UNITED STATES PATENT OFFICE

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TOILET SEAT SANITATION DEVICE

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11 Claims. (Cl. 4—233)

1. This invention relates to sanitation devices and more particularly to sanitation devices for automatically sanitizing toilet seats which are used successively by different persons. The invention is an improvement in or modification of that claimed in my co-pending application Serial No. 507,129 filed October 21, 1943, now Patent 2,494,894, issued January 17, 1950.

The patent discloses a sanitation device in which two articles are included, one of which may be in use while the other is being sanitized or freshened or has been sanitized or freshened. The device includes a sanitizing or refreshing chamber having a closure which serves to seal the chamber and which has disposed on opposite sides thereof the articles to be sanitized or freshened, the closure being adapted to be rotated to bring one of the seats into position for use and the other into position within the chamber. The sanitizing or freshening means may consist of an electric heater or lamp or chemical or other disinfecting, drying, or freshening media. A locking handle for the closure is suitably operatively connected with the articles to be sanitized or freshened so as to ensure that the articles will be in a position to permit rotation of the closure when the handle is operated to open the closure and that one or other of the articles is free for service when the handle is in locking position.

The improved device of the present invention in its preferred form comprises a sanitizing or freshening chamber with a front or carrier detachably mounted on a support, which may be part of the chamber, for example. Toilet seats are mounted on opposite sides of closure means rotatably supported by the carrier, which is adapted to permit interchange of the seats to bring one seat into position for use and the other into position within the chamber, or withdrawn from use.

In one embodiment of the invention a panel or closure rotatable within the detachable front or carrier carries the toilet seats. The central part of the closure may be in the form of a fixed panel around which the seats and the remainder of the closure is rotatable.

In another embodiment two panels or closures rotatable each on its own axis within the detachable front or carrier carry the toilet seats which are arranged in pairs of half seats on each side thereof.

Other features of the invention will appear from the following description and will be pointed out in the appended claims.

The invention is illustrated in the accompanying drawings in which Fig. 1 is a side elevation of the improved sanitation unit showing the seat in a lowered position, the seat in the chamber being shown in dotted lines and a sanitizing or freshening unit being located directly beneath the chamber which is not sealed on the bottom. Fig. 2 is a front elevation showing the seat in raised position and showing the preferred form of detachable front. Fig. 3 is a plan view with a seat lowered, the detachable front being shown also in dot and dash lines in a position bringing out of the way of permit of washing the interior of the chamber. Fig. 4 is a horizontal section on the line 4—4 of Fig. 2 showing both seats in a raised position and a sanitizing or freshening unit immediately below the rear seat. Fig. 5 is a front elevation of a detachable front or carrier having a shaped central fixed panel used preferably with two whole seats and with a sanitizing or freshening unit which is shown in the form of an electric sterilizing lamp, but which may be a suitable disinfecting or deodorizing device. Fig. 6 is a horizontal section on the line 6—6 of Fig. 5 showing the seats in raised position and the chamber combined with a low flushing tank. Fig. 7 is a side elevation of a sanitation unit of the compact type, e.g., a unit having two panels which rotate each on its own axis, the seats being shown in raised position. Fig. 8 is a front elevation of Fig. 7 with the seats in raised position mounted in the detachable front with two panels. Fig. 9 is a plan view of Fig. 8, while Fig. 10 is a horizontal section on the line 10—10 of Fig. 8 showing the chamber combined with a low flushing tank.

Referring to the drawings generally, 20 indicates the bowl of the toilet, 21 indicates the sanitizing chamber, suitably of vitreous earthenware, of the sanitation unit disposed above and behind the bowl and 22 the closure or closures or panels on which the toilet seats 23 are mounted. Both the panel and seats suitably consist of laminated plastic or other material reinforced if necessary. The panels are rotatable about upper and lower pivots 24 and 25. The sanitizing medium 26 in the various forms illustrated consists of an electric tubular heater, a sterilizing lamp or a hot water pipe. Chemical germicide and insecticide blocks (not shown) may be conveniently placed in the chamber. Particles may be entrained in circulating warm air and so hasten the sanitizing. The toilet seats 23 are carried by brackets 21.
mounted on a horizontal rod 28 and adapted to be lowered against the action of a torsion spring (not shown). The rod 28 is hollow to contain the spring. The panel or panels are locked in position in the detachable front by handle 32.

