

(19)



(11)

EP 3 986 799 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:

09.08.2023 Bulletin 2023/32

(21) Application number: **20743263.4**

(22) Date of filing: **16.06.2020**

(51) International Patent Classification (IPC):

B65D 5/52 (2006.01) **A47F 5/11** (2006.01)

(52) Cooperative Patent Classification (CPC):

B65D 5/526

(86) International application number:

PCT/IB2020/055610

(87) International publication number:

WO 2020/261042 (30.12.2020 Gazette 2020/53)

(54) **A PACKAGE HAVING COMPARTMENTS AND A SEPARATION SHEET THEREFOR**

VERPACKUNG MIT FÄCHERN UND TRENNFOLIE DAFÜR

EMBALLAGE DOTÉ DE COMPARTIMENTS ET FEUILLE DE SÉPARATION ASSOCIÉE

(84) Designated Contracting States:

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **24.06.2019 SE 1950776**

(43) Date of publication of application:

27.04.2022 Bulletin 2022/17

(73) Proprietor: **Stora Enso Oyj**

00101 Helsinki (FI)

(72) Inventor: **HEINONEN, Saija**

34450 Jämskipohja (FI)

(74) Representative: **Steinrud, Henrik**

Stora Enso AB

Group Intellectual Property

Box 9090

65009 Karlstad (SE)

(56) References cited:

US-A- 4 506 790 US-A- 4 519 319

US-A- 5 458 411 US-A- 5 862 980

US-B2- 9 474 389

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Field of invention

[0001] The invention relates to a package having a plurality of compartments.

[0002] The invention also relates to a separation sheet for forming such a package having a plurality of compartments.

Technical Background

[0003] When designing a package, it is often desirable to take into account a number of different design criteria. The package should e.g. often be designed such that it makes efficient use of the material, is easy to transport to the point of use, is easy to prepare for use, and provide a strong structure. It is often desirable that it is strong during handling and stable in an erected state.

[0004] It is common that packages are designed in such a way that several packages can be stacked upon each other to achieve a shelf like structure. This is for example desirable when designing packages that are to be used as display stands. When packages are stacked on top of each other, a package that has been emptied can be removed from the stack to open up easy access to the package underneath. Packages made from cardboard are beneficial since they do not take up much space before they are erected, during for example transport. There exist numerous attempts to address the above design criteria in connection to designing a package of cardboard material.

[0005] US4506790 discloses a display stand comprising a shelf supporting structure and a plurality of shelves. The display stand is made of a light weight material such as cardboard. The shelves are held in place by a slot in the supporting structure and are upheld by merchandise placed between two shelves.

[0006] US9474389 discloses a display unit comprising a hutch formed from corrugated material, such as cardboard. The hutch has a back wall, a first side wall extending from a first end of the back wall, and a second side wall extending from a second end of the back wall. The back wall of the hutch includes a plurality of spaced horizontal slots. The hutch further comprises a first side wall support attached to the first side wall, and a second side wall support attached to the second side wall. The first and second side wall supports include shelf support tabs. The hutch further includes a plurality of shelves formed from a foldable blank of material, each shelf having a tab insertable into one of the plurality of spaced horizontal slots, and supported by the shelf support tabs.

[0007] It may be noted that none of the prior art documents discloses a package which adequately addresses the set of design criteria that the package should make efficient use of the material, be easy to transport to the point of use, be easy to erect, and provide a strong structure.

Summary of invention

[0008] It is an object of the invention to provide a separator sheet and a package which addresses the set of design criteria that the package should be mechanically stable and provide a strong structure, it should be easy to erect, and it should provide a simple solution to stacking packages on top of each other. It is also an object of the invention to provide a package with a design which inherently is useful as a display package.

[0009] This object has been achieved by a separator sheet according to claim 1 and package according to claim 2 having a plurality of compartments, the package comprising

a back wall extending in a plane defined by a first longitudinal direction and a first transversal direction, two opposing side walls each extending in a respective plane defined by a respective second longitudinal direction having at least a major component along the first longitudinal direction and a second transversal direction having at least a major component across the first transversal direction, two opposing front wall portions, each being connected to a respective one of the side walls and extending in a respective direction having at least a major component towards a respective other one of the front wall portions and having an extension towards the other one of the front wall portion such that a gap is formed between the two front wall portions as seen along the first transversal direction, wherein the back wall, the two opposing side walls, and the two opposing front wall portions define a package volume, wherein the package volume is divided into said plurality of compartments by the package further comprising:

a separator sheet comprising:

a floor panel having an extension along the first and second transversal directions and forming a major component of a divider between two adjacent compartments of the package, a first front wall panel connected to the floor panel, and a second front wall panel connected to the first front wall panel, wherein the first and second front wall panels are configured to be folded relative to the floor panel and relative to each other about fold lines extending along a direction having a major component along the first transversal direction to form a double front wall, wherein outer portions, as seen along the first transversal direction, of the fold lines are formed as through-cuts such that open ended slits, as seen along both the second longitudinal direction and the respective extension of an associ-

ated front wall portion are formed at the outer portions of the front wall, wherein each respective slit is configured to receive the associated front wall portion and to thereby lock the separator sheet in place as seen along the second transversal direction.

[0010] With such a design, it is possible to provide a stable package having compartments and a package having a shelf structure. When a compartment is emptied, the separator sheet may be removed to open up or provide access to another compartment. This action can be performed without the risk of a package falling down, which may happen in case there are two or more packages stacked in top of each other and the packages sliding in a way such that a package may fall down when an emptied top package is to be removed. With the provided design, effective use of material is achieved since there is no need to provide double layering of materials between two packages forming a stack of packages. The package is mechanically stable due to the separator sheet being held in place by the front wall portion. Moreover, there is provided a package having flexible compartment size. Thus, a wide variety of products may be placed within the compartment without major design changes or inefficient use of material.

[0011] The compartments of the package may be consecutively arranged one above the other. This configuration allows for a separator sheet to be removed when the compartment above the separator sheet is empty, and another compartment is opened up for easy access. This provides a shelf structure within the package. The package provides a stable structure and lowers the risk of two packages stacked on top of each other moving around and a top package falling down.

[0012] In a preferred embodiment, the second longitudinal direction is parallel to the first longitudinal direction. In a preferred embodiment, the second transversal direction is at a right angle to the first transversal direction. In a preferred embodiment, the back wall and the two opposing front wall portions extend along parallel planes. It may be noted that it is conceivable that one or both of the two opposing side walls may have an extension relative to the back wall such that the second longitudinal direction is inclined relative to the first longitudinal direction and/or the second transversal direction is not at a right angle with the first transversal direction. It may be noted that independently of the extensions of the opposing side walls, it is preferred that the back wall and the two opposing front wall portions extend along parallel planes. It may be noted that it is conceivable that the two opposing front wall portions extend along a plane being inclined relative to the back wall as seen in the longitudinal direction, and/or as seen along the first transverse direction. In any case it is preferred that the two opposing front wall portions extend along a single, common plane.

[0013] It may be noted that the gap formed between the two front wall portions may have an extension as

seen along a projection of the first transversal direction onto the back wall. The gap provides the compartments with a front opening such that any products placed therein can be removed from the front side of the package.

[0014] It may be noted that the floor panel need not be oriented such that it is parallel to the first and the second transversal directions. The floor panel may be oriented such that it is oriented inclined relative to the first transversal direction and/or inclined relative to the second transversal direction. It may be noted that the floor panel is preferably arranged such that it extends horizontally, irrespectively of if it is parallel or inclined relative to the first transversal direction and irrespectively of if it is parallel or inclined relative to the second transversal direction.

