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(54) **A portable toilet seat**

(57) The present invention relates to a portable toilet seat characterised by the presence of four rectilinear notches on its entire section, two on the longitudinal axis

and two on the transversal axis, it being provided that the rear notch and the two lateral notches are associated to hinges, so that the contiguous seat sections can rotate until they are placed one on top of the other.

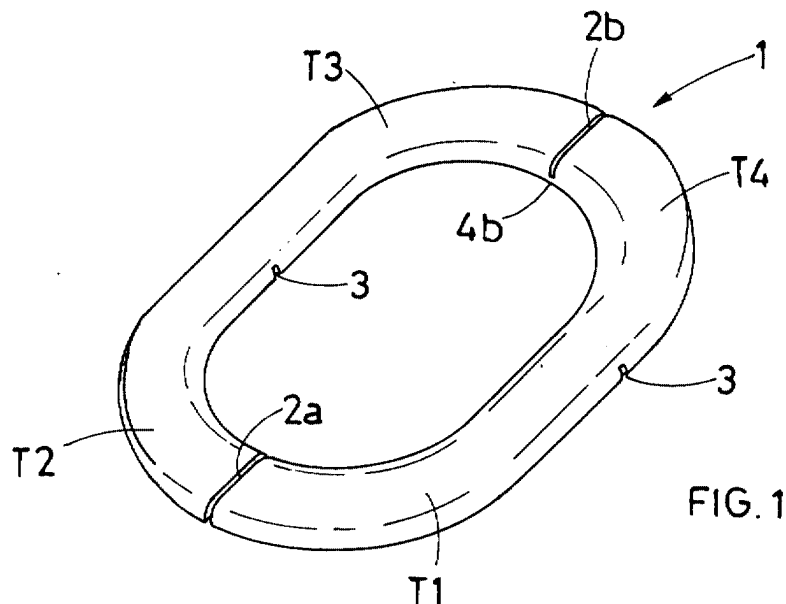


FIG. 1

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Description

[0001] The present patent application relates to a portable toilet seat.

[0002] The invention has been designed to solve the problem of poor hygienic conditions of community toilets, such as public toilets, hotels and restaurants.

[0003] Most people are quite reluctant to sit on public toilets, often preferring not to use them or sometimes using them while uncomfortably standing up.

[0004] It must be said that a solution to this problem has already been proposed, although it has not proved functionally advantageous and as a matter of fact it has not become very popular.

[0005] The manufacture that should have solved the problem of poor hygienic conditions of public toilets consists in a disposable paper cover having the same exact shape of toilet seats. The cover is placed on the entire perimeter of the toilet seat before sitting down.

[0006] The paper cover, however, shows several inconveniences during its use, mainly because it is quite difficult to exactly place it on the toilet seat (due to the user's weight, the paper cover easily moves out of its position, causing the direct contact with the toilet seat) and because the paper cover is permeable and cannot be used when the toilet seat is wet, as it often happens in public toilets.

[0007] In view of the above, the portable toilet seat according to the present invention has been devised, which is capable of overcoming all inconveniences of the prior art, while offering a very comfortable seat to the users.

[0008] The invention is based on an innovative principle: instead of covering it, the user can replace the seat of public toilets with a personal object - that is the portable toilet seat according to the present invention - characterised by proven hygienic, comfortable conditions.

[0009] The portable toilet seat according to the present invention is made of preferably soft, flexible plastic material and features an articulated structure with hinges that allow to fold its various sections one on top of the other.

[0010] The use of such plastic material guarantees stability and safety of use, together with comfort at least equal to traditional fixed toilet seats. The possibility of folding the seat allows to reduce its volume during transportation inside bags, purses and similar items.

[0011] It must be said that, within the structural and functional characteristics illustrated above, the portable toilet seat according to the present invention can be produced in a disposable version or in another version for repeated use.

[0012] In the first case, the manufacture according to the present invention must be conveniently produced with simplified technologies and a limited use of plastic materials. In the second case, the same portable toilet seat will have a more articulated structure with quality finish, in order to provide for maximum efficiency and

comfort from the functional viewpoint.

