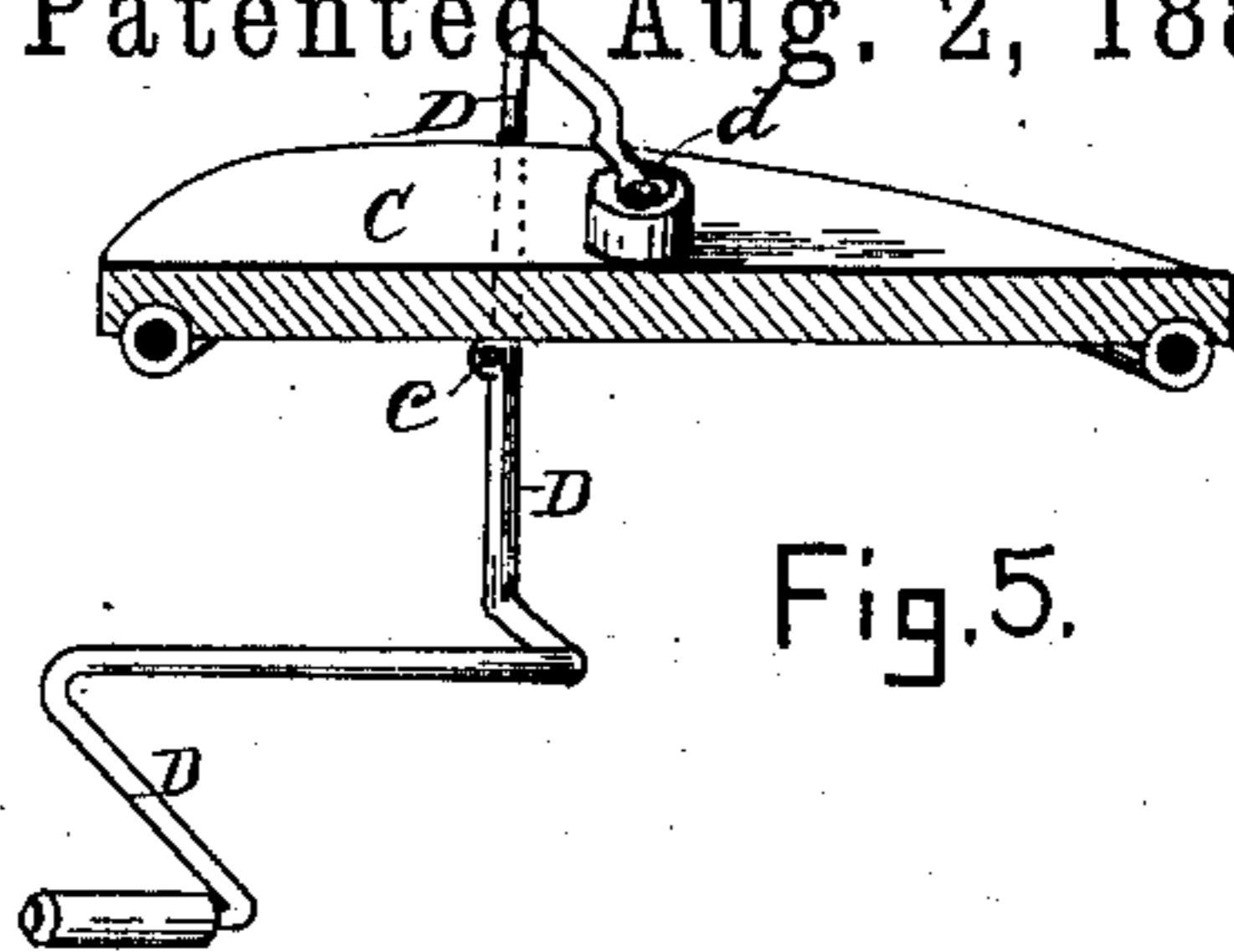
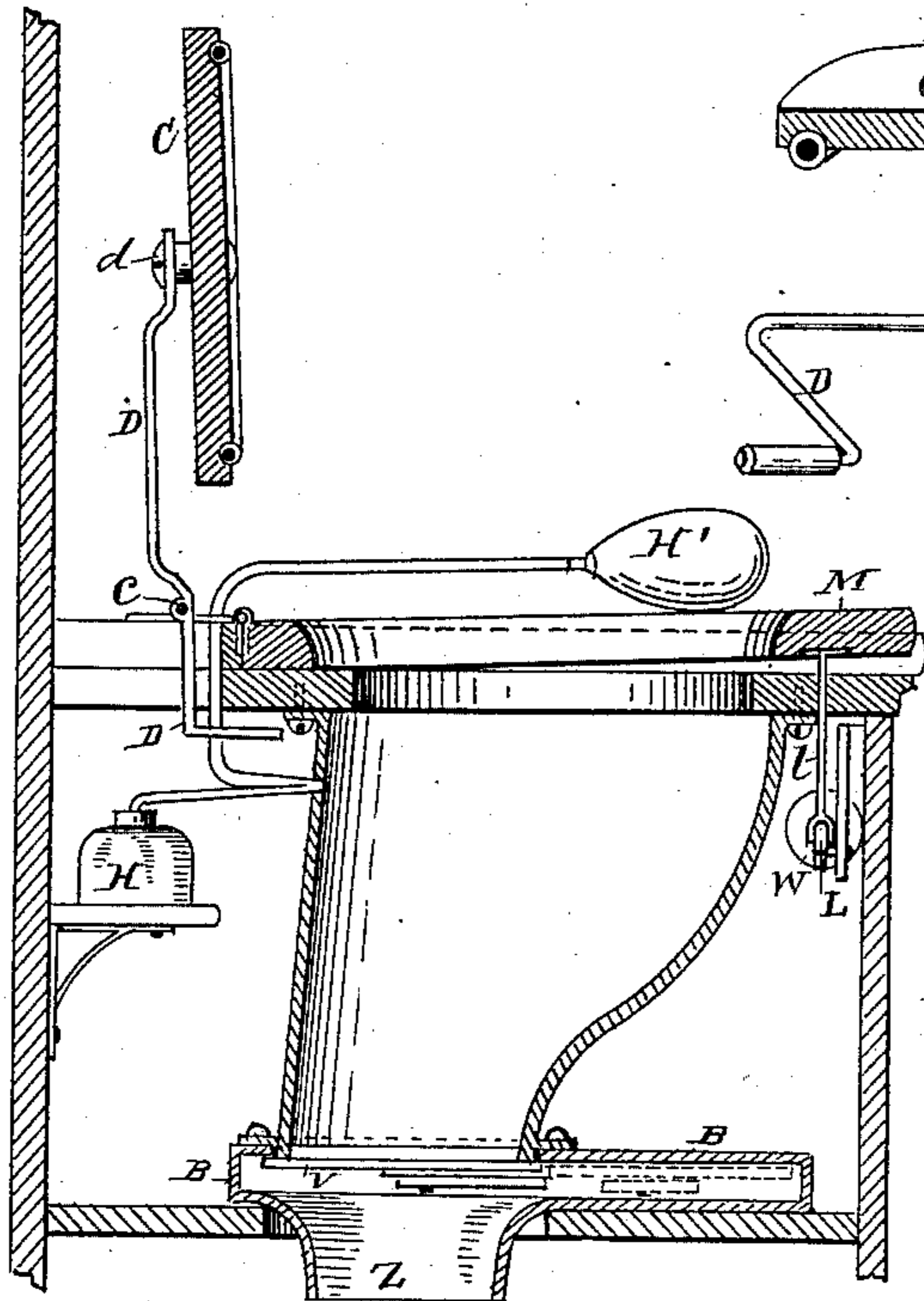