[0015] By the slits being configured to receive the associated front wall, the separator may be held in place without the need of cut-throughs in either the back wall or in the two opposing side walls. This configuration enables easy handling of the package and prevents any need for merchandise placed in the compartments to provide upholding support to the separator sheet and the shelf structure. This configuration prevents the separator sheet from moving about in the second transversal direction.

[0016] The fold lines preferably extend along a direction in the same direction as the two opposing front wall portions extend. The fold lines preferably extend horizontally when the separation sheet is installed in the package.

[0017] The first front wall panel and the second front wall panel may in a flat laid state of the separator sheet be arranged in consecutive order one after the other along a direction, which direction when the separator sheet is installed in the package will extend along the second transversal direction.

[0018] The first front wall panel may form an outwardly facing surface of the front wall and the second front wall panel may form an inwardly facing surface of the front wall. This may be provided by the front wall panel being folded relative to the floor panel in a first folding direction and the second front wall panel being folded relative to the first front wall panel in the same folding direction. This provides a strong double front wall, which is beneficial for keeping the mechanical stability of the package. It may be noted that the separator sheet may be configured such that the first front panel forms an outwardly facing surface, and such that the second front wall panel forms an inwardly facing surface.

[0019] The second front wall panel may comprise a locking portion, the locking portion being positioned at a side of the second front wall panel being opposite to a side of the second front wall panel connected to the first front wall panel. The locking portion may e.g. be a lug or a tongue extending from the second front wall panel, as seen in a flat-laid state of the separator sheet, in a direction extending from the floor panel towards and past the first and second front wall panels. This direction will, when

the separator sheet is installed in the package, from the floor panels perspective extend along the second transversal direction. The locking portion will, when the separator sheet is installed in the package, extend along the longitudinal direction. If the separation sheet is oriented such that the front wall extends upwardly relative to the floor panel, the locking portion will extend downwardly, and vice versa. The locking portion aids in preventing unintentional unfolding of the double front wall, which is beneficial for keeping the mechanical stability of the package. The locking portions may provide a lock to the separator sheet to keep the separator sheet in a desirous placement of the package. The locking portion may prevent the separator sheet from moving in the first transversal direction. The locking portion may prevent the separator sheet from twisting such that the front wall portion is moved out of the slit.

[0020] The locking portion may be configured to interact with a slit formed in the floor panel or formed in a connection between the floor panel and the first front wall panel. When a locking portion interacts with a slit, the double folding of the front wall may be retained in a low-complexity manner, and a mechanical lock holding the separator sheet in a desirous place may be achieved. It may be noted that the connection between the floor panel and the first wall panel may comprise one or more slits.

[0021] The locking portion may be configured to interact with at least one of the through-cuts. By the locking portion interacting with the through-cut, the separator sheet may be held in place such as to avoid any unintentional unfolding or pulling out of the separator sheet from the package.

[0022] The second front wall panel may comprise two locking portions being positioned at a side of the second front wall panel being opposite to a side of the second front wall panel connected to the first front wall panel and being positioned one on each of respective opposing side of the second front wall panel as seen along the first transversal direction, and wherein each one of the two locking portions may be configured to interact with the respective through-cut. The provision of two locking portions facilitates designing a package with enhanced stability. Two locking portions may be used to provide a separator sheet that is held in place by strong retaining mechanical forces. It may be noted that the second front wall panel may comprise more than two locking portions. The locking portions may be positioned on a side of the second wall panel arranged to interact with the connection between the floor panel and the first front wall panel. It may be noted that the locking portions may be arranged to interact with through-cuts formed in the floor panel of the separator sheet. The separator sheet may be made of paper-based material. Paper-based material may provide a light weight package. Paper-based material is environmentally friendly and can be recycled in a simple manner. Paper-based material may provide a package that is easy to transport and handle before erection of the package. It may be noted that the separator sheet

may be made of other materials. It may be noted that the package as a whole may be made of paper-based material. It may be noted that the package and the separator sheet need not to be made of the same material.

[0023] The package may further comprise a support element being configured to abut an underside of the floor panel and to thereby define a height of a compartment formed underneath the floor panel of the separator sheet. A support element may provide each compartment with a stable structure. A support element may remove the need for any merchandise placed in the compartments to hold up the shelf structure and the separator sheet. The separator sheet may provide the package with support to the separator sheet such that no through holes or any other arrangement is needed in order to retain the shelf structure when merchandise or products are placed in the compartments. By using a support element, the separator may be upheld in place without any support from upholding forces of merchandise or products placed in the compartment below the separator sheet. By using different heights of a support element, a package having compartments of different sized may be achieved.

[0024] The support element may be made of paper-based material. It may be noted that the separator may be made of other materials.

[0025] The support element may comprise a panel extending in a plane defined by a first vector having a major component along the first longitudinal direction, the first vector preferably extending in a vertical direction, and a second vector extending in the first and/or second transverse direction, the second vector preferably having an extension along both the first and the second transverse directions. This may provide the separator sheet with support for forming the compartments while at the same time leaving room in the compartment for a variety of merchandise to be placed therein.

[0026] The support element may comprise two panels, the first panel extending in a first plane and the second panel extending in a second plane, each plane being defined by a respective first vector and a respective second vector, wherein the first vector of the first plane and the first vector of the second plane each have a major component along the first longitudinal direction, the first vectors preferably extending in a vertical direction, wherein the second vector of the first plane and the second vector of the second plane each extend in the first and/or the second transverse direction, wherein the second vector of the first plane and the second vector of the second plane intersects each other such that the two panels interact with each other.

[0027] Each of the second vectors may have an extension along both the first and the second transverse directions whereby the two panels cross each other, as seen in a cross-sectional view defined by the first transversal direction and the second transversal direction. This may provide the separator sheet with an evenly distributed upholding force. Thus, heavier merchandise or items may be stored in the plurality of compartments.

This configuration may increase simplicity of handling and transport of the package up to use.

[0028] The above-mentioned object has also been accomplished by the provision of a separator sheet configured to be installed in a package and form a divider between two adjacent compartments of the package, the separator sheet comprising

a floor panel having an extension along a first transversal direction and a second transversal direction, a first front wall panel connected to the floor panel, and a second front wall panel connected to the first front wall panel, wherein the first and second front wall panels are configured to be folded relative to the floor panel and relative to each other about fold lines extending along a direction having a major component along the first transversal direction to form a double front wall, wherein outer portions, as seen along the first transversal direction, of the fold lines are formed as through-cuts such that open ended slits, as seen along both the second longitudinal direction and the respective extension of an associated front wall portion are formed at the outer portions of the front wall.

[0029] A respective slit is configured to receive an associated front wall portion of a package comprising two opposing front wall portions, each being connected to a respective one of two opposing side walls and extending in a respective direction having at least a major component towards a respective other one of the front wall portions and having an extension towards the other one of the front wall portion such that a gap is formed between the two front wall portions as seen along the first transversal direction.

[0030] Advantages associated with the different features and preferred embodiments have been discussed in detail in the above in relation to the package. The discussion is equally valid in relation to the separator sheet. It may be noted that the various preferred embodiments or optional features are equally applicable to the separator sheet.

[0031] The invention may also in short be said to relate to a package having a plurality of compartments, the package comprising a back wall, two opposing side walls, two opposing front wall portions and a separator sheet, wherein the back wall, the two opposing side walls, and the two opposing front wall portions define a package volume, wherein the separator sheet is configured to provide a divider between two adjacent compartments of the package, the separator sheet comprising a floor panel having an extension along a first transversal direction and a second transversal direction, a first front wall panel connected to the floor panel, and a second front wall panel connected to the first front wall panel.

