



US 20090133185A1

(19) **United States**(12) **Patent Application Publication**
Fisseha(10) **Pub. No.: US 2009/0133185 A1**(43) **Pub. Date: May 28, 2009**(54) **TOILET SEAT CLEANING SYSTEM****Publication Classification**(76) Inventor: **Yom Fisseha, London (GB)**(51) **Int. Cl.**
A47K 13/00 (2006.01)

Correspondence Address:

LEYDIG VOIT & MAYER, LTD**700 THIRTEENTH ST. NW, SUITE 300****WASHINGTON, DC 20005-3960 (US)**(52) **U.S. Cl. 4/233**(21) Appl. No.: **12/095,162**(22) PCT Filed: **Sep. 27, 2006**(86) PCT No.: **PCT/GB06/03596**

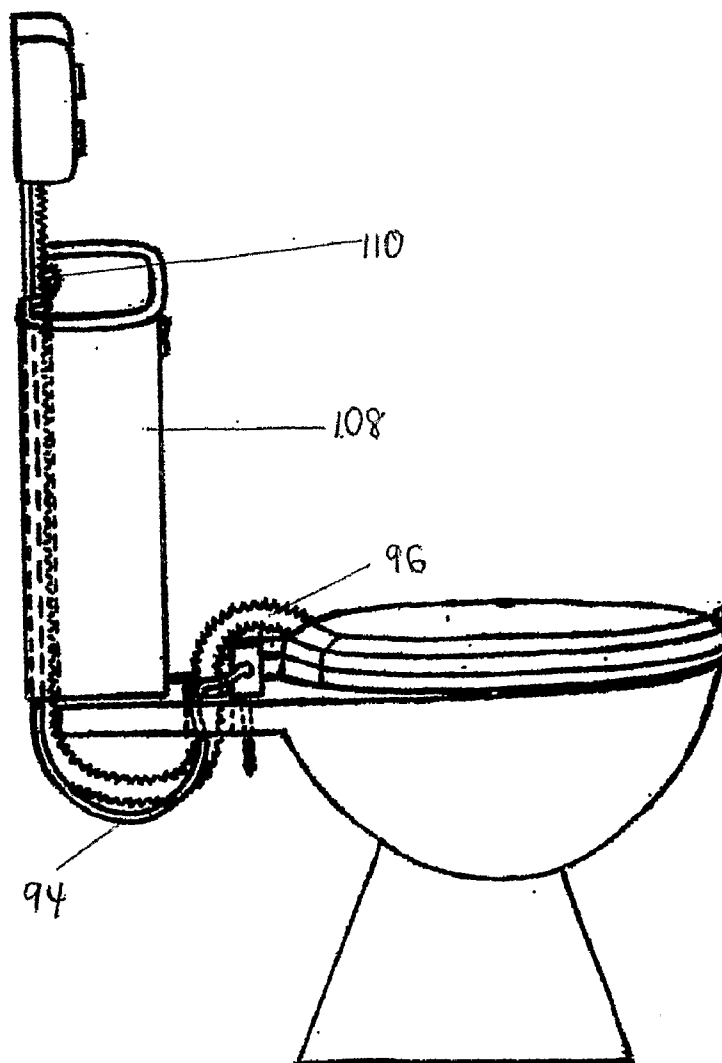
§ 371 (c)(1),

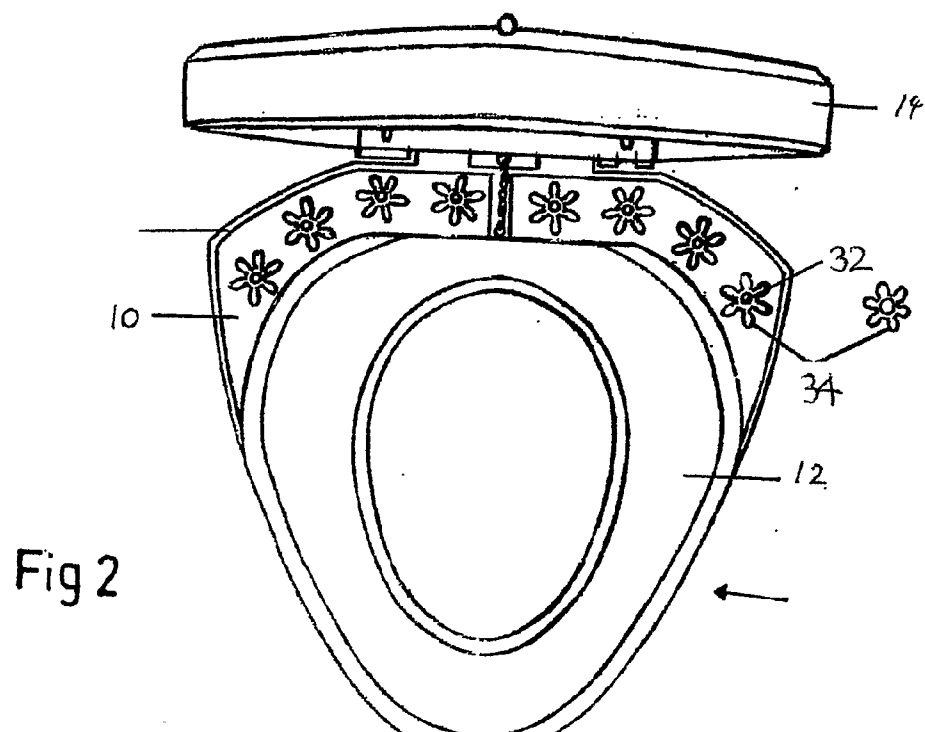
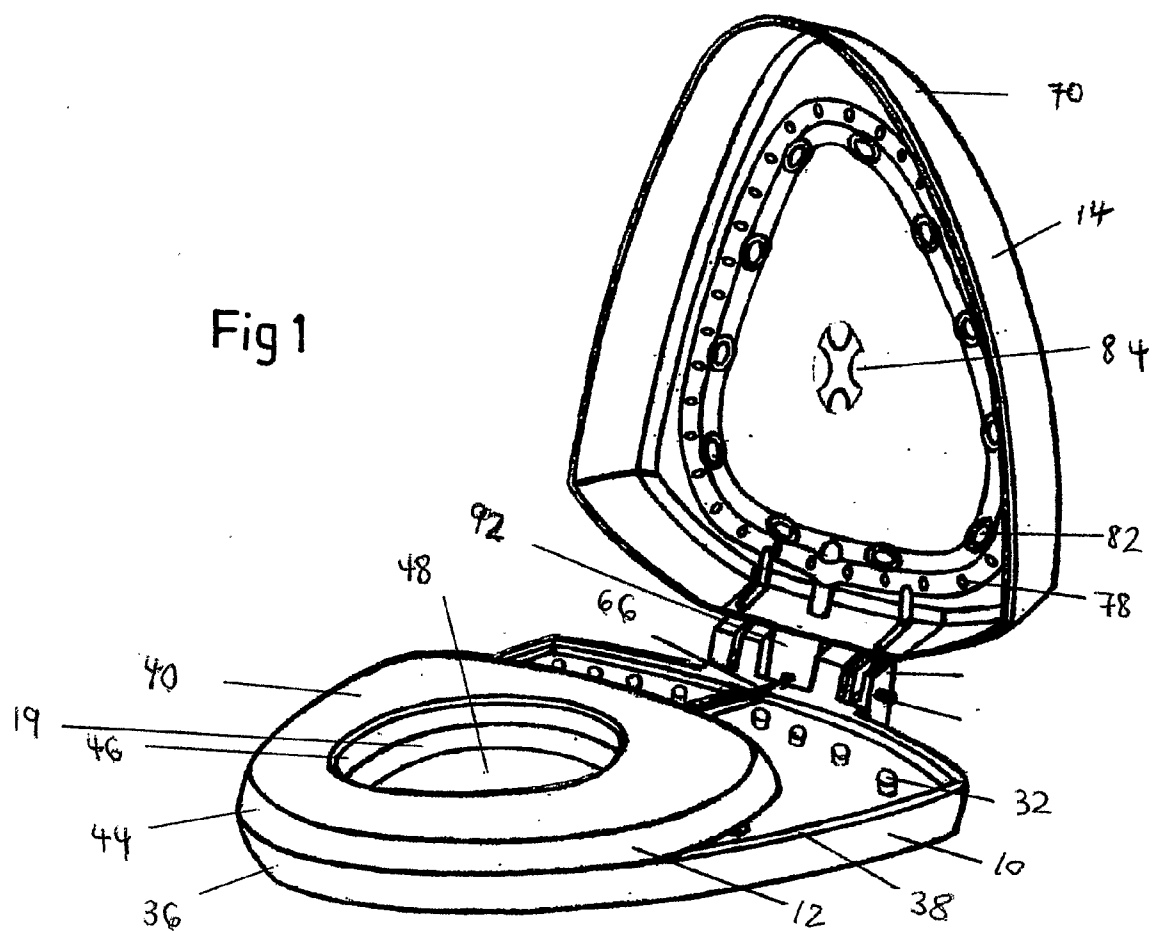
(2), (4) Date: **May 28, 2008**(57) **ABSTRACT**

