

No. 658,351.

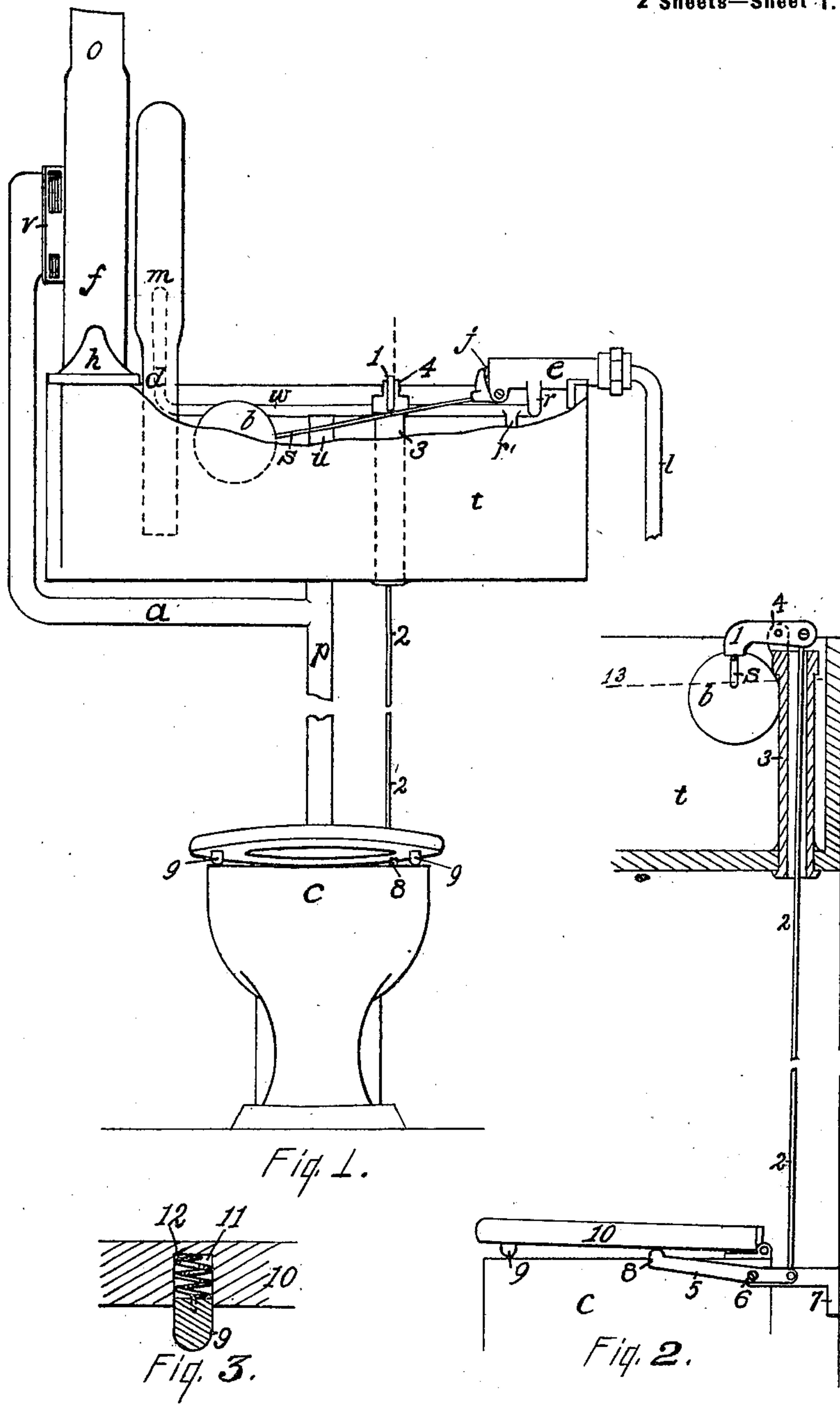
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J. J. DONOVAN.
VENTILATING APPARATUS.

