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Paley

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[45] **June 26, 1973**

[54] **VENTILATING SYSTEMS FOR SANITARY SYSTEMS**

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[21] Appl. No.: **98,283**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 784,538, Dec. 6, 1968, Pat. No. 3,564,624.

[52] **U.S. Cl.** **4/217**, 4/209

[51] **Int. Cl.** **A47k 13/00**, E03d 9/04

[58] **Field of Search** 4/217, 209, 216, 4/140, 103, 94, 72, 83

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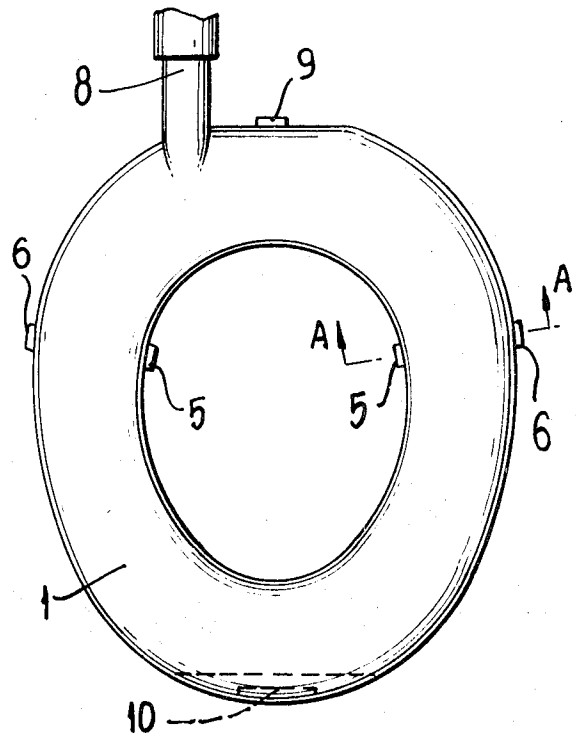
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[57] **ABSTRACT**

A ventilating means for the top of the pan or seat portion of the sanitary system. The ventilating means is provided by complementary top sections which are joined together in such a manner that intermediate portions thereof are spaced apart to provide a hollow member. Malodorous gases pass through ventilating holes in the lower section into the space between the complementary sections. An exhaust communicates with the space of the hollow device for carrying off the malodorous gases.

6 Claims, 13 Drawing Figures



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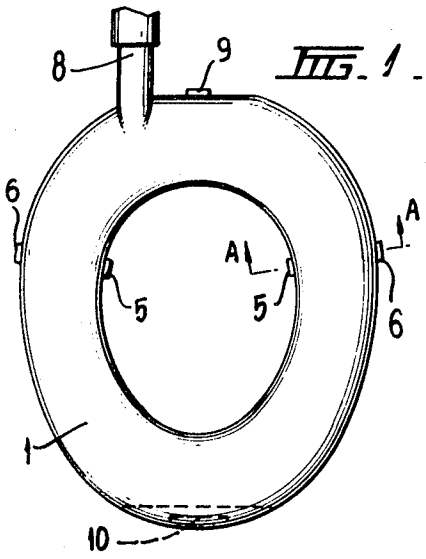


FIG. 1.

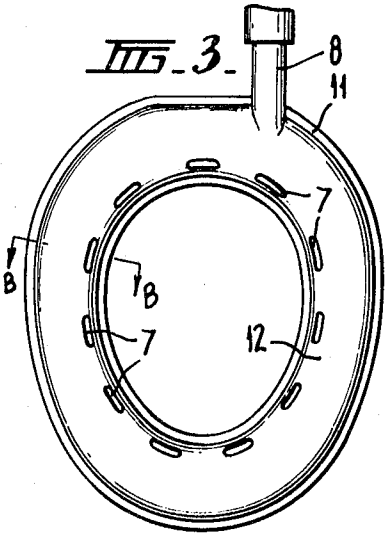


FIG. 3.



FIG. 2.

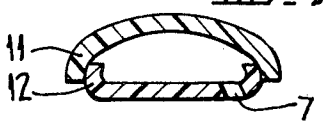


FIG. 4.