As shown and in accordance with the present invention, the device has an easily detachable front or carrier 30 which is preferably spring mounted on hinges 31 which may be attached to a wall of chamber 21 and from which the carrier can readily be lifted to the door of an oven. A padlock 32 and withdrawal pin 33 are provided on the side opposite to the hinges to prevent unauthorised opening. The detachable front in the form illustrated consists of a frame 34 containing the panels and mechanical parts. The front is attached non-permanently to the sanitizing chamber by hinging or otherwise so that periodically it may be swung out of the way as indicated in Fig. 3 or removed to permit of washing the interior of the chamber. Since the front contains all the parts subject to wear, it is an advantage to be easily replaced when necessary. Moreover, when the front is open, access can be had to the sanitizing medium and to any rear fittings of the front. Replacements of the front or carrier can be made without skilled help and without disturbing the chamber or low flushing tank 21 if it remains secured in position. Spring mounting the front or carrier permits the seats to be depressed on the bowl when in use.

In the form of the device shown in Figs. 5 and 6, the seats 23 are of the one-piece type and the panel 22 has a central opening with the openings in the seats, when the latter are in raised position. A sub-panel 22c is supported within the opening on a tube 24a extending downward from upper pivot 24 and on a rod 25a extending upward from lower pivot 25. The sanitizing device 26 in the form of an electric lamp is mounted in a socket 26a attached to the rear surface of the sub-panel and is supplied with current through conductors 25b extending upward the rear of the sub-panel and through tube 24a and upper pivot 24. When panel 22 is rotated on its pivots to reverse the position of the seats, the sub-panel 22c remains stationary, so that the lamp acts at all times on the seat at the rear of panel 22.

In the embodiment shown in Figs. 7 and 8 and including two panels, the handle 29 is conveniently placed on top i.e. on the upper extension of a panel spindle 24 above the frame 34. The handle can be lowered as described in Patent 2,494,894 to pull the seat brake cables 35 and to disengage the nose of the handle from a recess 36 on the upper edge of the frame 34. The handle 29 can then be pulled round to rotate the panel 22 through 180°. The position of the handle pivot 37 permits a practically straight path for the seat cable 35. Moreover the cable can extend down the centres of the panels 22 and be operatively connected to spring loaded friction brake blocks 38 or ball and socket detents which hold both seat hinge rods 28. The connecting tube 39 for the cable serves as a handle for lifting off the front 30.

To prevent the seats from being trapped or damaged by a deliberate rapid movement of the handle 29, which would release and partially rotate the panels 22 before the seats had sufficient time to rise to a vertical position, the hinges brackets 27 of the seat may be arranged to engage slots 40 in the lower wall of the frame 34 when the seat is in a lowered position. The hinges free themselves from the frame when the seat reaches a substantially vertical position, at which time the panels 22 are free to rotate.

When the detachable front, it is not convenient to fit the flexible shaft on the underside of the panel axis as described in the co-pending application since it would cause interference with the toilet bowl 20 when the front 30 is being removed. However the spindles 24 can readily be connected by gerald 41 as indicated in Fig. 8 so that the panels 22 will rotate in unison as before.

In installations where there is limited floor space, an improvement from an accommodation standpoint can be effected by partially shaping the chamber 21 to the path of the dual panels. This arrangement shown in Figs. 9 and 10 leaves free a central triangular space 42 between the chamber and the wall of the toilet and so permits the flushing pipe 43 from an overhead flushing tank to pass through this space 42 and down the wall at the rear of the toilet bowl in the usual way. This adjustment indicates that the sanitizing device can be fitted to many present installations without alteration to the existing fixtures.

There are many alternative constructions. The spring bolt and socket detent for the seat spindles need not be controlled from the handle and may be omitted altogether from many installations. The locking handle for the panel may be a fixed handle and the panel may be held in position in the frame by a stop and a spring ball and socket detent.

The panel in the embodiment shown in Fig. 2 may be pivoted on a detachable horizontal central stationary axle instead of the vertical axle shown. This has an advantage in avoiding the necessity for the frame 34 but is not the preferred embodiment.

