



(11) **EP 4 261 150 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.10.2023 Bulletin 2023/42

(51) International Patent Classification (IPC):
B65D 85/07 (2017.01) B65D 71/00 (2006.01)

(21) Application number: **22167887.3**

(52) Cooperative Patent Classification (CPC):
B65D 85/07; B65D 71/0096; B65D 2571/00037; B65D 2571/00074

(22) Date of filing: **12.04.2022**

(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
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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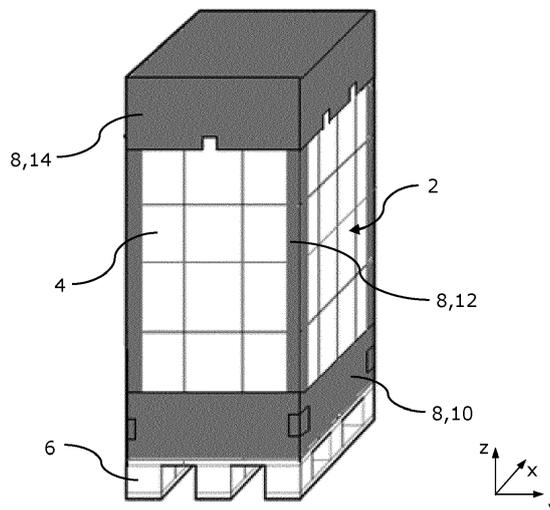
(54) **IMPROVED CARDBOARD PACKAGING**

(57) The invention pertains to a cardboard packaging (8) for stabilizing a stack (2) of pre-packed units of products (4), preferably a stack of pre-packed units of absorbent articles, wherein said cardboard packaging (8) comprises three distinct components comprising:
a. a base (10) comprising at least one bottom panel (18) and four bottom side panels (16) and delimiting a container to stack pre-packed units of products (4),
b. at least two elongated arms (12) extending in a perpendicular direction in relation to the plane delimited by the bottom panel (18), and
c. a top (14) comprising at least one top panel (22), four

side panel (20) and delimiting a container to stack pre-packed units of products (4),

According to the invention, the base (10) comprises a fastening element (24) to fasten said arms (12) to the base (10). The invention also concerns the use of such a cardboard packaging (8) for stabilizing a stack (2) of pre-packed units of products (4) and a method to stabilize a stack (2) of pre-packed units of products (4) using such a cardboard packaging (8) and an assembly comprising a stack (2) of pre-packed units of products (4) and such a cardboard packaging (8).

FIG. 1



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Description**TECHNICAL FIELD**

[0001] The invention pertains to the technical field of packaging stacked compressible products in a stable manner, in particular packaging disposable absorbent articles such as diapers, incontinence products, pants, sanitary napkins, swim pants which may be pre-packed, e.g. in open cartons which are stacked on a pallet.

BACKGROUND

[0002] Consumer products such as baby diaper bags are often packed in tray cartons, stacked on pallets, provided with edge protectors and wrapped with stretch film.

[0003] For example, document WO 1996/041753 A1 discloses a package comprising an array of at least two substantially rectangular flexible packs, each pack comprising flexible articles which have been compressed in a direction of compression to between 20% and 70% of their uncompressed volume encased in a flexible bag, the array comprising four side faces, a top face and a bottom face, a flexible wrapper wrapped around at least a part of the side faces of the array, the wrapper forming a tube having a tube section extending beyond the top face of the area Y, the tube section being folded transversely to the side faces to at least partly cover the top face and attachment means for maintaining the folded-over tube section in its folded over position.

[0004] Another example, document EP 2 835 314 A1 discloses a method for stabilizing a stack of absorbent articles such as diapers where the stack is wrapped in a first wrapping material and in a second wrapping material.

[0005] The packages of the prior art require great quantities of stretch film which is not environmentally friendly, they require the use of expensive edge protectors and frequently do not have sufficient stability, often at the expense of transportation safety and logistical handling.

[0006] There remains a need for an improved packaging and method for resolving at least some of the problems mentioned above.