Brief description of the drawings

[0032] The invention will by way of example be described in more detail with reference to the appended schematic drawings, which shows a presently preferred embodiment of the invention.

Figure 1 discloses some major components of a package.

Figure 2 discloses a separator sheet.

Figure 3 discloses a blank for forming a separator sheet.

Figure 4A discloses a package.

Figure 4B discloses the package of figure 4A with a top sheet removed.

Detailed description of preferred embodiments

[0033] With reference to figures 1, and 4A-4B there is disclosed a package 100 having a plurality of compartments. The package 100 comprises a back wall 102, two opposing side walls 104, two opposing front wall portions 106. The back wall 102, the two opposing side walls 104, and the two opposing front wall portions 106 define a package volume. The package 100 also comprises a separator sheet 200. The separator sheet 200 forms a divider that divides the package volume into the plurality of compartments.

[0034] The back wall 102 extends in a plane defined by a first longitudinal direction L1 and a first transversal direction T1. Two opposing side walls each extend in a respective plane defined by a respective second longitudinal direction L2 having at least a major component along the first longitudinal direction L1 and a second transversal direction T2 having at least a major component across the first transversal direction T1. It is preferred that the second longitudinal direction L2 is parallel to the first longitudinal direction L1. In a preferred embodiment, the second transversal direction T2 is at a right angle to the first transversal direction T1. In a preferred embodiment, the back wall 102 and the two opposing front wall portions 106 extend along parallel planes. It may be noted that it is conceivable that one or both of the two opposing side walls 104 may have an extension relative to the back wall 102 such that the second longitudinal direction L2 is inclined relative to the first longitudinal direction L1 and/or the second transversal direction T2 is not at a right angle with the first transversal direction T1. It may be noted that independently of the extensions of the opposing side walls 104, it is preferred that the back wall 102 and the two opposing front wall portions 106 extend along parallel planes. It may be noted that it is conceivable that the two opposing front wall portions 106 extend along a plane being inclined relative to the back wall 102 as seen in the longitudinal direction, and/or as seen along the first transverse direction T1. In any case it is preferred that the two opposing front wall portions 106 extend along a single, common plane.

[0035] Two opposing front wall portions 106 are each connected to a respective one of the side walls 104. Each of the front wall portions 106 is connected to the respective side wall 104 along a longitudinally extending side, the side being opposite a side of the respective side wall 104 being close to or connected to the back wall 102. The two opposing front wall portions extend in a respective direction having at least a major component towards a respective other one of the front wall portions 106. The two opposing front wall portions have an extension towards the other one of the front wall portion 106 such that a gap G is formed between the two front wall portions 106 as seen along the first transversal direction T1. The gap may be seen as having an extension as seen along the projection of the first transversal direction T1 onto the back wall 102.

[0036] The package 100 may comprise a support element 212. The support element 212 may be configured to abut an underside of the floor panel 202 of the separator sheet 200. The support element 212 may be configured to define a height of a compartment formed underneath the floor panel 202 of the separator sheet 200. The support element 212 may provide the separator sheet 200 with an upholding force to prevent the separator sheet 200 from falling to the bottom of the package 100. As shown e.g. in figures 4A and 4B, the package 100 may comprise a plurality of separation sheets 200. The package 100 may also comprise a plurality of support elements 212 which are arranged alternately with the separation sheets 200 along the longitudinal direction L1.

[0037] The support element 212 may comprise a panel. The panel may extend in a plane defined by a first vector having a major component along the first longitudinal direction L1, and a second vector extending in the first and/or second transverse direction T1, T2. In such case, the first vector preferably extends in a vertical direction, and the second vector preferably has an extension along both the first and the second transverse directions T1, T2. The support element 212 may be arranged to form compartments within each compartment of the package 100.

[0038] As shown in figure 4B the support element 212 may comprise two panels. The support element may comprise more than two panels. A first panel may extend in a first plane and a second panel may extend in a second plane. Each plane may be defined by a respective first vector and a respective second vector. The first vector of the first plane and the first vector of the second plane may each have a major component along the first longitudinal direction L1. In a preferred embodiment, the first vectors extend in a vertical direction. The second vector of the first plane and the second plane may each extend in the first and/or the second transverse direction T1, T2. The second vector of the first plane and the second vector of the second plane may intersect each other such that the two panels interact with each other.

[0039] Each of the second vectors may have an extension along both the first and the second transverse di-

rections T1, T2. Thus, the two panels may cross each other, as seen in a cross-sectional view defined by the first transversal direction T1 and the second transversal direction T2.

[0040] It is preferred that the support element 212 is made of paper-based material.

[0041] Figure 2 shows a separator sheet 200, and Figure 3 shows a blank for forming such a separator sheet 200. The separator sheet 200 is configured to be installed in a package 100.

[0042] The separator sheet 200 comprises a floor panel 202, a first front wall panel 204, and a second front wall panel 206. The floor panel 202 has an extension along the first transversal direction T1 and along the second transversal direction T2. The floor panel 202 of the separator sheet 200 forms a major component of a divider between two adjacent compartment of the package 100.

[0043] The first front wall 204 panel is connected to the floor panel 202. The second front wall panel 206 is connected to the first front wall panel 204. The first and second front wall panels 204, 206 are configured to be folded relative to the floor panel 202. The first and second front wall panels are further configured to be folded relative to each other about fold lines 208 extending along a direction having a major component along the first transversal direction T1 to form a double front wall. It is preferred that the fold lines 208 extend along a direction being in the same direction as the two opposing front wall portions 106 extend. The fold lines 208 preferably extend horizontally when the separator sheet 200 is installed in the package 100.

[0044] The outer portions, as seen along the first transversal direction T1, of the fold lines 208 are formed as through-cuts 210 such that open ended slits, as seen along both the second longitudinal direction L2 and the respective extension of an associated front wall portion 106 are formed at the outer portions of the front wall. Each respective slit is configured to receive the associated front wall portion 106 of the package 100. Thereby the separator sheet 200 is locked in place as seen along the second transversal direction T2. By each respective slit being configured to receive the associated front wall portion 106 of the package, the separator sheet 200 is prevented from moving in the second transversal direction T2.

[0045] As shown in Figure 4A-4B, the separator sheet 200 may be arranged to form a bottom of the package 100. The separator sheet 200 may be arranged to form a top lid of the package 100. It may be noted that the package 100 may stand on an arrangement forming a bottom of the package 100.

[0046] As shown in figure 3, the floor panel 202, the first front wall panel 204 and the second front wall panel 206 may in a flat laid state of the separator sheet 200 be arranged in consecutive order one after the other along a direction. The direction may, when the separator sheet 200 is installed in the package 100 extend along the second transversal direction T2.

[0047] The first front wall panel 204 may form an outwardly facing surface of the front wall. The second front wall panel 206 may form an inwardly facing surface of the front wall. In such case, the first front wall panel 204 may be folded relative to the floor panel 202 in a first folding direction and the second front wall panel 206 may be folded relative to the first front wall panel 204 in the same folding direction. The outwardly facing surface of the front wall may allow for printing on the separator sheet 200 to provide a more aesthetic look of the package 100. Printing on the outwardly facing surface may provide a package 100 where a separator sheet 200 may be chosen or printed based on the products that are to be put in the package compartments.

