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A PORTABLE AND STACKABLE LEAK-PROOF CONTAINER FORMED
FROM A BLANK OF MATERIAL

INTRODUCTION

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The present invention relates to a container, which is particularly suitable for storing foodstuffs, including liquid foodstuffs. It is versatile in that it can be assembled so that it has a handle for carrying the container. It is also possible to assemble the container so that the handle of the container is tucked away, so that it is suitable for stacking.

15 BACKGROUND TO THE INVENTION

Conventional containers for merchandise typically consist of straight sided boxes with lids which simply fit over the top of the box. Such boxes must often be secured in a closed condition with additional means such as an elastic band or tape in order to prevent the lid simply slipping off again.

Other conventional containers, even if they do not use separate lids, are closed by tabs which tuck into slots or interlock with other tabs. These containers sometimes have handles when constructed. This will assist the user in carrying the container, but is undesirable when, for example, more than one container is used and the user wishes to put them in a carrier bag. Alternatively, these containers have flat tops with no handles, which are difficult to carry around without placing the containers into carrier bags.

35 Furthermore, conventional containers for carrying

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foodstuffs are not leak-proof. Thus, although they may be useful for carrying dry foodstuffs such as pastry, they are not suitable for carrying foodstuff which have liquid, such as food with gravy and, particularly, soups.

SUMMARY OF THE INVENTION

It is an objective of this invention to provide a container which is versatile and easy to use in that it can be changed alternatively from a configuration which gives the user a handle to carry the container, and to a configuration which does away with the handle and instead gives the container a flat top. The former configuration facilitates the carrying of individual containers while the latter configuration allows the container to be stacked with like containers or other items. It is another objective of this invention to provide a container which can be securely retained in the closed condition without the need for additional securing means.

It is a further objective of this invention to provide a container which is leak-proof, so that foodstuffs comprising liquid can be carried therein. The container can be used for keeping foodstuff in a fridge as well as a container for microwaving or baking the foodstuff. It is also an objective of this invention to produce a container meeting the above advantages which is manufactured and delivered as a single component and therefore saves the costs.

Accordingly, in a first aspect, the present invention provides a container comprising
a base panel, side and foldable flap panels

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foldably adjoined to the perimeter of the base panel to fully encircle the base panel, at least one lid panel used to fashion a lid for the container, and at least one handle panel used to fashion a handle for the container, wherein

the foldable flap panels foldably adjoin adjacent side panels to one another, and are folded during construction of the container to bring the adjacent side panels together,

the or each handle panel is foldably adjoined to a corresponding side panel, or a lid panel along an edge opposite to the side panel to which the lid panel is joined, and is foldable between an upstanding configuration in which it can be gripped and a retracted configuration in which it lies flat against the lid.

In a second aspect, the invention provides a blank of material for constructing the container.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in more detail, by way of example only, with reference to one embodiment of the invention and with reference to the accompanying drawings. The drawings relate to a preferred embodiment of the invention.

Figure 1 is a perspective view of a container according to the preferred embodiment of this invention, assembled so that the container has a flat top.

Figure 2 is a perspective view of the container in Figure 1, which is assembled such that the container

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has a handle.

Figure 3 illustrates one embodiment of the shape of the cut-out or blank from which the container is made.

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Figure 4 illustrates another embodiment of the shape of the cut-out or blank from which the container is made.

10 DETAILED DESCRIPTION OF ONE PREFERRED EMBODIMENT OF
THE INVENTION

With reference to Figure 3, a blank 1 in accordance with the preferred embodiment of the present invention
15 comprises a base panel 2, side panels 3a-b & 6a-b, and foldable flaps (corner panels) 5a-d. In addition, the lid is made from the lid panels 7a-b, handle panels 8a-b and interlocking panels 9a-b.

20 The base panel 2 in this embodiment is rectangular. Extending outwards along the length of the base panel 2 are side panels 6a-b and extending outwards along the width of the base panel 2 are further side panels 3a-b, one extending from each edge of the base panel
25 2. The adjacent side panels 3b-6b, 6b-3a, 3a-6a and 6a-3b, are further adjoined to each other by foldable flaps 5b, 5c, 5d and 5a respectively. Each foldable flap has a crease line 16a-d to facilitate the folding of the foldable flaps 5a-d.

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The lid panels 7a-b preferably extend from the top edges of two of the side panels 6a-b. Further, handle panels 8a-b extend from the lid panels 7a-b. On each handle panel 8a-b, a handle slot 10a-b is cut out.
35 Further, on one of the handle slots 10a, there is a

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handle tab 13 extending slightly into the handle slot 10a. This handle tab 13 slots into the handle tab slot 14, which is cut-out from the opposite lid panel 7b, when the container 100 is configured in the flat-top position.

On one of the handle panels 8a, there is also a lid tab 11 which is cut out from the handle panel 8a. This lid tab 11 slots into the lid tab slot 12, which is cut out from the opposite handle panel 12, when the container 100 is configured with the handle.