(Application filed July 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

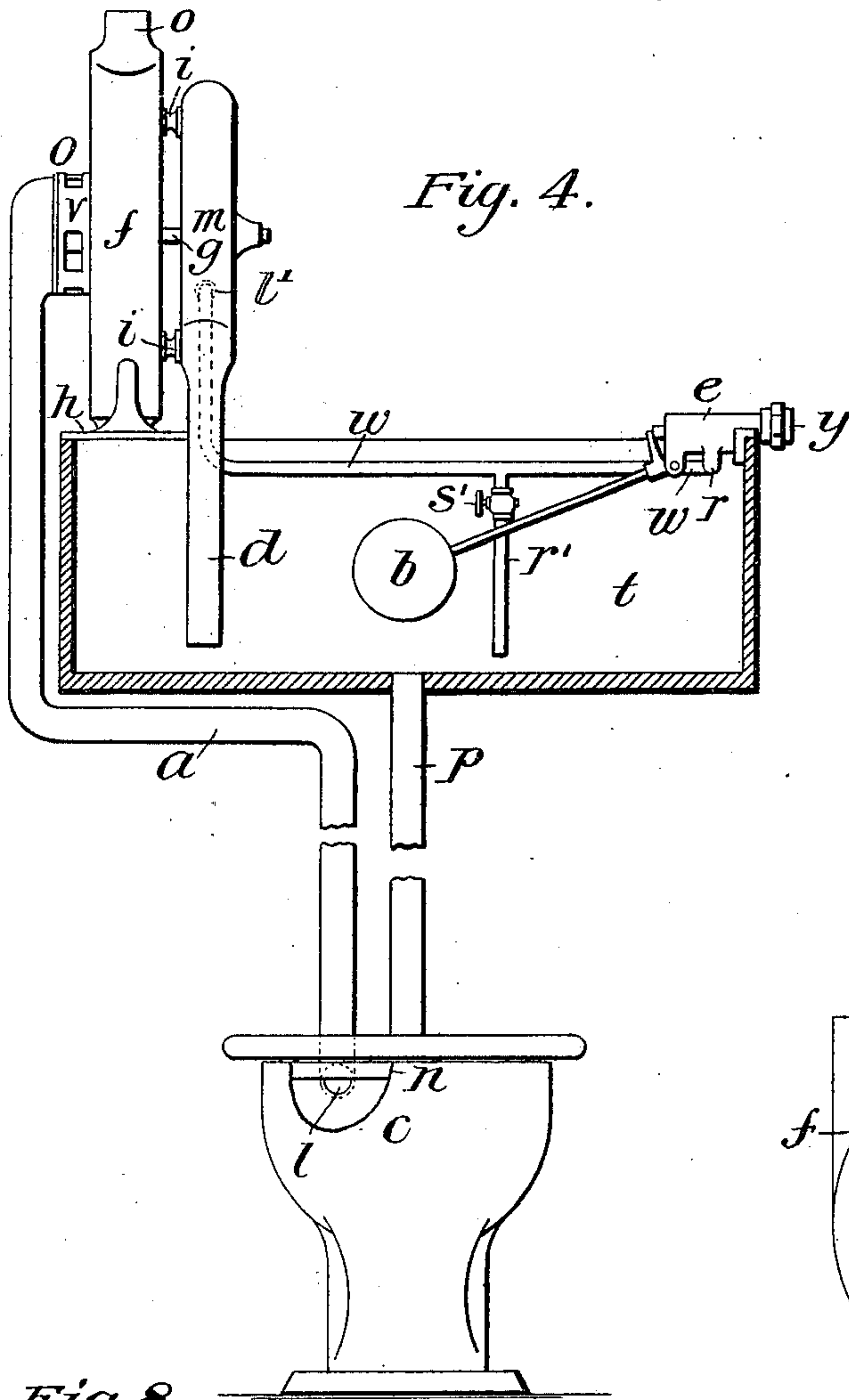


Fig. 4.

Fig. 5.