A toilet seat cleaning system comprises a seat (12), a fluid receptacle (10) and a cleaning fluid dispenser (78). The seat (12) and the fluid receptacle (10) are movable relative to one another between two positions. The first position is a seating position in which the receptacle (10) does not project substantially forward of the seat (12). The second position is a cleaning position in which the receptacle (10) lies generally below the seat (12) and projects outwardly of the seat (12). In the cleaning position, the receptacle (10) projects horizontally outwardly of the seat (12) substantially all around the seat (12) for receiving cleaning fluid dispensed by the dispenser (14) and draining from the seat (12).

(30) **Foreign Application Priority Data**

Nov. 2, 2005 (GB) 0522396.1





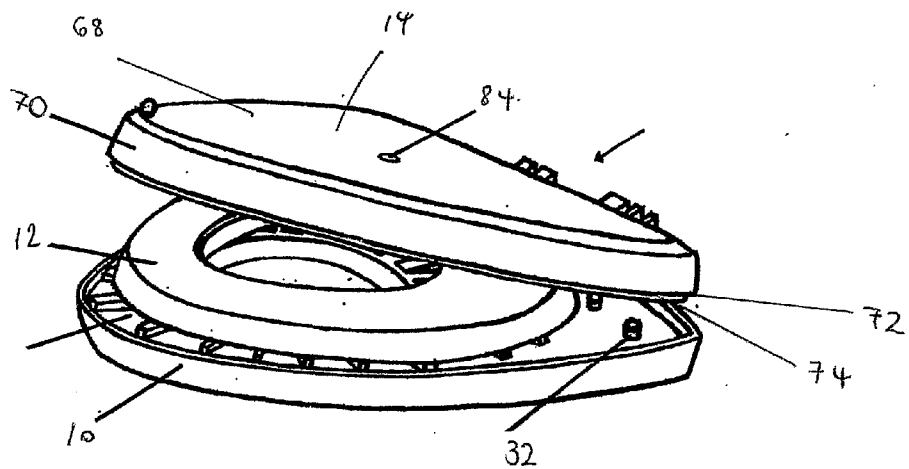


Fig 3

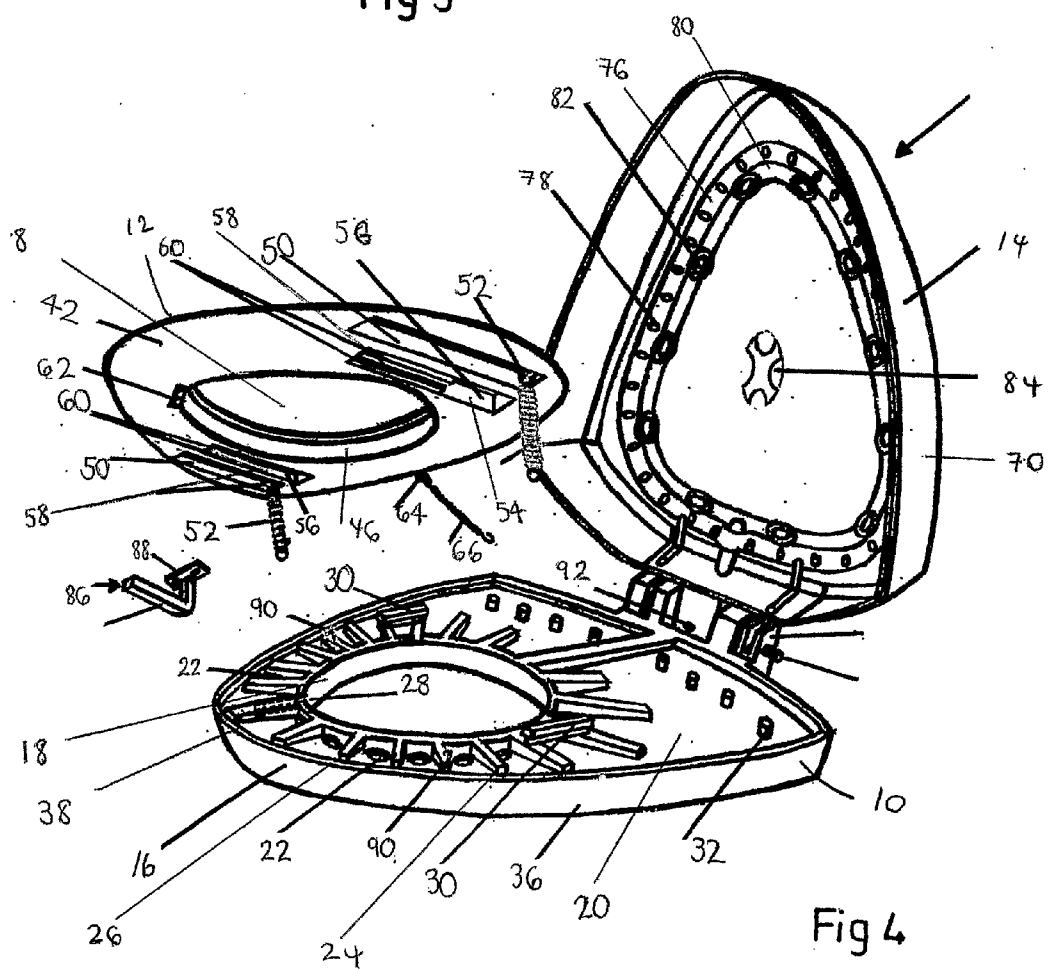
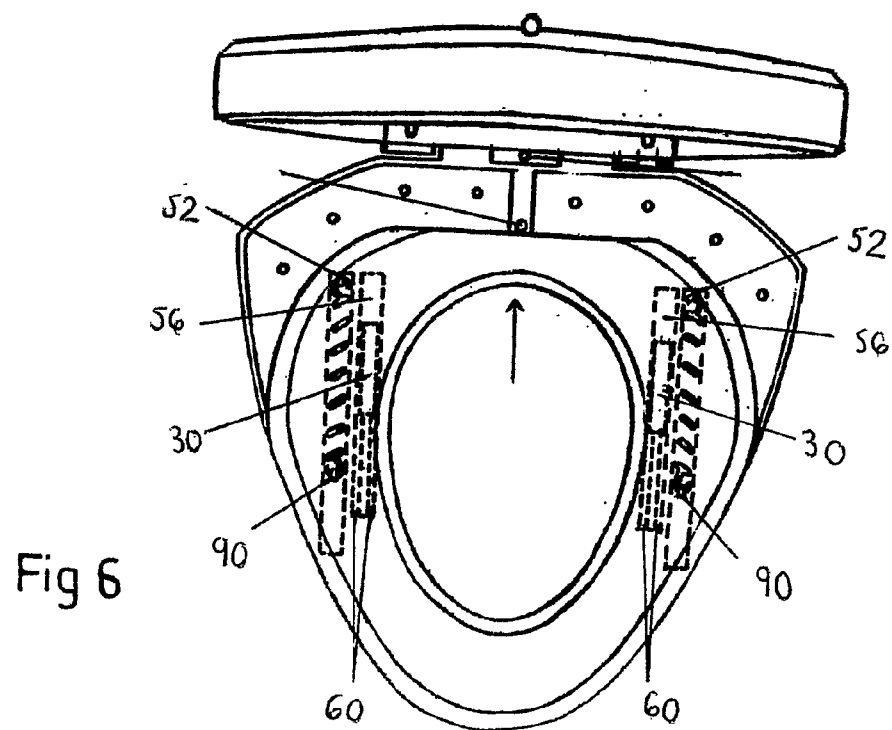
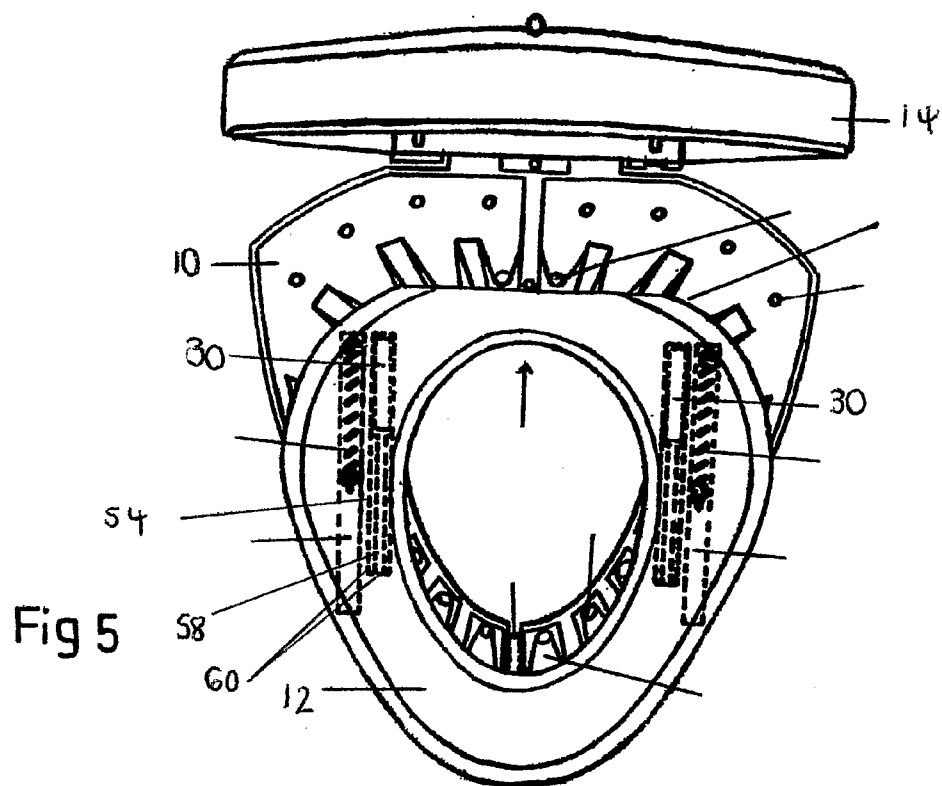
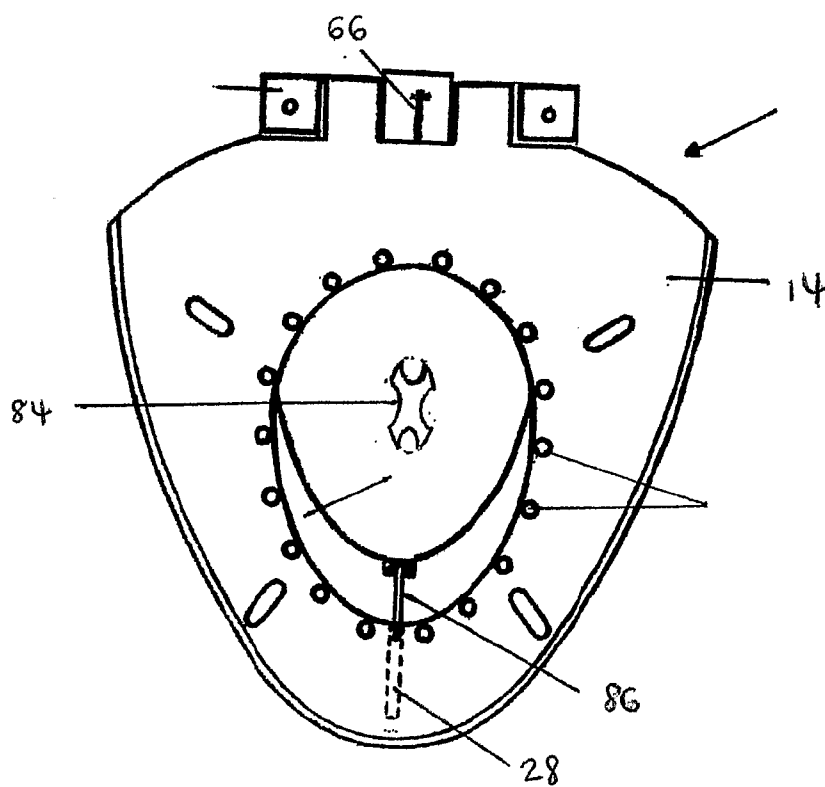
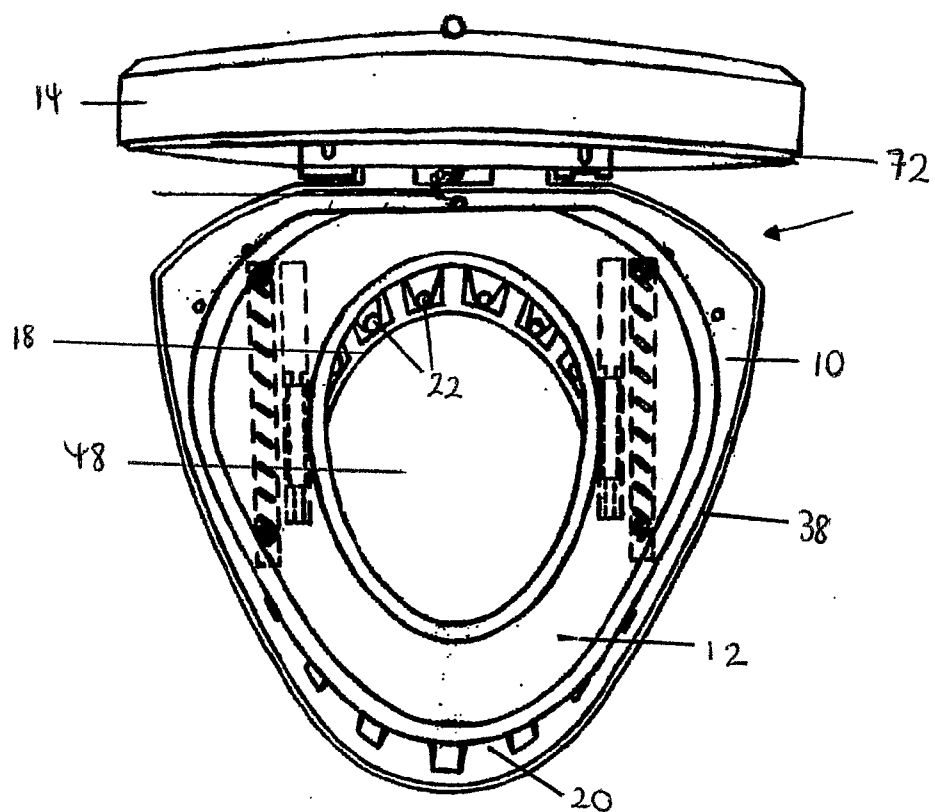
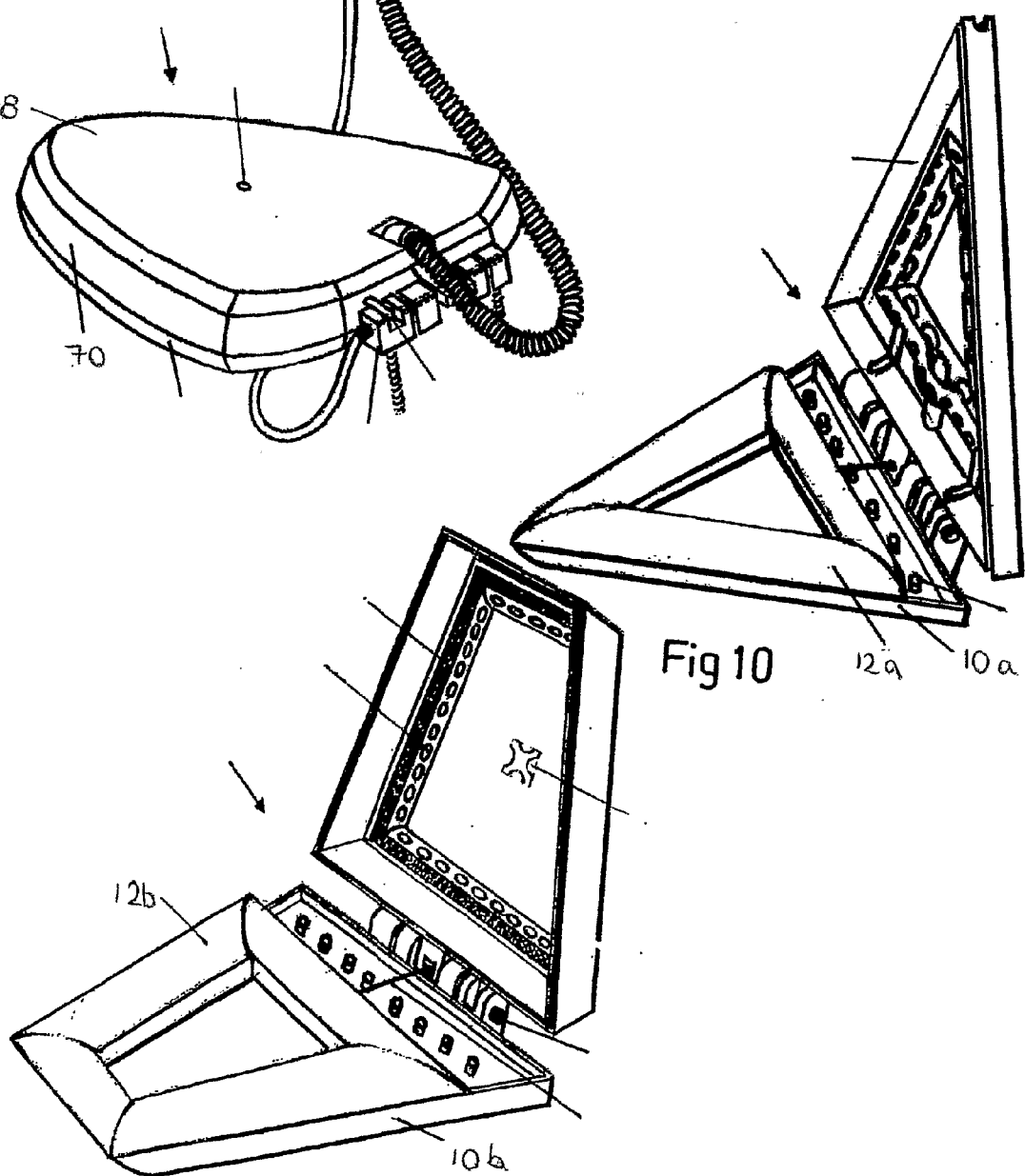
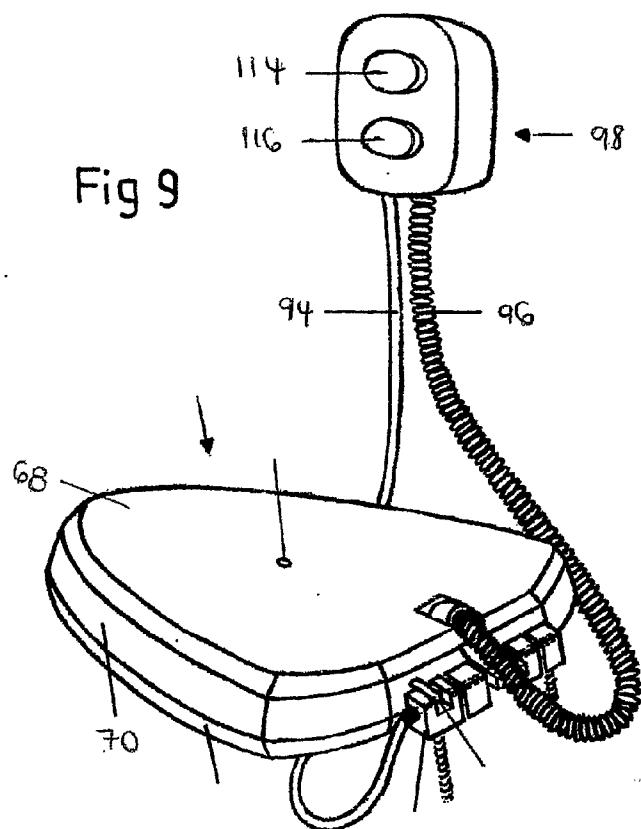


