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(54) **Nestable Box**

(57) The present invention relates to boxes, particularly boxes formed from polymer materials, especially expanded polystyrene (EPS) or other expanded polymer materials. However, the invention is applicable to boxes generally, including those formed from cardboard, board, wood, metal, etc. Boxes formed from EPS or other expanded polymer materials are used in vast numbers for a huge range of purposes. For example, such boxes are used generally as transport containers, for transporting all manner of goods, including raw and processed food, plants, electrical products, chemical products, pharmaceutical products, and biological materials. Boxes formed from such materials have many advantages, including low manufacturing cost, thermal insulation properties,

low density, and impact resistance. However, boxes that cannot be collapsed to a flat configuration for transportation when empty suffer from the disadvantage that the cost of their transportation (when empty) is generally significant in comparison to their manufacturing cost. While the use of boxes that can be collapsed flat for transportation when empty can solve this problem in some situations, such collapsible boxes are not suitable for all purposes nor universally adopted, wherever appropriate, in view of the fact that despite collapsible boxes having been available for many years, non-collapsible boxes are still used in vast numbers. The present invention seeks to provide a solution to the above problems and provides an improved box with sidewall having gaps to enable boxes to fit together in an overlapping configuration.

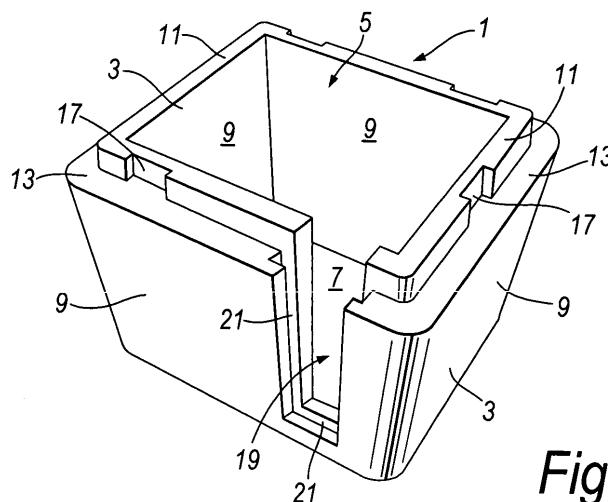


Fig. 1(a)

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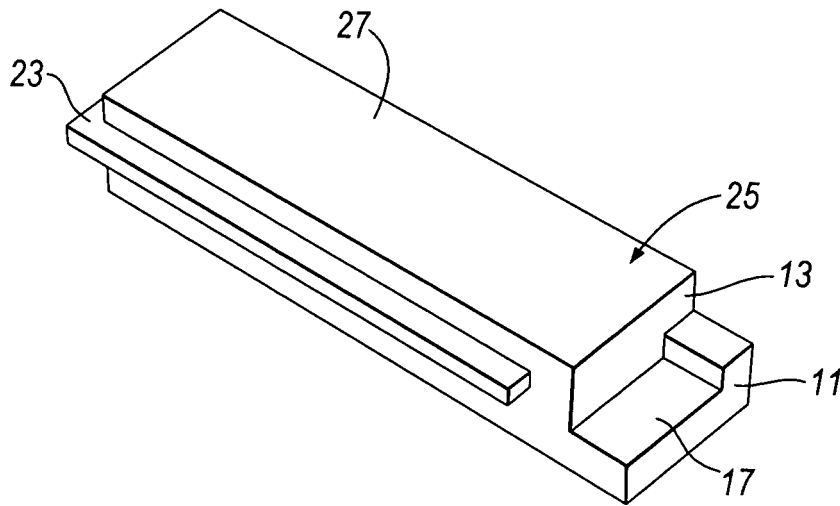


Fig. 1(b)

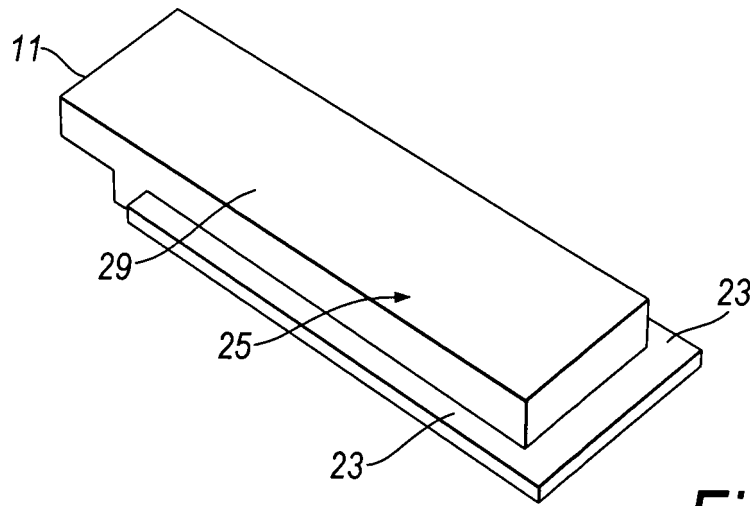


Fig. 1(c)

DescriptionField of the Invention

[0001] The present invention relates to boxes, particularly boxes formed from polymer materials, especially expanded polystyrene (EPS) or other expanded polymer materials. However, the invention is applicable to boxes generally, including those formed from cardboard, board, wood, metal, etc.

Background to the Invention

[0002] Boxes formed from EPS or other expanded polymer materials (e.g. expanded polypropylene (EPP), expanded polyethylene (EPE), etc.) are used in vast numbers for a huge range of purposes. For example, such boxes are used generally as transport containers, for transporting all manner of goods, including (but not limited to) raw and processed food, plants (horticulture), electrical products (including "white" goods), chemical products, pharmaceutical products, and biological materials. Boxes (e.g. transport containers) formed from such materials have many advantages, including low manufacturing cost, thermal insulation properties, low density (and thus low overall weight), and impact resistance.

