A portable toilet adapted for use on a vehicle seat, and adapted to efficiently utilize the space in a vehicle. A portable toilet adapted for use on various surfaces, including surfaces not parallel to the ground. A portable toilet with an adjustment portion allowing the toilet to be used on surfaces of various angles relative to the ground.
FIGURE 1
PERSONAL PORTABLE TOILET

BACKGROUND OF THE INVENTION

1. Field of Invention

The present invention relates to toilets, and particularly to a toilet adapted to be used on a vehicle seat and other locations.

2. Description of Related Art

Portable toilets are known for use while camping, boating, and for other uses. Many portable toilets are designed to be placed on the ground and present a seat height similar to that of a traditional toilet. Some of these portable toilets are fixed in height, while others are designed to be collapsible for ease of storage and transportation. An example of such a collapsible portable toilet is U.S. Pat. No. 6,385,790 to Abraham et al.

The need for a portable toilet while traveling in a vehicle has become more pronounced in recent years. It is not uncommon for roadside vendors to have no restroom facilities available to the public. Also, publicly available facilities may not be clean, or may not be private. Thus, a restroom may not be available for use when needed while traveling by automobile.

While traveling through the countryside, no facilities of any kind may be available. Although many people are uncomfortable with this sort of idea. In addition, a full size portable toilet is bulky and difficult to transport.

An example of a vehicle seat with a built-in toilet is seen in U.S. Pat. No. 5,720,513 to Rauskaukas. Although this device allows for the user to relieve oneself in the privacy of their automobile, the device requires an extensive retrofit of the vehicle, and is then limited to that vehicle only. An example of a portable toilet for children that can be used on the seat of an automobile is seen in U.S. Pat. No. 6,240,576 to Cosby. This portable toilet is surrounded by a restraining wall that helps to constrain children in the proper position, and is also of substantial height such that it is adapted to be able to be used on the ground as well.

A problem exists in that an adult that wishes to use a portable toilet in a vehicle, on the vehicle seat itself, cannot be raised too far off of the vehicle seat without having their head interfering with the ceiling of the vehicle. In addition, most, if not all, modern vehicle seats are not flat with respect to the ground. Thus, in order to make efficient use of the limited space in a vehicle, a portable toilet needs to be adapted to the vehicle seat geometry. Another problem exists in that many prior art devices are not adapted to be for personal use, such that the portable toilet may be used for just one individual, with a second individual having their own second portable toilet.

What is called for is a portable toilet for use in a vehicle by adults. Such a portable toilet should be adapted to fit in substantial conformance with the geometry of an automobile seat to utilize the limited space in the vehicle. Such a toilet may be used as a personal toilet by the user.

BRIEF SUMMARY OF THE INVENTION

In accordance with the present invention, a portable toilet adapted for use on a vehicle seat, and adapted to efficiently utilize the space in a vehicle. A portable toilet adapted for use on various surfaces, including surfaces not parallel to the ground. A portable toilet with an adjustment portion allowing the toilet to be used on surfaces of various angles relative to the ground.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of one embodiment of the present invention.

FIG. 2 is a side view of one embodiment of the present invention.

FIG. 3 is a side view of one embodiment of the present invention place on a vehicle seat.

FIG. 4 is a partial cutaway view of the seat lid interface area according to one embodiment of the present invention.

FIG. 5 is a perspective view of one embodiment of the present invention with a rectangular seat opening.

FIG. 6 is a partial cross-sectional view of the interface between the seat portion and the base container.

FIG. 7 is a side view of a portable toilet with a leveler in the stowed position according to one embodiment of the present invention.

FIG. 8 is a side view of a portable toilet with a leveler in the deployed position according to one embodiment of the present invention.

FIG. 9 is a perspective view of a portable toilet with a leveler in the deployed position according to one embodiment of the present invention.

DETAILED DESCRIPTION

In some embodiments of the present invention, as seen in FIGS. 1 and 2, a portable toilet 100 has a base container 101 and a seat portion 104. The periphery 109 of seat portion 104 aligns with the upper edge of the base container 101. In some embodiments, the seat portion 104 and the base container 101 are separate pieces which may be removably attached to each other. In some embodiments, the seat portion 104 and the base container 101 are formed together as a unitary piece. The seat portion 104 and the base container 101 may be of metal, plastic, or other appropriate materials.