[0007] The invention thereto aims to provide a more sustainable packaging that increases the stability of the packages (e.g. baby diaper cartons on pallets) and significantly reduce the need for stretch film.

SUMMARY OF THE INVENTION

[0008] The present invention provides a cardboard packaging and a method for stabilizing a stack of products, preferably pre-packed units of products, in particular products such as absorbent articles.

[0009] The invention concerns a cardboard packaging for stabilizing a stack of pre-packed units of products, preferably a stack of pre-packed units of absorbent arti-

cles, wherein said cardboard packaging comprises three distinct components comprising, or selected from :

- a base comprising at least one bottom panel and four bottom side panels and delimiting a container to stack pre-packed units of products,
- at least two elongated arms extending in a perpendicular direction in relation to the plane delimited by the bottom panel, and
- a top comprising at least one top panel, four side panel and delimiting a container to stack pre-packed units of products,

[0010] According to the invention, the base comprises a fastening element to fasten said arms to the base.

[0011] By the term "pre-packed" as used herein, it is meant that one or more absorbent articles are packed in a single unit, such as a carton or a bag, before being stacked.

[0012] By the term "distinct" as used herein, it is meant separate, non-continuous or discrete, or in other words, that said components do not form a continuity of matter when the stack of pre-packed units of products is in its final stabilized configuration.

[0013] In other terms, the cardboard packaging comprises three separate or discrete components and the arms are reversibly fastened to the base and/or top. By the term "reversibly fastened" as used herein, it is meant that the arms are connected in a reversible manner to the base and/or top. In other words the cardboard packaging according to the invention, comprises three components, elements or modules, the base, the arms and the top that are discrete or separated meaning that these three components do not form a continuity of matter, at least in the final configuration, i.e. once the stack of pre-packed units of products is stabilized. The components are associated with one another in a reversible manner, meaning that they can be associated and separated without causing any irreversible damage. Preferably, the components are mechanically attached and separable without causing any irreversible damage.

[0014] According to an embodiment, the cardboard packaging comprises a pre-cut division arranged transversally between the base and top enabling the detachment of the base from the top.

[0015] According to an embodiment, the top comprises a fastening element to fasten said arms to the top.

[0016] According to an embodiment, wherein the fastening element comprises two pre-cut portions extending parallel to one another and in one direction arranged at the junction between two side panels and extending on both side panels on both side of said junction.

[0017] According to an embodiment, wherein the pre-cut portions delimit a mobile panel portion that can be moved toward the inner volume of the container delimited by the base.

[0018] More precisely, the mobile panel portion is movable in two directions, toward the inner volume of the

container delimited by the base and away from the centre of said inner volume of the container delimited by the base. In other words, the mobile panel portion is movable between two positions, a first position within the inner volume of the container delimited by the base and a second position up against the arms once the arms have been slid in or forming continuity with the side panels of the base if the arms have not been slid in.

[0019] According to an embodiment, the top comprises at least one cut-out serving as a gripping feature.

[0020] According to an embodiment, the mobile panel portion comprises a height and a width, wherein the height of the bottom side panel is from 1.5 time to 4 times greater than the height of the mobile panel portion, preferably around 2 times greater, and/or the width of the bottom side panel is from 3 times to 8 times greater than the width of the mobile panel portion.

[0021] According to an embodiment, the surface area delimited by the cut-out is from 3 times to 15 times lesser than the surface area delimited by the mobile panel portion.

[0022] According to an embodiment, two cut-outs are arranged on a top side panel and one single cut-out is arranged on the two adjacent top side panels.

[0023] The invention also pertains to the use of a cardboard packaging as described previously to stabilize a stack of pre-packed unit of products, preferably a stack of pre-packed unit of absorbent articles.