Fig 4







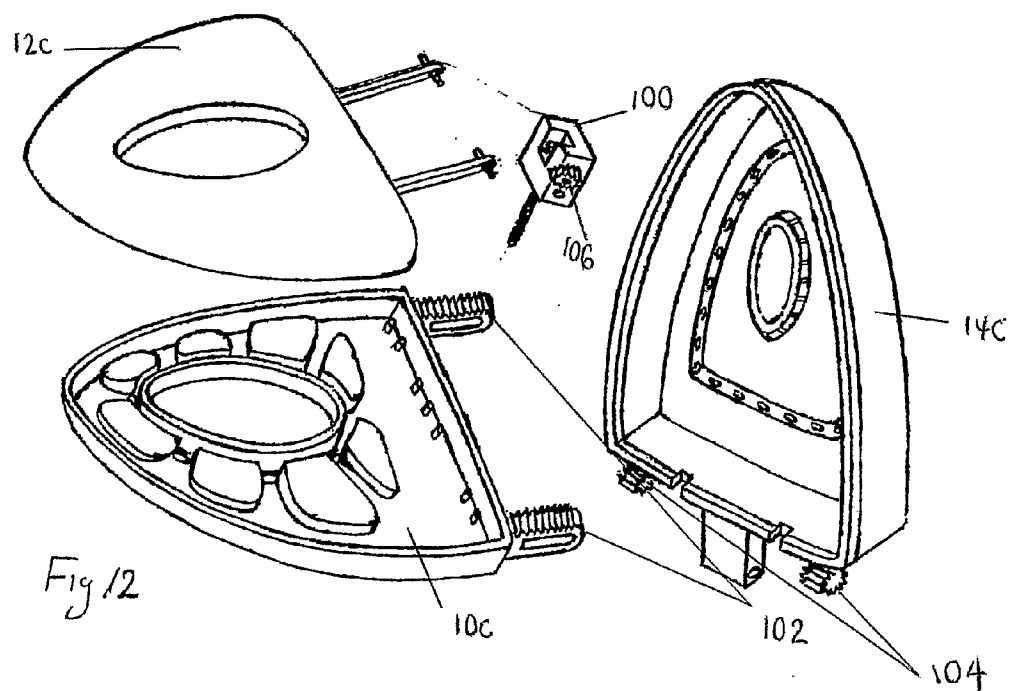
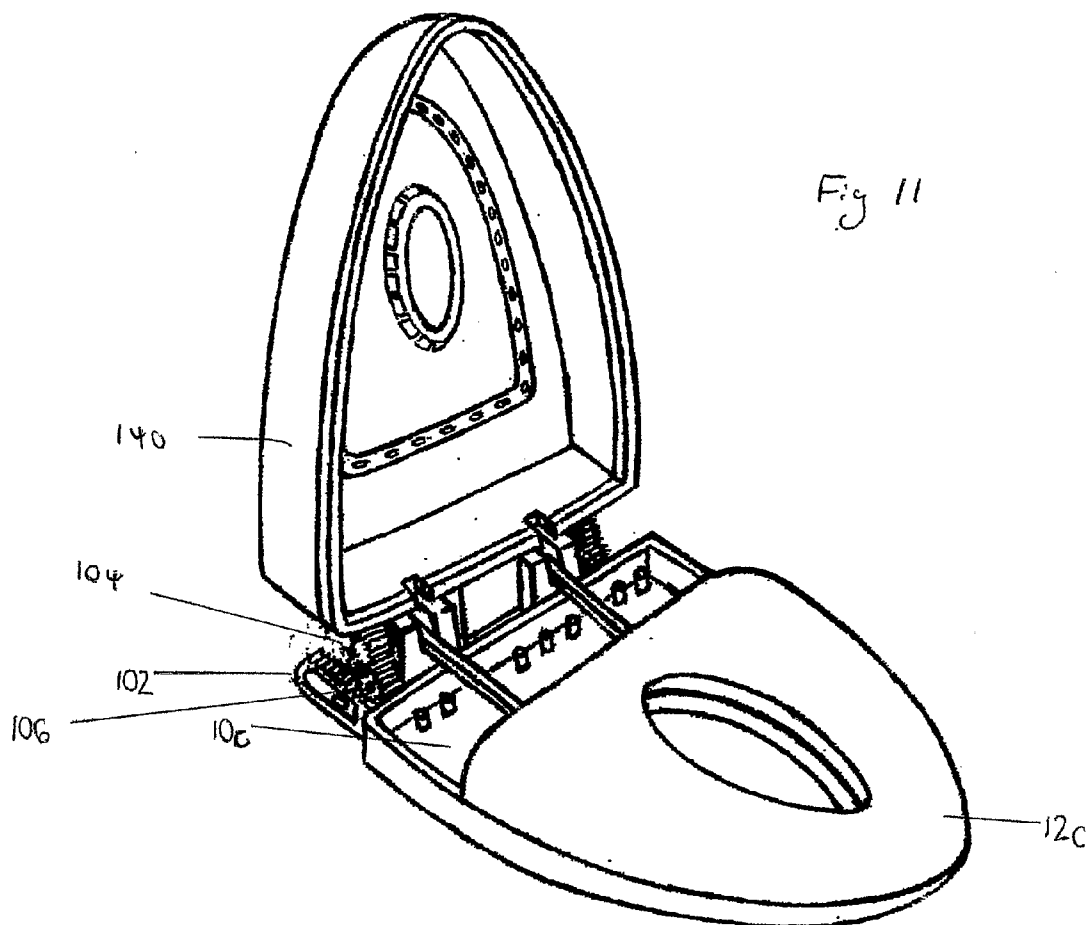


