A COMBINED TOILET AND SEAT APPARATUS

This invention relates to a combined toilet and seat apparatus capable of being transformed from a flat-pack configuration to a box-like, use configuration. Further, the invention relates to a blank for forming a combined toilet and seat apparatus and an assembled - for use - combined toilet and seat apparatus.

Portable toilets are well-known in the art. An example of a similar arrangement is shown in US Patent No. 6,047,414, which discloses a combination packable toilet and stool. The stool includes an interlockable structure of die-cut paperboard. As it will be understood by those skilled in the art, the arrangement disclosed in this US patent appears to suffer from stability, rigidity and strength problems, at least, towards the bottom of the stool, where the front, back and side panels of the combined toilet and stool rest on the ground, as these points are furthermost from interlocking portions provided at or around the seat portion. Further, as there is some distance between the interlocking portions and the ground, the front, back and side panels will be prone to lateral forces when in use - as the ground may be slightly uneven and the user may put more weight on some panels and not others - which can buckle those panels leading to the stool/toilet collapsing. The solution provided to these problems is identified as providing a second front panel, providing a dual thickness front panel, in which the two front panels are interlocked together. However, although the disclosed combined toilet and stool is intended to be sat on by persons of varying weight and size, it is our understanding that the provision of a dual front panel does not provide much enhanced

strength, rigidity or stability and, therefore, there is a need for an improved combined toilet and seat, as provided by the present invention.

It is an aim of the present invention to provide a combined toilet and stool that is stronger, has greater rigidity, and is more robust and stable than the prior art apparatus, and that is capable of receiving adults of practically all sizes and weights.

Accordingly, in a first aspect of the present invention, there is provided a combined toilet and seat apparatus, capable of being transformed from a flat-pack configuration for storage and/or transportation to a box-like configuration for use, the apparatus comprising:

front and rear panels connected by respective side panels, which side panels are capable of forming inwardly-angled side panels to thereby provide support to a top panel connected to either of the front and/or rear panel, the top panel forming a seating platform; and

a base panel connected to either of the front or rear panel;

wherein the top panel and/or the base panel comprises one or more interlocking portions for interlocking the top panel and/or the base panel with one or both side panels to thereby maintain the apparatus in the box-like configuration.

Advantageously, the arrangement of the present invention provides a combined toilet and seat having greater stability, strength and rigidity than prior art apparatus. In particular, providing a base-panel increases the surface area of the combined toilet and seat on the ground, which aids stability of the combined toilet and seat and provides

a greater contact area with the ground, which spreads out more evenly the weight of a user. Obviously, this is a great advantage if the combined toilet and seat is to be used on soft ground as sinking in to the ground is prevented or minimised. Further, the base panel effectively holds in position the inwardly-angled side panels in the lower regions of the seat, minimising the instability of these parts in use, and maintains the angular separation of the front and/or rear panel. As the angular separation of the inwardly-angled side panel and the front or rear panel is, effectively, constant, the amount that the lower portions of the combined toilet and seat - which contact the ground - can move or be moved during use is reduced, the combined toilet and seat apparatus of the present invention is more secure and stable for a user. In particular, as the intended material of manufacture is cardboard, paperboard or the like, it is important that a user believes that the combined toilet and seat apparatus will take their weight, both from the point of view of confidence in using the apparatus and the effect that this confidence has on whether the user will purchase the product. Further, the interlock maintains the box-like configuration of the apparatus. A further advantage of the invention is that the base panel allows the inwardly-angled side panels to extend further than prior art devices inwardly towards the centre of the box-like structure. Accordingly, the inwardly-angled side walls, which acts as further supports for the top panels - which define the seating platform - make the device capable of receiving a much heavier person and operating without reduced stability. Naturally, the angle provided at an apex of the inwardly-angled side panels can be altered to suit the intended weight capacity of the apparatus. In a

preferred embodiment, only the base panel comprises one or more interlocking portions for interlocking the base panel with one or both side panels. Further preferably, in this embodiment the top panel, and the opposed front or rear panel comprise corresponding interlocking portions which provide an interlock therebetween for maintaining separation of the front and rear panels. Accordingly, this preferred embodiment provides greater stability and minimises lateral movement of the side panels, front panel and/or rear panel as at least one interlock of respective portions is provided at the top and bottom of the side, front and/or rear panels by parts of the top panel and base panel interlocking with those panels.