[0003] However, boxes that cannot be collapsed to a flat configuration for transportation when empty suffer from the disadvantage that the cost of their transportation (when empty) is generally significant in comparison to their manufacturing cost. This is due to the amount of space occupied by the box, i.e. the relatively large volume occupied by the box compared to a box that has been collapsed flat, which means that a relatively small number of boxes can be transported in a particular volume (e.g. on a truck, or in a shipping container). For example, a typical cost of transporting an empty EPS box can be similar to the cost of manufacturing the box. Consequently, the transportation cost can significantly increase the "effective" manufacturing cost of the box (i.e. the cost of manufacturing and supplying the box). While the use of boxes that can be collapsed flat for transportation when empty can solve this problem in some situations, such collapsible boxes are not suitable for all purposes nor universally adopted, wherever appropriate, in view of the fact that despite collapsible boxes having been available for many years, non-collapsible boxes are still used in vast numbers.

Object of the Invention

[0004] The present invention seeks to provide a solution to the above problems.

[0005] The present invention seeks to provide an improved box which can overcome or ameliorate the above problems.

Statement of the Invention

[0006] In accordance with a first aspect of the invention, there is provided a box, comprising a base and an upstanding sidewall defining an interior volume of the box, the sidewall including at least one gap extending from a top edge thereof and at least one insert; whereby, in use, each gap is closed by a respective insert to provide a continuous upstanding sidewall; and, in a storage mode, each gap is operable to accept a sidewall of a corresponding mirror-image version of the box such that the sidewall of a box could be received in the gap and a portion of the upstanding wall can be received in a gap defined in a wall of said corresponding mirror-image version of the box, thereby allowing the boxes to fit together in an overlapping configuration.

[0007] The invention has the great advantage that by the provision of one or more gaps in the sidewall of the box and the inserts removed or displaced therefrom, the sidewall of another box may be received in such gap(s), thereby allowing the boxes to fit together in an overlapping configuration (i.e. in which at least portions of the respective sidewalls overlap each other). Consequently, by means of the invention, boxes having upstanding sidewalls may be stacked together in overlapping configurations, therefore taking up less space than they would do so if stacked conventionally in a non-overlapping manner.

[0008] It is to be understood that the reference to a "mirror-image version" of the box does not imply the actual presence of such a mirror-image version of the box. The reference merely indicates a structural fact concerning the box itself, namely that the structure of the box (i.e. a single box according to the invention) is such that if a mirror-image version of that box were present, it could be received in the gap in the sidewall of the box, thereby allowing the boxes to fit together in an overlapping configuration. The structure of the mirror-image version of the box is determined entirely by the structure of the box itself, and by the logical laws of symmetry. (It is to be understood, of course, that by "mirror-image" is meant a hypothetical image produced by a hypothetical perfect plane mirror.) The definition of the box according to the first aspect of the invention consequently defines a single such box, rather than a pair of boxes. The "mirror-image version" of the box is not (necessarily) actually present in the definition of the first aspect of the invention. However, as explained below, a second aspect of the invention provides a set of boxes comprising two (or more) boxes; in at least some embodiments of that aspect of the invention, a second box may be a mirror-image version of the first box, which mirror-image version is actually present.

[0009] In preferred embodiments of the invention, the base is unitary with the sidewall (for example, the sidewall and the base may be moulded as a unit).

[0010] It will be understood that when a pair of boxes having bases are fitted together in an overlapping man-

ner, with the top edge of the sidewall (and some or all of the height of the sidewall) of one box received in a gap extending from the top edge of the other box, the undersides of the respective bases of the two boxes will form the top and bottom of the fitted-together pair of boxes (if the boxes are oriented with the base of one box lowermost). That is, the two boxes will have opposite orientations when fitted together. If one of the boxes is oriented upright, the other box will be inverted ("upside down").

[0011] For those embodiments of the invention in which the box includes a unitary base, the "top edge" of the sidewall is the edge of the sidewall furthest from the base. In those embodiments of the invention in which the box does not include a unitary base (e.g. it is a ring extension) the "top edge" of the sidewall may be arbitrary. However, at least in some versions, there may be a true "top edge" of a ring extension, because the ring extension may be configured to be located on the top edge of another box in a predetermined orientation. In such versions, the "top edge" from which the gap (or gaps) extends may, or may not, be the "true" top edge.

[0012] As mentioned above, a second aspect of the invention provides a set of boxes comprising a first box according to the first aspect of the invention, and a second box comprising an upstanding sidewall surrounding a further interior volume of the box, the first and second boxes configured such that they are able to fit together in an overlapping configuration by the sidewall of the second box being received in at least one said gap in the sidewall of the first box.

[0013] The set of boxes may comprise only two boxes, i.e. a pair of boxes. Alternatively, for example, the set of boxes may comprise a plurality of pairs of boxes.

[0014] It is to be understood that any feature of the first aspect of the invention may be a feature of the second aspect of the invention, and vice versa.

[0015] The second box may be a box according to the first aspect of the invention. In some embodiments of the invention, the second box is a mirror-image version of the first box.

[0016] In some embodiments of the invention, the sidewall of the (or each) box includes only one gap. Alternatively, the sidewall may include two gaps. For example, such a gap may be included in each of two faces of the sidewall, especially in each of two mutually substantially perpendicular faces of the sidewall. As another alternative, the sidewall of the box may include more than two such gaps.

[0017] For those embodiments of the invention in which the second box is a box according to the first aspect of the invention, preferably the first and second boxes are configured such that they are able to fit together in an overlapping configuration by the sidewall of the second box being received in at least one said gap in the sidewall of the first box, and by the sidewall of the first box being received in at least one said gap in the sidewall of the second box. In such embodiments, the second box may be a mirror-image version of the first box, or at least

have mutually corresponding walls and slots and the two boxes are of differing sizes and/or shapes, for example.

[0018] Alternatively, however, it is possible for gaps in the sidewall of only one of the boxes to receive the sidewall of the other box. For example, one of the boxes may have two (or more) gaps in its sidewall, which gaps receive the sidewall of the other box. (The other box may, or may not, itself also have one or more gaps in its sidewall.)