[0024] The invention also pertains to a method to stabilize a stack of pre-packed units of products using a cardboard packaging as described previously, wherein the method comprises the following steps:

- a. providing a cardboard packaging as described previously;
- b. pivoting the side panels and bottom panel(s) to delimit an open container;
- c. arranging an arm at each corner of the base and/or top;
- d. arranging a stack of pre-packed units of products in said container delimited by the base and/or top and arms ;
- e. separating the base from the top and raising the top or placing the top on top of the stack of pre-packed units of products, and pivoting the top panels over the stack of pre-packed units of products.

[0025] According to an embodiment, the method comprises an additional step f. where the mobile panel portion is moved inward the container delimited by the base delimiting a receiving space with two passing holes where an arm can slide through.

[0026] According to an embodiment, the method comprises an additional step g. where the mobile panel portion is moved outward, once the arm has been arranged within the receiving space, up to the point where the mobile panel portion abuts against said arm.

[0027] The invention also pertains to an assembly

comprising a stack of pre-packed unit of products, said stack comprising a plurality of absorbent articles and a cardboard packaging as described previously.

[0028] In an embodiment, at least one and preferably all of said units are compressible, such as bags, open cartons, closed cartons or shelf-ready boxes. As an example, these units may comprise absorbent articles, or such as pre-wrapped set of absorbent articles.

[0029] In preferred embodiments, said absorbent articles comprise disposable hygienic products, such as diapers, baby diapers, incontinence diapers, pull-on diaper pants.

DESCRIPTION OF FIGURES

[0030]

FIG. 1 shows a perspective view of stack of pre-packed units of products being stabilized by a cardboard packaging according to the invention.

FIG. 2 illustrates a perspective view of cardboard packaging according to the invention in an assembled and unfolded configuration.

FIG. 3 exemplifies a perspective view of component, the base, of the cardboard packaging according to the invention in an assembled and unfolded configuration.

FIG. 4 shows a side view of the net of the top and bottom components of the cardboard packaging, or in other words, a side view of the cardboard packaging 8 disassembled and laid flat.

FIG. 5A to FIG. 5F illustrates a perspective view of the different steps in the stacking and stabilizing of a stack of pre-packed units of products.

FIG. 6A to FIG. 6D exemplifies a top view of a close up of the cardboard packaging and the different steps to securing an arm to the base.

DETAILED DESCRIPTION OF THE INVENTION

[0031] The present invention concerns a cardboard packaging and a method for stabilizing a stack of products, preferably pre-packed units of products, preferably said units comprising absorbent articles, as well as an assembly comprising a stack comprising pre-packed units which preferably comprise absorbent articles and a cardboard packaging.

[0032] Unless otherwise defined, all terms used in disclosing the invention, including technical and scientific terms, have the meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. By means of further guidance, term definitions are included to better appreciate the teaching of the present

invention.

[0033] As used herein, the following terms have the following meanings:

"A", "an", and "the" as used herein refers to both singular and plural referents unless the context clearly dictates otherwise. By way of example, "a compartment" refers to one or more than one compartment.

[0034] "Absorbent article" refers to devices that absorb and contain liquid, and more specifically, refers to devices that are placed against or in proximity to the body of the wearer to absorb and contain the various exudates discharged from the body. Absorbent articles can for example comprise baby diapers or adult diapers, incontinence products, tampons, sanitary napkins, pantliners, swim pants, baby pants or adult pants. Absorbent articles preferably comprise a longitudinal axis and a transversal axis perpendicular to said longitudinal axis. The longitudinal axis is hereby conventionally chosen in the front-to-back direction of the article when referring to the article being worn, and the transversal axis is conventionally chosen in the left-to-right direction of the article when referring to the article being worn. Disposable absorbent articles can include a liquid pervious topsheet, a backsheet joined to the topsheet, and an absorbent core positioned and held between the topsheet and the backsheet. The topsheet is operatively permeable to the liquids that are intended to be held or stored by the absorbent article, and the backsheet may or may not be substantially impervious or otherwise operatively impermeable to the intended liquids. The absorbent article may also include other components, such as acquisition distribution layers, liquid intake layers, liquid distribution layers, transfer layers, barrier layers, wrapping layers and the like, as well as combinations thereof. Disposable absorbent articles and the components thereof can operate to provide a body-facing surface and a garment-facing surface.