Fig 13

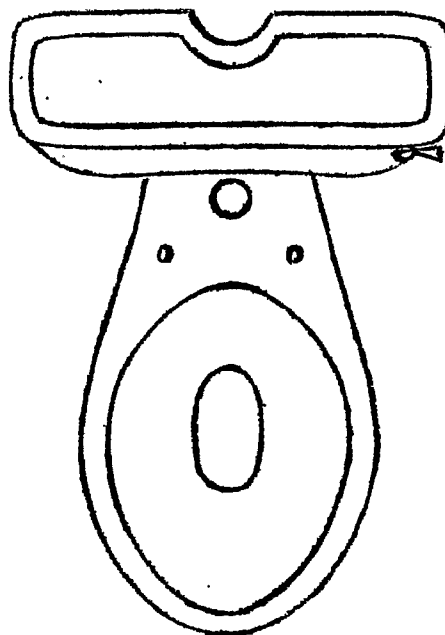
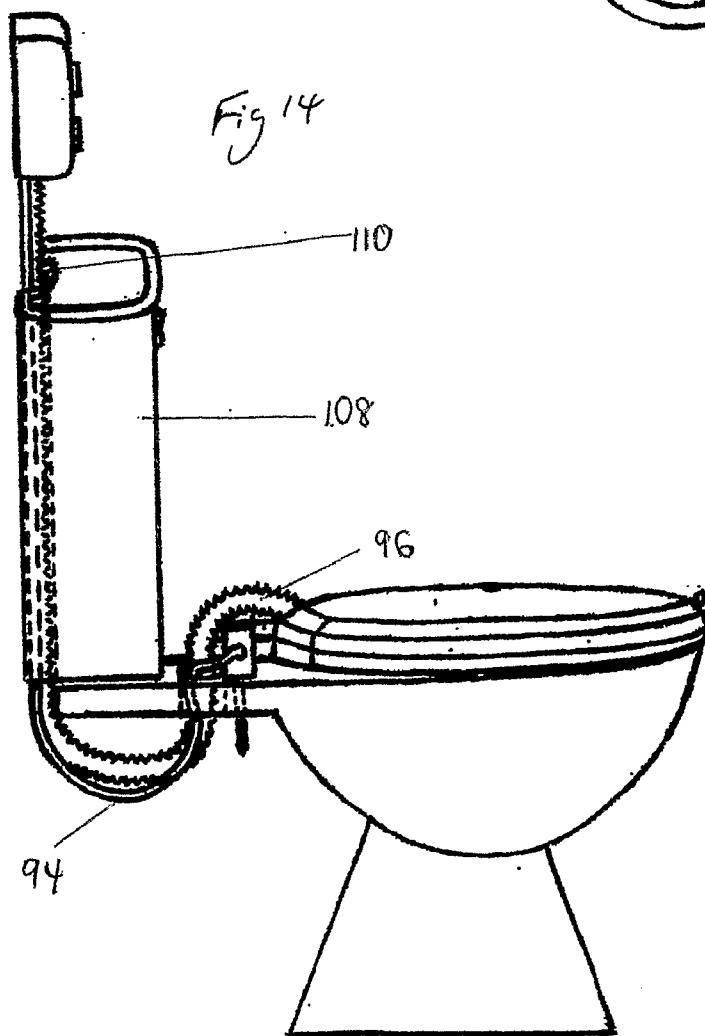


Fig 14



TOILET SEAT CLEANING SYSTEM

[0001] The invention relates to a toilet seat cleaning system.

[0002] A known toilet seat cleaning system is described in GB 2204611. The system described in this document includes a toilet seat and a fluid receptacle. The toilet seat and the fluid receptacle are movable, relative to one another, between a seating position and a cleaning position. The fluid receptacle is provided with a cleaning fluid dispenser which, in the cleaning position, dispenses cleaning fluid onto the toilet seat. Additionally, the fluid receptacle is shaped so that, in the cleaning position, cleaning fluid draining from the toilet seat falls into the fluid receptacle and is directed into the bowl of the toilet.

[0003] The fluid receptacle has an upwardly extending outer rim. In the cleaning position, the toilet seat lies within this outer rim and this enables the fluid receptacle both to deliver cleaning fluid to the top of the toilet seat and also to direct cleaning fluid draining from the toilet seat into the toilet bowl. After cleaning, the fluid receptacle moves downwards relative to the toilet seat, so that the outer rim of the fluid receptacle lies below the toilet seat. This allows a more comfortable seating position. However, the legs of a person seated at the toilet are still likely to contact the outer surface of the outer rim of the fluid receptacle. This is undesirable because it may be uncomfortable and because the outer surface of the outer rim of the fluid receptacle is not itself cleaned during the cleaning process.

[0004] In accordance with a first aspect of the invention, there is provided a toilet seat cleaning system comprising a seat; a fluid receptacle; and a cleaning fluid dispenser; the seat and the fluid receptacle being movable relative to one another between a seating position in which the receptacle does not project substantially forward of the seat, and a cleaning position in which the receptacle lies generally below and projects horizontally outwardly of the seat substantially all around the seat for receiving cleaning fluid dispensed by the dispenser and draining from the seat.

[0005] In accordance with a second aspect of the invention, there is provided a self-clean toilet seat comprising a lid with shower dryer, sliding-seat, platform, means to shower and dry the sliding seat, the lid provided with shower spray, hot air diffuser and steam escaping routes, to collect and pass used dirty water in to the toilet bowl, the platform provided with dirty water escaping routes, the lid means hinged with the platform, the sliding-seat means attached at the top of the platform and being adapted when the lid closes to slide backward on the platform and enter inside the deep lid, also when the lid open to slide forward and level with the platform outside edge on the normal sitting position, the sliding-seat means have a short length so as to create an open gap on the rear part of the platform, in order to allow itself slide backward, also on the open gap of the platform means freshener-antibacterial holder provided, the shape of the lid, sliding-seat, platform means are start from pointy or narrow front and gradually widened until or adjacent the rear means this shape helps when the sliding-seat backward, to expose the platform inside edge and dirty water escaping routes, also allow the lid edge to touch close with the platform inside edge, means to prevent water spill.