[0048] The second front wall panel 206 may comprise a locking portion 214. The locking portion 214 may be positioned at a side of the second front wall panel 206 being opposite to a side of the second front wall panel 206 connected to the first front wall panel 204. The locking portion 214 may e.g. be a lug or a tongue extending from the second front wall panel 206, as seen in a flat-laid state of the separator sheet, in a direction extending from the floor panel 202 towards and past the first and second front wall panels 204, 206. This direction will, when the separator sheet 200 is installed in the package 100, from the floor panels 202 perspective, extend along the second transversal direction T2. For the three lowermost separation sheets 200 in figure 4A, the front wall extends upwardly from the floor panel 202 and the lugs or tongues 214 extend downwardly. For the uppermost separation sheet 200 in figure 4A, the front wall extends downwardly from the floor panel 202 and the lugs or tongues 214 extend upwardly.

[0049] The locking portion 214 may be configured to interact with a slit formed in the floor panel 202. The locking portion 214 may be configured to interact with a slit formed in a connection between the floor panel 202 and the first front wall panel 204. The connection between the floor panel 202 and the first front wall panel may be the fold line 208. The locking portion 214 may be configured to interact with at least one of the through-cuts 210.

[0050] As seen in figure 3, the second front wall panel 206 may comprise two locking portions 214. The locking portions 214 may be positioned opposite to a side of the second front wall panel 206 being connected to the first front wall panel 204. The locking portions 214 may be positioned on each of a respective opposing side of the second front wall panel 206, as seen along the first transversal direction T1. When the second front wall panel 206 comprises two locking portions 214, each locking portion 214 may be configured to interact with the respective through-cut 210.

[0051] It is preferred that the separator sheet 200 is made of paper-based material. It is preferred that the back wall 102, the two opposing side walls 104 and the two opposing front wall portions are formed by one blank.

[0052] It is contemplated that there are numerous modifications of the embodiments described herein, which

are still within the scope of the invention as defined by the appended claims.

[0053] The back wall 102, the two opposing side walls 104, and the two opposing front wall portions 106 may for instance be made of a rigid material such as a plastic or metal, and the separator sheet 200 may be made of paper-based material. In such a case, the compartments can be exchanged continuously by only needing to exchange the separator sheet. This would provide a simple display option where the main structure of the package need not to be exchanged dependent on what products are to be placed in the compartments.

[0054] In one example the support element 212 may be a panel formed as a cylindrical shape. Such a design may provide an evenly distributed upholding force onto the separator sheet, while at the same time provide a spacious compartment.

Claims

1. A separator sheet (200) configured to be installed in a package (100) and form a divider between two adjacent compartments of the package (100), the separator sheet (200) comprising:

a floor panel (202) having an extension along a first transversal direction (T1) and a second transversal direction (T2),

a first front wall panel (204) connected to the floor panel (202), and

a second front wall panel (206) connected to the first front wall panel (204),

wherein the first and second front wall panels (204, 206) are configured to be folded relative to the floor panel (202) and relative to each other about fold lines (208) extending along a direction having a major component along the first transversal direction (T1) to form a double front wall, wherein outer portions, as seen along the first transversal direction (T1), of the fold lines (208) are formed as through-cuts (210) such that open ended slits, as seen along both the second longitudinal direction (L2) and the respective extension of an associated front wall portion (106), are formed at the outer portions of the double front wall,

wherein respective slit is configured to receive an associated front wall portion (106) of the package (100) comprising

two opposing front wall portions (106), each being connected to a respective one of two opposing side walls (104) and extending in a respective direction having at least a major component towards a respective other one of the front wall portions (106) and having an extension towards the other one of the front wall portion (106) such that a gap (G) is formed between the two front

- wall portions (106) as seen along the first transversal direction (T1).
2. A package (100) having a plurality of compartments, the package comprising:
 - a back wall (102) extending in a plane defined by a first longitudinal direction (L1) and a first transversal direction (T1),
 - two opposing side walls (104) each extending in a respective plane defined by a respective second longitudinal direction (L2) having at least a major component along the first longitudinal direction (L1) and a second transversal direction (T2) having at least a major component across the first transversal direction (T1),
 - two opposing front wall portions (106), each being connected to a respective one of the side walls (104) and extending in a respective direction having at least a major component towards a respective other one of the front wall portions (106) and having an extension towards the other one of the front wall portion (106) such that a gap (G) is formed between the two front wall portions (106) as seen along the first transversal direction (T1),
 - wherein the back wall (102), the two opposing side walls (104), and the two opposing front wall portions (106) define a package volume, wherein the package volume is divided into said plurality of compartments by the package (100) further comprising:
 - a separator sheet (200) according to claim 1,
 - wherein the floor panel (202) forms a major component of a divider between two adjacent compartments of the package (200), wherein each respective slit is configured to receive the associated front wall portion (106) and to thereby lock the separator sheet (200) in place as seen along the second transversal direction (T2).
 3. Package (100) according to claim 2, wherein the floor panel (202), the first front wall panel (204) and the second front wall panel (206) are in a flat laid state of the separator sheet (200) arranged in consecutive order one after the other along a direction, which direction when the separator sheet (200) is installed in the package (100) will extend along the second transversal direction (T2).
 4. Package (100) according to claim 2 or 3, wherein the first front wall panel (204) forms an outwardly facing surface of the front wall and the second front wall panel (206) forms an inwardly facing surface of the front wall.
 5. Package (100) according to any one of the preceding claims 2 to 4, wherein the second front wall panel (206) comprises a locking portion (214), the locking portion (214) being positioned at a side of the second front wall panel (206) being opposite to a side of the second front wall panel (206) connected to the first front wall panel (204).
 6. Package (100) according to claim 5, wherein the locking portion (214) is configured to interact with a slit formed in the floor panel (202) or formed in a connection between the floor panel (202) and the first front wall panel (204).
 7. Package (100) according to claim 5 or 6, wherein the locking portion (214) is configured to interact with at least one of the through-cuts (210).
 8. Package (100) according to any one of the preceding claims 2 to 7, wherein the second front wall panel (206) comprises two locking portions (214), the locking portions (214) being positioned at a side of the second front wall panel (206) being opposite to a side of the second front wall panel (206) connected to the first front wall panel (204) and being positioned one on each of respective opposing side of the second front wall panel (206) as seen along the first transversal direction (T1), and wherein each one of the two locking portions (214) are configured to interact with the respective throughout (210).
 9. Package (100) according to any one of the preceding claims 2 to 8, wherein the separator sheet (200) is made of paper-based material.
 10. Package according to any of the preceding claims 2 to 9, wherein the package (100) further comprises: a support element (212) being configured to abut an underside of the floor panel (202) and to thereby define a height of a compartment formed underneath the floor panel (202) of the separator sheet (200).
 11. Package (100) according to claim 10, wherein the support element (212) is made of paper-based material.
 12. Package (100) according to claim 10 or 11, wherein the support element (212) comprises a panel extending in a plane defined by a first vector having a major component along the first longitudinal direction (L1), the first vector preferably extending in a vertical direction, and a second vector extending in the first and/or second transverse direction (T1, T2), the second vector preferably having an extension along both the first and the second transverse directions (T1, T2).
 13. Package (100) according to any one of claims 10-12,

wherein the support element (212) comprises two panels, the first panel extending in a first plane and the second panel extending in a second plane, each plane being defined by a respective first vector and a respective second vector, wherein the first vector of the first plane and the first vector of the second plane each have a major component along the first longitudinal direction (L1), the first vectors preferably extending in a vertical direction, wherein the second vector of the first plane and the second vector of the second plane each extend in the first and/or the second transverse direction (T1, T2), wherein the second vector of the first plane and the second vector of the second plane intersects each other such that the two panels interact with each other.