Fig.5.

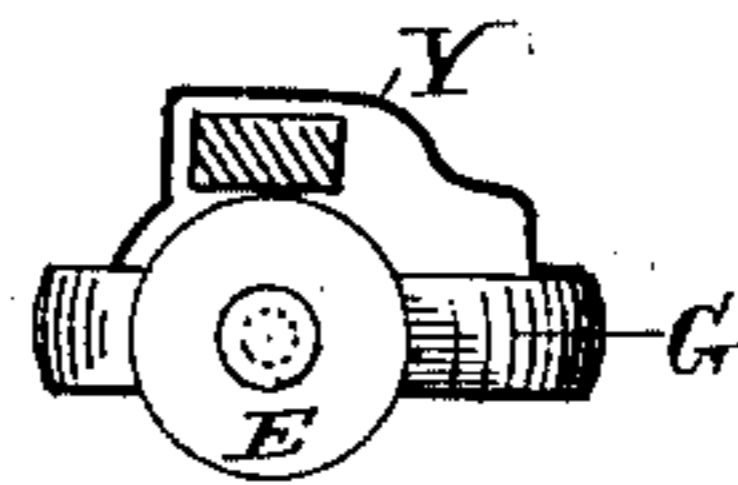


Fig.9.

Fig.7.

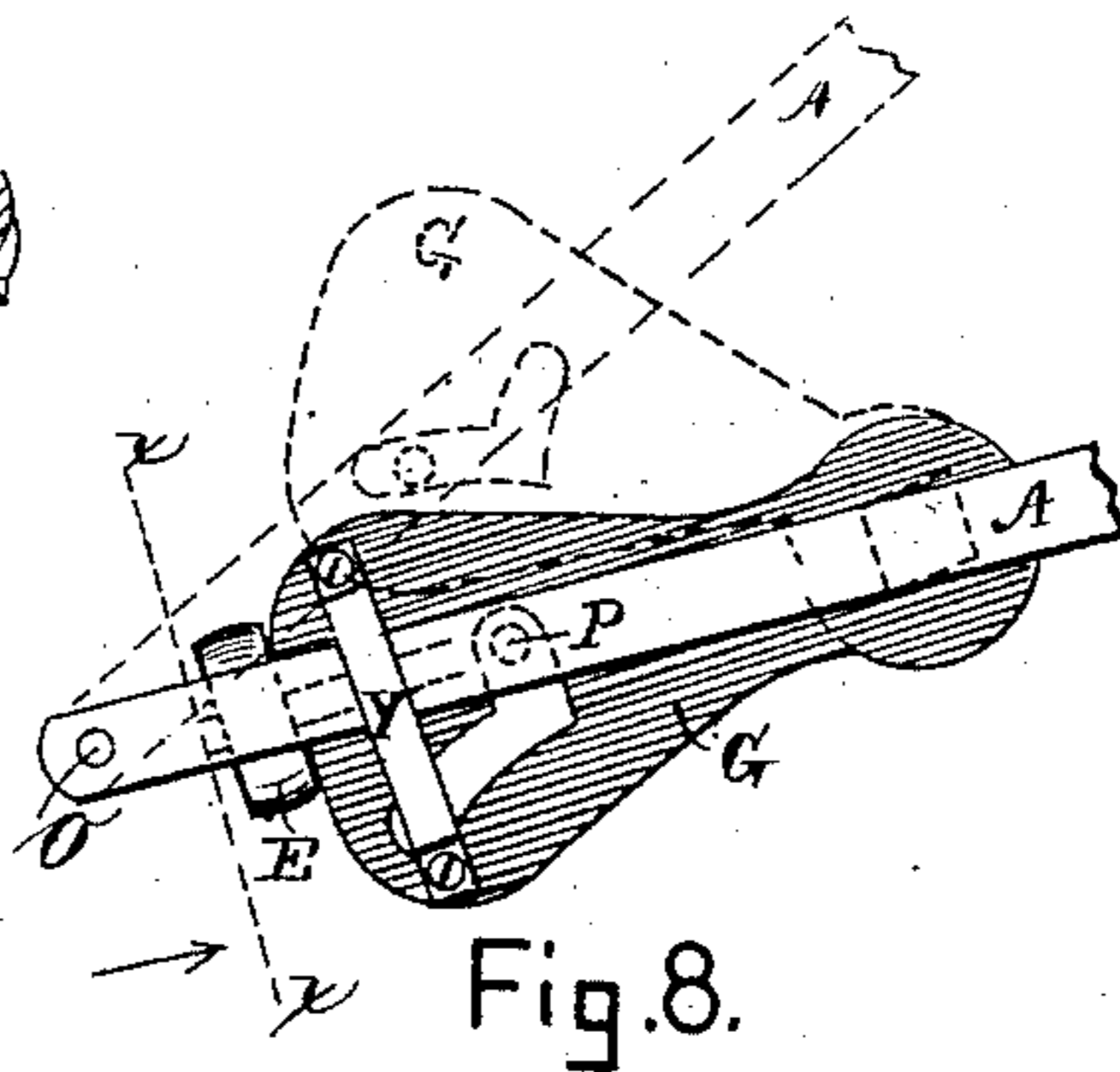
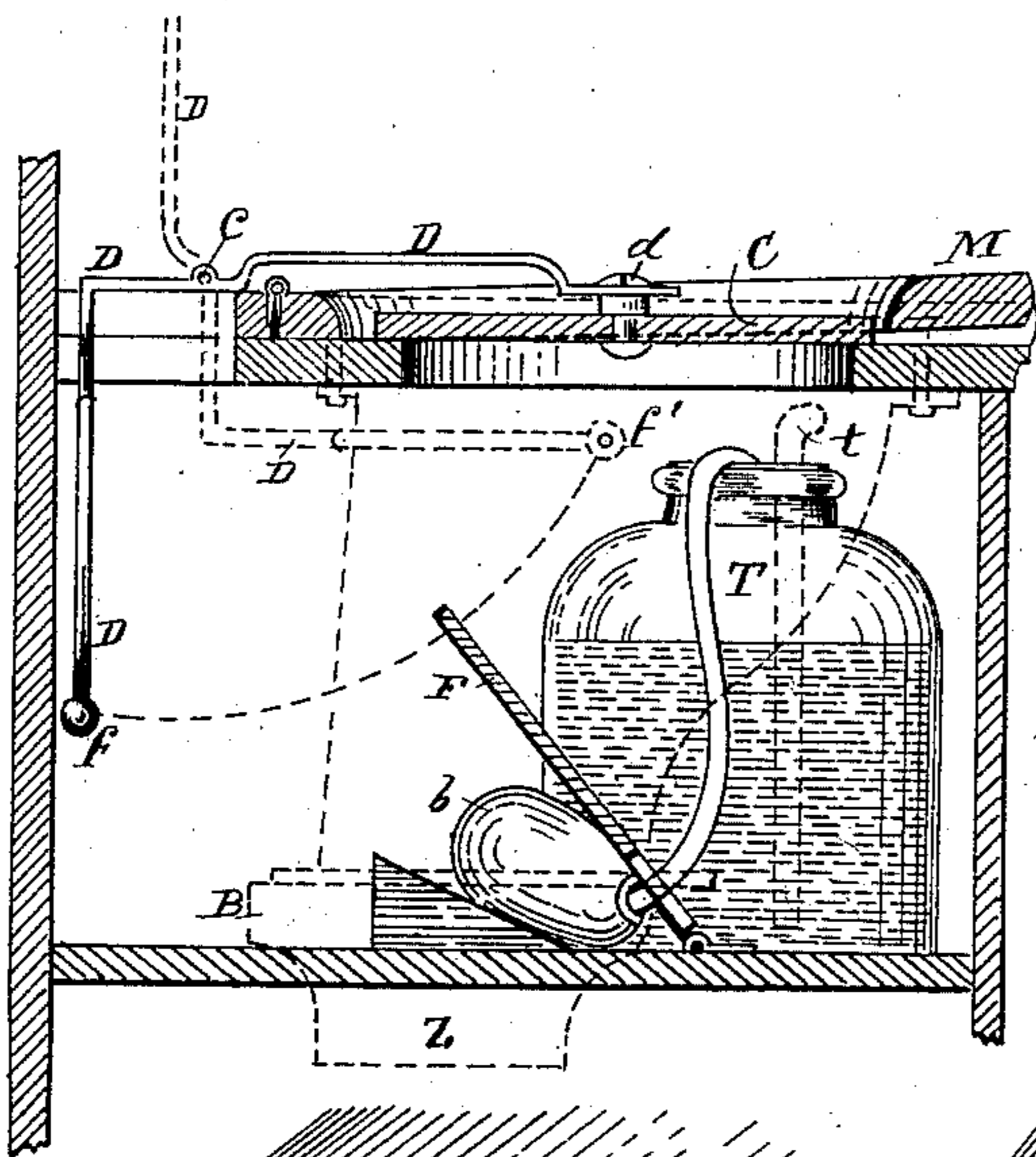


Fig.8.