[0006] The following is a more detailed description of embodiments of the invention, by way of example, reference being made to the appended schematic drawings in which:

[0007] FIG. 1 is a perspective view of part of a toilet seat cleaning system with a lid in an open position and with a seat and a fluid receptacle in a seating position;

[0008] FIG. 2 is a plan view from above of the toilet seat cleaning system of FIG. 1 with the lid, the seat and the fluid receptacle in the same positions as shown in FIG. 1;

[0009] FIG. 3 is a perspective view of the toilet seat cleaning system of FIGS. 1 and 2 in which the lid has moved partially to a closed position and in which the seat and the fluid receptacle are in a cleaning position;

[0010] FIG. 4 is a perspective view of the toilet seat cleaning system of FIGS. 1 to 3 partially exploded to show the means for attaching the toilet seat to the fluid receptacle;

[0011] FIG. 5 is a plan view from above of the toilet seat cleaning system of FIGS. 1 to 4 showing the toilet seat in the process of being attached to the fluid receptacle;

[0012] FIG. 6 is a plan view from above of the toilet seat cleaning system of FIGS. 1 to 5 showing the seat and the fluid receptacle in the seating position;

[0013] FIG. 7 is a plan view from above of the toilet seat cleaning system of FIG. 1 to 6 showing the seat and the fluid receptacle in the cleaning position;

[0014] FIG. 8 is a plan view from below of the toilet seat cleaning system of FIG. 1 to 7 showing the seat and the fluid receptacle in the cleaning position;

[0015] FIG. 9 shows the toilet seat cleaning system of FIGS. 1 to 8 connected to a cleaning fluid supply pipe, an air supply pipe and a control box for controlling supply of cleaning fluid and air;

[0016] FIG. 10 shows two alternative toilet seat cleaning systems;

[0017] FIG. 11 shows yet another alternative toilet seat cleaning system;

[0018] FIG. 12 shows the dismantled components of the toilet seat cleaning system of FIG. 11; and

[0019] FIGS. 13 and 14 show a toilet cistern for use with a toilet seat cleaning system.

[0020] The toilet seat cleaning system shown in FIGS. 1 to 9 comprises a platform or fluid receptacle 10, a seat 12 and a lid 14.

[0021] As best seen in FIG. 4, fluid receptacle 10 has an outer upwardly extending rim 16 and an inner upwardly extending rim 18. A fluid collection tray portion 20 extends between the outer upwardly extending rim 16 and the inner upwardly extending rim 18. A plurality of fluid drainage holes 22 extend through the fluid collection tray portion 20 and are spaced from one another around the inner upwardly extending rim 18. A plurality of ribs 24, 26 are continuous with and extend outwardly from the inner upwardly extending rim 18. The ribs 24, 26 serve to strengthen the fluid receptacle 10 and also to guide fluid towards the fluid drainage holes 22.

[0022] One of the ribs 26, located at the front of the fluid receptacle 10 is provided with a blind ended channel 28 therein. The blind ended channel 28 opens at the inside surface of the inner upwardly extending rim 18 and serves a purpose described below.

[0023] Two T-shaped projections 30 lie at opposite sides of the inner upwardly extending rim 18 and serve to connect the fluid receptacle 10 to the seat 12 as described in more detail below.

[0024] A plurality of studs 32 extend upwardly from the fluid collection tray portion 20 at the rear of the fluid receptacle 10. These studs 32 serve for mounting replaceable

blocks 34 (shown in FIG. 2) which may have a deodorant and/or anti-microbial function.

[0025] As seen in FIG. 4, the outer surface of the outer upwardly extending rim 16 of the fluid receptacle 10 forms an outer edge 36 of the fluid receptacle 10. This outer edge 36 tapers outwardly from the front towards the rear of the fluid receptacle 10. In other words, the fluid receptacle 10 widens as it extends from the front towards the rear. This serves a purpose described below. Additionally, the outer edge 36 slopes inwardly, especially at the front of the fluid receptacle 10, as it extends downwardly from an upper edge 38 of the outer upwardly extending rim 16. Again, this serves a purpose to be described below.

[0026] As best seen in FIGS. 1 and 4, the seat 12 is annular and has an upper surface 40 and a lower surface 42 which are connected by an outer edge surface 44 and an inner edge surface 46. The inner edge surface 46 surrounds a central opening 48 in the seat 12.

[0027] As best seen in FIGS. 1 and 2, the outer edge surface 44 of the seat 12 tapers outwardly from the front towards the rear of the seat 12. This outwardly tapering region defines a front portion of the seat 12 which extends approximately two thirds of the length of the front to rear of the seat 12.

[0028] As seen in FIGS. 4 to 7, the lower surface 42 of the seat 12 is provided with two pairs of slots 50, 54, all of which extend in the forward to rearward direction. A first pair of longer slots 50 are provided at opposite sides of the central opening 48. Each one of the longer slots 50 is provided with a respective helical spring 52—one end of each helical spring 52 being attached to the seat 12 at the rear end of the corresponding longer slot 50.

[0029] The two shorter slots 54 are also positioned on opposite sides of the central opening 48 of the seat 12. Each one of the shorter slots 54 has an insertion portion 56 located towards the rear of the seat 12 and a T-shaped groove portion 58 located towards the front end of the seat 12. Each T-shaped groove portion 58 is partially closed by two inwardly directed flanges 60.

[0030] As seen in FIG. 4, the seat 12 also has a mount 62 located on the lower surface 42 at the front of the central opening 48. This mount 62 serves a purpose described below. Additionally, the seat 12 has an attachment 64 to which is attached a chain 66 for a purpose described below.

[0031] As seen in FIGS. 1, 3 and 4, the lid 14 has a planar portion 68 and an outer rim 70 which extends around the planar portion 68 so that the rim 70 extends downwardly from the planar portion 68 when the lid 14 is closed as shown in FIG. 9. As best seen in FIG. 3, the shape of the outer downwardly extending rim 70 mirrors the shape of the outer upwardly extending rim 16 of the fluid receptacle 10. Additionally, the outer downwardly extending rim 70 of the lid 14 has a lower edge 72 which is provided with a step portion 74. This step portion 74 serves a function described below.

[0032] As best seen in FIG. 4, the underside of the planar portion 68 of the lid 14 is provided with an annular cleaning fluid conduit 76. The cleaning fluid conduit 76 has a plurality of cleaning fluid holes 78 spaced around the conduit 76. Additionally, the underside of the planar portion 68 of the lid 14 is provided with an annular air conduit 80 which is also provided with a series of air holes 82 spaced around the conduit 80. A vent 84 is provided in the planar portion 68 of the lid 14.

[0033] As best seen in FIGS. 1 and 4, the lid 14 is pivotally connected to the rear of the fluid receptacle 10 such that the lid

14 can move between an open position, as shown in FIGS. 1 and 4, and a closed position as shown in FIG. 9.

[0034] Referring to FIGS. 1 to 7, the seat 12 is slidably mounted to the fluid receptacle 10 so that the seat 12 can slide relative to the fluid receptacle 10 in a forward to rearward direction.

