(No Model.) 2 Sheets—Sheet 1.

G. O. MILLER.

VENTILATING APPARATUS.

No. 564,411. Patented July 21, 1896.

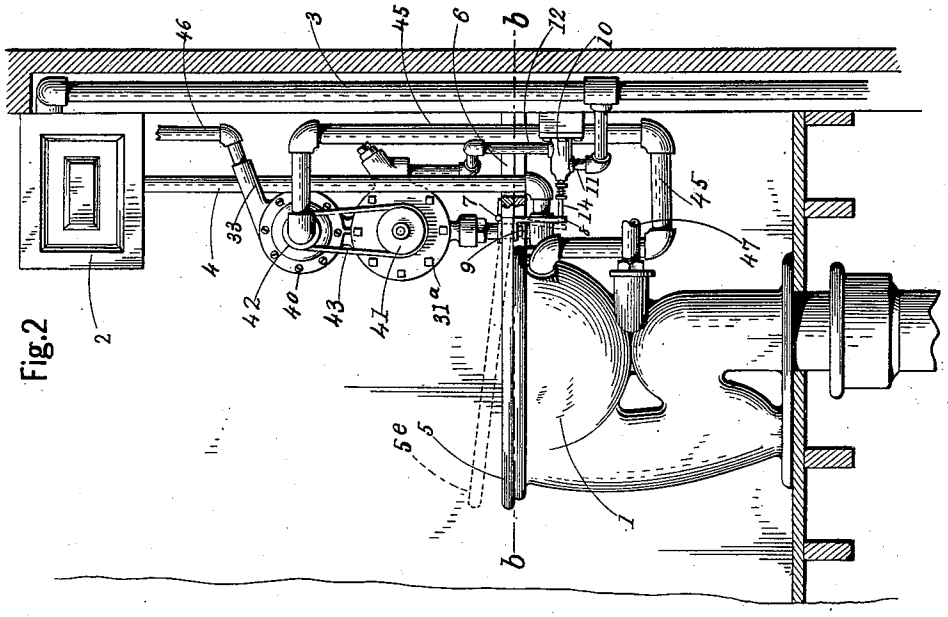

Fig. 2

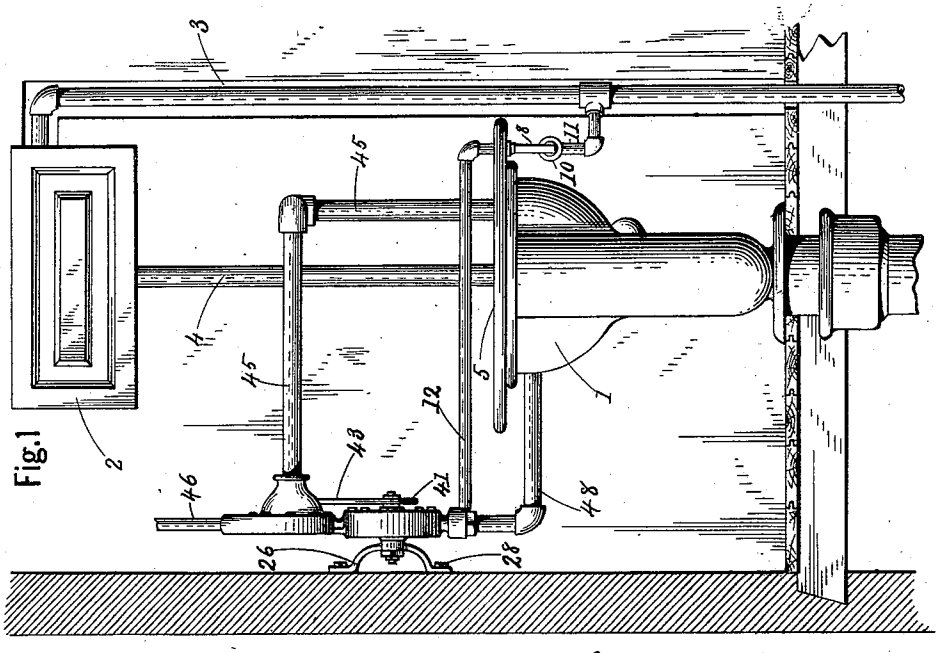

Fig. 1

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(No Model.) 2 Sheets—Sheet 2.