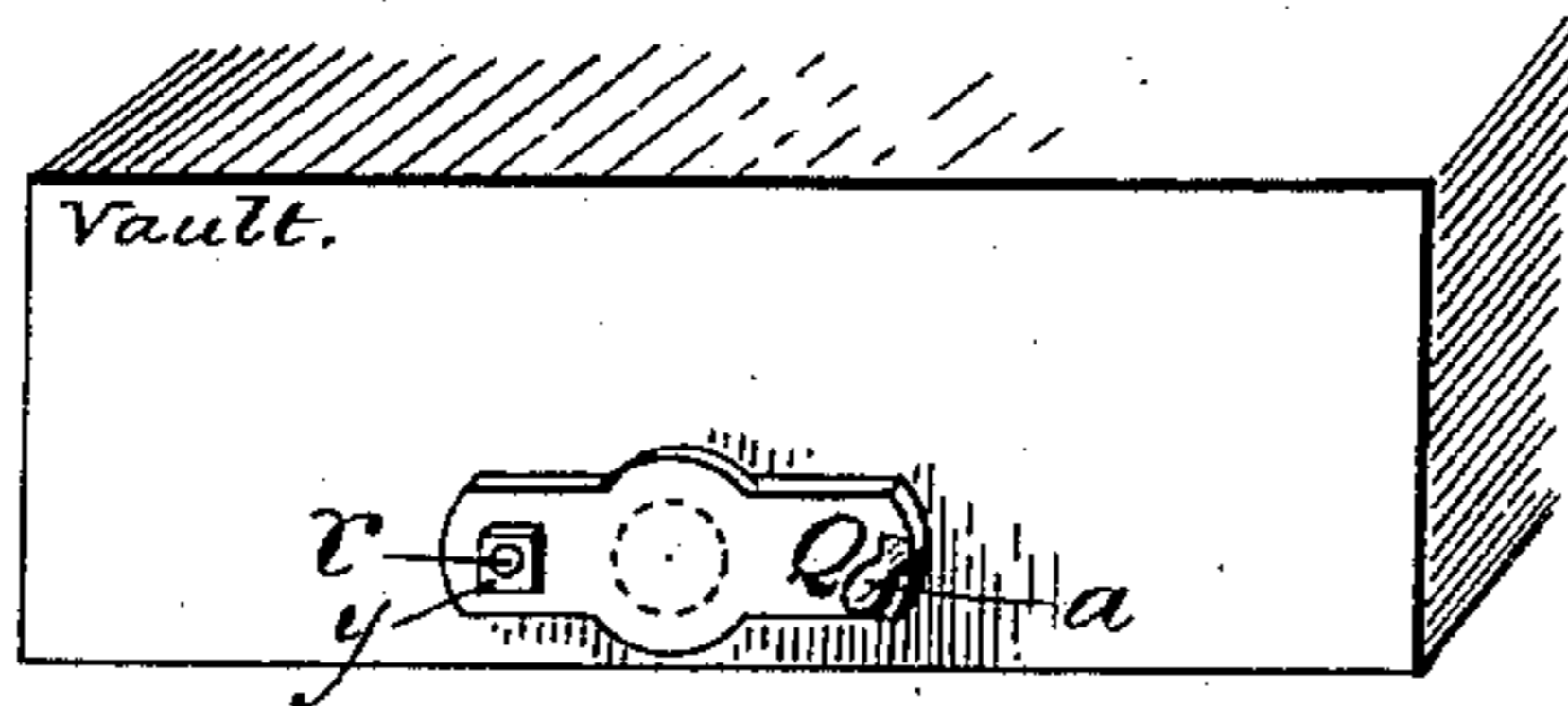


Fig.10.