14. Package (100) according to claim 13, wherein each of the second vectors have an extension along both the first and the second transverse directions (T1, T2) whereby the two panels cross each other, as seen in a cross-sectional view defined by the first transversal direction (T1) and the second transversal direction (T2).

Patentansprüche

1. Ein Trennblatt (200), das zum Einsetzen in eine Verpackung (100) und zum Bilden eines Trennelements zwischen zwei benachbarten Fächern der Verpackung (100) konfiguriert ist, wobei das Trennblatt (200) umfasst:

eine Bodenplatte (202) mit einer Erweiterung entlang einer ersten Querrichtung (T1) und einer zweiten Querrichtung (T2),
eine mit der Bodenplatte (202) verbundene erste Vorderwandplatte (204) und
eine mit der ersten Vorderwandplatte (204) verbundene zweite Vorderwandplatte (206), wobei die erste und zweite Vorderwandplatte (204, 206) zum Falten relativ zu der Bodenplatte (202) und relativ zueinander um Faltlinien (208) konfiguriert sind, die sich entlang einer Richtung erstrecken, die eine Hauptkomponente entlang der ersten Querrichtung (T1) aufweist,
um eine doppelte Vorderwand zu bilden, wobei äußere Abschnitte der Faltlinien (208), gesehen entlang der ersten Querrichtung (T1), als Durchgangsschnitte (210) gebildet sind, sodass offene Schlitze, gesehen sowohl entlang der zweiten Längsrichtung (L2) als auch der entsprechenden Erweiterung eines zugehörigen Vorderwandabschnitts (106), an den äußeren Abschnitten der doppelten Vorderwand gebildet sind,
wobei der entsprechende Schlitz zum Aufnehmen eines zugehörigen Vorderwandabschnitts

(106) der Verpackung (100) konfiguriert ist, der zwei gegenüberliegende Vorderwandabschnitte (106) umfasst, wobei jeder mit einer entsprechenden von zwei gegenüberliegenden Seitenwänden (104) verbunden ist und sich in einer entsprechenden Richtung erstreckt, die zumindest eine Hauptkomponente in Richtung eines entsprechenden anderen der Vorderwandabschnitte (106) aufweist und eine Erweiterung in Richtung des anderen der Vorderwandabschnitte (106) aufweist, sodass, gesehen entlang der ersten Querrichtung (T1), ein Spalt (G) zwischen den zwei Vorderwandabschnitten (106) gebildet wird.

2. Verpackung (100) mit einer Mehrzahl von Fächern, wobei die Verpackung umfasst:

eine sich in einer durch eine erste Längsrichtung (L1) und eine erste Querrichtung (T1) definierten Ebene erstreckende Rückwand (102),
zwei gegenüberliegende Seitenwände (104), die sich jeweils in einer entsprechenden Ebene erstrecken, die durch eine entsprechende zweite Längsrichtung (L2), die zumindest eine Hauptkomponente entlang der ersten Längsrichtung (L1) aufweist, und eine zweite Querrichtung (T2), die zumindest eine Hauptkomponente quer zu der ersten Querrichtung (T1) aufweist, definiert ist,
zwei gegenüberliegende Vorderwandabschnitte (106), die jeweils mit einer entsprechenden der Seitenwände (104) verbunden sind und sich in einer entsprechenden Richtung erstrecken, die zumindest eine Hauptkomponente in Richtung eines entsprechenden anderen der Vorderwandabschnitte (106) aufweist und eine Erweiterung in Richtung des anderen der Vorderwandabschnitte (106) aufweist, sodass, gesehen entlang der ersten Querrichtung (T1), ein Spalt (G) zwischen den beiden Vorderwandabschnitten (106) gebildet wird,
wobei die Rückwand (102), die zwei gegenüberliegenden Seitenwände (104) und die zwei gegenüberliegenden Vorderwandabschnitte (106) ein Verpackungsvolumen definieren,
wobei das Verpackungsvolumen in die Mehrzahl von Fächern unterteilt ist, indem die Verpackung (100) weiterhin umfasst:

ein Trennblatt (200) nach Anspruch 1, wobei die Bodenplatte (202) eine Hauptkomponente eines Trennelements zwischen zwei benachbarten Fächern der Verpackung (200) bildet,
wobei jeder entsprechende Schlitz zum Aufnehmen des zugehörigen Vorderwandabschnitts (106) und damit zum Ver-

riegeln des Trennblatts (200) in Position, gesehen entlang der zweiten Querrichtung (T2), konfiguriert ist.

3. Verpackung (100) nach Anspruch 2, wobei die Bodenplatte (202), die erste Vorderwandplatte (204) und die zweite Vorderwandplatte (206) in einem flachliegenden Zustand des Trennblatts (200) in aufeinanderfolgender Reihenfolge nacheinander entlang einer Richtung angeordnet sind, wobei sich diese Richtung, wenn das Trennblatt (200) in die Verpackung (100) eingesetzt ist, entlang der zweiten Querrichtung (T2) erstreckt. 5
4. Verpackung (100) nach Anspruch 2 oder 3, wobei die erste Vorderwandplatte (204) eine nach außen weisende Fläche der Vorderwand bildet und die zweite Vorderwandplatte (206) eine nach innen weisende Fläche der Vorderwand bildet. 10
5. Verpackung (100) nach einem der vorhergehenden Ansprüche 2 bis 4, wobei die zweite Vorderwandplatte (206) einen Verriegelungsabschnitt (214) aufweist, wobei der Verriegelungsabschnitt (214) an einer Seite der zweiten Vorderwandplatte (206) positioniert ist, die einer Seite der zweiten Vorderwandplatte (206) gegenüberliegt, die mit der ersten Vorderwandplatte (204) verbunden ist. 15
6. Verpackung (100) nach Anspruch 5, wobei der Verriegelungsabschnitt (214) zum Zusammenwirken mit einem in der Bodenplatte (202) oder in einer Verbindung zwischen der Bodenplatte (202) und der ersten Vorderwandplatte (204) gebildeten Schlitz konfiguriert ist. 20
7. Verpackung (100) nach Anspruch 5 oder 6, wobei der Verriegelungsabschnitt (214) zum Zusammenwirken mit zumindest einem der Durchgangsschnitte (210) konfiguriert ist. 25
8. Verpackung (100) nach einem der vorhergehenden Ansprüche 2 bis 7, wobei die zweite Vorderwandplatte (206) zwei Verriegelungsabschnitte (214) umfasst, wobei die Verriegelungsabschnitte (214) an einer Seite des zweiten Vorderwandabschnitts (206) positioniert sind, die einer Seite des mit dem ersten Vorderwandabschnitt (204) verbundenen zweiten Vorderwandabschnitts (206) gegenüberliegt, und einer an jeder der entsprechenden gegenüberliegenden Seiten des zweiten Vorderwandabschnitts (206), gesehen entlang der ersten Querrichtung (T1), positioniert ist, und wobei jeder der zwei Verriegelungsabschnitte (214) zum Zusammenwirken mit dem entsprechenden Durchgangsschnitt (210) konfiguriert ist. 30
9. Verpackung (100) nach einem der vorhergehenden 35

Ansprüche 2 bis 8, wobei das Trennblatt (200) aus einem papierbasierten Material hergestellt ist.