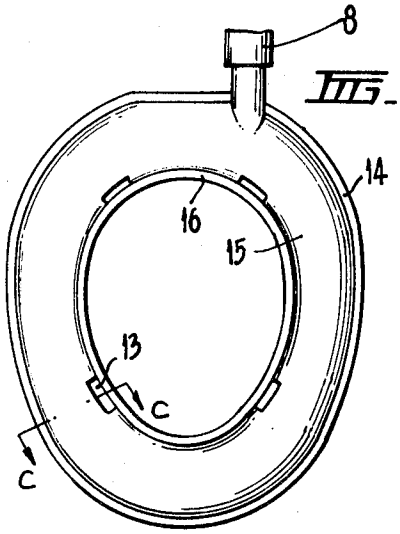


FIG. 5.

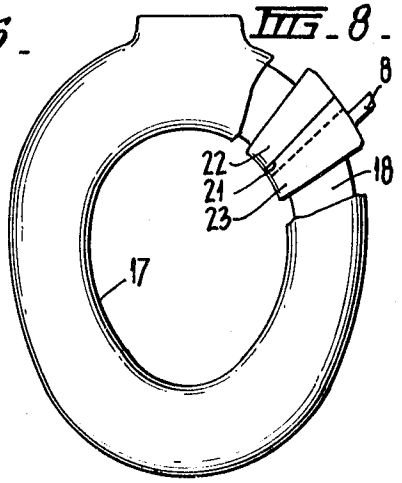


FIG. 8.

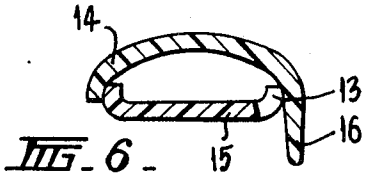


FIG. 6.

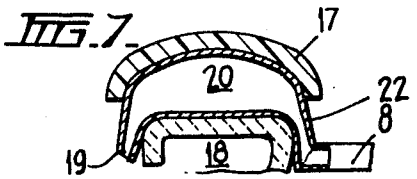


FIG. 7.

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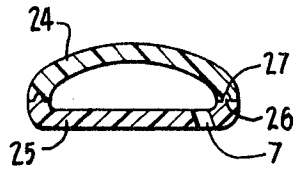


FIG. 9.

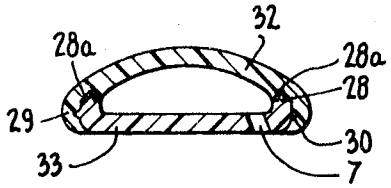


FIG. 10.

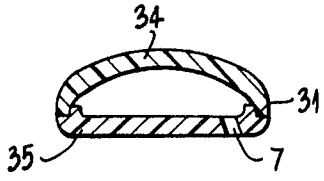


FIG. 11.

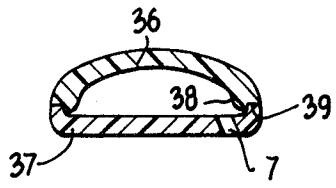


FIG. 12.

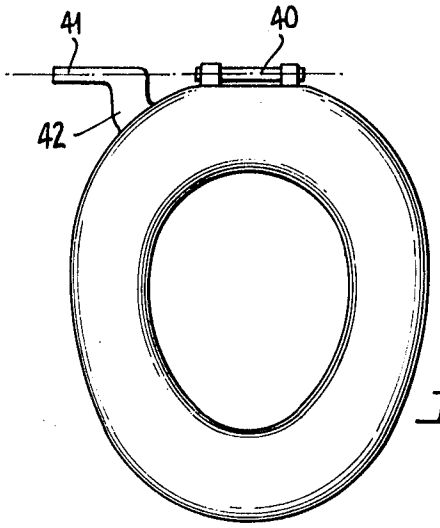


FIG. 13.

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VENTILATING SYSTEMS FOR SANITARY SYSTEMS

This application is a continuation-in-part of application Ser. No. 784,538 filed Dec. 6, 1968, now U.S. Pat. No. 3,564,624, granted Feb. 23, 1971.

Although the invention as described in that specification includes means for preventing external matter entering through the ventilation holes in the device, it is clear that from time to time it will be necessary to clean and disinfect the interior of the device.

It is an object of the present invention to provide means by which this cleaning can be readily performed.

Further, it is desirable both from an installation point of view and from a cleaning point of view that the ventilating means readily engages and disengages the pan and will not obstruct the seat on the pan.

In this specification the term "ventilating means" is used to refer to means provided adjacent the top of a pan in the sanitary system through which the malodorous gases are extracted.