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Fig.3

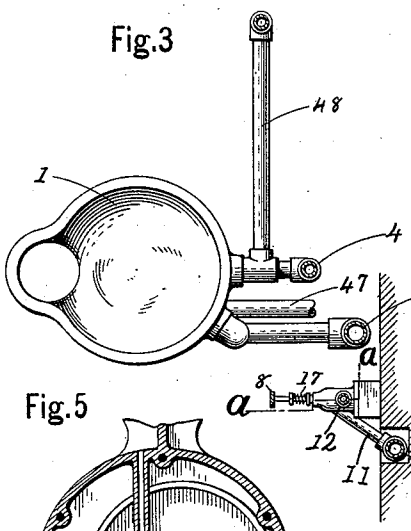


Fig.4.

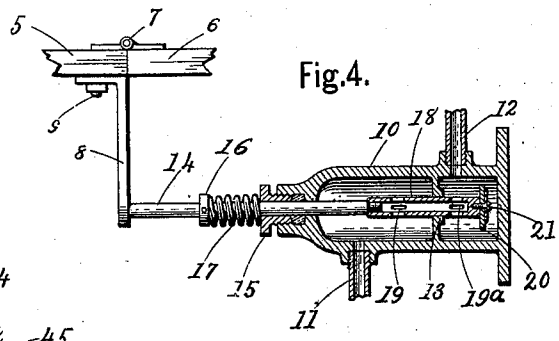


Fig.5

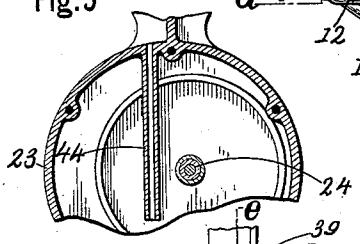


Fig.6.

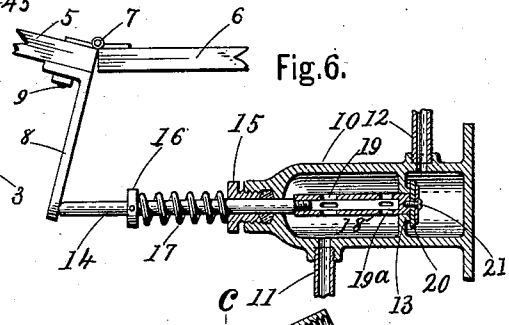


Fig.7.

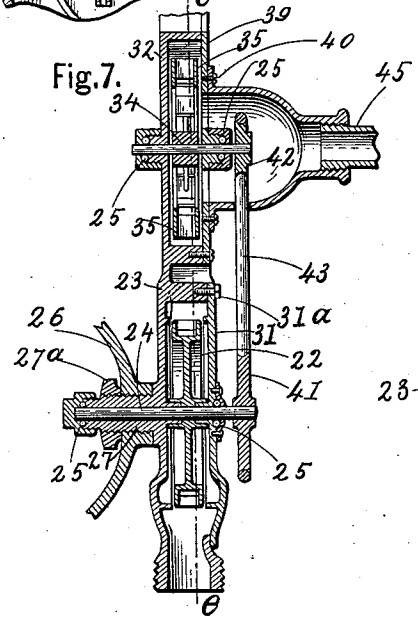
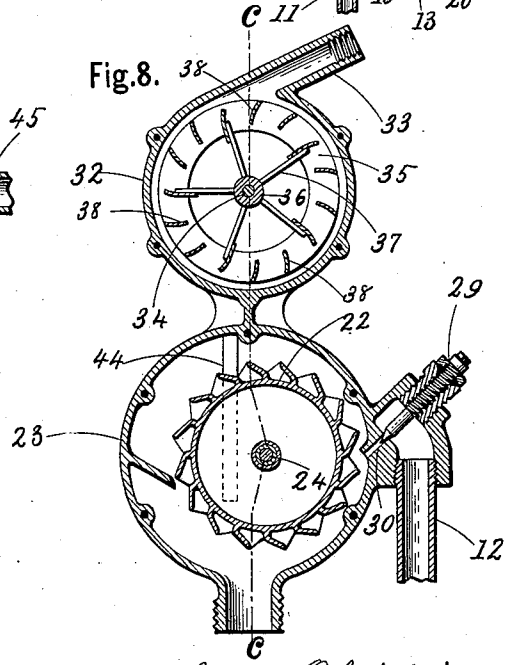