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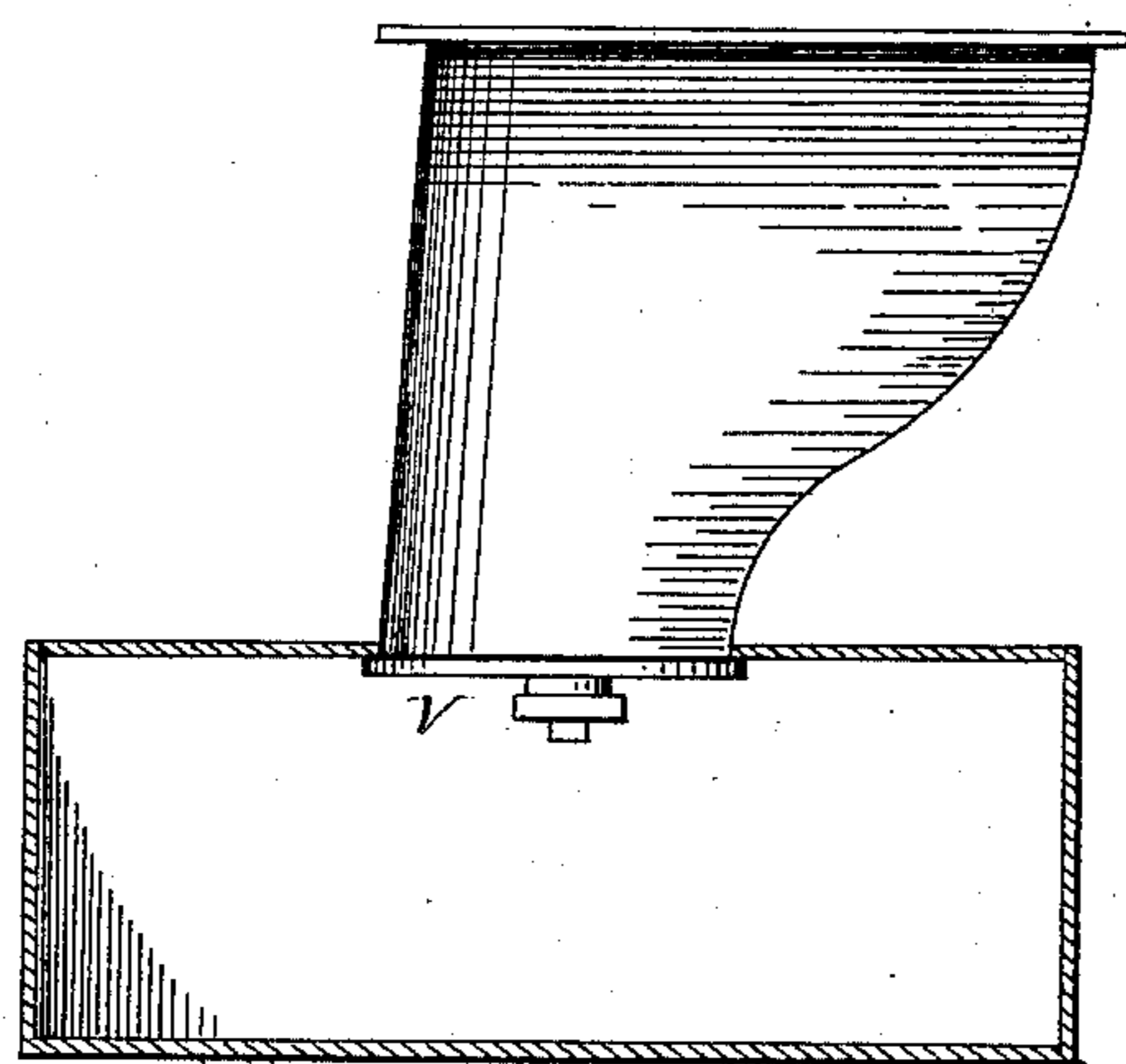