In some embodiments of the present invention, the base container 101 has a bottom element 107 which is surrounded by a front vertical element 103, a rear vertical element 106, and two side vertical elements 102. In some embodiments, the base container is substantially rectangular in shape. The front vertical element 103 is shorter in vertical height than the rear vertical element 106 in some embodiments. Because of the variation in height of the front vertical element 103 and the rear vertical element 106, the seat portion 104 is not substantially parallel to bottom element 107 of the base container 101.

In some embodiments, the portable toilet may have a base container 101 that is not substantially rectangular. The base container 101 may be of oval, or other shape. In such cases, the front and rear vertical elements may not be as strictly defined, but would refer to areas at the front of and
at the rear of the base container 101, respectively. In some embodiments, the front vertical element is approximately 2 inches shorter than the rear vertical element. In some embodiments, the front vertical element is approximately 2 inches in height.

[0023] In some embodiments, the seat portion 104 has a seat opening 105 that is circular in shape. The seat opening 105 is adapted to receive a seat lid 108. The seat lid 108 seals the seat opening 105 in some embodiments. The seat lid 108 is removed during the use of the portable toilet 100.

[0024] As seen in FIG. 3, portable toilet 100 is adapted to reside on top of the bottom cushion 132 of vehicle seat 130 in some embodiments. The bottom surface 107 of the base container 101 is not parallel to the plane of the seat portion 104 of portable toilet 100, but is adapted to fit into the angle of the top surface of bottom cushion 132 while keeping the plane of the seat portion 104 relatively horizontal. The rear vertical element 106 of the base element 107 may reside against the lower portion of the seat cushion 131 of the vehicle seat 130.

[0025] The fitted nature of the portable toilet 100 in the vehicle seat 130 allows for a more efficient use of space within the vehicle. The seat portion 104 of the portable toilet is relatively horizontal in this embodiment, yet the base container 101 is able to have increased volume with a shorter front vertical element 103. Thus the user is not projected as far upwards towards the ceiling of the vehicle when the portable toilet 100 is used in a smaller vehicle. The shorter front vertical element 103 coupled with the longer rear vertical element 106 allow for a larger volume in the base container while not projecting the user upwards into the vehicle ceiling. The fitted nature of the portable toilet 100, and the efficient use of space that it enables, allows for more ease of storage of one or more portable toilets 100 in the trunk of a car, for example. Each passenger would then be able to have their own portable toilet, allowing for the avoidance of possible embarrassment, and contributing to hygiene, and for other reasons.

[0026] In some embodiments of the present invention, as seen in FIG. 4, the interface area of the seat lid 108 to the seat portion 104 is shown. The seat portion 104 has an internal ring 142. The seat lid 108 has a lid ring 143 with a groove 141 around its periphery. The groove 141 has an O-ring 140 which seals the lid ring 143 of the seat lid 108 against the internal ring 142 of the seat portion 104. In some embodiments, the seat lid 108 has a stop ring 144 which prevents the seat lid 108 from being inserted too far into the seat opening 105 in the seat portion 104.

[0027] In some embodiments of the present invention, as seen in FIG. 5, a portable toilet 200 has a substantially rectangular seat opening 205 in the seat portion 204. The seat opening 205 has an internal ring 242 in some embodiments. The seat portion 204 is attached to the base container 101 in some embodiments. The seat portion 204 is part of a unitary piece with the base container 101 in some embodiments. The seat opening 205 is substantially rectangular, but may have rounded corners so that the mating seat lid can utilize an O-ring for sealing.