Fig.8.



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UNITED STATES PATENT OFFICE.

GEORGE O. MILLER, OF NORTH TONAWANDA, NEW YORK.

VENTILATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 564,411, dated July 21, 1896.

Application filed July 1, 1895. Serial No. 554,546. (No model.)

To all whom it may concern:

Be it known that I, GEORGE O. MILLER, a citizen of the United States, residing at North Tonawanda, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Ventilating Apparatus, of which the following is a specification.

My invention relates to certain improvements in ventilating apparatus for carrying off the foul air from closets or for other analogous uses, and it will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the apparatus complete, showing the device connected with a closet-bowl. Fig. 2 represents a side elevation showing the position of the several parts when in operation. Fig. 3 represents a horizontal section on or about line *b b*, Fig. 2, cutting through the several vertical pipes and showing a top view of the closet-bowl and its connecting-pipes, the cover being omitted. Fig. 4 represents a vertical longitudinal section through the valve and valve-case on or about line *a a*, Fig. 3, showing the valve open. Fig. 5 is a vertical section through a portion of the motor-case cutting centrally through the air-supply tube. Fig. 6 represents a vertical longitudinal section on or about line *a a*, Fig. 3, showing the valve closed. Fig. 7 is a vertical section through the fan and motor cases and some of their parts on or about line *c c*, Fig. 8. Fig. 8 represents a vertical section through the fan and motor cases and some of their parts on or about line *e e*, Fig. 7.

Referring to the drawings in detail, 1 represents the ordinary closet-bowl. (See Figs. 1 and 2.) It is secured in position in the usual manner and is provided with a flushing-tank 2, a supply-pipe 3, and a flushing-pipe 4, all of the well-known construction.

The seat 5 is secured to the portion 6 by hinges 7. (See Figs. 2 to 4 and 6.) At the rear under side of the seat is a depending bar 8, rigidly secured thereto by a bolt 9. (Shown in Figs. 2 to 4 and 6.)

Back of the depending bar 8 is secured to the wall or other convenient place, in a horizontal position, a valve-case 10. (Shown more clearly in the enlarged Figs. 4 and 6.) This valve is provided with an inlet or supply pipe 11 and a pipe 12, communicating with the motor.

Within the valve-case is a diaphragm having a valve-seat 13. The valve-stem 14 extends out through a stuffing-box 15, and is provided with a collar 16 and a spiral spring 17, interposed between the stuffing-box and the collar, the object of which will appear when describing the operation of the device. The free end of the valve-stem rests against the lower end of the bar 8.

To the inner end of the valve-stem 14 is secured the valve. It is a hollow tubular valve 18 (see Figs. 4 and 6) and is provided with a series of holes 19 and 19ª, and at the end with a valve-seat portion 20, secured thereto removably by a screw 21, in the usual way.

The motor consists of a small breast-wheel 22, inclosed within a supporting and holding case 23. (See Figs. 7 and 8.) It is mounted on a shaft 24, set in ball-bearings 25 on the holding-case 23. The holding-case 23 is rigidly secured to a bracket 26 by a screw portion 27. (See Fig. 7.) The bracket 26 is fastened to the wall or other convenient place by screw-bolts 28. (See Fig. 1.)