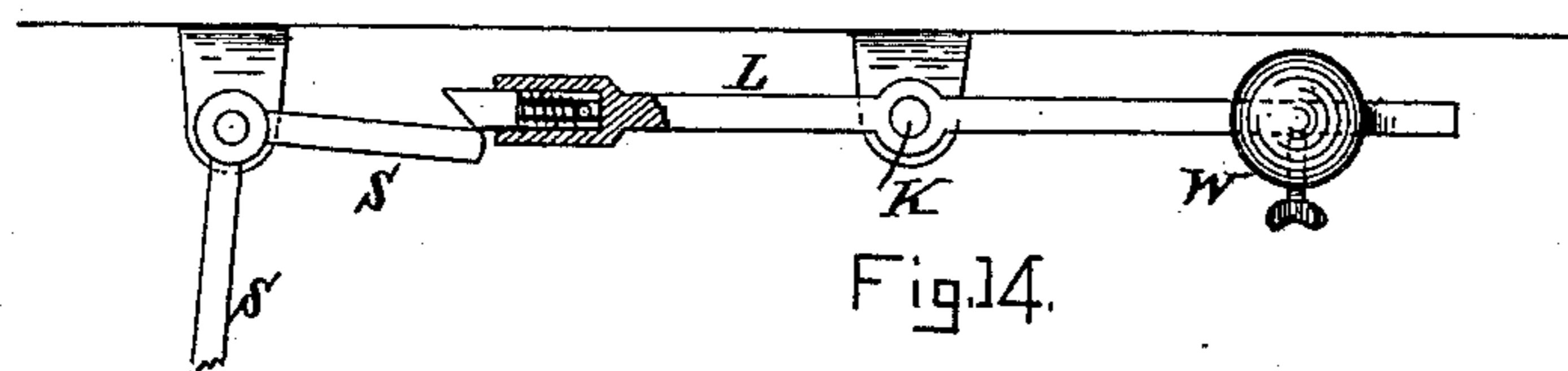
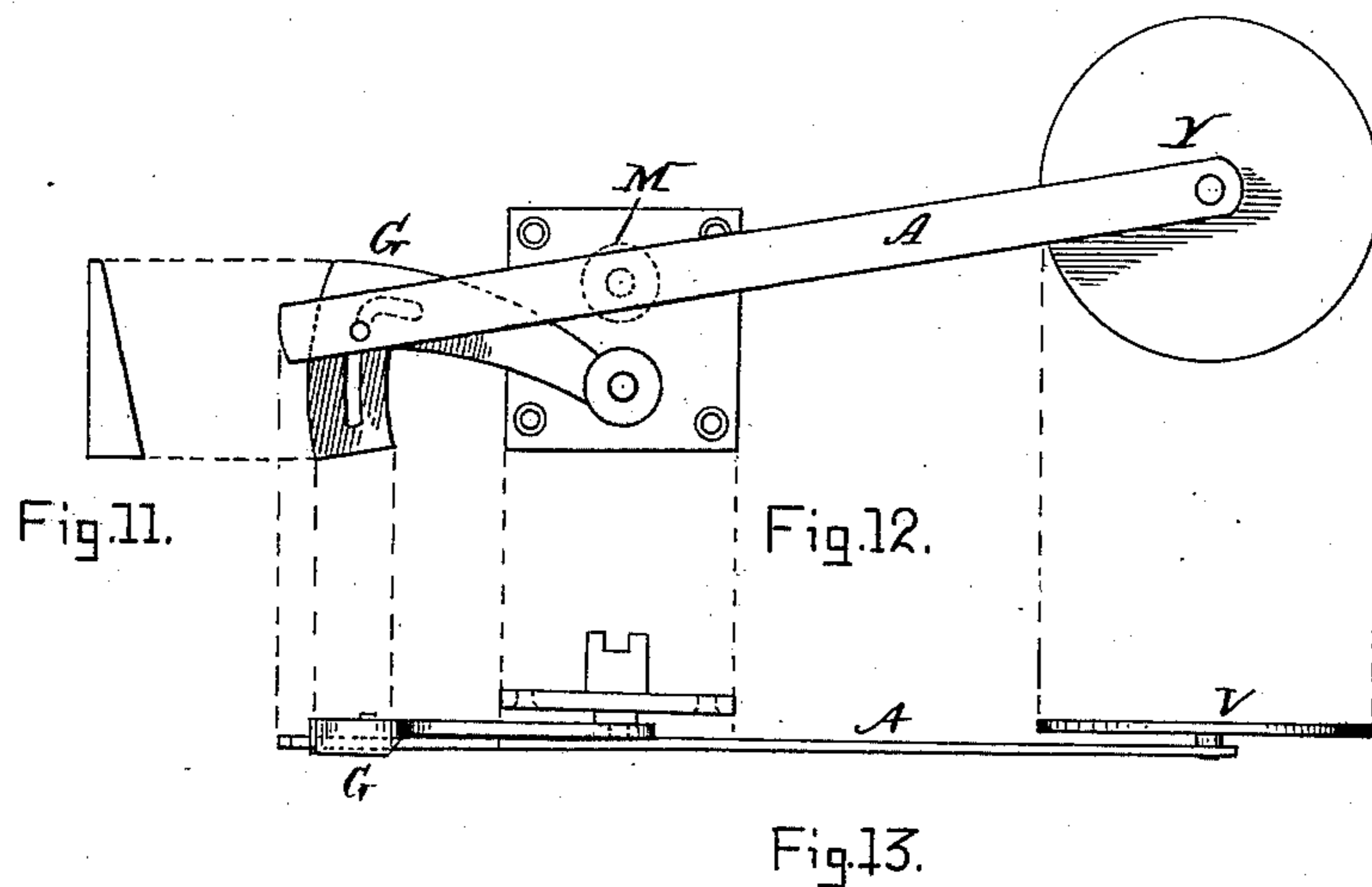
(No Model.)