10. Verpackung nach einem der vorhergehenden Ansprüche 2 bis 9, wobei die Verpackung (100) ferner umfasst: ein Stützelement (212), das zum Anliegen an einer Unterseite der Bodenplatte (202) konfiguriert ist und dadurch eine Höhe eines Fachs definiert, das unterhalb der Bodenplatte (202) des Trennblatts (200) gebildet ist. 40
11. Verpackung (100) nach Anspruch 10, wobei das Stützelement (212) aus papierbasiertem Material hergestellt ist. 45
12. Verpackung (100) nach Anspruch 10 oder 11, wobei das Stützelement (212) eine Platte umfasst, die sich in einer Ebene erstreckt, die durch einen ersten Vektor mit einer Hauptkomponente entlang der ersten Längsrichtung (L1), wobei sich der erste Vektor bevorzugt in einer vertikalen Richtung erstreckt, und einen zweiten Vektor, der sich in der ersten und/oder zweiten Querrichtung (T1, T2) erstreckt, definiert ist, wobei der zweite Vektor bevorzugt eine Erweiterung entlang sowohl der ersten als auch der zweiten Querrichtung (T1, T2) aufweist. 50
13. Verpackung (100) nach einem der Ansprüche 10-12, wobei das Stützelement (212) zwei Platten umfasst, wobei sich die erste Platte in einer ersten Ebene und die zweite Platte in einer zweiten Ebene erstreckt, wobei jede Ebene durch einen entsprechenden ersten Vektor und einen entsprechenden zweiten Vektor definiert ist, wobei der erste Vektor der ersten Ebene und der erste Vektor der zweiten Ebene jeweils eine Hauptkomponente entlang der ersten Längsrichtung (L1) aufweisen, wobei sich die ersten Vektoren bevorzugt in einer vertikalen Richtung erstrecken, wobei sich der zweite Vektor der ersten Ebene und der zweite Vektor der zweiten Ebene jeweils in der ersten und/oder der zweiten Querrichtung (T1, T2) erstrecken, wobei der zweite Vektor der ersten Ebene und der zweite Vektor der zweiten Ebene einander so schneiden, dass die beiden Platten miteinander zusammenwirken. 55
14. Verpackung (100) nach Anspruch 13, wobei jeder der zweiten Vektoren eine Erweiterung sowohl entlang der ersten als auch der zweiten Querrichtung (T1, T2) aufweist, wodurch sich die zwei Platten, gesehen in einer durch die erste Querrichtung (T1) und die zweite Querrichtung (T2) definierten Querschnittsansicht, schneiden.

Revendications

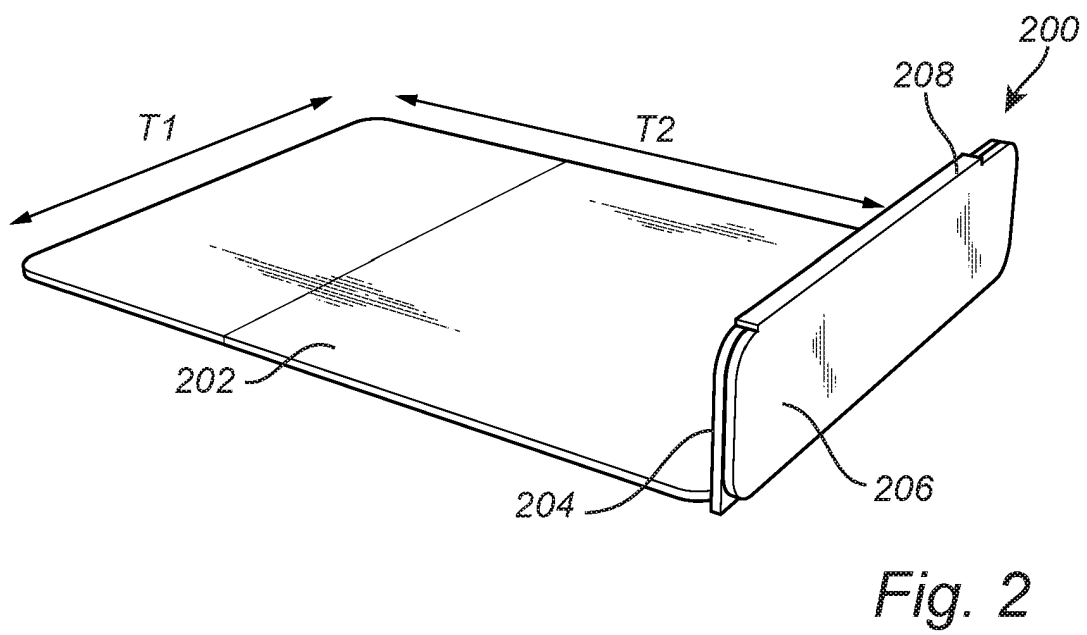
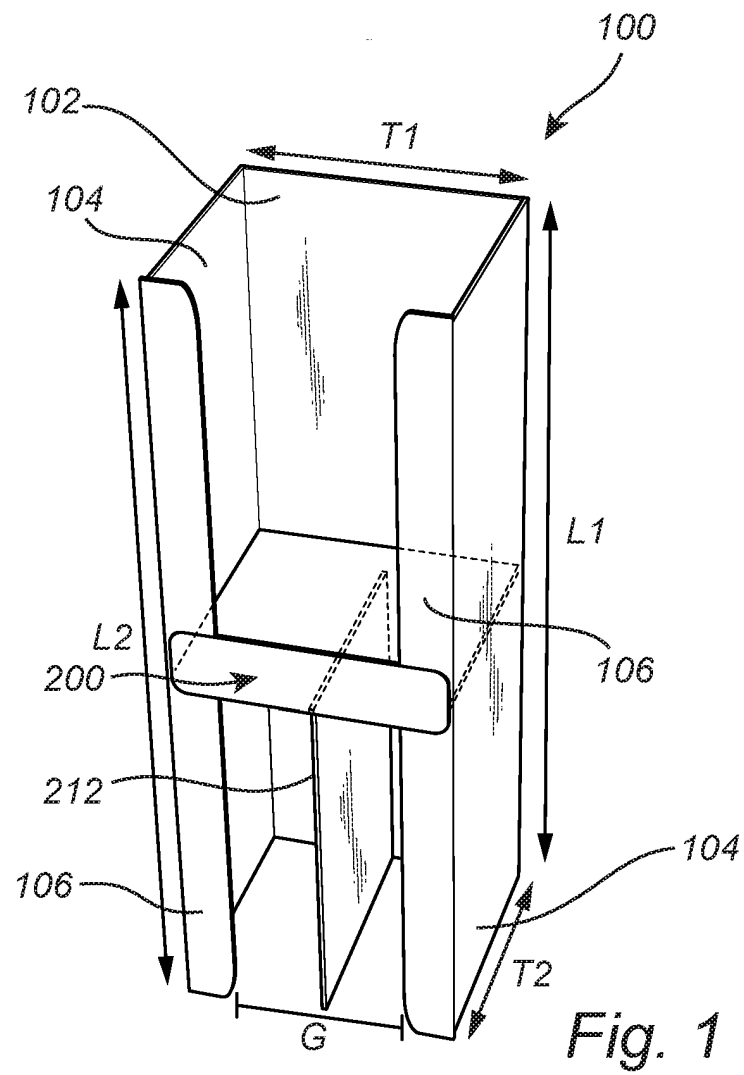
1. Feuille de séparateur (200) configurée pour être installée dans un emballage (100) et former une division entre deux compartiments adjacents de l'emballage (100), la feuille de séparateur (200) comprenant :
 - un panneau de fond (202) ayant une extension le long d'une première direction transversale (T1) et d'une deuxième direction transversale (T2),
 - un premier panneau de paroi avant (204) relié au panneau de fond (202), et
 - un deuxième panneau de paroi avant (206) relié au premier panneau de paroi avant (204), dans laquelle les premier et deuxième panneaux de paroi avant (204, 206) sont configurés pour être pliés par rapport au panneau de fond (202) et l'un par rapport à l'autre autour de lignes de pliage (208) s'étendant le long d'une direction ayant une composante principale le long de la première direction transversale (T1) pour former une double paroi avant,
 - dans laquelle des parties externes, comme vu le long de la première direction transversale (T1), des lignes de pliage (208) sont formées comme des découpes traversantes (210) de sorte que des fentes à extrémité ouverte, comme vu à la fois le long de la deuxième direction longitudinale (L2) et de l'extension respective d'une partie de paroi avant associée (106), sont formées au niveau des parties externes de la double paroi avant,
 - dans laquelle une fente respective est configurée pour recevoir une partie de paroi avant associée (106) de l'emballage (100) comprenant deux parties de paroi avant opposées (106), chacune étant reliée à l'une respective parmi deux parois latérales opposées (104) et s'étendant dans une direction respective ayant au moins une composante principale vers une autre respective des parties de paroi avant (106) et ayant une extension vers l'autre des parties de paroi avant (106) de sorte qu'un espace (G) est formé entre les deux parties de paroi avant (106) comme vu le long de la première direction transversale (T1).
2. Emballage (100) ayant une pluralité de compartiments, l'emballage comprenant :
 - une paroi arrière (102) s'étendant dans un plan défini par une première direction longitudinale (L1) et une première direction transversale (T1), deux parois latérales opposées (104) s'étendant chacune dans un plan respectif défini par une deuxième direction longitudinale respective (L2) ayant au moins une composante principale le