According to one aspect of the invention the invention comprises a ventilating system for a sanitary system with ventilating means adjacent the top of the pan of the sanitary system in which the ventilating means comprises two complementary sections which are detachably secured together to provide means through which the malodorous gases can be drawn to the exhaust outlet.

According to another aspect of the invention there is provided ventilating means which includes means through which the malodorous gases can be drawn to the exhaust outlet which means are shaped to be substantially the same as the shape of the top of the pan and which are of less depth than the space between the top of the pan and the bottom of the seat.

The invention will be described by reference to four embodiments of the invention however the scope of the invention is not intended to be thereby limited.

The four embodiments will now be described by reference to the accompanying drawings in which

FIG. 1 is a plan view of one embodiment of the invention;

FIG. 2 is an enlarged section of AA of FIG. 1;

FIG. 3 is an underneath view of the second embodiment of the invention;

FIG. 4 is an enlarged section on BB of FIG. 3;

FIG. 5 is an underneath view of a third embodiment of the invention.

FIG. 6 is an enlarged section on CC of FIG. 5;

FIG. 7 is a side elevation of a fourth embodiment of the invention;

FIG. 8 is a plan view of the fourth embodiment of the invention.

FIG. 9 is a view similar to FIG. 2 of a fifth embodiment of the invention;

FIG. 10 is a view similar to FIG. 2 of a sixth embodiment of the invention;

FIG. 11 is a view similar to FIG. 2 of a seventh embodiment of the invention;

FIG. 12 is a view similar to FIG. 2 of an eighth embodiment of the invention, and

FIG. 13 is a plan view of a ninth embodiment of the invention.

In the embodiment shown in FIGS. 1 and 2 the seat of the sanitary system comprises a hollow device constructed from two complementary sections 1 and 2 which are of similar cross-section as shown in FIG. 2.

Sections 1 and 2 are complemental in shape, with the intermediate portions thereof being spaced apart and the lateral extremities bent towards each other. When the extremities of the two sections are contiguous, the sections serve a dual capacity, the formation of a toilet seat and the provision of a ventilating space between the intermediate portions of the sections. The two sections 1 and 2 are detachably held together by lugs such as 5 and 6. Both lugs may be on the same section or preferably be arranged so that one lug, such as lug 5 is on section 2 and another lug, such as lug 6 on section 1.

In addition a lug 9 may be provided adjacent the exhaust 8 for better securement of the two sections 1 and 2 together.

The hollow device includes ventilating holes such as 7 in FIG. 2. As described in U.S. Pat. No. 3,564,624 the malodorous gases are exhausted through these holes then through exhaust 8. The suction being provided by an exhaust fan not shown.

If desired a hinge 10 may be provided at one end of the two sections, or at some other suitable position, to retain the sections together while cleaning. Clearly the hinge would be one point of securement which would reduce the number of lugs necessary to properly secure sections 1 and 2 together.

In the second embodiment of the invention shown in FIGS. 3 and 4 the two sections 11 and 12 are made complementary though dissimilar. Thus in the figures it can be seen that section 12 is designed to overlap and engage section 11. The design of the complementary sections is not critical provided that they detachably secure together.

In this embodiment ventilating holes 5 are also provided to permit malodorous gases to be exhausted through exhaust 8.

In the third embodiment shown in FIGS. 5 and 6 the construction of the complementary sections 14 and 15 is similar to that of the second embodiment. However, in this embodiment the openings 13 are provided in section 15. The inside leg of section 14 is lengthened.

The openings 13 provide the means for exhausting the malodorous gases and the lengthened leg 16 provides a shield for the openings to stop external matter getting in.

In the embodiment shown in FIGS. 7 and 8 the ventilating means according to the invention comprises a hook like device in which the hook shape is substantially the same as the contour of the top of the sanitary pan to which it is applied. Thus the ventilating means according to this embodiment comprises an opening 19 into which the malodorous gases may be drawn, means with a narrow space 20 through which the gases may be drawn to the exhaust outlet 8. The narrowness of space 20 is such that the seat 17 is not obstructed in its narrow position. The device itself is shaped to correspond to the contour of the top of pan 18.