[0035] "About" as used herein referring to a measurable value such as a parameter, an amount, a temporal duration, and the like, is meant to encompass variations of +/-20% or less, preferably +/-10% or less, more preferably +/-5% or less, even more preferably +/-1% or less, and still more preferably +/-0.1% or less of and from the specified value, in so far such variations are appropriate to perform in the disclosed invention. However, it is to be understood that the value to which the modifier "about" refers is itself also specifically disclosed.

[0036] As used herein, the term "cellulosic" or "cellulosic fibers" is meant to include any material having cellulose as a major constituent, and specifically comprising at least 50 percent by weight cellulose or a cellulose derivative. Thus, the term includes cotton, cardboard or paperboard, typical wood pulps, nonwoody cellulosic fibers, kraft paper, cellulose acetate, cellulose triacetate, rayon, thermomechanical wood pulp, chemical wood pulp, debonded chemical wood pulp, milkweed, or bacterial cellulose.

[0037] "Comprise," "comprising," and "comprises" and

"comprised of" as used herein are synonymous with "include", "including", "includes" or "contain", "containing", "contains" and are inclusive or open-ended terms that specifies the presence of what follows e.g. component and do not exclude or preclude the presence of additional, non-recited components, features, element, members, steps, known in the art or disclosed therein.

[0038] "Delimit" as used herein means to delineate, demarcate, mark the outline or limits of an element, in one, two or three dimensions.

[0039] The term "graphic" or "graphic element" includes, but is not limited to, any type of design, image, mark, figure, codes, words, patterns, or the like.

[0040] As used herein, the terms "inward" or "inwardly" and "outward" or "outwardly" are in reference to the generally cuboid shape of the cardboard packaging and each component of said cardboard packaging according to the invention. The main components of the cardboard packaging, which are the base and the top, are substantially cuboid defining with their respective housing, or walls, an interior space (inside), or inner volume, or interior, and an exterior space (outside). "Inward" and "inwardly" refer to an element extending or moving at least partially radially toward the interior and the centre of the cuboid shape of said component whereas "outward" and "outwardly" refer to an element extending or moving at least partially radially away from the centre of the cuboid shape of said component. In other words, "inward" means directed toward the interior whereas "outward" means directed toward the outside or away from a centre.

[0041] "Join", "joining", "joined", or variations thereof, when used in describing the relationship between two or more elements, means that the elements can be connected together in any suitable manner, such as by a continuity of matter, a hinge region, heat sealing, ultrasonic bonding, thermal bonding, by adhesives, stitching, or the like. Further, the elements can be joined directly together, or may have one or more elements interposed between them, all of which are connected together.

[0042] The cardboard packaging and its different components and the stack of pre-packed units of products all extend in a longitudinal (X), transverse (Y) and vertical (Z) direction with respect to the axes of the stack as represented by the axes in FIG. 1. In the description, the length, width and height are mentioned respectively with respect to said longitudinal (X), transverse (Y) and vertical (Z) directions. Similarly, "up", "top", "upper", "bottom" or "ground" are in reference to the vertical axis with respect to the stack of pre-packed units of products in the final assembled configuration.

[0043] Embodiments according to the disclosure will now be described. It is understood that technical features described in one or more embodiments may be combined with one or more other embodiments without departing from the intention of the disclosure and without generalization therefrom.