[0013] For major clarity the description of the invention continues with reference to the enclosed drawing, which is intended for purposes of illustration and not in a limiting sense, whereby:

- fig. 1 is an axonometric view of the foldable toilet seat according to the present invention;
- fig. 2 and 3, respectively, are axonometric views of the two steps of the folding procedure for the toilet seat according to the present invention;
- figs. 4A, 4B and 4C, respectively, are a partial top view of a preferred version of the toilet seat according to the present invention and two sections with the longitudinal plane IV-IV, the first one showing two contiguous seat sections in coplanar operating position and the second one showing the same contiguous seat sections in folded condition;
- figs. 5A, 5B and 5C are the same as figs. 4A, 4B and 4C, but refer to another version of the toilet seat according to the present invention;
- figs. 6A, 6B and 6C are the same as figs. 4A, 4B and 4C, but refer to a last different version of the toilet seat according to the present invention.

[0014] With reference to fig. 1, the toilet seat (1) according to the present invention is made with moulded soft, flexible plastic material and has four regularly spaced linear notches on its entire section, two (2a and 2b) on the longitudinal axis of the seat (1) and two (3) on its transversal axis.

[0015] The four notches (2a, 2b and 3) identify four identical sections with 90° curving (T1, T2, T3 and T4) on the structure of the toilet seat (1).

[0016] The notch (2a) in the centre of the front transversal section of the seat (1) is free, while the notch (2b) in the centre of the rear transversal section of the seat (1), as well as the two notches (3) located half way on the two longitudinal sections of the toilet seat (1) are associated with hinges (4b, 4a).

[0017] The hinges provide the structural continuity of the entire seat (1) and at the same time allow to fold it in four parts, according to the sequence shown in figs. 2 and 3. This allows for considerably reducing the volume of the seat (1) during transportation inside a bag.

[0018] In particular, the two notches (3) with transversal axis identify two transversal halves (the rear half and the front half), which can rotate by 90°, one towards the other, until their upper sides touch (that is the sides on which the user sits) by means of the hinges (4a) located on the transversal notches (3), as shown in fig. 2.

[0019] In this way, a "half seat" with double thickness is obtained, whose right and left halves can be turned over by 90°, one towards the other, until they touch, thanks to the presence of the hinge (4b) associated with the rear longitudinal notch (2b).

[0020] In this way, the compact "packet" shown in fig. 3 is obtained, in which the four sections (T1, T2, T3 and

T4) with 90° curving of the seat are exactly placed one on top of the other, with the notches (2a, 2b, 3) in intermediate position between them.

[0021] As regards the structure of the hinges used on the toilet seat (1) according to the present invention, it must be said that in the version shown in fig. 1 the rear hinge consists in a thin transversal bead (4b) obtained during moulding with the same material as the toilet seat (1). The bead (4b) joins the two contiguous rear sections (T3, T4) of the seat (1) on their base and is intrinsically provided with high flexibility that allows it to withstand the turning over of the two sections (T3, T4) of the seat (1) from down upwards and vice versa, without irreversible damage or plastic deformation.

[0022] Also the two lateral hinges consist in identical beads (4a), whose function and structure are exactly the same as the rear bead (4b), although they are located on the upper part of the corresponding pairs of sections (T2-T3, T1-T4) of the seat (1).

[0023] Obviously, the seat (1) can make use of different hinge systems between the various sections of its structure, without exiting the principle of the present invention.

[0024] For illustration purposes only, and not in a limiting sense, this description continues with the illustration of three possible alternative constructive versions with respect to the version shown in figs. 1, 2 and 3, with different hinge systems.

[0025] With particular reference to figs. 4A, 4B and 4C, the ends of the contiguous seat sections (Tx, Ty) internally have an upturned L-shaped transversal section with a horizontal wing (5a) with reduced thickness and a vertical wing (5b) representing an edge that extends from one lateral edge to the other edge of the seat section.

[0026] The transversal edge (5b) of one (Tx) of the seat sections moves to touch the corresponding edge (5b) of the contiguous section (Ty). After that, the two edges (5b) are joined by means a series of rivets (6) with horizontal axis, as shown in fig. 4B.