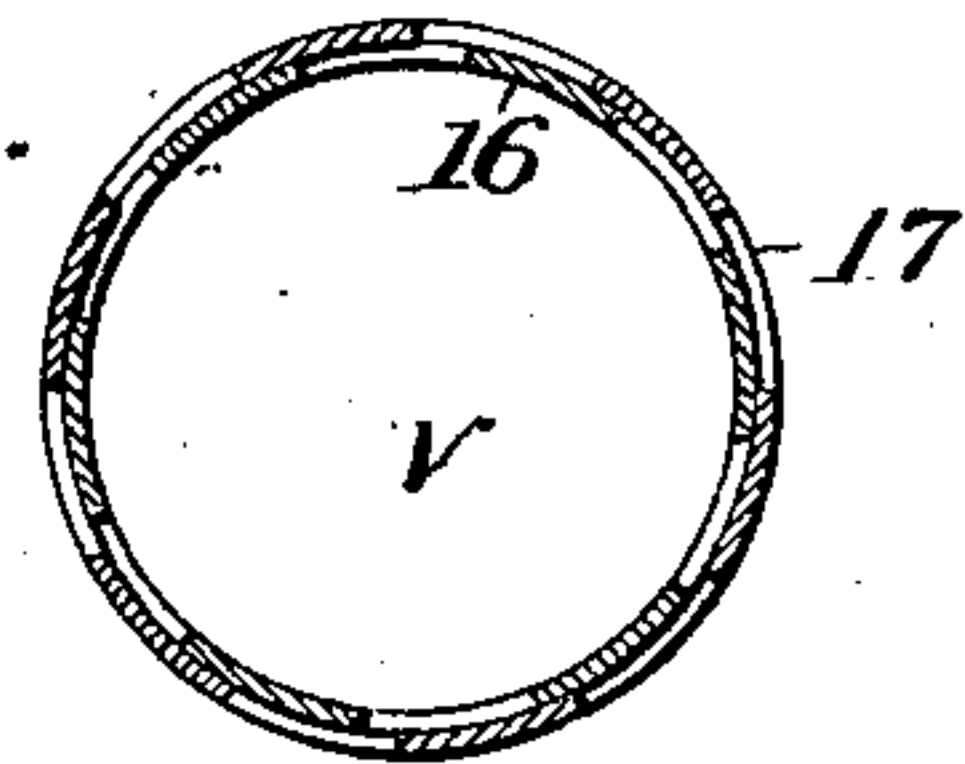


Fig. 6.

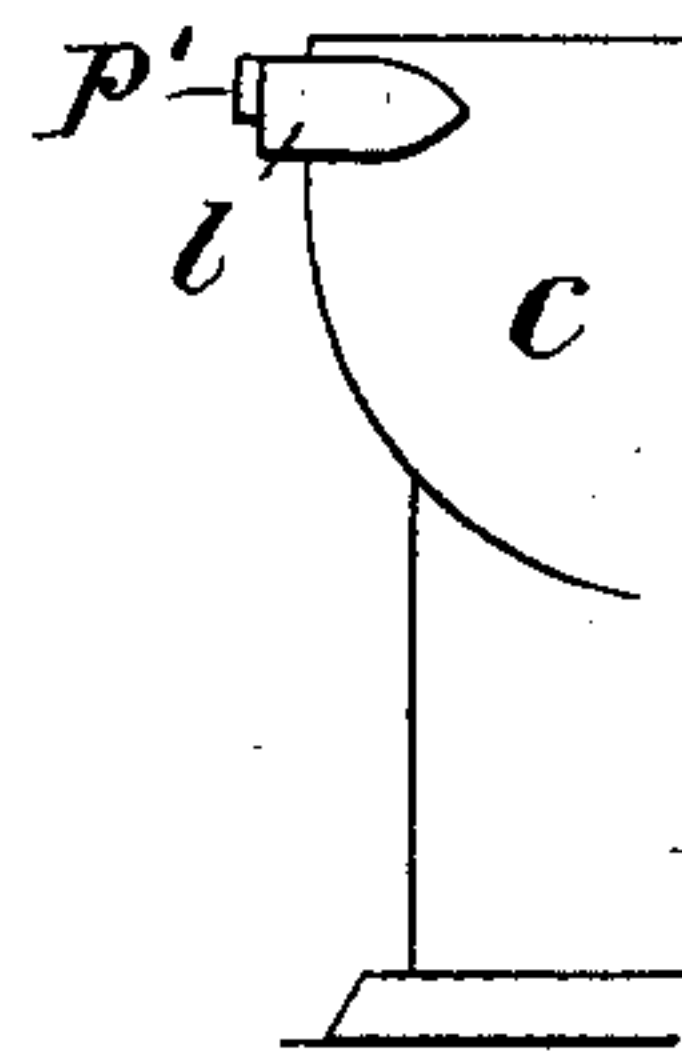


Fig. 7.