CARDBOARD PACKAGING

[0044] As illustrated in FIG. 1, the invention concerns a method of stabilizing a stack **2** of pre-packed units of products **4**, such as units of absorbent articles, for example bags of diapers, arranged on a pallet **6**. The stack **2** of pre-packed units of products **4** is stabilized and held in place by a cardboard packaging **8** comprising a plurality of components that are at least partially reversibly fastened to each other. The cardboard packaging **8** comprises a base **10**, a plurality of arms **12**, between two and eight arms **12**, preferably four arms **12**, and a top **14**. The cardboard packaging **8** delimits an inner volume in which the stack of pre-packed units of products **4** are arranged, or in other words, the cardboard packaging **8** and its components **10,12,14** are a container in which is arranged the stack **2** of pre-packed units of products **4**. The cardboard packaging **8** is made out of a material comprising cellulosic fibers such as cardboard or paperboard. The cardboard has preferably a thickness of at least 3 mm, preferably at least 4 mm, preferably from 4 mm to 20 mm, said thickness ensuring that the cardboard packaging **8** is robust enough.

[0045] FIG. 2 illustrates a portion of the cardboard packaging **8**, here two components, namely the base **10** and top **14**, prior to use, meaning prior to stabilizing a stack **2** of pre-packed units of products **4**. The cardboard packaging **8** is illustrated here in an assembled but unfolded configuration.

[0046] The base **10** comprises four base side panels **16** and at least one bottom panel **18**, preferably two bottom panels **18** as illustrated in FIG. 2, or four bottom panels **18**. Each bottom panel **18** is connected, or joined, to a base side panel **16**, meaning that one bottom panel **18** forms a continuity of matter with one base side panel **16** and each base side panel **16** is connected to two other base side panels **16**. Each bottom panel **18** is connected to a base side panel **16** by a pivoting junction, e.g. a hinge region with a reduction of cardboard at the junction, enabling the bottom panel **18** to pivot and form a bottom wall, *i.e.* the floor of the base **10** when assembled and folded. In other words, when assembled, the base side panels **16** and the bottom panel(s) **18** form a hollow rectangular container, or a hollow rectangular box, as illustrated in FIG. 3, thereby delimiting an inner volume in which a plurality of pre-packed units of products **4** can be stacked. Another way to describe the base **10** when assembled is that the base **10** is a rectangular cuboid, with five of its faces made from cardboard and the sixth face is void. In the final configuration of the cardboard packaging **8**, as illustrated in FIG. 1, the base side panels **16** extend either in a XZ plane or in a YZ plane, whereas the bottom panel **18** extends in a XY plane.

[0047] The top **14** comprises four top side panels **20** and at least one upper panel **22**, or two upper panels **22**, or preferably four upper panels **22** as illustrated in FIG. 2. Each upper panel **22** is connected to a top side panel **20**, meaning that one upper panel **22** forms a continuity

of matter with one top side panel **20** and each top side panel **20** is connected to two adjacent top side panels **20**. Each upper panel **22** is connected to a top side panel **20** by a pivoting junction, e.g. a hinge region with a reduction of cardboard at the junction, enabling the upper panel **22** to pivot and form a top wall, *i.e.* the upper floor of the top **14** when assembled. In other words, when assembled, the top side panels **20** and the upper panel(s) **22** form a hollow rectangular container, or a hollow rectangular cardboard box, delimiting an inner volume in which a plurality of pre-packed units of products **4** can be stacked. Another way to describe the top **14** when assembled is that the top **14** is a rectangular cuboid, with five of its faces made from cardboard and the sixth face is void. In the final configuration of the cardboard packaging **8**, as illustrated in FIG. 1, the top side panels **20** extend either in a XZ plane or in a YZ plane, whereas the upper panel **22** extends in a XY plane.

[0048] As illustrated in FIG. 1, the stack **2** of pre-packed units of products **4** is arranged in-between the base **10** and the top **14**, in other words, within the inner volumes delimited by the base **10** and the top **14**. In other words, the base **10** and the top **14** are in a facing relationship with the sixth void-faces of the base **10** and top **14** being the closest to one another, the stack **2** of pre-packed units of products **4** being arranged within.