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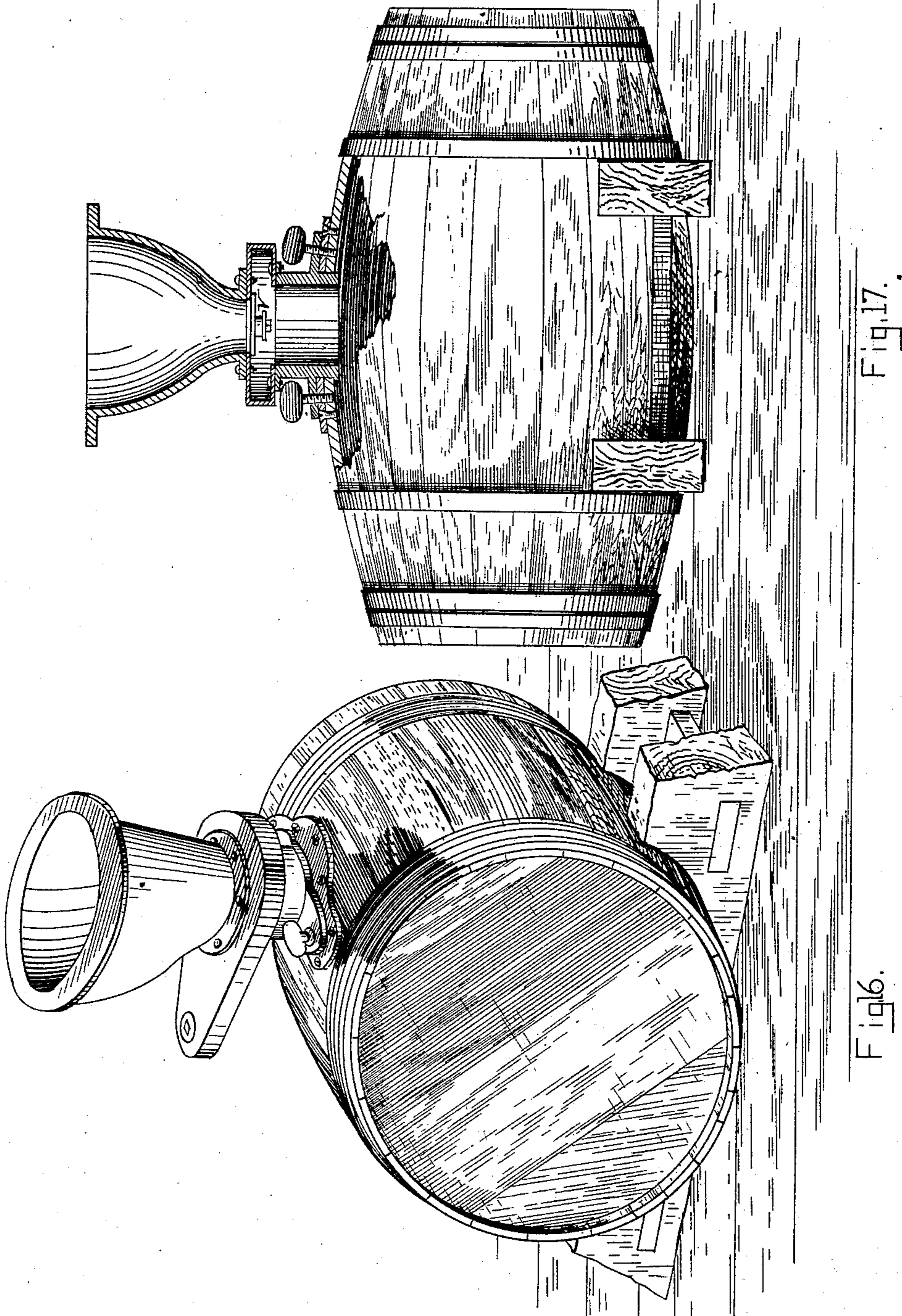
(No Model.)