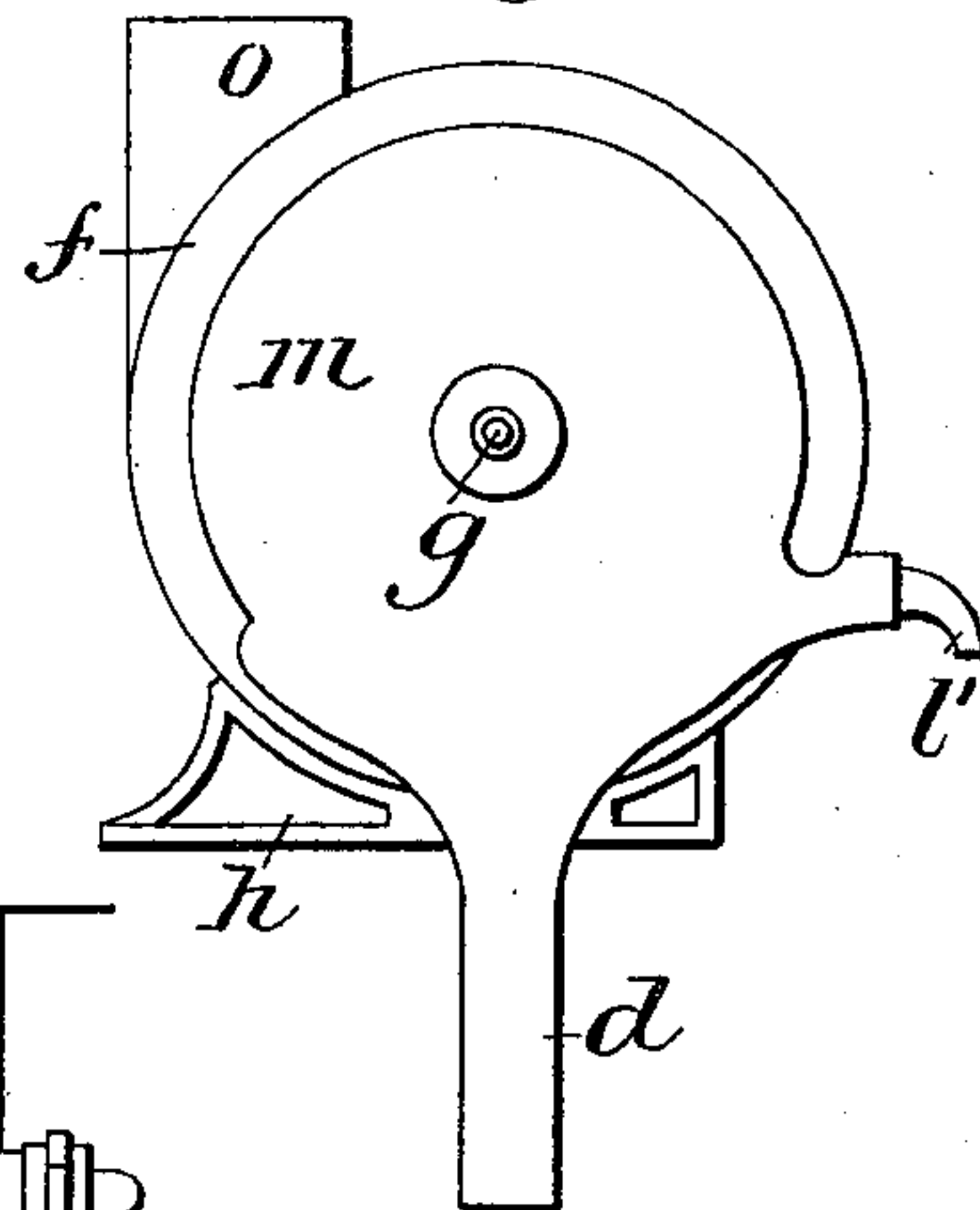