Further, at each outer edge of each handle panel 8a-b, there are a pair of interlocking tabs 15a-b and 15c-d. These interlocking tabs 15a-d are slotted into the interlocking slots 9a-b on the interlocking panels 4a-b when the container 100 is configured with the handle.

The interlocking panels (4a, 4b) are particularly important in the portable configuration of the container 100, as they not only engage with the handle to provide a rigid handle (Figure 2), but also provide a configuration which transmits handle loads to the side panels 3a, 3b of the container 100 to which the handle panels 8a, 8b are not directly connected. This latter aspect of its function distributes the handle loads along two perpendicular axes of the container and thus assist in preventing the lid panels 7a, 7b from opening when the container 100 is carried by the handle.

Finally, crease lines 17a-d are formed towards the side edges of the lid panels 7a-b. Thus, seal panels 17 are defined. As shown in Figures 1 and 2, these

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seal panels 17 are used to abut with the side panels 6a, 6b or interlocking panels 4a, 4b to provide a leak-proof container.

5 The assembly of the containers 100, illustrated in Figures 1 and 2, starting from the blank 1, illustrated in Figure 3, will now be described.

10 The side panels 3a-b and 6a-b are folded upwards to vertical positions. The foldable flaps 5a-d are folded outwards along the crease lines 16a-d. The foldable flaps 5a-d, which are now folded flat, are secured to the side panels 3a-b by gluing or any other means to be substantially flush with the surfaces of
15 the side panels 3a-b. Although the Figures show the foldable flaps 5a-d folded outside of the container 100, the said flaps could also be folded and glued inside the container 100. The base and sides of the container 100 are now formed. The lower portions of
20 the side panels 3a-b and 6a-b, when formed, are preferably tapered at an angle of more than 90° (illustrated for side panel 3a-b as α° in Figure 1).

If a container 100 with a flat top is desired, in
25 which the handle is tucked away as shown in Figure 1, interlocking panels 4a-b are first folded inwards towards the inside of the container 100. The lid panel 7b and handle panel 8b (having the handle tab slot 14 and lid tab slot 12 respectively) are folded
30 inwards to rest on top of the folded interlocking panels 4a-b (not shown).

The next stage is to fold the lid panel 7a and handle panel 8a (having the lid tab 11 and handle tab 13
35 respectively) to rest on top of the other lid panel 7b

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and handle panel 8b (as shown in Figure 1). To secure the container 100, as the lid panel 7b and handle 8b are lowered, the lid tab 11 is slotted into and through the lid tab slot 12. The handle tab 13 is then slotted into the handle tab slot 14 to complete the assembly.

In order to reopen the container from the above flat-top configuration, the handle tab 13 is pulled out from the handle tab slot 14, and the lid tab 11 is pulled out from the lid tab slot 12, thus releasing the lid panels 7a-b and handle panels 8a-b.

In a different configuration in which the handle of the container 100 is not tucked away, as shown in Figure 2, the interlocking panels 4a-b are not folded away but remain substantially vertical. In this case, the lid panel 7a and handle panel 8a, and corresponding lid panel 7b and handle panel 8b, are folded inwards and the interlocking tabs 15a-d are inserted through the corresponding interlocking slots 9a-b. Upon folding, the lid panels 7a-b are in the horizontal position whilst the handle panels 8a-b are substantially in the vertical position. The corresponding handle slots 10a-b are arranged adjacent to each other so that one single handle slot is formed.

In more detail, once the handle panels 8a-b are sufficiently lowered, the interlocking panels 4a-b are folded inwards such that the corners of the handle panels 8a-b are inserted into the interlocking slots 9a-b. The interlocking panels 4a-b are folded inwards to approximately a 45-degree angle to enable the top of the interlocking slots 9a-b to rest inside the

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interlocking tabs 15a-d. The edges of the lid panels 7a-b are simultaneously folded upwards along the crease lines 17a-d so as not to obstruct the said folding of the interlocking panels 4a-b. The handle panels 8a-b are then lifted up slightly to engage the top of the interlocking slot 9a with the bottom of the pair of interlocking tabs 15a, c and the top of interlocking slot 9b with the bottom of the pair of interlocking tabs 15b, d to complete the assembly.

In order to reopen the container 100 of Figure 2, the handle panels are pushed downwards to release the interlocking panels 4a-b from the interlocking tabs 15a-d, allowing the interlocking panels 4a-b to swing outwards. Once the interlocking panels 4a-b are in a substantially vertical position, the lid panels 7a-b and handle panels 8a-b are released and may be pulled open.

The container 100 is preferably made from a material such as stiff paper, cardboard or thin plastic which is relatively cheap and easy to handle and has a degree of resilience. However, any other suitable material could be used. The container 100 could comprise a combination of different materials and it could also be formed as a laminate, for example, to improve insulation. Preferably, the materials should also be food-grade so that the containers can be used for storing foodstuffs. Furthermore, by using the appropriate material, the container 100 can be used as a cooking utensil which is suitable for both microwaving and oven baking the food stored therein.

