A. J. GRITTON.

AUTOMATIC VENTILATING DEVICE FOR WATER CLOSETS.

APPLICATION FILED APR. 26, 1920.

1,362,290. **Patented Dec. 14, 1920.**

2 SHEETS—SHEET 1.

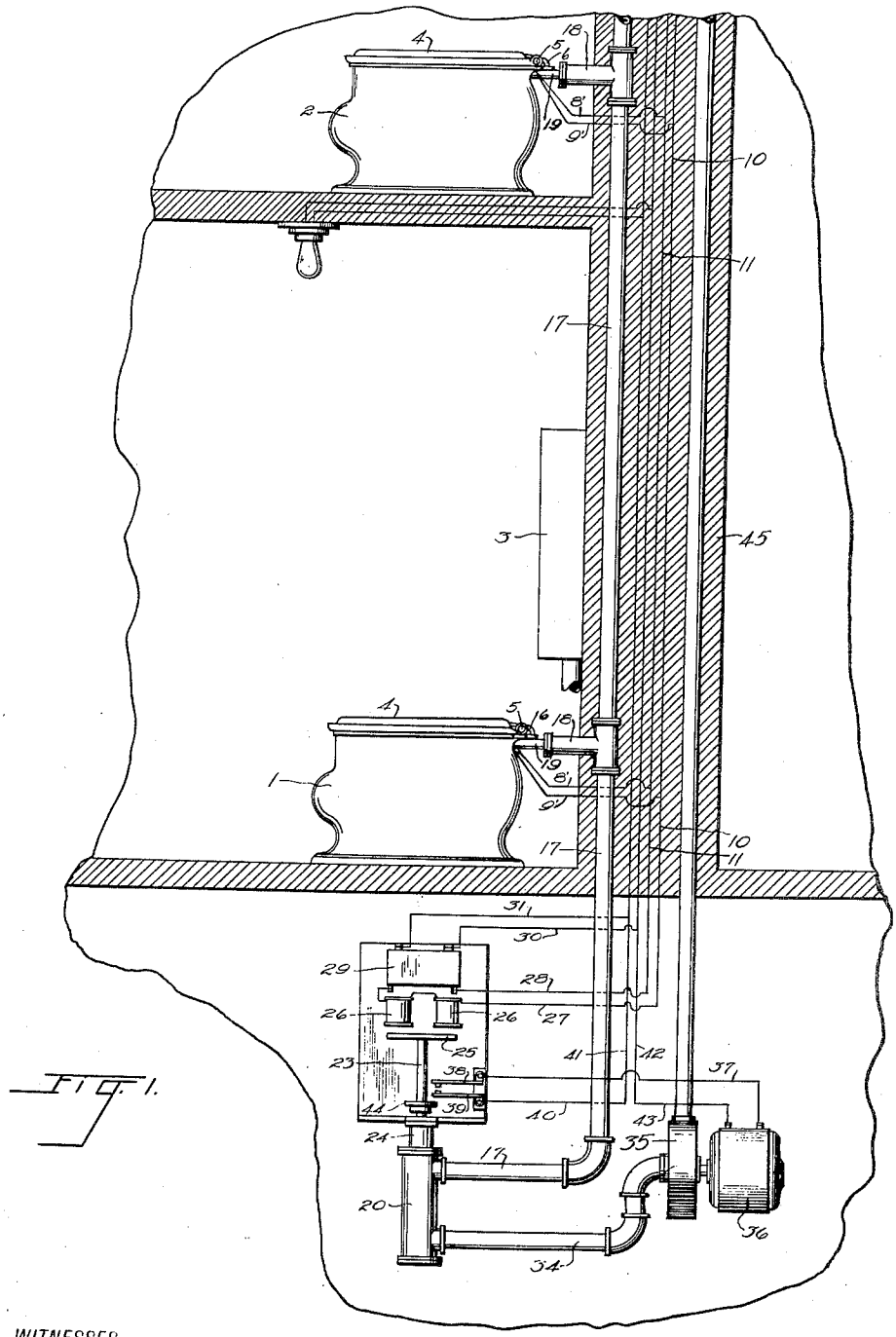


FIG. 1.

WITNESSES

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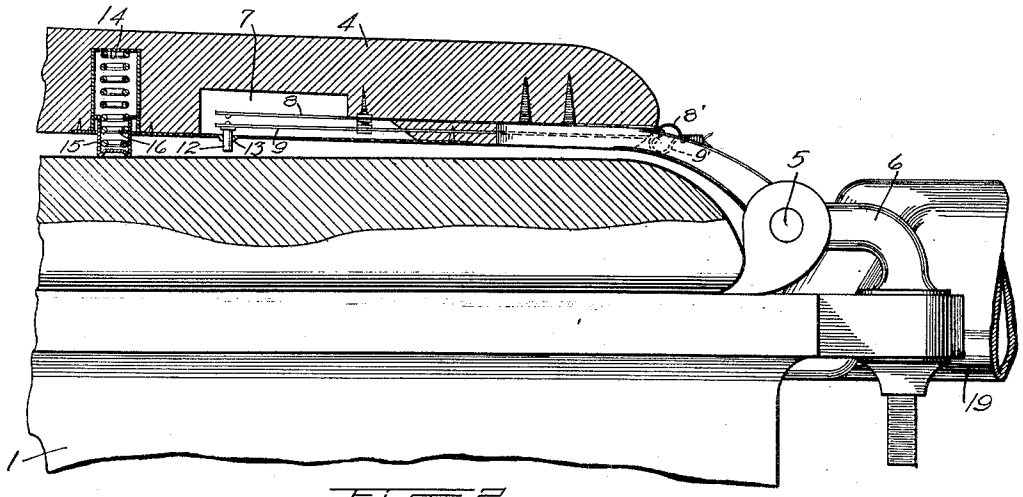


FIG. 2.