[0035] The attachment of the seat 12 to the fluid receptacle 10 is best explained with reference to FIGS. 4 to 6. FIG. 4 shows an L-shaped bar 86 which is provided with a fixing bracket 88 at the end of its shortest arm. The long arm of the L-shaped bar 86 is first inserted into the channel 28 located at the front of the fluid receptacle 10 so that the fixing bracket 88 is directed upwardly. Secondly, the free ends of the helical springs 52 are engaged with respective hooks 90 extending upwardly from the fluid receptacle 10 (see FIG. 4). Turning now to FIG. 5, the seat 12 is positioned over and parallel to the fluid receptacle 10 so that each one of the T-shaped projections 30 enters into a corresponding one of the insertion portions 56 of the shorter slots 54 provided in the lower surface 42 of the seat 12. The seat 12 is then moved in a rearward direction relative to the fluid receptacle 10 so that the T-shaped projections 30 enter in the T-shaped groove portions 58 in the seat 12. The flanges 60 which partially close the T-shaped groove portions 58 then engage with the T-shaped projections 30 so as to hold the seat 12 adjacent the fluid receptacle 10 and to allow sliding movement of the seat 12 relative to the fluid receptacle 10. Finally, the fixing bracket 88 on the L-shaped bar 86 is attached to the mount 62 on the seat 12. This then stops the seat 12 from moving any further forward (relative to the fluid receptacle 10) than the position shown in FIG. 6. As the seat 12 cannot be moved further forward from this position, the T-shaped projections 30 stay at least partially within the T-shaped groove portions 58 and so the seat 12 remains locked to the fluid receptacle 10 and cannot be removed without detaching the fixing bracket 88 from the mount 62.

[0036] As will be appreciated from FIGS. 5 to 7, the helical springs 52 urge the seat 12 towards the front of the fluid receptacle 10 so that the helical springs 52 tend to move the seat 12 into the position shown in FIGS. 1, 2 and 6. This position will be referred to as the seating position and will be discussed in more detail below. As best seen in FIG. 1, the free end of the chain 66 is attached to a lever 92 which extends from the rear end of the lid 14. The arrangement is such that when the lid 14 is closed the lever 92 and the chain 66 pull the seat 12 rearwardly relative to the fluid receptacle 10 so as to bring the seat 12 into the position shown in FIGS. 3 and 7. This position will be referred to as the cleaning position and it will be understood that when the seat 12 is in the cleaning position, the lid 14 will normally be in the horizontal closed position shown in FIG. 9.

[0037] As seen in FIG. 9, the toilet seat cleaning system is connected to a supply of cleaning fluid, a supply of air and a control box 98. The cleaning fluid conduit 76 located in the lid 14 is connected to a cleaning fluid supply pipe 94 and the air conduit 80 is connected to an air supply pipe 96. Supply of cleaning fluid and supply of air via the supply pipes 94, 96 is controlled by the control box 98. The cleaning fluid conduit 76 is connected to the fluid supply pipe 94 by a mechanism, such as a kinkable pipe 112, which operates to prevent supply of cleaning fluid when the lid 14 is in the open upright position. Similarly, a mechanism may be provided to prevent supply of air to the air conduit 80 when the lid 14 is in the open upright position.

[0038] The self-cleaning toilet seat system is operated as follows. As best seen in FIG. 1, when the seat 12 is in the seating position relative to the fluid receptacle 10, then the outer edge 36 of the fluid receptacle 10 lies closely adjacent the outer edge surface 44 of the seat 12 at the front of the seat and also partially along the sides of the seat 12. Hence, the fluid receptacle 10 does not project substantially forward of the seat 12. In this way, contact between the outer edge 36 of the fluid receptacle 10 and the legs of a user sitting on the toilet seat 12 is greatly reduced or eliminated altogether. This is advantageous both in that it improves the comfort of the seat 12 and in that the user's legs are less likely to be contaminated by contact with dirt or microbes on the outer edge 38 of the fluid receptacle 10.

[0039] As the outer edge 36 of the fluid receptacle 10 slopes rearwardly as it extends downwardly from the upper edge 38, this minimises the possibility of contact between the outer edge 36 and the legs of a person using the toilet.

[0040] Additionally, when the seat 12 is in the seating position shown in FIGS. 1, 2 and 6, the lower edge of the inner edge surface 46 of the seat 12 lies closely adjacent an upper edge 19 (as best seen in FIG. 1) of the inner upwardly extending rim 18 of the fluid receptacle 10. This has the advantage of limiting or preventing altogether entry of waste into the space between the seat 12 and the fluid receptacle 10.

[0041] After use of the toilet, the lid 14 is closed so that the lever 92 and the chain 66 pull the seat 12 into the cleaning position shown in FIGS. 3 and 7 (the lid 14 being closed not open as shown in FIG. 7). The step formation 74 on the lower edge 72 of the outer rim 70 of the lid engages with the upper edge 38 of the outer upwardly extending rim 16 of the fluid receptacle 10 so as to provide a generally fluid-tight seal between the fluid receptacle 10 and the lid 14. The control box 98 is then operated so that cleaning fluid is supplied via the supply pipe 94 to the cleaning fluid conduit 76 and dispensed through the cleaning fluid holes 78 onto the underlying seat 12. The cleaning fluid covers the seat 12 and drains into the fluid receptacle 10. In view of the fact that both the seat 12 and the fluid receptacle 10 taper outwardly as they extend rearwardly, rearward motion of the seat 12 to the cleaning position shown in FIGS. 3 and 7 has the effect that the fluid receptacle 10 projects horizontally outwardly of the seat substantially all around the seat 12 so that the fluid receptacle 10 can receive fluid draining from the outer edge of the seat 12. Additionally, as best seen in FIG. 7, cleaning fluid draining from the inner edge of the annular seat 12 will drain either directly into the bowl of the toilet or will drain into the fluid collection tray portion 20 of the fluid receptacle 10. It will be noted from FIG. 7 that the central opening 48 in the seat 12 is no longer in line with the inner upwardly extending rim 18 of the fluid receptacle 10. Cleaning fluid which drains into the fluid receptacle 10 contacts the anti-microbial and/or deodorant blocks 34 so that a small amount of the active compound of these blocks is dissolved and serves to deodorise and/or disinfect the fluid receptacle 10. All of the fluid eventually drains from the fluid receptacle 10 through the fluid drainage holes 22 into the bowl of the toilet.

[0042] While the lid 14 is still closed and the seat 12 is still in the cleaning position, the control box 98 is activated so as to direct air (either hot or cold) through the air conduit 80 and the air holes 82 onto the seat 12. This serves to dry the seat 12 and the fluid receptacle 10.

[0043] The vent 84 serves for venting of air or vapour during cleaning.

[0044] The seat 12 has now been cleaned and is ready for use. When the lid 14 is opened, the seat 12 will move back to the seating position, under the action of the springs 52, as previously described.

[0045] It will be appreciated that the self-cleaning toilet seat need not be as described above. For example, instead of the seat moving rearwardly relative to the fluid receptacle for cleaning, it is possible that the fluid receptacle could move forwardly relative to the seat 12 for cleaning.

[0046] It will be appreciated that the seat 12, the fluid receptacle 10 and the lid 14 need not have the shapes shown in FIGS. 1 to 9. Alternative shapes for these components are shown in FIG. 10. FIG. 10 shows two different alternative toilet seat cleaning systems. It will be noted that in each case the fluid receptacle 10a, 10b and the seat 12a, 12b taper outwardly from the front towards the rear so that when the seat 12a, 12b is moved rearwardly relative to the fluid receptacle 10a, 10b the fluid receptacle 10a, 10b projects horizontally outwardly of the seat 12a, 12b substantially all around the seat for receiving cleaning fluid draining from the seat. Other features of the toilet seat cleaning systems shown in FIG. 10 are similar to those of the system shown in FIGS. 1 and 9 and will not be described in detail.

[0047] Although the cleaning fluid and the drying air are preferably provided from dispensers, such as the conduits 76, 78, incorporated into the lid 14, this need not be the case. Dispensers of cleaning fluid and air may be provided in any suitable manner. Moreover, the provision of air for drying is not essential.

[0048] Whereas it is advantageous to provide the fluid receptacle 10 with the inner upwardly extending rim 18 and the fluid drainage holes 22, this is not essential. The fluid drainage holes 22 and the inner upwardly extending rim 18 can be omitted altogether in which case fluid collecting in the fluid receptacle 10 will simply drain through the central hole in the fluid receptacle 10 into the bowl of the toilet.

[0049] Whereas it is highly preferable for the seat to move from the seating position to the cleaning position automatically when the lid 14 is closed, this is not essential and the seat 12 may be moved manually to the cleaning position.