In a second aspect, the invention provides one or more blanks for forming a combined toilet and seat apparatus comprising:

first, second, third and fourth consecutive panels and connection means therebetween, for forming a front panel, a first side panel, a rear panel and a second side panel, respectively, of the apparatus;

fifth and sixth panels, for forming a seating platform and a base, respectively, of the apparatus;

the fifth panel extends from either the first or third panel and the sixth panel extends from an opposite end of either the first or third panel,

wherein, the fifth or sixth panel, and the second and/or fourth panels comprise corresponding interlocking portions for forming at least one interlock therebetween.

According to a third aspect of the present invention, there is provided an assembled combined toilet and seat

apparatus having a box-like configuration, the apparatus comprising:

spaced-apart front and rear panels connected by inwardly-angled side panels;

a top panel connected to either of the front and/or rear panels and supported by the inwardly-angled side panels to form a seating platform;

a base panel connected to either of the front or rear panels;

wherein an interlock is provided by corresponding interlocking portions between at least one of the inwardly-angled side panels, and the top panel or the base panel, to maintain the apparatus in the box-like configuration.

In order that the invention may be fully disclosed, embodiments will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a combined toilet and seat apparatus of the present invention;

Figure 2 is a plan-view of a first partial blank for forming the apparatus of Figure 1;

Figure 3 is a plan-view of a second partial blank for forming the apparatus of Figure 1; and

Figure 4 is a partially-constructed combined toilet and seat apparatus of the present invention, showing the blanks of Figures 1 and 2 combined.

All Figures, and in particular Figure 1, show a combined toilet and seat apparatus of the present invention, which toilet and seat is indicated, in general, by reference 1. The apparatus 1 includes a lid 2, a seating portion 3, a

front panel 4, side panels 5,9, a rear panel 8 and a base panel 6. A toilet hole 7 is provided in a centre of the seating portion 3 and shows an inside of the apparatus 1. Through the toilet hole 7 can be seen inner surfaces of the rear panel 8 and the second side panel 9. The lid 2 is pivotally movable between the upper position shown in Figure 1 and a lowered position when it can cover the seating portion 3. Naturally, the lid 2 is also movable in an opposite direction for when the apparatus 1 is in use as a toilet. When the lid 2 is lowered to cover the seating portion 3, an external surface thereof forms a external seating portion or seating platform. Of course, an in use of the toilet seating platform is provided by the seating portion 3 alone. The base panel 6 includes a tab 10 having slots 11 cut therein for receiving corresponding portions of the side panels 5,9, the corresponding portions on the side panels 5,9 later identified by reference 18. An interlock is provided between those corresponding interlocking portions 11,18.

Figure 2, in particular, shows a first partial blank for forming into the combined toilet and seat apparatus 1 of the present invention. In particular, the blank of Figure 2 is connectable to the blank of Figure 3 before being assembled into the combined toilet and seat apparatus of the present invention. Figure 2 shows in a centre of the cruciform-shaped blank the rear wall 8 of the combined toilet and seat. Extending upwardly from the centre is the base panel 6 and tab 10. In Figure 2, the slots 11 in the tab 10 can be more clearly seen. Extending in an opposite direction to the base panel 6 from the rear panel 8 is the top panel 3', which forms a first top panel located beneath the seating portion 3 shown in Figure 1. Accordingly, a

dual-layer seating platform is provided for when the apparatus is used as a toilet. The top panel 3' has two tabs 12 which are locatable within two slots 13 provided on the blank of Figure 3, and an interlock is provided between those corresponding interlocking portions 12,13. Extending to the left of the rear panel 8 is a first part 9A of the second side panel 9. The first part 9A is provided with a tab 14, at a far-edge, which is connectable with the second part 9B of the second side panel 9 - shown in Figure 3. A cut-out 18 from the panel 9A forms a slot 18 - when assembled - for interacting with one of the slots 11. On the opposite side of the rear panel 8 is provided a first part 5A of the first side panel 5. At a far-edge of the first panel 5A is provided a tab 17, for connecting with the second part 5B of the first side panel 5 - shown in Figure 3. A cut-out 18 from the panel 5A forms a slot 18 - when assembled - for interacting with one of the slots 11.