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UNITED STATES PATENT OFFICE.

EDMUND R. ANGELL, OF DERRY, NEW HAMPSHIRE.

CLOSET FOR PRIVATE PURPOSES.

SPECIFICATION forming part of Letters Patent No. 367,495, dated August 2, 1887.

Application filed October 23, 1885. Serial No. 180,766. (No model.)

To all whom it may concern:

Be it known that I, EDMUND R. ANGELL, a citizen of the United States, residing at Derry, in the county of Rockingham and State of New Hampshire, have invented certain Improvements in Closets for Private Purposes, of which the following is a specification.

My invention relates to certain mechanism used in the seats, hoppers, and vaults of such closets; and the objects of my invention are, first, to automatically open and close the hole through which the human excrement is dropped; second, to automatically throw into the hopper a disinfecting liquid; third, to tightly close all passages from the vault, so that no foul air shall pass therefrom; fourth, to provide a construction to allow the vault to be easily cleaned or removed without disturbing the hopper and other fixed parts; and, fifth, to provide means for drawing off the contents of the vault.

Figure 1 is a front view of the bench or seat with the front boards removed, showing nearly all the mechanism except that contained in box B. (Shown in Figs. 2 and 3.) Fig. 2 is a section of the box B with its mechanism and the hopper resting upon it. Fig. 3 is a plan of the mechanism contained in the box B, shown from beneath. Fig. 4 is a section of a portion of the hopper, showing the rubber ring *e* at the bottom for the purpose of making a close joint with the valve. Fig. 5 is a perspective view of one-half of the cover C with the mechanism which operates the flap F on the air-bulb *b*. Fig. 6 is a side view of the hopper, the movable seat with the cover raised, and most of the mechanism and parts as shown by a transverse section. Fig. 7 is a section of the bench with the cover closed, but more particularly showing the disinfecting apparatus. Fig. 8 is a plan of the mechanism of the box B. Fig. 9 is a cross-section, on the lines *x x* in Fig. 8, of the box B, showing the arm carrying the valve, the guide in which it works, and the wheel or incline E for obtaining pressure. Fig. 10 shows part of the vault and shutter covering the hole through which the vault is emptied. Figs. 11, 12, and 13 show different views of the arm A, valve V, and segment G. Fig. 14 shows a modification of the mechanism at the end of lever L for con-

trolling the bell-crank. Fig. 15 shows the connection of the hopper with a stationary vault; and Figs. 16 and 17, the connection of the hopper with a movable vault, Fig. 17 being a sectional view.

Similar letters are used to show like parts in all the drawings.

The cover C shuts down through the seat M upon the board to which the hopper is attached. It has on its lower side, as shown in Fig. 5, a ring made of rubber tubing, forming an air-cushion, to secure a tight joint with the surface below, on which it rests when closed. It is attached to the arm D by a loose bolt, *d*, so that it may adapt itself to the surface on which it rests. This arm D works upon a pivot at *c*, Figs. 6 and 7, so that when the cover is raised and lowered the end of this arm will describe the arc of a circle, *f* to *f'*, to operate the disinfecting apparatus. When the cover is opened, this arm passes from *f* to *f'*, raising and allowing to fall in passing the flap F, but producing no special results. When the cover is being closed, the end of this arm in its return from *f'* to *f* presses down the flap F upon the air-bulb *b*, so as to throw a quantity of air from the bulb into the closed tank T containing the disinfecting-liquid. This excess of air forced into the closed tank forces a portion of the liquid from the tank into the hopper through the tube *t*. When the end of the arm D has passed the flap F, the elasticity of the bulb (being made of strong elastic material) raises the flap and sucks back air enough through the tube to fill the bulb, and it is ready for another operation. In the smaller closets this air-bulb might be operated by hand, omitting the use of the arm D and the flap F.