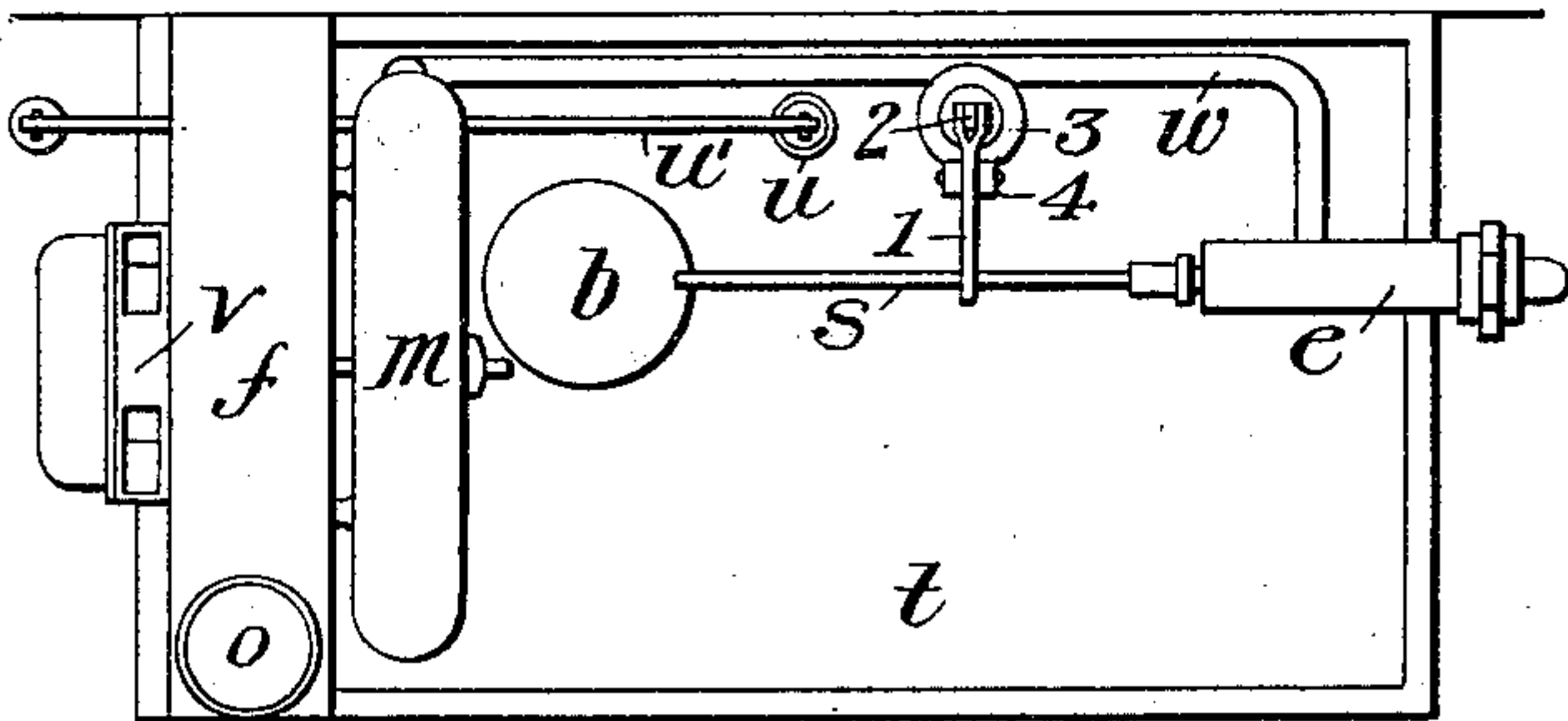