On one side of the motor-case is the motor supply-pipe 12, and above the end of said pipe is a regulating-screw 29, having a tapering end which projects into the inlet-opening 30 to the motor. On the outside of the screw 29 is a wrench-section by which it may be turned with a wrench to regulate the amount of water admitted to the motor. One side 31 of the motor-case is made removable and is secured in place by screws 31ª.

To the top of the motor-case, and preferably formed in one piece with it, is the fan-case 32. At the top of the fan-case is the outlet 33, through which the foul air is forced when the device is in operation.

Within the case 32 is mounted on a shaft 34 a fan-wheel consisting of two annular side plates 35, (see Figs. 7 and 8,) secured centrally to the hub 36 by the radiating arms 37. Between the two annular plates 35 is rigidly secured by solder or in any well-known way a series of blades or fans 38, set at an incline and curved slightly, substantially as

shown in Fig. 8. The fan-case is also provided with a removable side plate or cover 39, secured in place in the usual way by screws 40. (Shown in Fig. 7.)

To one side of the motor-case, on the shaft 24, is mounted a pulley 41, and on the fan-shaft 34 is mounted a smaller pulley 42, both pulleys being connected by a belt 43, so that the motor when operating operates the fan.

It will be noticed that the motor-case is secured by the screw portion 27 and jam-nut 27^a, which, when loosened, allows the fan-case to be moved to one side or the other, turning on the portion 27, after which it can be rigidly secured by the jam-nut 27^a. The fan-case is thus made adjustable, so that it can be placed in different positions, and is therefore adjustable for different locations.

Within the motor-case (see Figs. 5 and 8) is a vent-pipe 44 to provide an inlet for air while the motor is in operation. 45 represents the inlet-pipe through which the foul air is drawn to the fan, and 46 represents the outlet-pipe for the same. 47 is the usual vent-pipe connected with the trap, and 48 represents the discharge-pipe from the motor. (See Fig. 3.)

The operation of the device is as follows: The normal position of the seat 6 is maintained by the spring 17, when free to act, and is shown by the dotted lines 5^c in Fig. 2. A pressure of the seat down to the position shown at 5 in Figs. 2 and 4 moves the depending bar 8 against the end of the valve-stem 14, thereby opening the valve, as shown in Fig. 4. This operation allows the water to pass from the pipe 11, through the valve and pipe 12, to the inlet-opening 30, thereby operating the motor and, through the motor, the fan. At the same time the water after having done its work flows down from the motor to do its part in flushing the bowl.

It will be noticed that the spring 17, when free to act, keeps the valve closed and at the same time holds the seat to its normal position with a yielding force.

The flushing-tank and its several parts being a well-known device for the purpose, a further description of this part of the apparatus is not required here.

I claim as my invention—

1. In a ventilating apparatus, the combination with a closet-bowl of a hinged seat, a depending bar secured to the under side of said seat, a valve and valve-stem located in a substantially horizontal position below said seat, the end of the valve-stem resting against the lower end of the depending bar, a spring for keeping said valve closed and at the same time holding the seat in its normal position, a pipe connecting the valve with the motor, a fan having a pipe communicating with the bowl and with an outlet air-pipe, a motor for driving it and an outlet-pipe from the motor connecting with the upper rim of the bowl, substantially as described.

2. In a ventilating device, the combination of the hinged seat of a closet-bowl, a valve, means connected with the seat for opening the valve, when the seat is forced down, a spring for keeping the valve closed and holding the seat up in its normal position with a yielding force at the same time, means connecting said valve with the water supply, a water-motor having its inlet communicating by a pipe with the valve, and its outlet by a pipe with the upper part of the bowl to assist in flushing it, a fan having a pipe communicating with the upper part of the bowl, and provided with an outlet-pipe for carrying off the foul air, a pulley on the motor-shaft, and on the fan-shaft, and a belt connecting the two pulleys, as and for the purposes described.

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Witnesses:
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