[0019] For certain materials, such as cardboard, the gap may be formed by a flap element formed from a sidewall. Prior to first use the flap may still be an integral part of the sidewall, retained by a hinge along one side and by perforations along the other edges of the flap and is conveniently so retained prior to being nested for the first time. With subsequent use of the box, the flap may conveniently be taped so that it is flat with respect to the sidewall, using adhesive-backed tape to ensure that the contents of the box does not empty through the aperture or slot defined by the sidewall when the flap is open.

[0020] An insert may be a separate member and may be configured to be slideably inserted into the gap from the top edge of the box. For example, an insert may be slidable into a gap in the sidewall of the box by means of at least one protrusion and/or groove of the insert engaging with at least one respective groove and/or protrusion of the sidewall. Such respective sidewall and insert pairs are conveniently configured such that when the insert is inserted into the gap, it is retained in the gap against movement perpendicular to the sidewall. Additionally or alternatively, the sidewall and the insert may be configured such that when the insert is inserted into the gap, it is retained in the gap such that it substantially prevents widening of the gap due to flexing of the sidewall. Consequently, the insert in such a configuration may be securely engaged in the gap.

[0021] A box according to the invention preferably includes a lid that is engageable with the top edge to close the box. However, for some uses a lid may not be required.

[0022] Boxes according to the invention may advantageously be transport containers, for example. That is, the boxes may be used for transporting goods or other items, e.g. by freight or by mail (including courier delivery). However, in the broadest aspects of the invention, the boxes may be used for any purpose.

[0023] As indicated above, boxes according to the invention may be formed from any material from which boxes may be constructed. For example, they may be formed from cardboard, board, wood, metal, etc. However, the invention is believed to be particularly useful for boxes formed from polymer materials, especially expanded polymer materials. In particular, boxes according to the invention may be formed from expanded polystyrene (EPS), but they may also be formed from expanded polypropylene (EPP), expanded polyethylene (EPE), etc.

Brief description of the Figure

[0024] Some preferred embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, of which:

Figure 1 (views (a) to (c)) shows an embodiment of a box according to the invention, including two enlarged views of an insert of the box;

Figure 2 (views (a) and (b)) shows two embodiments of a set of boxes according to the invention;

Figure 3 (views (a) to (c)) shows an embodiment of a box according to the invention, which is part of a set of boxes according to the invention (the set being shown in view (c));

Figure 4 shows another embodiment of a set of boxes according to the invention;

Figure 5 shows, schematically, embodiments of two groove profiles in gaps in sidewalls of boxes according to the invention; and

Figure 6 & 7 show a still further embodiment of the invention.

Detailed Description of the Preferred Embodiments

[0025] There will now be described, by way of example only, the best mode contemplated by the inventor for carrying out the present invention. In the following description, numerous specific details are set out in order to provide a complete understanding to the present invention. It will be apparent to those skilled in the art, that the present invention may be put into practice with variations of the specific.

[0026] Figure 1 (a) shows an embodiment of a box 1 according to a first aspect of the invention. The box 1 comprises an upstanding sidewall 3 surrounding an interior volume 5 of the box, and a base 7 from which the sidewall 3 stands. The base 7 and sidewall 3 are of unitary construction, for example having been moulded as a single item, e.g. from expanded polystyrene. (As mentioned above, boxes according to the invention can be formed from substantially any material suitable for forming boxes, but a particularly preferred material is expanded polystyrene.) The sidewall 3 comprises four substantially flat faces 9, and the box 1 is substantially rectangular in plan view. A top edge 11 of the sidewall 3 includes a conventional external recess 13 extending around the entire sidewall, the recess being provided to receive a corresponding lip of a lid 15 (not shown in Figure 1, but shown in Figure 3 (a)) of the box 1. The recess 13 includes indentations 17, arranged to mate with corresponding protrusions (not shown) on the lip of the lid 15, to assist in the fitting of the lid to the top edge 11 of the sidewall 3 of the box 1.

[0027] The sidewall 3 of the box includes a gap 19 extending from the top edge 11 of the sidewall. The gap 19 is in the form of a slot having substantially parallel sides, which slot extends from the top edge 11 almost to

the base 7 of the box. The gap (slot) 19 has a width (along the sidewall 3) that is very slightly wider than the thickness of the sidewall (perpendicular to the sidewall). Thus, purely as an example, if the sidewall has a thickness of about 3 mm, the gap may have a width of about 3.5 mm. The periphery of the gap 19 (i.e. an edge of the sidewall 3 defining the gap 19) includes a groove 21, which is open at the top edge 11 of the sidewall 3. This groove 21 is arranged to receive a corresponding protrusion 23 of an insert 25 arranged to be inserted into the gap 19 substantially to close the gap and to make the sidewall substantially continuous.

[0028] The insert 25 is shown in two enlarged views, in views (b) and (c) of Figure 1. In view (b), the uppermost surface 27 of the insert 25 is arranged to form part of the external surface of the sidewall 3 of the box 1, when the insert is inserted into the gap 19. In view (c), the uppermost surface 29 of the insert 25 is arranged to form part of the internal surface of the sidewall 3 of the box 1, when the insert is inserted into the gap 19. Thus, the protrusion 23 arranged to engage with the groove 21 in the gap 19 in the sidewall 3 of the box extends around the sides and bottom of the insert 25. The top region of the insert provides profiles corresponding to the recess 13, and an indentation 17, in the top edge 11 of the sidewall, thereby providing continuations of these profiles when the insert is inserted into the gap 19 in the sidewall 3. The insert 25 may be inserted into the gap 19 in the sidewall 3 via the open upper end of the gap, by sliding the insert in a downwards direction from the top edge 11 of the sidewall towards the base 7 of the box, and the insert may be removed from the gap by sliding it in an opposite, upwards, direction. When inserted into the sidewall 3, the insert is retained in place in a vertical direction by gravity and friction, and in a horizontal direction (i.e. perpendicular to the side wall) by the engagement between the protrusion 23 and the groove 21. When a lid 15 closes the box 1, the lid also acts to retain the insert 25 in place in the gap 19.

[0029] Preferably, the, or each, such gap in the sidewall of the box comprises a slot. The slot preferably extends in a substantially perpendicular direction with respect to the top edge and/or with respect to a base of the box. Advantageously the, or each, slot may be defined by substantially parallel opposite sides in the sidewall. Alternatively the, or each, slot may taper in a direction away from the top edge, for example.