[0027] The overturn from up downwards and vice versa of the two contiguous sections (Tx, Ty) of the seat occurs thanks to the intrinsic flexibility of the two thin horizontal wings (5a) belonging to the corresponding upturned L-shaped ending sections, as expressly shown in fig. 4C.

[0028] Figs. 5A, 5B and 5C show another hinge system applied on two contiguous sections (Tx, Ty) of the seat having the same structure as the one shown in figs. 4A, 4B and 4C above.

[0029] In this case, however, the connection between the two transversal edges (5b) belonging to two contiguous sections (Tx, Ty) of the seat is ensured by means of a sort of rib (7) with U-shaped transversal section, whose two vertical wings energetically and spontaneously tend one towards the other.

[0030] Therefore, they must be forced apart in order to receive the two edges (5b). When released, the two

vertical wings of the rib (7) will tend to move close one to each other, thus holding the two edges (5b).

[0031] In the version shown in figs. 6A, 6B and 6C, the ends of the sections (Tx, Ty) of the seat (1) have special L-shaped notches, whose vertical part (8a) goes along the entire thickness of the corresponding seat section, while the horizontal part (8b) is a sort of lowered step in longitudinal position on the upper surface of the corresponding seat section, ending on its transversal edge.

[0032] When the sections (Tx, Ty) touch, their notches become perfectly aligned and can therefore used to introduce laces, straps, and similar connections means to join the two sections (Tx, Ty) of the seat, with the possibility of rotating from up downwards and vice versa.

[0033] Practically, the two ends of the strap (or any other connection means) must be inserted from up downwards through the two vertical parts (8a) belonging to two different aligned notches on two contiguous sections (Tx, Ty) of the seat.

[0034] In this way, the strap can be placed in the aligned horizontal parts (8b) of the two notches located on the seat (1) without causing any problem of space. Then, the two ends of the strap must be energetically pulled downwards and firmly joined on the lower side of the seat (1).

Claims

1. A portable toilet seat, characterised by the presence of four rectilinear notches on its entire section, two (2a and 2b) on the longitudinal axis and two (3) on the transversal axis, it being provided that the rear notch (2b) and the two lateral notches (3) are associated to hinges, so that the contiguous sections of the seat (1) can mutually rotate until they are placed one on top of the other.
2. A portable toilet seat according to claim 1, characterised by the fact that it is made with moulded soft, flexible plastic material.
3. A portable toilet seat according to claims 1 and 2, characterised by the fact that the hinges located on the notches (2b, 3) consist in flexible, resistant transversal beads (4b, 4a) obtained during moulding with the same material as the toilet seat (1), each of them in intermediate position between two contiguous sections of the seat (1).
4. A portable toilet seat according to claims 1, 2 and 3, characterised by the fact that the bead (4b) that acts as rear hinge joins the two rear contiguous sections (T3, T4) of the seat (1) on their base and the beads (4a) that act as lateral hinges join the corresponding pairs of contiguous sections (T2-T3, T1-T4) of the seat (1) on the upper side.

5. A portable toilet seat according to claim 1, characterised by the fact that the hinge ends of each section feature an upturned L-shaped transversal section, with a horizontal wing (5a) with reduced thickness and a vertical wing (5b) extending from one lateral edge to the other edge of the seat section; it being provided that, once they touch, the vertical wings (5b) belonging to two contiguous seat sections are firmly fixed. 5
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6. A portable toilet seat according to claims 1 and 5, characterised by the fact that the two vertical edges (5b) belonging to two contiguous seat sections are firmly joined by means of a series of rivets (6) with horizontal axis. 15
7. A portable toilet seat according to claims 1 and 5, characterised by the fact that the two vertical edges (5b) belonging to two contiguous seat sections are firmly joined by means of a sort of rib (7) with U-shaped transversal section, whose vertical wings tend spontaneously and energetically to move one against each other. 20
8. A portable toilet seat according to claim 1, characterised by the fact that the hinge ends of each section feature special L-shaped notches, whose vertical part (8a) goes along the entire thickness of the corresponding seat section, while the horizontal part (8b) is a sort of longitudinal step located on the upper side of the seat section, extending up to the transversal edge of the seat section. 25
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