long de la première direction longitudinale (L1) et une deuxième direction transversale (T2) ayant au moins une composante principale à travers la première direction transversale (T1), deux parties de paroi avant opposées (106), chacune étant reliée à l'une respective des parois latérales (104) et s'étendant dans une direction respective ayant au moins une composante principale vers une autre respective des parties de paroi avant (106) et ayant une extension vers l'autre des parties de paroi avant (106) de sorte qu'un espace (G) est formé entre les deux parties de paroi avant (106) comme vu le long de la première direction transversale (T1), dans lequel la paroi arrière (102), les deux parois latérales opposées (104) et les deux parties de paroi avant opposées (106) définissent un volume d'emballage, dans lequel le volume d'emballage est divisé en ladite pluralité de compartiments par l'emballage (100) comprenant en outre :

une feuille de séparateur (200) selon la revendication 1, dans lequel le panneau de fond (202) forme une composante principale d'une division entre deux compartiments adjacents de l'emballage (200), dans lequel chaque fente respective est configurée pour recevoir la partie de paroi avant associée (106) et pour verrouiller ainsi en place la feuille de séparateur (200) comme vu le long de la deuxième direction transversale (T2).

3. Emballage (100) selon la revendication 2, dans lequel le panneau de fond (202), le premier panneau de paroi avant (204) et le deuxième panneau de paroi avant (206) sont dans un état posé à plat de la feuille de séparateur (200) agencés dans un ordre consécutif l'un après l'autre le long d'une direction, laquelle direction lorsque la feuille de séparateur (200) est installée dans l'emballage (100) s'étend le long de la deuxième direction transversale (T2).
4. Emballage (100) selon la revendication 2 ou 3, dans lequel le premier panneau de paroi avant (204) forme une surface tournée vers l'extérieur de la paroi avant et le deuxième panneau de paroi avant (206) forme une surface tournée vers l'intérieur de la paroi avant.
5. Emballage (100) selon l'une quelconque des revendications précédentes 2 à 4, dans lequel le deuxième panneau de paroi avant (206) comprend une partie de verrouillage (214), la partie de verrouillage (214) étant positionnée au niveau d'un côté du deuxième panneau de paroi avant (206) à l'opposé d'un côté du deuxième panneau de paroi avant (206) relié au premier panneau de paroi avant (204).

6. Emballage (100) selon la revendication 5, dans lequel la partie de verrouillage (214) est configurée pour interagir avec une fente formée dans le panneau de fond (202) ou formée dans une liaison entre le panneau de fond (202) et le premier panneau de paroi avant (204). 5
7. Emballage (100) selon la revendication 5 ou 6, dans lequel la partie de verrouillage (214) est configurée pour interagir avec au moins l'une des découpes transversantes (210). 10
8. Emballage (100) selon l'une quelconque des revendications précédentes 2 à 7, dans lequel le deuxième panneau de paroi avant (206) comprend deux parties de verrouillage (214), les parties de verrouillage (214) étant positionnées au niveau d'un côté du deuxième panneau de paroi avant (206) à l'opposé d'un côté du deuxième panneau de paroi avant (206) relié au premier panneau de paroi avant (204) et étant positionnées une sur chacun des côtés opposés respectifs du deuxième panneau de paroi avant (206) comme vu le long de la première direction transversale (T1), et dans lequel chacune des deux parties de verrouillage (214) est configurée pour interagir avec la découpe transversante (210) respective. 15
20
25
9. Emballage (100) selon l'une quelconque des revendications précédentes 2 à 8, dans lequel la feuille de séparateur (200) est faite d'un matériau à base de papier. 30
10. Emballage selon l'une quelconque des revendications précédentes 2 à 9, dans lequel l'emballage (100) comprend en outre :
un élément de support (212) configuré pour venir en butée contre un côté inférieur du panneau de fond (202) et pour définir ainsi une hauteur d'un compartiment formé sous le panneau de fond (202) de la feuille de séparateur (200). 35
40
11. Emballage (100) selon la revendication 10, dans lequel l'élément de support (212) est fait d'un matériau à base de papier. 45
12. Emballage (100) selon la revendication 10 ou 11, dans lequel l'élément de support (212) comprend un panneau s'étendant dans un plan défini par un premier vecteur ayant une composante principale le long de la première direction longitudinale (L1), le premier vecteur s'étendant de préférence dans une direction verticale, et un deuxième vecteur s'étendant dans la première et/ou la deuxième direction transversale (T1, T2), le deuxième vecteur ayant de préférence une extension le long des première et deuxième directions transversales (T1, T2). 50
55
13. Emballage (100) selon l'une quelconque des revendications 10 à 12, dans lequel l'élément de support (212) comprend deux panneaux, le premier panneau s'étendant dans un premier plan et le deuxième panneau s'étendant dans un deuxième plan, chaque plan étant défini par un premier vecteur respectif et un deuxième vecteur respectif, dans lequel le premier vecteur du premier plan et le premier vecteur du deuxième plan ont chacun une composante principale le long de la première direction longitudinale (L1), les premiers vecteurs s'étendant de préférence dans une direction verticale, dans lequel le deuxième vecteur du premier plan et le deuxième vecteur du deuxième plan s'étendent chacun dans la première et/ou la deuxième direction transversale (T1, T2), dans lequel le deuxième vecteur du premier plan et le deuxième vecteur du deuxième plan se coupent l'un l'autre de sorte que les deux panneaux interagissent l'un avec l'autre.
14. Emballage (100) selon la revendication 13, dans lequel chacun des deuxième vecteurs a une extension le long des première et deuxième directions transversales (T1, T2) moyennant quoi les deux panneaux se croisent, comme vu dans une vue en coupe transversale définie par la première direction transversale (T1) et la deuxième direction transversale (T2).