[0030] The, or each, slot or other such gap preferably is no wider than 25% wider than the thickness of the sidewall, more preferably no wider than 10% wider than the thickness of the sidewall, so that when a sidewall of a similar or identical box is received in the gap, preferably the fit is close or moderately close. This has the advantage of providing stability or rigidity to the fitted together boxes, for example so that if they are stacked with other pairs of boxes, the entire stack preferably has at least reasonable stability. It also has the advantage that preferably a pair of boxes fitted together in an overlapping

manner according to the invention can be handled substantially as a unit, thereby facilitating their handling.

[0031] In some embodiments of the invention (particularly, but not exclusively, embodiments in which the sidewall of a box is thin) the sidewall may include a relatively thick region (relative to the rest of the sidewall) in which a gap (e.g. a slot) is provided. This has the advantage of strengthening the sidewall in the region of the gap.

[0032] With regard to the stability of a plurality of the boxes (e.g. a plurality of fitted together pairs of boxes) when stacked, advantageously the underside of the base of each box may be profiled to engage with a corresponding underside of a base of another box, to reduce the possibility of relative lateral movement between two boxes stacked base-to-base. For example, the profiling of the underside of the base of a box may comprise one or more protrusions (e.g. one or more "dimples") and/or one or more recesses (e.g. one or more hollows corresponding to a respective dimple).

[0033] Preferably the, or each, gap in a sidewall of a box according to the invention has a depth of at least 25% of the height of the sidewall. More preferably, the, or each, such gap has a depth of at least 50%, especially at least 75%, of the height of the sidewall. In some preferred embodiments of the invention, the, or each, such gap has a depth of substantially the entire height of the sidewall.

[0034] It may be advantageous for the insert 25 to be retained in the gap 19 in such a way also to prevent widening of the gap due to flexing of the sidewall. Consequently, the groove 21 in the periphery of the gap 19 may have a shape such as that shown in Figure 5 (a) or Figure 5 (b) (or a similar shape). The grooves 31 and 33 shown in Figure 5 are arranged to engage with a respective corresponding protrusion (not shown) of an insert. Because the grooves 31 and 33 include regions 35 that are wider than their openings 37, an insert that engages with such grooves will substantially prevent any widening of the gap 19.

[0035] Figure 2 (views (a) and (b)) shows two embodiments of a set of boxes (in fact, two pairs of boxes) according to the invention. In each set of boxes, one of the boxes comprises a box 1 according to the invention, having two gaps 19 in its sidewall 3, whereas the other box 37 is not a box according to the invention (although it is box of a set of boxes according to the invention) because the box 37 does not have any gaps 19 in its sidewall 3. The gaps 19 are situated in respective mutually perpendicular faces of the sidewall 3, adjacent to opposite corners 39 of the box 1. One of the gaps 19 is identical to that shown in Figure 1 (i.e. including a groove 21), whereas the other gap 19 is shown without any such groove, for simplicity. As with the box 1 shown in Figure 1, the boxes 1 and 37 shown in Figure 2 each have four substantially flat faces, and are generally rectangular in plan view.

[0036] The two gaps 19 of each box 1 in Figure 2 are shown open (i.e. they are not closed by inserts 25). As

shown in view (b), the conventional box 37 and the novel box 1 may be fitted together in an overlapping configuration, by inverting one of the boxes (in the figure, box 1 is inverted, but box 37 could be inverted instead) and by causing the sidewall of box 37 to be received in the gaps 19 in the sidewall 3 of box 1. It is clearly seen from view (b) of Figure 2, that the volume occupied by the two boxes fitted together in this overlapping manner is significantly less than would be the case if the boxes were simply stacked with one on top of the other (which would be the case in the absence of the present invention). This decrease in volume is particularly marked because the gaps 19 in the sidewall 3 are positioned adjacent to the opposite corners 39 of the box 1, which has the effect of substantially maximising the overlap between the boxes 1 and 37 when they are fitted together. Consequently, a greater number of empty boxes may be stored and transported in a given volume than hitherto, by means of the present invention. Therefore, the costs of storing and transporting the boxes may be significantly reduced due to the invention.

[0037] As explained above, in some embodiments of the invention, the box 1 may include only a single gap 19 in its sidewall 3, for example as shown in Figure 3. (The boxes shown in Figure 3 are similar to the box shown in Figure 1, and the same reference numerals indicate corresponding features.) In such embodiments, the box 1 may be fitted together with another box 1 according to the invention, which other box 1 is a mirror-image version of the box 1. This is shown in Figure 3 (c), in which two boxes 1 according to the invention, which are mirror-images of each other, are fitted together with the sidewall 3 of each box received in the gap 19 of the other box. The gap 19 in one of the boxes is shown, whereas the gap 19 in the other box is hidden, but its location is indicated by an arrow.

[0038] Also as explained above, in the broadest definitions of the present invention, the structure of the box is defined with reference to its mirror-image. Figure 3 (c) thus illustrates a set of two boxes according to the invention, which boxes are mirror-image versions of each other, and Figure 3 (c) also provides an illustration of how a box according to the invention could (in a virtual, or imaginary way) be fitted together with its own mirror-image.

[0039] Generally, the sidewall of a box according to the invention can have any thickness, but for most boxes the sidewall will have a thickness in the range of 2 mm to 150 mm, preferably in the range of 5 mm to 100mm. For example, for expanded polystyrene boxes, some "standard" wall thicknesses include: 22 mm; 25 mm; 35 mm; 40 mm; 50 mm; and 65 mm.

[0040] In accordance with another embodiment of the invention, the box further comprises an element having a sidewall without a base or comprises one of a pair wherein, each continuous sidewall of a pair has corresponding gaps, each gap extending partially in relation to the height of the sidewall, wherein the gaps are ap-

appropriately spaced to enable stacking. In such embodiments, the box may be a so-called "ring" extension, for example, which can be located on the top edge of another box having a base (or indeed on another ring extension which itself is located on a box with a base, or on another ring extension). Such ring extensions are used to increase the depth of a box in a versatile manner.