As can be seen in Figure 3, in particular, a front panel 4 is provided in the middle of a crossbar region of this inverted T-shaped blank. To the left of the front panel 4 is provided the second part 9B of the second side panel 9. To a right of the front panel 4 is provided the second part 5B of the first side panel 5. Directly above the front panel 4 is provided the seating portion 3, as shown in Figure 1, and the lid 2 is operably connected to the seating portion 3. Both the seating portion 3 and the top panel 3' are provided with the toilet hole 7 in a centre thereof. An additional cut-out portion 20 is also provided to be optionally removed by a male user to aid use of the combined toilet and seat apparatus with male anatomy.

As can be seen in Figures 2 and 3, respective panels of the blanks are separated by scoring or perforated lines, so

that the panels can be folded to form a box-like configuration and a flat-pack configuration. Scoring is shown in Figures 2 and 3 by alternate dot-dash lines 15 and double scoring 15 is provided, at least, between the seating portion 3 and the lid 2, to enable the lid 2 to be folded-back upon itself and rest over the seating portion 3, when the toilet is not in use or used as a seat. Further, double perforated lines indicated with reference 16 are provided between, at least, the front panel 4 and second parts 9B,5B of the second and first side panels 9,5. Additionally, the same arrangement is provided between the rear panel 8 and the first and second parts 9A,5A of the of the second and first side panels 9,5. In particular, the double perforations 16 (and the double scored lines 15) aid folding of the respective parts of the blanks. Additionally, double scoring 15 and double perforations 16 allow the blanks to lie flat and take a square-shape no wider than the size of the lid in either direction. Accordingly, in a folded, flat-pack state, the apparatus is advantageously stackable.

A unitary blank for making a combined toilet and seat apparatus of the present invention is provided by sealing the tabs 14 and 15 of the first parts 9A,5A to inside edges of the second parts 9B and 5B. The sealing is provided in the region of the apex of the inwardly-angled side panels 5,9. Preferably, glue is used to join the first and second parts 9A,9B of the second side panel 9 and the first and second parts 5A,5B of the first side panel 5. Even in this partly assembled state, the combined toilet and seat is unassembled and is still flat-packable for storage and transportation, and has an approximate square shape when folded up. In particular, the flat-pack nature of the

device at this stage is provided by the double scored lines 15 and double perforated lines 16.

Figure 4 shows the blanks of Figures 2 and 3 combined after sealing of the first and second parts 9A,9B and 5A,5B, connected using the tabs 14 and 17. Figure 4 shows a combined toilet and seat of the present invention that has been opened up from its flat-pack state and the base portion 6 has been placed underneath the side panels 5,9, in particular, underneath the first parts 5A,9A. The tab 10 is shown at 90° to the base portion 6 and extends upwardly towards, and engages, the side panels 5,9, at the slot 18, provided in the region of the join along the perforation 16 between first part 5A and tab 17 and first part 9A and tab 14. The slots 11 provided in the tab 10 have engaged with the corresponding slots 18 and formed an interlock. As it can be seen in Figure 4, the angular separation of the first portion 5A and the rear panel 8 is maintained by the interlocking nature of the slots 11,18 of the tab 10 and first parts 5A and 9A of the first and second side panels 5,9. Further, the interlock maintains the box-like configuration of the apparatus. In particular, this arrangement provides a great deal of strength, rigidity and stability to the combined toilet and seat apparatus. In order to assemble the combined toilet and seat apparatus shown in Figure 1, the top panel 3' is brought to rest upon the supports provided by the side panels 5,9 and the tabs 12 are located within the slots 13. The seating portion 3 is then brought over the top of the top panel 3' and rests upon that panel 3' forming a dual-layered seating platform for use when the apparatus is used as a toilet, and when the lid 2 is open. As mentioned previously, the lid 2 can be folded-back upon the seating portion 3 to close off the

toilet, making a three-layered top panel. Slits 19 are formed in the seating portion 3 and the top panel 3' for receiving handles of, for example, a carrier bag, which can be used as a collector or bowl for the toilet. In particular, the location of the slits 19 on opposite sides of the toilet hole 7 and the spatial arrangement of the slits keep the bag from closing upon itself whilst in use.