Fig. 8.



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VENTILATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 658,351, dated September 25, 1900.

Application filed July 25, 1899. Serial No. 725,047. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. DONOVAN, a citizen of the United States, and a resident of Peekskill, in the county of Westchester and State of New York, have invented certain new and useful Ventilating Apparatus, of which the following is a specification.

This invention relates to the utilization of the water used in filling house-tanks and flushing-tanks in closets, urinals, bath-rooms, &c., for ventilating purposes, and has for its object the direct and immediate removal from rooms and certain of their receptacles of all odors, practically flushing the rooms and receptacles with fresh air. Although my devices are described herein as applied to closets only, it will be plain and understood that they may be applied equally well to urinals, basins, or any vessels liable to give off odors and that the tank to which the air-moving device may be attached need not necessarily be located in the room with the receptacles so long as they may be reached with suitable piping from the air-moving device. It is equally applicable to a single large tank when the large tank is used as a supply for several smaller ones.

The objects are attained by the means set forth in this specification and the accompanying drawings, which together form a description of my invention.

Reference being made to the drawings, in which like characters refer to similar parts throughout the several views, Figure I represents a closet-bowl and flushing-tank having my ventilating devices attached thereto. Fig. II is an elevation in cross-section through line A of the tank-valve-tripping devices. Fig. III illustrates a means of obtaining a slight lift to the closet-seat. Fig. IV shows the ventilating devices attached to a bowl that is provided with a ventilating-outlet. Fig. V is an enlarged detail of the inlet to the ventilating-fan. Fig. VI represents some details of a closet-bowl. Fig. VII is a side elevation of the ventilating-fan and motor. Fig. VIII is a plan of the tank shown in Fig. I.

Fig. I represents a porcelain closet-bowl *c*, connected in the usual manner with the flushing-tank *t* by a flush-pipe *p*. The overflow *u*, rising from the flushing-valve, is shown without the flushing-lever and its chain attach-

ment; but they are indicated at *u'* in Fig. VIII. The tank-valve *e* is of the usual form, except where I by preference use a better valve than those ordinarily used or one that closes very easily.

At *l* is represented the water-supply pipe. An exhaust-fan *f*, with a direct attached water-motor *m*, is shown as placed on the most convenient end of the tank, which will usually be found to be the chain-pull end, and the fan and motor will not interfere with the flushing-lever, as the base *h* of the fan need not be so long as the tank is wide.

A pipe *w* leads from the valve *e* to the motor *m*, as shows in Figs. I, IV, and VIII. This pipe is connected to the usual outlet *r* of the form of valve shown at *e* and is conducted to the motor out of the way of other parts in the tank. The water is thus carried from the valve *e* to the motor *m*, through which it discharges into the tank by way of waste-pipe *d*. There is a connection *r'* to the pipe *w*, Fig. IV, which, it will be seen, is provided with a stop-valve *s*. It is sometimes desirable to control the flow of water through the motor, as when a high pressure would occasion such a great speed of the motor as to make a loud humming that might be disagreeable. In such a case the stop *s* may be partly opened, allowing a part of the water to flow directly into the tank and only a part of it through the motor. This provides a simple means of controlling the motor or of regulating the time required for filling the tank. Some rooms will require a longer time than others for a change of air by means of the fan.

The principal inlet of air to the fan is through the openings in the valve *v*. Fig. VI shows this valve to consist simply of a perforated band 17, placed over the pipe 16, which is also perforated to correspond with the band. By turning the band more or less the size of the openings may be regulated, the openings being shown as partly closed, as in Fig. IV. It will be plain that the valve *v* need not necessarily be placed close to the fan, as shown in Figs. I and IV. It may be located anywhere in the line of main pipe connected with the fan. It may be placed lower down in the room, either for convenience of manipulation or for taking the bulk of the air to be removed from nearer to the floor.

I prefer to locate it above the tank, as shown. From the valve *v* the pipe *a* is shown to lead to and to be connected with the flush-pipe *p*. Thus a portion of the air going to the exhaust-fan must pass into the bowl *c* and through the pipes *p* and *a* to the fan. The amount of air thus taken is controlled by the setting of the valve *v*. The opening of the flushing-valve and the consequent discharge of the contents of the tank through the pipe *p* will of course prevent any flow of air through the pipes while the water is flowing through them; but the suction of the fan will not be strong enough to draw any water to the fan. The outlet *o* from the fan is shown at the top; but the fan may be constructed so as to be turned to any convenient direction to receive a pipe to lead out of doors.

Fig. IV illustrates a bowl *c*, that is made with a ventilating nozzle or horn, which is shown also in Fig. VI, in which *p'* represents the horn to which the flush-pipe is attached, and *z* shows a horn sometimes added to bowls for a vent-pipe. Where a bowl is provided with such a horn, the air-exhaust pipe *a* may be directly attached to it, as represented in Fig. IV. In this figure the bowl is shown broken away at *n*, revealing the inlet through the horn *z*.

As thus far described, the action of the several parts will be as follows: When the chain is pulled to flush the closet, the contents of the tank will be discharged in the usual manner, the float *b* falling and opening the valve *e*. The water entering the tank passes through the motor in the manner described, driving the fan. Air is drawn through the bowl into the pipe *a* and also through the valve *v*. The motor will run until the tank is filled, so that without any waste of water and with only the quantity ordinarily required for the tank a sufficient quantity of air will be driven out of doors to thoroughly cleanse the room of all odors, and the pipe connection with the bowl will have proven to be particularly efficacious for the purpose.