The seat M is made with a hole large enough to allow the cover C to pass through it and shut down on the surface beneath. It is held in position by hinges on the back edge, and, except when it is being used, rises in front about half an inch, being raised by the upright *l* on the lever L, which is operated by the weight W, Fig. 1. The lever *l* is supported by a fulcrum, K.

When the seat is used, the weight of the person using it bears down upright *l* and that end of the lever L to which *l* is attached, raising the other end and weight W, which weight re-

verses this motion when the pressure of the person is removed from the seat. Lever *l* is made with a forked end, *U*, which engages the pin *g* on the lever *l'*, which, being hung at *n'*, will multiply the motion of *L*. Lever *l'* is made in two parts, as shown in Fig. 1, with a pivot, *n'*, uniting them and the stop-pin *I*, so that the end or pawl *l''* may be deflected upward but not downward. When lever *L* is depressed the pawl *l''* will descend much farther, but on account of the construction before mentioned will readily pass the end of the bell-crank *S*; but when the pressure on the seat is removed the weight *W* raises the other end of lever *l*, and pawl *l''*, being now held rigid by pin *I*, raises the weighted end of the bell-crank *S* till the end of *S* slips by the end of *l''*, and, being weighted, falls into its former position. The other end of the bell-crank working loosely the rods *R R'* imparts a motion to the axis *h* of a rotary character first one way and then the reverse. This axis works in a cast-iron box, *B*, of suitable shape to contain the valve *V*, with the mechanism for working it, which box is secured tightly to the lower end of the hopper, and beneath the hole of the hopper has the tubular portion *Z*, which fits tightly into the cover of the vault or into a sewer-pipe.

The vertical axis *h* (shown in Fig. 2) passes through a hole in the top of the box *B*, and carries on its lower end a segment having two connected slots, one concentric with the axis, the other of such shape that by engaging the pin *P* it gives the proper motion to the arm of the valve *V*. This segment has a guide, *Y*, on its lower surface and carries a wheel, *E*, at its extremity, as shown in Fig. 8. The arm which carries the valve *V* passes below the segment and within the guide *Y*. This arm is pivoted at *O*, Fig. 8, but loosely, so that it may slip up and down on the pivot, and has a pin, *P*, Fig. 8, which works in the slots of the segment *G*. The arm also rests on the fulcrum *m*, as shown in Figs. 2 and 3.

The operation of the mechanism within the box *B* is as follows: The hole at the bottom of the hopper being open with the valve on one side, the movement of the vertical axis *h* slides the pin *P* in the slot of segment *G* toward its inner extremity, which swings arm *A* laterally and brings the valve beneath the hole at the bottom of the hopper. Further movement of the axis causes the pin *P* to slide in the slot, which is there of such shape that no further movement is given to the arm; but the wheel *E* on the segment is caused to strike against the beveled edge of the arm and to roll under it, thereby operating the arm as a lever of the first power on the fulcrum *m*, so as to press the valve tightly against the bottom of the hopper, the loose connection at pivot *O* allowing of this action of the arm. When the axis *h* is turned in the opposite direction, the pressure on the valve is first re-

moved by the withdrawal of the wheel from the arm and by the controlling action of the guide *Y*. Then the further movement of the pin *P* in the slot swings the arm laterally, carrying the valve from beneath the bottom of the hopper. As it swings laterally any excrement upon its surface is scraped off and falls into the vault.

In some small closets the axis *h* is prolonged through the bench *J* and the segment is operated by hand.

Through the side of the hopper is a hole to receive the disinfecting-liquid from the tank by means of a tube. The tank is so constructed that it can be easily filled with a new supply of disinfecting-liquid.

An atomizer, *H*, of ordinary construction, as shown in Fig. 6, is attached to the hopper in such a manner that a person, by pressing the air-bulb at the extremity of a rubber tube passing up through the bench and extending above it, can force the spray of a disinfecting and perfuming liquid into the hopper, so as to destroy and conceal any bad odor or foul air therein.

The vault may be of a permanent or removable construction. If it is so constructed as to require the contents to be drawn off, a hole is made in the side or end near the bottom, and an iron slide or shutter, *Q*, of the shape shown in Fig. 10, is fitted to close it. One end of the shutter has a handle, *a*, for operating it in a vertical plane about the pin *r*. This pin *r* is provided with a nut, *y*, which presses the shutter against the side of the vault, closing it tightly.

Instead of the lever *l'* and pawl *l''*, the movement of the bell-crank may be well controlled by a mechanism on the end of lever *l* similar to a spring door-latch, as shown in Fig. 14, which will raise the end of the bell-crank when the end of lever *l* is raised; but when it is depressed the spring-catch slips by the end of the bell-crank without moving it.

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

1. In a closet for private uses, the combination of the segment *G*, the arm *A*, the valve *V*, the wheel or incline *E*, all inclosed in a box, *B*, interposed between the hopper and the vault and operated by mechanism connected with the seat *M* of the closet, as herein described and shown.

2. In a closet, the combination of the yielding seat *M*, the levers *L l'*, the pawl *l''*, the bell-crank *S*, the rods *R R'*, the segment *G*, with its axis *h*, the wheel *E*, and the arm *A*, with its valve *V*, all arranged to operate together for the purpose of opening and closing the hole at the bottom of the hopper, as herein set forth.

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Witnesses:

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