The combined toilet and seat apparatus of the present invention is manufactured from two pieces of cardboard, although it may also be manufactured from a plastics material, in an alternative embodiment. Further, the cardboard, paperboard or plastics material may have a corrugated construction. Preferably, the cardboard is biodegradable. Although the invention is described as including two tabs 14,17 for connecting the two pieces of cardboard together, the blank of the present invention could be formed from only one piece of cardboard and, therefore, in that situation, only one tab would be required to connect ends of the blank together to form the flat-pack version of the invention.

CLAIMS:

1.) A combined toilet and seat apparatus, capable of being transformed from a flat-pack configuration for storage and/or transportation to a box-like configuration for use, the apparatus comprising:

front and rear panels connected by respective side panels, which side panels are capable of forming inwardly-angled side panels to thereby provide support to a top panel connected to either of the front and/or rear panel, the top panel forming a seating platform; and

a base panel connected to either of the front or rear panel;

wherein the top panel and/or the base panel comprises one or more interlocking portions for interlocking the top panel and/or the base panel with one or both side panels to thereby maintain the apparatus in the box-like configuration.

2.) An apparatus as claimed in claim 1, wherein each side panel comprises a corresponding interlocking portion.

3.) An apparatus as claimed in claim 1 or claim 2, wherein the top panel or the base panel comprises two interlocking portions.

4.) An apparatus as claimed in any preceding claim, wherein first and second sets of interlocking portions are provided between the base panel and the respective side panels.

5.) An apparatus as claimed in any preceding claim, wherein the corresponding interlocking portions comprise a tab and

slot arrangement, or a single slot or a dual slot arrangement.

6.) An apparatus as claimed in any preceding claim, wherein the base panel comprises a protrusion for interacting with the respective side panels.

7.) An apparatus as claimed in claim 6, wherein the protrusion comprises an interlocking portion in the form of a slot for interlocking with a side panel.

8.) An apparatus as claimed in claim 7, wherein the protrusion comprises two slots for interlocking with respective side panels.

9.) An apparatus as claimed in any preceding claim, wherein the base panel is a partial-length panel arranged to position the interlocking portions in a centre-region of the side panels.

10.) An apparatus as claimed in any preceding claim, wherein the base panel is a partial length panel arranged to position the interlocking portions at respective apexes of the inwardly-angled side panels.

11.) An apparatus as claimed in any preceding claim, wherein one or both side panels comprise an interlocking portion in the form of a slot.

12.) An apparatus as claimed in any preceding claim, wherein the top panel, and the opposed front or rear panel comprise corresponding interlocking portions which are capable of

providing an interlock therebetween for maintaining separation of the front and rear panels.

13.) An apparatus as claimed in claim 12, wherein the interlocking portions on the front or rear panels are provided at a junction of the front or rear panel and a second top panel.

14.) An apparatus as claimed in claim 12 or claim 13, wherein the interlocking portions on the top panel are one or more tabs extending from the top panel towards the opposed front or rear panel.

15.) An apparatus as claimed in any one of claims 12 to 14, wherein the interlocking portions on the opposed front or rear panel are one or more slots, for receiving respective tabs.

16.) An apparatus as claimed in any preceding claim, wherein the first top panel is connected to the rear panel.

17.) An apparatus as claimed in any preceding claim, wherein the base panel is connected to the rear panel.

18.) An apparatus as claimed in any one of claim 13 to 17, wherein the second top panel is connected to the front panel for providing a two-layer seating platform.