[0050] A fourth alternative toilet seat cleaning system is shown in FIGS. 11 and 12. The fourth system has a fluid receptacle 10c, a seat 12c and a lid 14c. These components 10a, 12c, 14c although differing in shape from the corresponding components of the system shown in FIGS. 1-9 are largely similar in function and will only be described insofar as their function differs from that of the system shown in FIGS. 1 to 9. In the fourth system shown in FIGS. 11 and 12, the fluid receptacle 10c, the seat 12c and the lid 14c are connected together by two hinge members 100, one of which is shown in FIG. 12. In this toilet seat cleaning system, the fluid receptacle 10c is provided with two racks 102 extending rearwardly from the rear edge of the fluid receptacle 10c. The lid 14c is provided with two cogs 104 which are fixed relative to the lid 14c. Additionally, each one of the hinge members 100 is provided with a rotatable cog 106. When the fluid receptacle 10c, the seat 12c and the lid 14c are connected together for use as shown in FIG. 11, the cogs 104, 106 and the rack 102 act as a rack and pinion system. This rack and pinion system operates so that when the lid 14c is lifted from a closed horizontal position (not shown) to an open vertical position (as shown in FIG. 11), the rack and pinion move the fluid

receptacle 10c in a rearward position. During this process the seat 12c does not move. The rearward movement of the fluid receptacle 10c, relative to the seat 12c, brings the seat 12c and the fluid receptacle 10c into a seating position (shown in FIG. 11) at which the front edge of the seat 12c lies closely adjacent the front edge of the fluid receptacle 10c, as described above for the first system shown in FIGS. 1 to 9.

[0051] When the lid 14c is lowered, the rack and pinion system cause the fluid receptacle 10c to move in a forward direction, relative to the seat 12c, so that the seat 12c and the fluid receptacle 10c lie in a cleaning position. As both the fluid receptacle 10c and the seat 12c taper as they extend from the front to the rear, movement of these components into the cleaning position means that the fluid receptacle 10c now projects horizontally outwardly of the seat 12c all around the seat 10c for receiving cleaning fluid draining from the seat 12c. Also, the forward movement of the fluid receptacle 10c brings the fluid receptacle 10c into a suitable position for sealing engagement with the lid 14c in a similar manner to that described above in relation to the system shown in FIGS. 1 to 9.

[0052] In the toilet seat cleaning system shown in FIGS. 11 and 12, the seat 12c is hinged at the hinge members 100 as to allow the seat 12c to be lifted. This allows easy access to the fluid receptacle 10c for thorough cleaning.

[0053] FIGS. 13 and 14 show a toilet cistern 108 provided with a recess 110 in its rear wall for receiving the fluid supply pipe 94 and the air supply pipe 96.

[0054] In FIG. 9, the control box 98 can be operated using the control buttons 114 and 116. Control button 114 activates the flow of air to the air supply pipe 96. Control button 116 activates the flow of fluid to fluid supply pipe 94.

[0055] It is understood that the air supply pipe 96 can carry hot or cold fluid.

[0056] It is further understood that the control box 98 can optionally include a compartment containing detergent or antiseptic. In use, the detergent or antiseptic is mixed with the fluid and exits the control box 98 via the fluid supply pipe.

[0057] The control box 98 can further comprise means for providing steam to the seat 12.

[0058] The edge 72 of the lid 14 and the edge 38 of the fluid receptacle 10 can comprise magnets for providing a fluid tight seal.

[0059] The deodorant 34 could be a plastic freshener or antiseptic.

1. A toilet seat cleaning system comprising:
 - a seat;
 - a fluid receptacle; and
 - a cleaning fluid dispenser;

the seat and the fluid receptacle being movable relative to one another between a seating position in which the receptacle does not project substantially forward of the seat, and a cleaning position in which the receptacle lies generally below the seat and projects horizontally outwardly of the seat substantially all around the seat for receiving cleaning fluid dispensed by the dispenser and draining from the seat.

2. A system, according to claim 1, wherein the seat has a front portion having an outer edge which tapers outwardly from the front towards the rear and the fluid receptacle has a front portion having an outer edge which tapers outwardly from the front towards the rear, the outer edges of the front portions lying closely adjacent one another when the seat and the fluid receptacle are in the seating position, and the relative

movement between the seat and the receptacle from the seating to the cleaning position comprising relative rearward movement of the seat.

3. A system according to claim 1, wherein the fluid receptacle is fixed and the seat moves in a rearward direction from the seating position to the cleaning position.

4. A system according to claim 1, wherein the seat and the fluid receptacle have respective openings for waste to pass through during toilet use, the seat opening being surrounded by a downwardly extending inward facing surface, and wherein in the seating position the waste openings are vertically aligned with each other and the downwardly extending surface lies close to the fluid receptacle to limit or prevent entry of waste between the seat and the fluid receptacle.

5. A system according to claim 4, wherein the fluid receptacle has an upwardly extending interior rim surrounding the waste opening of the fluid receptacle, the downwardly extending seat surface having a lower edge and the upwardly extending interior rim having an upper edge and the upper ridge of the upwardly extending interior rim lying closely adjacent the lower edge of the downwardly extending seat surface in the seating position.

6. A system according to claim 5, wherein the fluid receptacle has one or more drainage holes for drainage out of the fluid receptacle of cleaning fluid which drains into the fluid receptacle.

7. A system according to claim 1, further including a lid movable between a closed position and an open position.

8. A system according to claim 7, wherein the cleaning fluid dispenser is provided in the lid.

9. A system according to claim 8, wherein the cleaning fluid dispenser comprises a plurality of dispensing holes for dispensing cleaning fluid, the holes lying above and spaced around the seat when the lid is in the closed position and when the seat and the fluid receptacle are in the cleaning position.

10. A system according to claim 9, wherein the dispensing holes are supplied with cleaning fluid by a generally annular conduit.

11. A system according to claim 7, including a mechanism for preventing dispensing of cleaning fluid when the seat is in the open position.

12. A system according to claim 7, wherein the seat and the fluid receptacle automatically move into the cleaning position when the lid is closed.

13. A system according to claim 7, wherein the fluid receptacle has an upwardly extending exterior rim which lies closely against the lid when the lid is closed and the seat and the fluid receptacle are in the cleaning position, to limit or prevent escape of cleaning fluid between the lid and the receptacle.

14. A system according to claim 13, wherein the lid has a downwardly extending exterior rim, the downwardly extending exterior rim having a lower edge and the upwardly extending exterior rim of the fluid receptacle having an upper edge, the lower edge of the downwardly extending exterior rim and the upper edge of the upwardly extending exterior rim lying closely adjacent to one another when the lid is closed and the seat and the fluid receptacle are in the cleaning position.

15. A system according to claim 13, wherein sealing means are provided for sealing between the fluid receptacle and the lid.

16. A system according to claim 7, wherein the lid is provided with an air dispenser for drying the seat after cleaning.

17. A system according to claim **2**, wherein the outer edge of the fluid receptacle slopes rearwardly as it extends downwards.

18. A self-clean toilet seat comprising a lid with shower dryer, sliding-seat, platform, means to shower and dry the sliding seat, the lid provided with a shower spray, hot air diffuser and steam escaping routes, to collect and pass used dirty water in to the toilet bowl, the platform provided with dirty water escaping routes, the lid hinged with the platform, the sliding-seat attached to the top of the platform and being adapted when the lid is closed to slide backward on the platform and enter inside the deep lid, also when the lid is open to slide forward and level with the platform outside edge on the normal sitting position, the sliding seat having a short length so as to create an open gap on the rear part of the platform, in order to allow itself to slide backward, also on the open gap of the platform a freshener-antibacterial holder is

provided, the shape of the lid, sliding-seat, and platform is pointy or narrow in front and gradually widens until or adjacent the rear to expose the platform inside edge and dirty water escaping routes when the sliding seat is backward and to allow the lid edge to touch close to the platform inside edge to prevent water spill.

19. Self-clean toilet seat according to claim **18**, in which the electronic water and hot air supply box works with an electric motor, and has outside the box water and hot air control buttons, and two pipes to connect and supply water and hot air to the lid shower spray and hot air diffuser.

20. Self-clean toilet seat according to claim **18**, in which the gradually widened shape provides a self-clean toilet with a variety of gradually widened shapes.

21-29. (canceled)

* * * * *