[0041] Figure 4 shows a further set of boxes according to the invention, which boxes are fitted together in an overlapping configuration. In this set of boxes, box 41 comprises only a sidewall 3, and does not include a base 7. Box 41 may, for example, comprise a ring-extension, e.g. as described above.

[0042] Referring now to Figures 6 & 7, there is shown a still further embodiment in accordance with the invention. In this embodiment, the box is manufactured from a sheet material: Figure 6 shows the box 60 with uppermost flaps 62, 63 extending parallel with a base to form a closed box. Dashed line 64 indicates a flex-portion about which flap 65 can hinge about flex or otherwise depend, as can be clearly seen with reference to Figure 7, which shows the box with uppermost flaps depending downwardly, within the box and with flap 65 in an open position, whereby a mirror image version may be placed upon, whereby to enable nesting thereof. It will be appreciated, that in this version, there is no separate lid. Conveniently the edges of the flap not being the hinge with sidewall 66, and as indicated by dotted lines 67 are either heavily perforated to enable convenient opening of the flap about the hinge. Once the cardboard flap has been used for a first time and it is intended to re-use the box, the flap may be taped together using adhesive-backed tape. If manufactured from, for example cardboard or corrugated plastics/cardboard or other material, the thickness of the sidewalls may be 1 - 10 mm or more.

[0043] It will be appreciated that the sidewalls of the boxes are conveniently rectilinear in plan view, but may be of a generally circular or elliptical shape and boxes according to the invention may generally be of any type having an upstanding sidewall. For example, the sidewall may be curved (e.g. the box may be substantially cylindrical, or may have a curved sidewall defining another shape). Usually, however, the sidewall will comprise a plurality of substantially flat faces, e.g. four substantially flat faces. For example, the box may be substantially square or rectangular in plan view. For embodiments of the invention in which the sidewall comprises a plurality of faces, and therefore comprises a plurality of corners between faces, preferably any gap (e.g. slot) in the sidewall is located at, or adjacent to, a respective corner. This has the advantage that when boxes are fitted together, they will be overlapped (in plan view) to the maximum extent possible, thereby saving the greatest amount of space (in a lateral direction). For embodiments of the invention which comprise generally circular and elliptical boxes, the gaps will conveniently be arranged in an oblique fashion with respect to the wall, in the area of the wall.

Claims

1. A box, comprising a base and an upstanding sidewall defining an interior volume of the box, the sidewall including at least one gap extending from a top edge thereof and at least one insert; whereby, in use, each gap is closed by a respective insert to provide a continuous upstanding sidewall; and, in a storage mode, each gap is operable to accept a sidewall of a corresponding mirror-image version of the box such that the sidewall of a box could be received in the gap and a portion of the upstanding wall can be received in a gap defined in a wall of said corresponding mirror-image version of the box, thereby allowing the boxes to fit together in an overlapping configuration.
2. A box according to claim 1, in which the base is unitary with the sidewall.
3. A box according to claim 1 or 2, in which the sidewall includes only one said gap.
4. A box according to any one of claims 1 - 3, wherein the box has a plurality of sides and in which a said gap is included in each of at least two faces of the sidewall.
5. A box according to any one of claims 1 - 4, wherein the box has at least two perpendicular sidewalls and wherein each sidewall adjacent perpendicular sidewalls each have a gap defined therein.
6. A box according to any one of claims 1 - 5, wherein the box has at least two parallel spaced apart sidewalls and wherein each spaced apart sidewall has a gap defined therein.
7. A box according to any previous claim, wherein each insert comprises a component separate from the sidewall.
8. A box according to any one of claims 1 - 6, wherein each insert comprises a flap hingedly connected to a sidewall.
9. A box according to any one of claims 1 - 6, wherein each insert comprises a component separate from the sidewall, in which a said gap and a said insert are configured such that the insert is slidable into the gap from the top edge.
10. A box according to any one of claims 1 - 6, wherein each insert comprises a component separate from the sidewall, in which a said insert is slidable into a said gap by means of at least one protrusion and/or groove of the insert engaging with at least one respective groove and/or protrusion of the sidewall.

11. A box according to claim any one of claims 1 - 6, in which the, or each, said gap comprises a slot.
12. A box according to any one of claims 1 - 6, in which the, or each, said gap comprises a slot, in which the slot extends in a substantially perpendicular direction with respect to the top edge and/or with respect to a base of the box. 5
13. A box according to any one of claims 1 - 6, in which the, or each, said gap comprises a slot, in which the, or each, slot tapers in a direction away from the top edge. 10
14. A box according to any previous claim, in which the, or each, said gap is no wider than 25% wider than the thickness of the sidewall, preferably no wider than 10% wider than the thickness of the sidewall. 15
15. A box according to any previous claim, in which the, or each, said gap has a depth of at least 25% of the height of the sidewall. 20
16. A box according to claim 1, in which the, or each, said gap has a depth of at least 50%, preferably at least 75%, of the height of the sidewall. 25
17. A box according to claim 1, in which a or the sidewall is curved. 30
18. A box according to claim 1, in which the sidewall comprises a plurality of substantially flat faces.
19. A box according to claim 1, in which the sidewall comprises four substantially flat faces. 35
20. A box according to claim 1, further comprising a lid that is engageable with the top edge to close the box.
21. A box according to any previous claim, which is formed from polymer material, selected from the group including: expanded polystyrene (EPS), expanded polypropylene (EPP), expanded polyethylene (EPE). 40
22. A box according to any one of claims 1 - 20, which is formed from a corrugated material, such as corrugated plastics or corrugated cardboard. 45
23. A set of boxes comprising a first box according to any one of claims 1 - 22 and a second box comprising an upstanding sidewall surrounding an interior volume of the box, the first and second boxes configured such that they are able to fit together in an overlapping configuration by the sidewall of the second box being received in at least one said gap in the sidewall of the first box. 50
24. A set of boxes comprising a first box according to any one of claims 1 - 22 and a second box comprising an upstanding sidewall surrounding an interior volume of the box, the first and second boxes configured such that they are able to fit together in an overlapping configuration by the sidewall of the second box being received in at least one said gap in the sidewall of the first box, in which the first and second boxes are configured such that they are able to fit together in an overlapping configuration by the sidewall of the second box being received in at least one said gap in the sidewall of the first box, and by the sidewall of the first box being received in at least one said gap in the sidewall of the second box. 55