19.) An apparatus as claimed in claim 18, wherein the second top panel comprises a third top panel, which is capable of being folded back for providing a three-layered seating platform.

20.) An apparatus as claimed in any preceding claim, wherein the first top panel comprises a hole for access to the inside of the apparatus, the hole being suitable for use as a toilet.

21.) An apparatus as claimed in any one of claims 13 to 20, wherein the second top panel comprises a hole for access to the inside of the apparatus.

22.) An apparatus as claimed in claim 20 or claim 21, wherein the hole comprises an additional cut-outable portion located at an edge of the hole facing the front panel, specifically provided for ease of use for male anatomy.

23.) An apparatus as claimed in any one of claims 19 to 22, wherein the third top panel is arranged to substantially cover the hole of the second top panel.

24.) An apparatus as claimed in claim 23, wherein the third top panel is arranged to substantially cover the first and second top panels.

25.) An apparatus as claimed in any preceding claim, wherein the first and/or second top panel comprise one or more slits for receiving and securing portions of a fluid-tight container, or fluids/solids receptacle, for use within an inside of the combined toilet and seat.

26.) An apparatus as claimed in claim 25, wherein the container/receptacle is a tray or plastic bag.

27.) An apparatus as claimed in claim 25 or claim 26, wherein two slots are provided on two opposed sides of the first and/or second top panels for receiving handles of a plastic bag.

28.) An apparatus as claimed in any preceding claim, wherein the combined toilet and seat is manufactured from cardboard, paperboard or the like, or from a plastics material.

29.) An apparatus as claimed in claim 28, wherein the cardboard is scored to aid folding thereof.

30.) An apparatus as claimed in claim 28 or claim 29, wherein the cardboard is perforated to aid folding thereof.

31.) An apparatus as claimed in any one of claims 28 to 30, wherein corners between the front and/or rear panels, and the respective side panels comprise two sets of scoring or perforations spaced appropriately apart for providing dual hinges to allow flat-pack folding of the apparatus.

32.) An apparatus as claimed in any one of claims 28 to 31, wherein the apparatus is formed from two pieces of cardboard, paperboard or the like.

33.) An apparatus as claimed in any preceding claim, wherein the apparatus is arranged to be foldable to a flat-pack configuration for transportation or storage.

34.) An apparatus as claimed in claim 33, wherein the apparatus is foldable into a square-shaped, flat configuration.

35.) An apparatus as claimed in any preceding claim, wherein the materials of construction are biodegradable.

36.) A combined toilet and seat apparatus substantially as herein described, with reference to the accompanying drawings and description.

37.) One or more blanks for forming a combined toilet and seat apparatus comprising:

first, second, third and fourth consecutive panels and connection means therebetween, for forming a front panel, a first side panel, a rear panel and a second side panel, respectively, of the apparatus;

fifth and sixth panels, for forming a seating platform and a base, respectively, of the apparatus;

the fifth panel extends from either the first or third panel and the sixth panel extends from an opposite end of either the first or third panel,

wherein, the fifth or sixth panel, and the second and/or fourth panels comprise corresponding interlocking portions for forming at least one interlock therebetween.

38.) One or more blanks as claimed in claim 37, comprising two blanks combined to form a unitary blank.

39.) One or more blanks as claimed in claim 37 or claim 38, wherein the corresponding interlocking portions comprise one or more slots.

40.) A blank for forming a combined toilet and seat apparatus as claimed in any one of claims 1 to 36.

41.) An assembled combined toilet and seat apparatus having a box-like configuration, the apparatus comprising:

spaced-apart front and rear panels connected by inwardly-angled side panels;

a top panel connected to either of the front and/or rear panels and supported by the inwardly-angled side panels to form a seating platform;

a base panel connected to either of the front or rear panels;

wherein an interlock is provided by corresponding interlocking portions between at least one of the inwardly-angled side panels, and the top panel or the base panel, to maintain the apparatus in the box-like configuration.

42.) An assembled apparatus as claimed in claim 41, assembled from a combined toilet and seat apparatus as claimed in any one of claims 1 to 36 or from one or more blanks as claimed in any one of claims 37 to 41.