[0028] In some embodiments of the present invention, as seen in FIG. 6, the seat portion 204 is removeably attached to the base container 101 with an intervening gasket 61 providing a seal. The outer periphery 63 of the seat portion 204 has substantial width to mate to a land 62 of the base container 102. The gasket 61 may be a one piece gasket that follows the outlines of the outer periphery in some embodiments. The gasket 61 may be constructed from rubber, silicone, or other suitable materials. Clip 64 is used to removably attach the seat portion 204 to the base container 101. There may be multiple clips in some embodiments. The clips may be positioned around the periphery of the base container 101. In one embodiment, the clip 64 attaches to the base container 101 at a base boss 66. The clip 64 attaches to the seat portion 204 at a seat boss 65. The clip may be partially elastic such that it can be removed to allow separation of the seat portion 204 from the base container 102, for cleaning and other purposes, while still being rigid enough to fasten the pieces together.

[0029] In some embodiments of the present invention, as seen in FIGS. 7, 8, and 9, the base container 101 has a pair of levelers 71 that are used to level the plane of the seat portion 104 when used on relatively horizontal surfaces. In some embodiments, the levelers 71 is attached to the base container 101 on leveler boss 72 using screws and washers or other suitable methods. The leveler stop 73 is situated such that when leveler 71 is rotated from its stowed position, as seen in FIG. 7, to its deployed position, as seen in FIG. 8, the leveler 71 is supported in the stowed position. In some embodiments, as seen in FIG. 9, the end of leveler 71 is shaped such that the leveler rests flat on a horizontal surface when deployed.

[0030] In some embodiments of the present invention, a non-slip pad or cushion pad may be attached to the bottom surface of the base container. The pad may substantially cover the bottom surface of the base container, or may cover just portions of it. In some embodiments, one or more pads may be attached to the bottom surface of the base container.

[0031] As evident from the above description, a wide variety of embodiments may be configured from the description herein and additional advantages and modifications will readily occur to those skilled in the art. The invention in its broader aspects is, therefore, not limited to the specific details, representative apparatus and illustrative examples shown and described. Accordingly, departures from such details may be made without departing from the spirit or scope of the applicant’s general inventive concept.

I claim:
1. A portable toilet comprising:
   a base container,
   said base container comprising:
   a bottom element, a front vertical element, said front vertical element coupled to said bottom element, and
   a rear vertical element, said rear vertical element coupled to said bottom element, wherein said front vertical element is substantially shorter than said rear vertical element; and
   a seat portion, said seat portion adapted to reside above said base container, wherein said seat portion is not substantially parallel to said bottom element.
2. The portable toilet of claim 1 further wherein said seat portion is removeably coupled to said base container.

3. The portable toilet of claim 1, wherein said seat portion comprises a hole in its surface.

4. The portable toilet of claim 3 further comprising a lid portion, said lid portion adapted to seal said hole.

5. The portable toilet of claim 1 further comprising a height adjustment portion, said height adjustment portion attached to said base container, said height adjustment portion adapted to raise the front of said base container.

6. The portable toilet of claim 3 wherein said hole is circular.

7. The portable toilet of claim 3 wherein said hole is substantially rectangular.

8. The portable toilet of claim 4, wherein said seat portion comprises an internal ring, said internal ring forming a first planar annulus, said internal ring adjoined to the inner periphery of said hole.

9. The portable toilet of claim 8, wherein said lid portion comprises an external ring, said external ring forming a second planar annulus, said second planar annulus comprising a groove adapted to receive an O-ring.

10. The portable toilet of claim 9, wherein said first planar annulus and said second planar annulus are sized such that they can be sealed by an O-ring.

11. The portable toilet of claim 4, wherein said seat portion comprises an internal ring, said internal ring forming a first threaded annulus, said internal ring adjoined to the inner periphery of said hole.

12. The portable toilet of claim 11, wherein said lid portion comprises an external ring, said external ring forming a second threaded annulus.

13. The portable toilet of claim 12, wherein said first threaded annulus and said second threaded annulus are sized such that they can be threaded together to substantially seal said hole.

14. A portable toilet comprising:
   a base container,
   said base container comprising:
   a bottom element,
   a continuous side element, said side element sized such that said bottom element is not parallel to the seat portion; and
   a seat portion, said seat portion adapted to reside above said base container.

15. The portable toilet of claim 14, wherein said side element is approximately 2 inches shorter at its shortest point than at its longest point.

16. The portable toilet of claim 15, wherein said side element is approximately 2 inches tall at its shortest point.

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