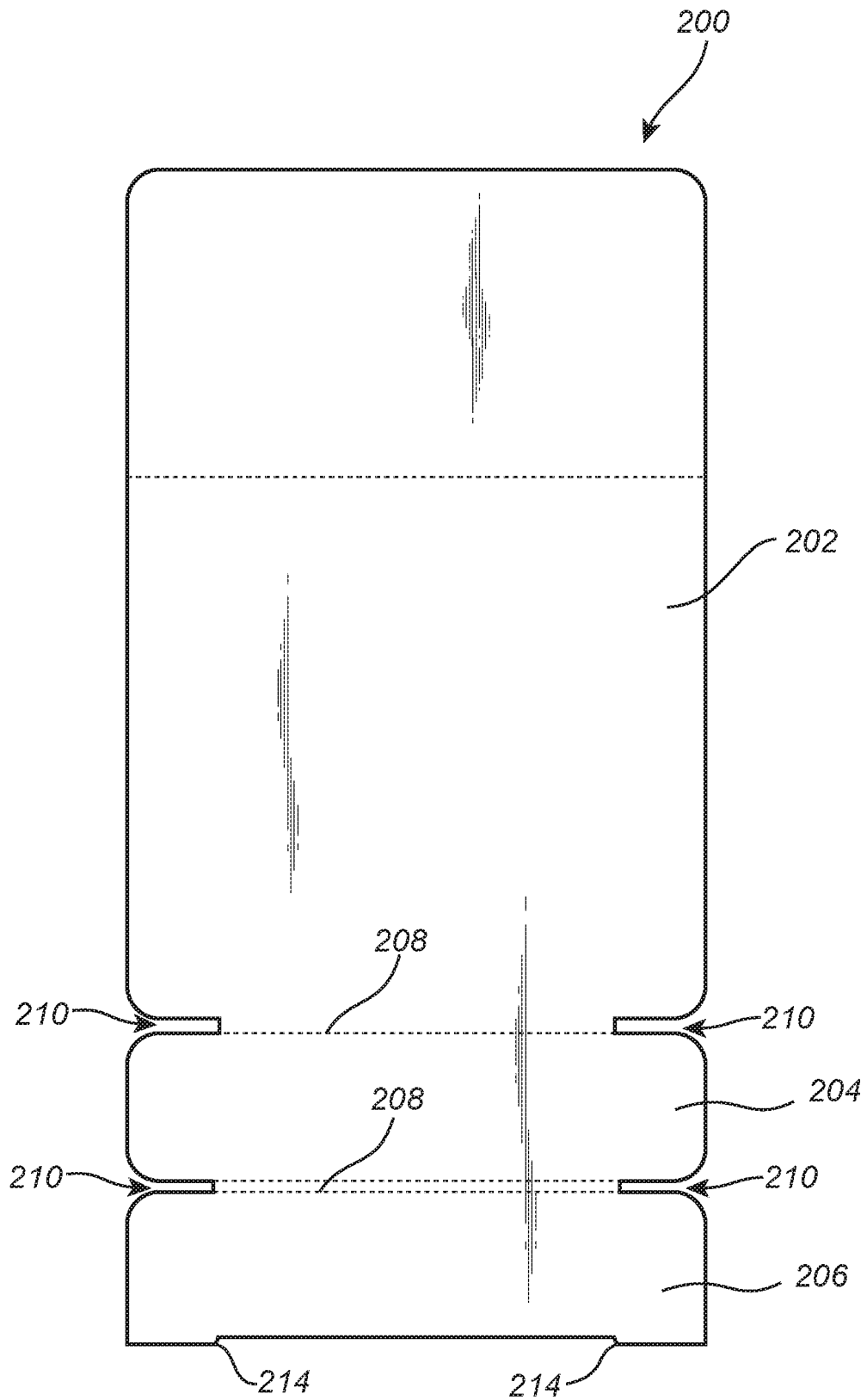


Fig. 3

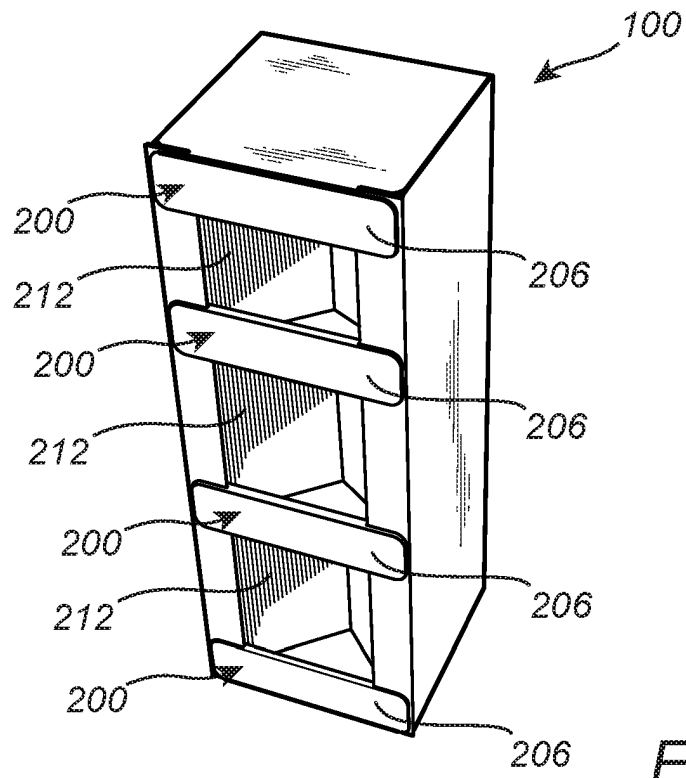


Fig. 4A

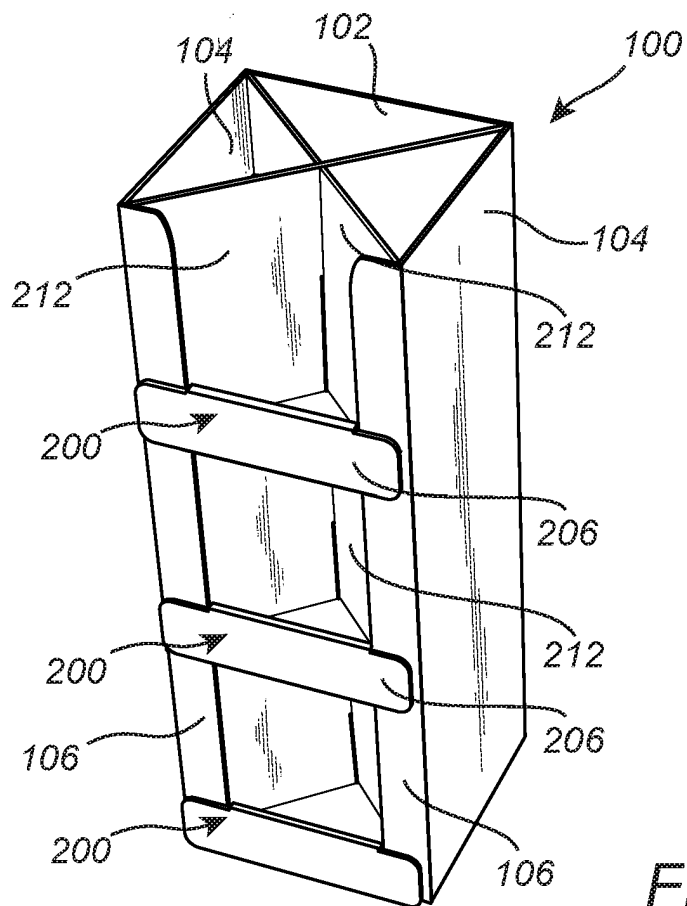


Fig. 4B

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 4506790 A [0005]
- US 9474389 B [0006]