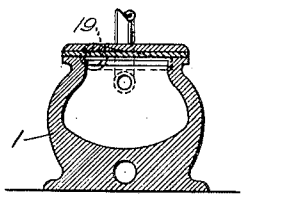


FIG. 3.

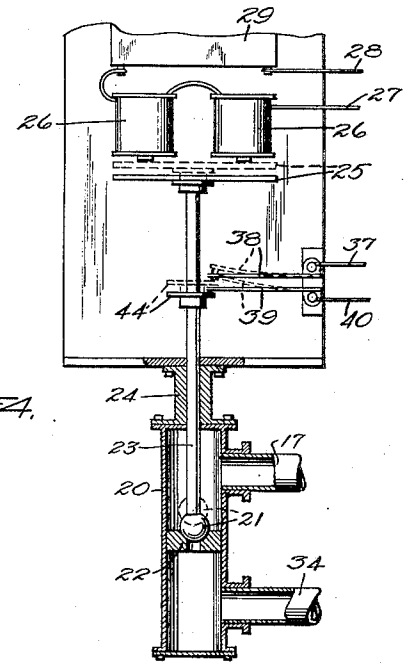


FIG. 4.

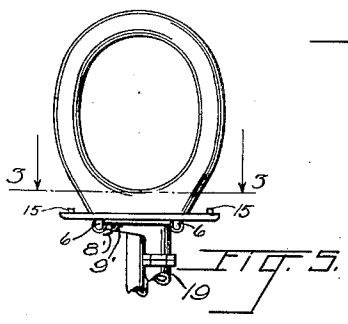


FIG. 5.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC VENTILATING DEVICE FOR WATER-CLOSETS.

1,362,290. Specification of Letters Patent. Patented Dec. 14, 1920.

Application filed April 26, 1920. Serial No. 376,701.

To all whom it may concern:

Be it known that I, ALPHEUS J. GRITTON, a citizen of the United States, and a resident of Worthington, in the county of Nobles and State of Minnesota, have invented a new and useful Improvement in Automatic Ventilating Devices for Water-Closets, of which the following is a full, clear, and exact description.

My invention relates to improvements in automatic ventilating devices for water closets, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide a device, by means of which the bowls of water closets may be ventilated, rendering the closet of a more sanitary nature.

A further object of my invention is to provide a system of the type described, by means of which a fan is automatically set into operation while the closet is being used.

A further object of my invention is to provide means for preventing a back flow of the gases or foul air into the bowl while this device is not in use.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Figure 1 is a diagrammatic view showing one embodiment of my improved ventilating system,

Fig. 2 is a sectional view through a portion of a closet seat,

Fig. 3 is a section along the line 3—3 of Fig. 5,

Fig. 4 is a detail view, partly in section, of a portion of the device, and

Fig. 5 is a plan view of the seat.

In the drawings, 1 and 2 indicate bowls of water closets and 3 a tank for flushing the bowl. The construction of the bowl itself is ordinary, and may be of any suitable construction. Each bowl is provided with a seat, such as that shown at 4. As will be seen from Fig. 2, the seat is hinged at 5 to lugs or ears 6 carried by the bowl in the usual manner. Each seat is provided with a recess 7 in which are disposed spring contacts 8 and 9 respectively, these contacts being connected by conductors 8′ and 9′ with wires 10 and 11 respectively. An insulating push button 12 is provided, which projects through the bottom of the seat and which is mounted to move in a ring-shaped guide 13.

The seat portion 4 has a tubular housing 14 which receives a tubular portion 15 secured to the bowl 1. Disposed within the members 14 and 15, which are telescopic as shown, is a spring 16 which normally keeps the seat in a raised position. In the drawing I have purposely exaggerated the distance which the seat is raised when not occupied in order that the operation of the device may be readily understood.

The seat, as stated, is held normally from the bowl by the spring 16, but when it is occupied the spring is compressed, and the push button 12 engages the bowl, thereby closing the contacts 8 and 9.

At 17 I have shown a pipe which is connected by means of branch pipes 18 with each of the bowls. The latter are provided with discharge openings, such as that shown at 19 in Fig. 3 and located at a point between the hinges 5. The pipe 17 communicates with a valve casing 20 in which is disposed a valve 21 adapted to rest normally on a valve seat 22 (see Fig. 4). A valve stem 23 extends upwardly through a guide portion 24 and bears at its top an armature 25 for the magnet 26. The latter is on a secondary circuit of a transformer 29, being connected to the wires 10 and 11 by means of the conductors 27 and 28. The transformer 29 is connected by conductors 30 and 31 with feed wires 42 and 41 respectively.