Obviously this device would be a useful article even if the sanitizing medium was omitted or was a simple de-odorizer since the use of the duplicate seats overcomes the universal aversion to the consecutive use of one seat, doubles the drying interval between the use of any one seat and accelerates drying by its vertical position.

This facilitation of natural drying is of twofold importance since firstly a dry seat is desirable but also since it is recognized that the gonococcus, the organism of gonorrhoea is readily killed by drying. A further application of the drying method of sanitization is by using low temperature electric immersion heaters or the like inside the toilet seats.

In the annexed claims, the term "sanitizing device" is intended to apply to any of the devices referred to above as useful for sanitizing and freshening purposes and including electric heaters or lamps or chemical or other disinfecting, drying, or de-odorizing media.

I claim:

1. In a sanitization device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier for rotational movement, an engageable portion of the panel, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, a sanitizing device, means for mounting the device on the carrier to lie to the rear of the panel and in position to act upon the seat member when the panel is reversed and the member lies behind the panel,
and means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel.

2. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier for rotational movement on an axis of the panel, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, and means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel, said mounting means being quickly detachable for easy removal of the assembly of the carrier, panel, and seat member from the support.

3. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier for rotational movement on an axis of the panel, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, a germicidal lamp, means for securing the lamp to the carrier, and means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel.

4. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier for rotational movement on an axis of the panel, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, and quick detachable hinge means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel, said hinge means permitting easy removal of the assembly of the carrier, panel, and seat member from the support.

5. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier for rotational movement on an axis of the panel, a pair of toilet seat members, means for attaching the members to the panel at opposite sides thereof for swinging movement, either from the front of the panel, being movably from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, a germicidal lamp, means for securing the lamp to the carrier, and means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel.

6. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier and having an open front, a carrier, a vertical panel mounted on the carrier and lying at the front of the chamber, the panel being rotatable on the carrier on an axis of the panel, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, the member lying with the chamber when the panel is rotated 180°, sanitizing means mounted to act on the member when it is within the chamber, and means for mounting the carrier on a wall of the chamber for swinging movement on a vertical axis offset from one vertical edge of the panel.

7. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a chamber extending upwardly above the top of the bowl and having an open front, a carrier, a vertical panel mounted on the carrier and lying at the front of the chamber, the panel being rotatable on the carrier on an axis of the panel, a pair of toilet seat members, means for attaching the members to the panel at opposite sides thereof for swinging movement, either from the front of the panel, being movably from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl and the member at the rear of the panel lying within the chamber, and means for mounting the carrier on a wall of the chamber for swinging movement on a vertical axis offset from one vertical edge of the panel.

8. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a chamber, a carrier, a vertical panel mounted on the carrier for rotational movement on an axis of the panel, a toilet seat member, means for attaching the member to the panel for pivot movement, said member being movable, when at the front of the panel, from a position in which the member lies parallel to the panel to a position in which the member lies substantially horizontal and above the bowl, a germicidal lamp, means for securing the lamp to the carrier, and means for mounting the device on the carrier to lie at the rear of the panel, and means for mounting the carrier on a wall of the chamber for swinging movement on a vertical axis beyond a vertical edge of the panel.

9. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, a germicidal lamp, means for securing the lamp to the carrier, and means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel.

10. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a support, a carrier, a vertical panel mounted on the carrier for rotational movement on an axis of the panel, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, a germicidal lamp, means for securing the lamp to the carrier, and means for mounting the carrier on the support for swinging movement on a vertical axis offset from the central vertical axis of the carrier and adjacent one vertical edge of the panel.

11. In a sanitation device for toilet seats adapted to overlie a toilet bowl, the combination of a sup-

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port, a carrier, a vertical panel mounted on the carrier, a toilet seat member, means for attaching the member to the panel for movement from a position in which it lies parallel to the panel to a position in which it lies substantially horizontal and above the bowl, a germicidal lamp, means for securing the lamp to the carrier, and means for mounting the carrier on the support, said mounting means being quickly detachable for easy removal of the assembly of the carrier, panel, and seat member from the support.

JAMES MONAGHAN.

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