To facilitate cleaning the device according to this embodiment may be in two complementary parts which join together as shown at 21 in FIG. 8. In the embodiment shown the ventilating means comprise two parts 21 and 22. The two parts are similar except that the exhaust outlet is secured to one only of the parts and that the connecting edge of part 21 is of smaller cross section than the connecting edge of part 22. The two parts are detachably secured together by inserting the connecting edge of part 21 into that of part 22.

Although in this embodiment, the connecting edges are shown as being in a longitudinal direction, it is clear that they could be in a lateral direction, and that two dissimilar parts can be arranged to form ventilating means have the characteristics of this embodiment.

FIGS. 9, 10, 11 and 12 show alternative means of connecting the two complementary parts which can be applied to any of the previously described embodiments.

In the form of securement shown in FIG. 9 the cross section of the ventilating means comprises two complementary means 24, 25. Means 25 includes ventilating openings 7 through which the malodorous gases are withdrawn from the pan. Both edges of means 25 have a ridge 26 which secures into a corresponding groove 27 in means 24 so as to provide detachable securement thereto.

In FIG. 10, the bottom complementary means 33 includes a protrusion 30 which extends round both sides of the means and ridge 28 around both edges of means 33. The top complementary means 32 includes a groove 28 into which the ridge 28 fits and an overlapping edge 29 which fits over protrusion 30 when the two complementary means are secured together.

In FIG. 11, the bottom complementary means 35 has ledges 31 around its edge and the edges of the top complementary means 34 fit on to these ledges to detachably secure the two together.

In FIG. 12 the top complementary means 36 has groove 40 around its edges, into which the edges of the bottom complementary means 37 fits, and overlapping portions 38 which fit over the inside of the edges of the bottom complementary means.

Although particular methods of securement of the two complementary means have been described the scope of the invention is not intended to be thereby limited.

FIG. 13 shows a plan view of a further embodiment of the invention.

The ventilating means according to this embodiment comprises two complementary sections which are detachably secured together by means such as those described above. The two complementary sections are hinged together at hinge 40 so that the two sections are still secured together when they are opened for cleaning.

In this embodiment the exhaust outlet 41 is secured to the lower of the two complementary sections and offset so that the axis of the exhaust outlet is in the same plane and direction as the axis of the hinge 40.

The upper complementary section is secured to the underneath of the seat for the sanitary pan. As the seat is raised or lowered, the exhaust outlet 41 will rotate about the same axis as the hinge, so that there will be no obstruction arising from such movement.

A further advantage of a ventilating device according to the present invention is that it permits of deodorants or other similar substances being placed in the hollow space so that by reversing the direction of the flow of air after the malodorous gases have been evacuated fresh air passed over the substances can be introduced into the room.

I claim:

1. Ventilating means for the top of the pan of a sanitary system comprising:
   a. a pan including complemental upper and lower sections in facing relationship, the overall shape of said sections conforming to that of the pan,
   b. the intermediate portions of said sections being spaced apart and the lateral extremities being bent towards each other,
   c. the lateral extremities of said upper and lower sections being contiguous with each other to form a toilet seat and provide a ventilating space between the sections,
   d. ventilating holes in said lower section, the ventilating holes being in communication with the pan and ventilating space between said sections,
   e. means for detachably securing said sections together, and
   f. exhaust means in communication with the ventilating space for carrying off malodorous gases.

2. The ventilating means of claim 1, wherein:
   a. the edges of said complemental sections are provided with complemental interengaging portions.

3. The ventilating means of claim 1, wherein:
   a. the lateral extremities of said sections lie in overlapping relationship to each other.

4. The ventilating means of claim 1 wherein:
   a. said means for detachably securing said sections together include hinge means holding said sections together and permitting separation of the two sections for cleaning, and
   b. lug means carried by at least one of said sections and engageable with the others of said sections for normally retaining the sections together.

5. The ventilating means of claim 1, wherein:
   a. said ventilating holes in one of said sections are located adjacent the other of said sections, and
   b. the lateral extremity of said other section adjacent said ventilating holes is extended to provide a shield for the ventilating holes.

6. The ventilating means of claim 4, wherein:
   a. said exhaust means is secured to said lower section,
   b. said exhaust means including an exhaust outlet, the longitudinal axis of which is in the same plane as the longitudinal axis of said hinge means holding the two sections together, whereby the exhaust means rotates about the same axis as said hinge means and there is no obstruction as a result of movement of the sections about the hinge means.

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