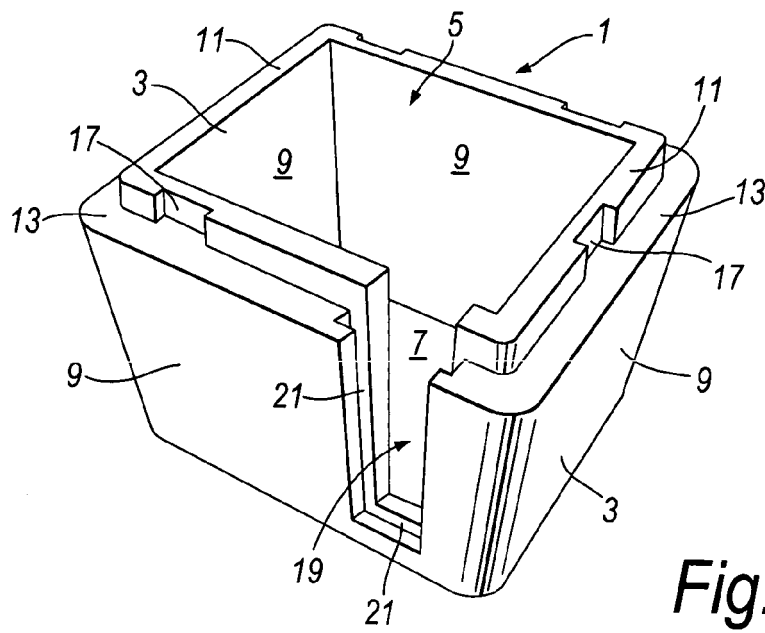


Fig. 1(a)

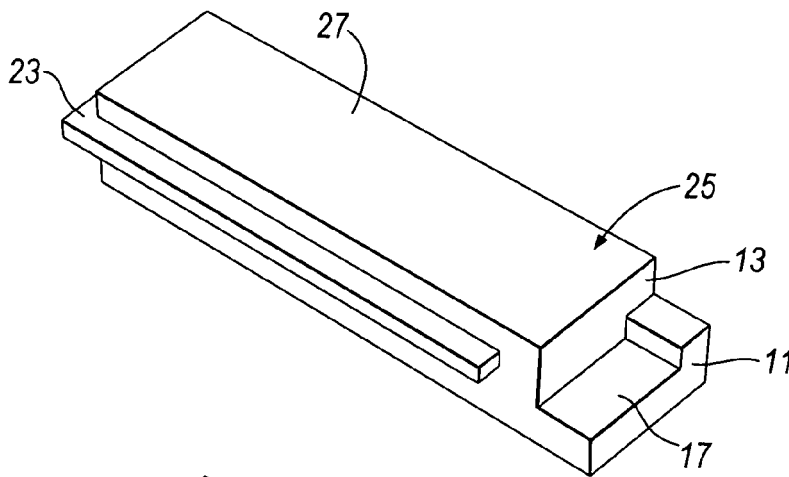


Fig. 1(b)

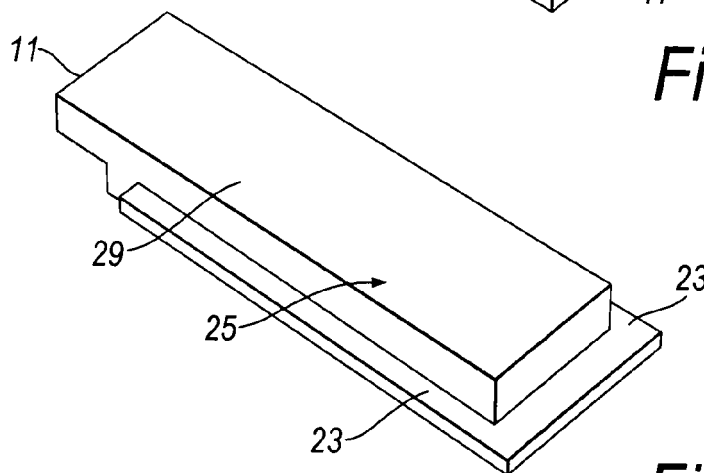


Fig. 1(c)

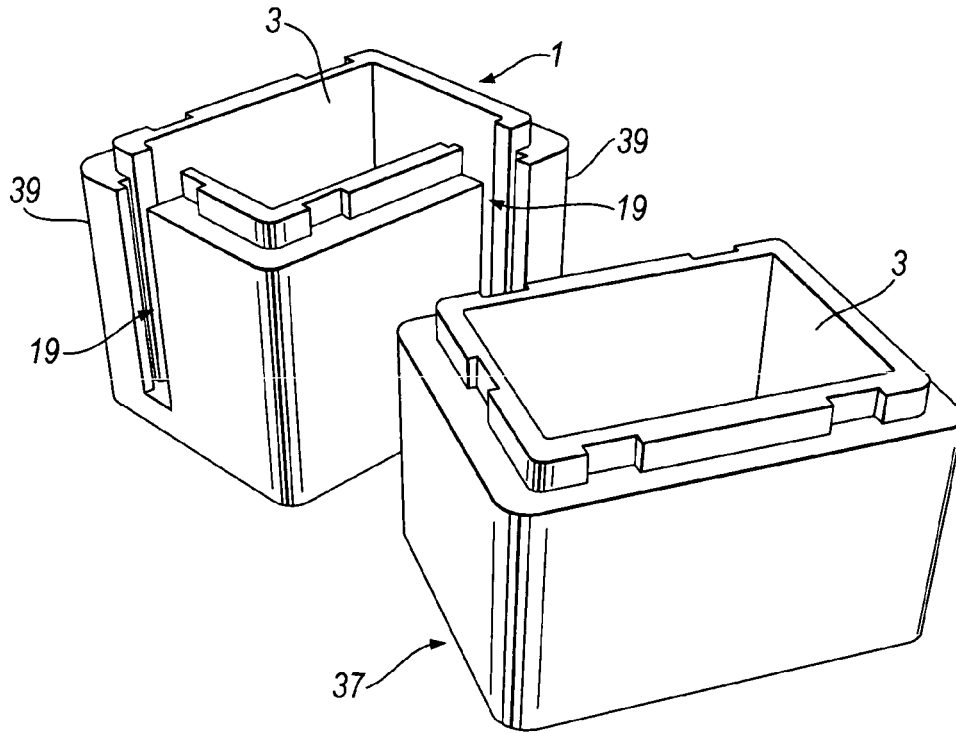


Fig.2(a)