To perfect the devices and absolutely get rid of all odors in closets and bath-rooms and like places where closets are located, I add an additional appliance, (shown in Figs. I, II, and VIII,) and in its description will refer chiefly to Fig. II. The seat 10 of the closet is provided with means, such as a spring or a weight, for slightly lifting it, as in Fig. I. The means shown herein are set forth in Fig. III, a rubber knob 9 being projected from a socket 11 by the spring 12. The effect is shown in Fig. II. To the wall a bracket 7 is affixed, the bracket having a lever 5 fulcrumed to it at the point 6. From the end of the lever 5 a rod 2 extends upward and through the tank. If there is room for the rod behind the tank, a bracket to support the lever 1 could be secured to the edge of the tank and the rod connection be made behind the tank; but as a neater and usually more convenient means of attachment a pipe

3 is placed in the tank, rising therein above any possible water-line, and on the upper end of the pipe means, as at 4, are provided for hinging the lever 1. The rod 2 connects with this lever, as shown, and the free end of the lever extends over the rod 3, that carries the float *b*. The levers 1 and 5 may be counter-balanced, so that when the float is at its highest point the rod will lift the levers so they cannot become an obstruction to the closing of the valve *e*. The lever 5 extends under the edge of the seat 10, where a rounded bearing-point 8 will prevent undue frictional contact between the point and the seat. This means of accomplishing the object sought is described only as a convenient one, and not with intent to limit myself to this means, as different closets will require especial adaptation of arrangements. Occupancy of the seat when it is thus arranged will cause its depression, and the levers 5 and 1 will be moved at the same instant, causing the lowering of the float *b* and the opening of the valve *e*. A very slight movement of the valve-stem *j* will cause a flow of water sufficient to drive the motor and fan, so that only a slight depression of the float through the seat movement will be required. Then from the moment the seat is occupied and so long as it is occupied the fan will be in motion and the currents of air through the pipes *a* and *p* and the valve *v* will be such as to prevent any accumulation of odors in the room. Of course with this plan of operation there will be some loss of water, but the object accomplished will compensate for the loss. If the air-pipe is connected with the flush-pipe, the flow of the small quantity of water through the flush-pipe will not interfere with the air-currents. These ventilating devices may obviously be equally well applied to the class of closets and tanks in which the tank fills only during the occupancy of the seat.

I do not wish to be limited in the use of this invention to the specific forms and arrangements of parts herein shown and described so long as I embody the spirit of the invention in its applications.

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

1. The combination in a ventilating apparatus of a fan driven by a motor supplied from the tank water-supply and connected with a passage out of the room, an adjustable air-inlet from the room to the fan, an adjustable water-supply to said motor, branching air-conduits from the fan air-inlet to the flushing-pipes connected with the vessels to be ventilated, and means substantially as set forth for operating the fan by occupancy of a closet-seat, substantially as herein shown and described.

2. In combination with a fan operated by a motor with the water used in filling a flushing-tank, the fan having exhaust-pipe connections with closets or urinals, a valve for

controlling the air-inlets substantially as herein shown and described.

3. The combination for closet-ventilation of the character described, of an exhaust-fan 5 having connections with the bowls and adjustable openings to the rooms to be ventilated, a water-motor attached to the side of the fan-casing, the discharge from said motor entering the flushing-tank, the tank supply-valve connected with the water-motor, 10 and an adjustable outlet from said motor connection, substantially as herein shown and described.

4. Means for ventilating water-closets, bath- 15 rooms, &c., comprising an exhaust-fan driven

by a water-motor supplied from the tank supply-valve substantially as shown, an adjustable air-inlet to said fan, an air-inlet pipe extending from the fan to the bowls to be ventilated, and means substantially as shown by 20 which the fan may be operated when the closet-seat is occupied, substantially as herein shown and described.

Signed at Peekskill, in the county of Westchester and State of New York, this 13th day 25 of July, A. D. 1899.

JAMES J. DONOVAN.

Witnesses:

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ELIAS S. CHAPMAN.