The lower part of the valve casing 20 has a pipe 34 which leads to a fan 35 driven by a motor 36. The motor is connected by a conductor 37 with a spring contact 38. A companion spring contact 39 is connected by a conductor 40 with the feed wire 41. The other feed wire 42 is connected by a conductor 43 to the opposite terminal of the motor.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. Normally the contacts 8 and 9 (see Fig. 4) are open, but when the seat is occupied, these contacts are closed and a circuit is established through the magnet 26 in the secondary circuit of the transformer 29 and by conductors 27, 10, 8′, contacts 8 and 9, feed wire 11, and conductor 28 through the magnet. This energizes the magnet 26, which

pulls up on the armature and opens the check valve 21. The upward movement of the stem 23 causes a collar 44 to engage the contact 39 to bring it into engagement with the contact 38, thereby closing the circuit from the feed wires 41 and 42 through the motor. The actuation of the motor drives the fan 35 which draws the foul odors and gases into the pipe 17 through the casing 20, and pipe 34, and forces them out of a discharge pipe 45. When the pressure on the seat 4 is released, the spring 16 forces the seat upwardly, breaking the circuit at the contacts 8 and 9 and deënergizing the magnet, whereupon the valve 21 drops downwardly and the contacts 38 and 39 are broken, thus cutting off the circuit of the motor and restoring the apparatus to its normal condition. It is obvious that the use of any seat in the system will cause a circuit through the magnets 26, as long as the transformer 29 is connected with the feed wires 41 and 42.

This system is especially desirable in large buildings, such as schoolhouses, dormitories, apartment buildings, etc. The provision of the check valve 21 prevents any back flow of the foul air into the bowls. The device being automatic in its nature, requires very little attention.

I claim:

1. The combination with a water closet bowl, of a seat hinged thereto, a spring disposed between the seat and the bowl for normally maintaining the seat in a raised position, spring contacts carried by said seat, a button carried by the seat and arranged to engage the bowl when the seat is occupied to cause the closing of the spring contact, a ventilating pipe communicating with the bowl, a fan for drawing air through the ventilating pipe, a motor for operating the fan, means actuated by the closing of the contacts for operating the motor, a normally closed valve in said ventilating pipe, and means actuated through the closure of the spring contacts for opening said valve.

2. The combination with a water closet bowl, of a seat hinged thereto, a spring disposed between the seat and the bowl for normally maintaining the seat in a raised position, spring contacts carried by said seat, a button carried by the seat and arranged to engage the bowl when the seat is occupied to cause the closing of the spring contact, a ventilating pipe communicating with the bowl, a fan for drawing air through the ventilating pipe, a motor for operating the fan, means actuated by the closing of the contacts for operating the motor, said last named means comprising a magnet in circuit with said contacts, an armature for the magnet, a stem secured to the armature, a circuit closing device actuated by the movement of the stem, and a normally closed valve in said ventilating pipe secured to said stem and adapted to open when said armature is attached.

3. The combination with a water closet bowl, of a seat hinged thereto a spring disposed between the seat and the bowl for normally maintaining the seat in a raised position, spring contacts carried by said seat, a button carried by the seat and arranged to engage the bowl when the seat is occupied to cause the closing of the spring contact, a ventilating pipe communicating with the bowl, a fan for drawing air through the ventilating pipe, a motor for operating the fan, means actuated by the closing of the contacts for operating the motor, said last named means comprising a magnet in circuit with said contacts, an armature for the contact, a stem secured to the armature, a circuit closing device actuated by the movement of the stem, and means for preventing a back flow of the air from the ventilating pipe.

4. The combination with a water closet bowl, of a seat hinged thereto, a spring for normally raising said seat from said bowl, contacts carried by the seat, a push button carried by the seat and arranged to engage the bowl for closing said contacts when the seat is occupied, a feed circuit, a transformer connected with said feed circuit, a magnet in the secondary circuit of the transformer and connected with said first named contacts, an armature for said magnet and having a stem, a ventilating pipe communicating with said bowl, a fan for operating said ventilating pipe, a motor for operating the fan, and a pair of contacts in circuit with said motor and arranged to be actuated when the armature is drawn up by the magnet.

5. The combination with a water closet bowl, of a seat hinged thereto, a spring for normally raising said seat from said bowl, contacts carried by the seat, a push button carried by the seat and arranged to engage the bowl for closing said contacts when the seat is occupied, a feed circuit, a transformer connected with said feed circuit, a magnet in the secondary circuit of the transformer and connected with said first named contacts, an armature for said magnet and having a stem, a ventilating pipe communicating with said bowl, a fan for operating said ventilating pipe, a motor for operating the fan, a pair of contacts in circuit with said motor and arranged to be actuated when the armature is drawn up by the magnet, and a valve carried by the stem for closing the ventilating pipe when the magnet is deenergized.

ALPHEUS J. GRITTON.