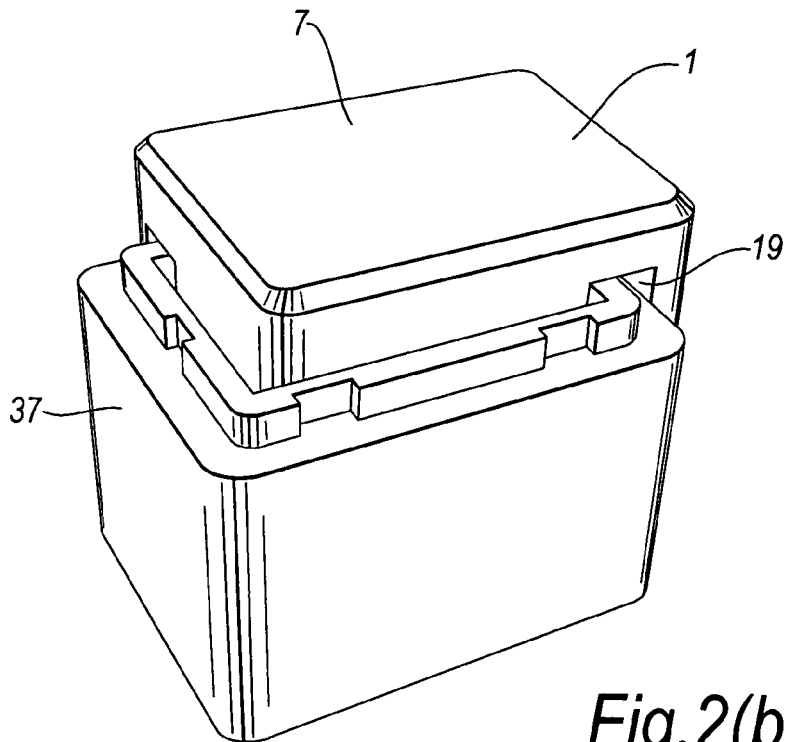


Fig.2(b)

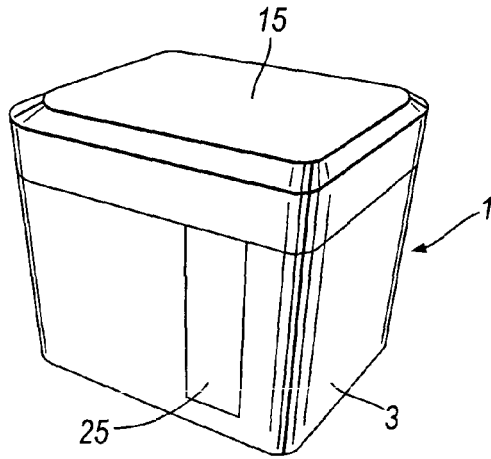


Fig. 3(a)

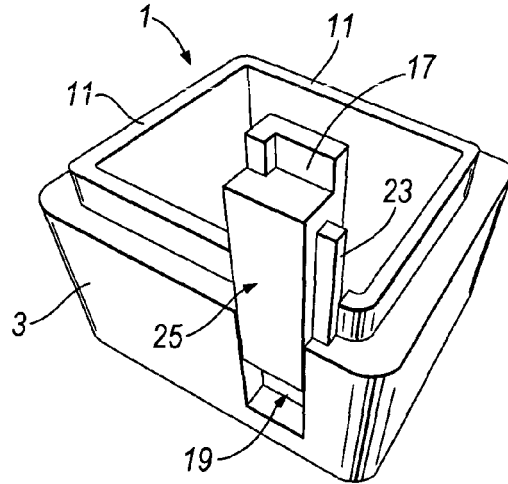


Fig. 3(b)

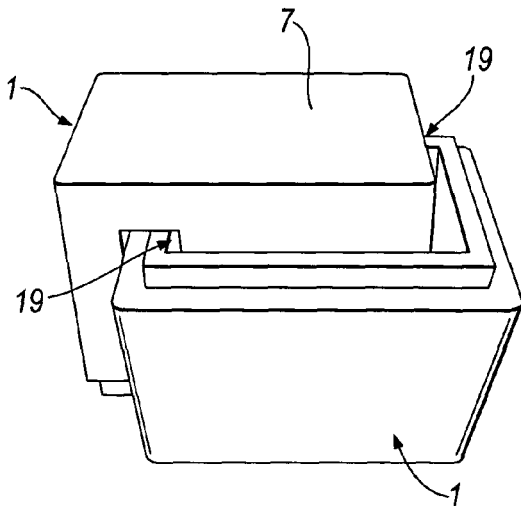


Fig. 3(c)