A number of other modifications to the container described will be apparent to those skilled in the

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art. For example, although the embodiment described shows the base panel to be rectangular, other shapes can be constructed. For example, the base panel could be other polygonal shapes such as square or octagonal (Figure 4), and it is also conceivable that the base panel could be substantially elliptical or circular. In this case, the container would have a two-piece construction. In addition, the side panels 3a-b and 6a-b, together with the foldable flaps 5a-d could be significantly deeper to give the container 100 a greater volume.

Thus, a number of variations are possible to the present invention which provides a container which is simple to close and which can either have a configuration with a handle or have a flat top in which the handle is tucked away. The container can also be securely retained in the closed condition in either configuration without the need for additional securing means. Further, the container can be stacked with like containers or other items without the weight causing opening or crushing of the container.

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Claims

1. A container comprising
a base panel,
5 side and foldable flap panels foldably adjoined
to the perimeter of the base panel to fully encircle
the base panel,
at least one lid panel used to fashion a lid for
the container, and
10 at least one handle panel used to fashion a
handle for the container, wherein
the foldable flap panels foldably adjoin adjacent
side panels to one another, and are folded during
construction of the container to bring the adjacent
15 side panels together,
the or each handle panel is foldably adjoined to
a corresponding side panel, or a lid panel along an
edge opposite to the side panel to which the lid panel
is joined, and is foldable between an upstanding
20 configuration in which it can be gripped and a
retracted configuration in which it lies flat against
the lid.
2. A container as claimed in claim 1, comprising a
25 lid tab located on the or each lid panel and
insertable in a lid tab slot to retain the lid in a
closed position.
3. A container as claimed in claim 1 or claim 2,
30 comprising a handle tab slot arranged, in the
retracted configuration of the handle, to receive a
handle tab located on the handle.
4. A container as claimed in any of the preceding
35 claims, comprising at least one interlocking panel

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foldably attached to a side panel to engage with the or each handle in the upstanding handle configuration.

5 5. A container as claimed in any of the preceding claims, comprising at least one seal panel located on the or each lid panel to abut against an adjacent panel to provide a seal.

10 6. A container as claimed in any of the preceding claims, wherein
 the base panel is polygonal,
 at least a first and second handle panel are provided to fashion a lid for the container,
 the foldable flap panels are located at corners
15 of the polygon base and each includes a crease line extending from the respective corner of the polygonal base panel to allow the or each foldable flap panel to be folded during construction of the container,
 the polygonal base panel has at least four edges
20 including a first pair of opposing edges along which respective opposing side panels are foldably adjoined,
 the first and second opposing lid panels are each foldably adjoined to the opposing side panels at an edge of the respective side panel opposite to the base
25 and are arranged to meet and be retained together to form the lid upon construction of the container,
 and the or each handle panel is foldably adjoined to a corresponding lid panel along an edge opposite to the side panel.

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7. A container as claimed in claim 6, wherein a lid tab slot is located on the join between the second opposing lid panel and the corresponding side panel.

35 8. A container as claimed in claim 6, wherein a lid

tab is located on the first opposing lid panel to engage with a slot on the second opposing lid panel, or a second handle panel adjoined to the second opposing lid panel.

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9. A container as claimed in claim 6, wherein a first handle panel adjoined to the first opposing lid panel includes a handle tab,

and the second opposing lid panel includes a handle tab slot to receive the handle tab in the retracted configuration of the handle.

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10. A container as claimed in claim 9, wherein the or each handle panel defines a fully encircled hole, along an internal edge of which, the handle tab is located.

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11. A container as claimed in claim 6, further comprising at least one interlocking panel used to lock the or each handle in the upstanding configuration, wherein

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the polygonal base panel has a second pair of opposing edges, the first and second pair of opposing edges arranged mutually perpendicular to one another,

the or each interlocking panel is each foldably adjoined to a side panel which extends from the second pair of base panel edges, and comprises a interlocking slot for insertion of at least a corner of the handle.

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12. A container as claimed in claim 11, wherein the or each handle panel comprises at least one slot extending from a free edge of the handle to engage with the corresponding interlocking slot.

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13. A container as claimed in claim 6, comprising two

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opposing handle panels which abut in the constructed container.

5 14. A container as claimed in claim 6, wherein the first and second opposing lid panels are sized to collectively cover the base panel in the constructed container.

10 15. A container as claimed in claim 6, wherein the base panel is square, rectangular, or octagonal.

15 16. A container as claimed in claim 6, wherein the side panels have an angle of more than 90° to the base panels.

17. A container as claimed in any preceding claim, made from a single blank of material.

20 18. A blank used to form a container as claimed in any preceding claim.

25 19. A container substantially as hereinbefore described and with reference to the accompanying drawings.

30 20. A blank substantially as hereinbefore described and with reference to the accompanying drawings.