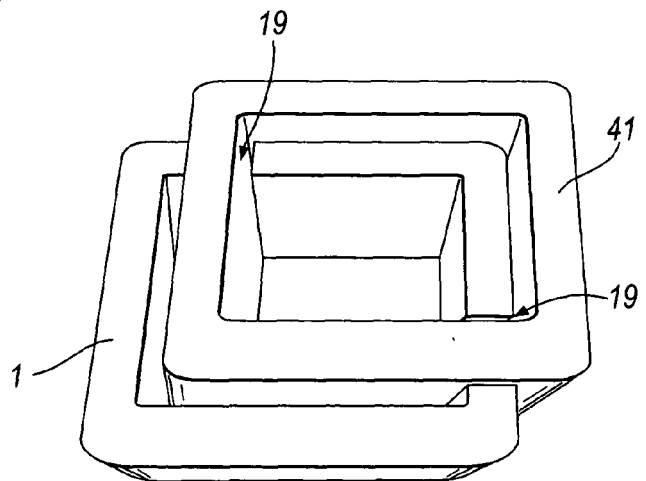


Fig. 4

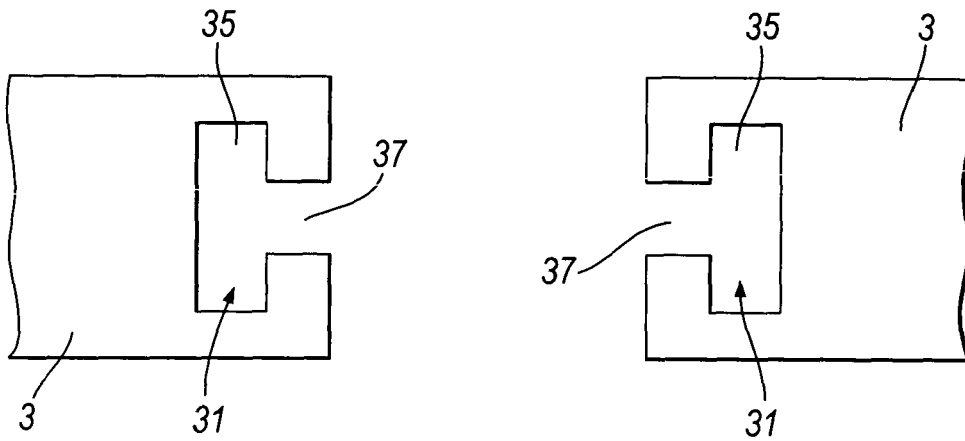


Fig. 5(a)

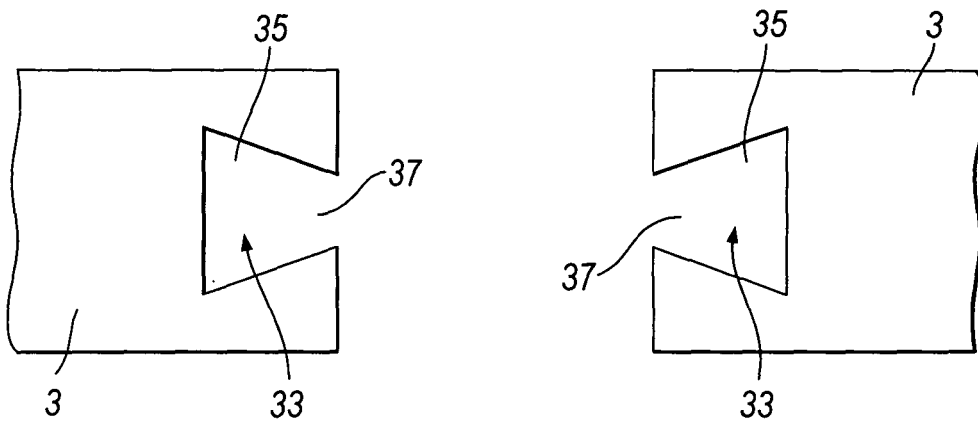


Fig. 5(b)

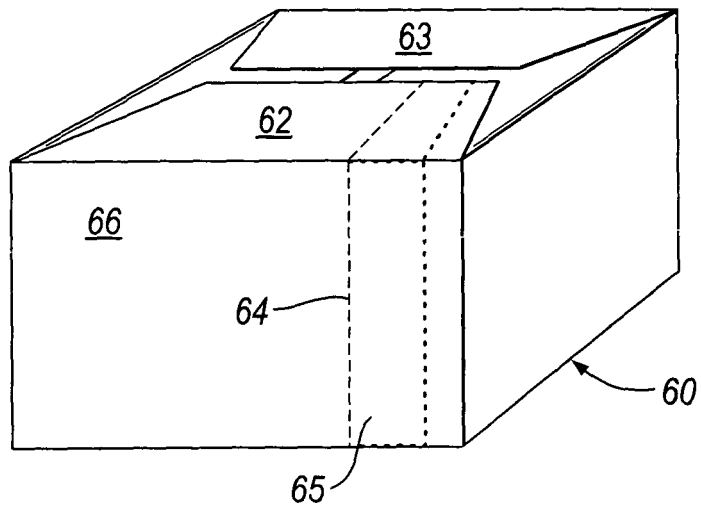


Fig. 6

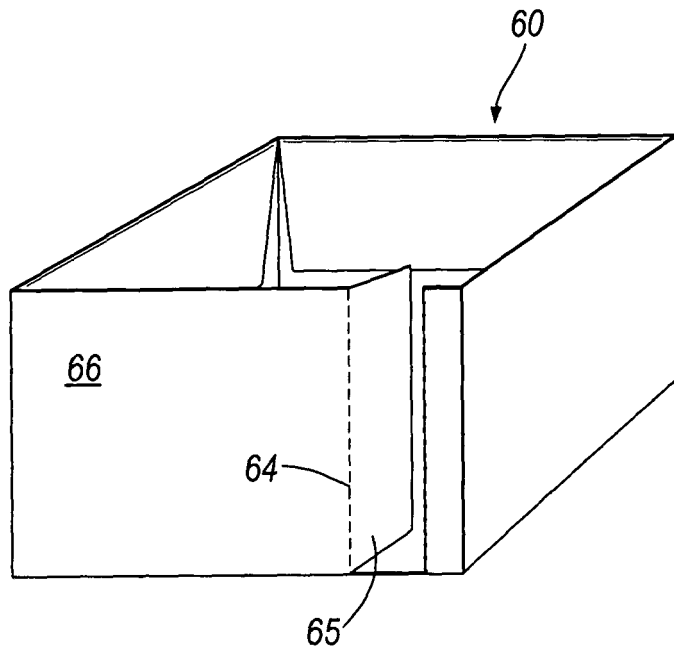


Fig. 7



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			B65D
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Munich		12 October 2006	Augustin, Wolfgang
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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