[0049] As illustrated in FIG. 1, the cardboard packaging **8** also comprises four arms **12**, or slats or panel, arranged at the corners of the top **10** and the base **14** and linking, or connecting, the top **10** and the base **14**. Each arm **12** is preferably L-shaped, to better fit in the corners of the top **10** and base **14**, with two arm panel being arranged perpendicular to one another and being joined along their height or length. The arms **12** serve as a reinforcement mean to ensure the stabilization of the stack **2** of pre-packed units of products **4**. Each arm **12** extends vertically from the top **14** to the base **10**, along the entire height of the stack **2** of pre-packed units of products **4** as illustrated in FIG. 1.

[0050] The cardboard packaging **8** for packaging and stabilizing a stack **2** of pre-packed units of products **4**, preferably comprising absorbent articles, comprises separate or individual components that are reversibly connected to one another. The distinct or discrete components comprise

- a base **10** comprising at least one bottom panel **18**, preferably two bottom panel **18** and four base side panels **16**, the bottom panel(s) and base side panels **16** forming a hollow rectangular cardboard box when assembled,
- a top **14** comprising at least one upper panel **22** and four top side panels **20**, the upper panel(s) **22** and top side panels **20** forming a hollow rectangular cardboard box when assembled and
- four arms **12** arranged between the top **10** and the base **14** and extending vertically in-between the top **14** and the base **10**.

[0051] According to the invention, the base **10** comprises a fastening element to secure the arm **12** to the base **10**. In other words, the arms **12** are reversibly connected to the base **10** and/or top **14**. By having such a reversible connection, it is possible to disassemble the packaging and re-use it.

[0052] As illustrated in FIG. 1, the arms **12** are narrow and extend on a small width or length of the stack, the arms **12** thereby delimit a frame or a window so that a portion of the pre-packed units of products **4** remain visible. It is thus possible to know which units of absorbent articles are present in the stack **2** thereby simplifying logistics. In other words, at least one peripheral side surfaces of said products **4** or pre-packed units of products **4** is visible. By the term "peripheral side surface of said products or pre-packed units" as used herein, is meant the side surface of the products or units which, when they are stacked, make up the peripheral surface of the stack, i.e. the surface of the stack **2** which can be seen from the side.

[0053] FIG. 3 illustrates the base **10** component of the cardboard packaging **8**. The base **10** comprises at least one fastening element **24** to reversibly fasten an arm **12** to the base **10**, more particularly to secure said arm **12** to the base side panel **16**. The fastening element **24** is arranged at a corner, meaning at the junction between two base side panels **16**, substantially at mid-height of the base **10**, meaning that the fastening element **24** is substantially vertically centred on a base side panel **16**. The top **14** can also comprise at least one fastening element **24** to further secure the arms **12** to the cardboard packaging.

[0054] FIG. 4 illustrates the net of the top and bottom components of the cardboard packaging **8** (rectangular polyhedron), or in other terms the cardboard packaging **8** laid flat and disassembled. In other words, FIG. 4 illustrates the arrangement of non-overlapping edge-joined panels (upper **22**, bottom **18** and side **16,20**) in one plane (here (X,Z)) in which they can be folded along the edges and hinge portions to become the faces of the cardboard packaging **8** once assembled and folded. The fastening element **24** comprises at least one pre-cut portion **26** in the vicinity of the corner of the base **10** extending in one direction, e.g. here the X direction, a pre-cut portion **26** is arranged at the junction, or folding line or hinge region, between two base side panels **16** and extends on both side panels **16** on either side of that the junction. Preferably, the fastening element **24** comprises two pre-cut portions **26** arranged parallel to one another and separated in height, or vertically separated, meaning in the Z-direction thereby delimiting a mobile panel portion **28**.

[0055] Other fastening mechanisms can also be considered such as using L-shape arms each with a flat plate at one vertical end, arranging said flat plate at the corner on the bottom floor of the base and placing a pre-packed unit of products on it can reversibly steady or secure the arm against the base.

[0056] These pre-cut portions **26** are areas of embrit-

tlement, or fusible zones, which are able to yield and thus allow movement of the parts relative to each other. In this case, by pushing on the mobile panel portion **28** arranged in between the two parallel pre-cut portions **26**, the pre-cut portion **26** yield and the mobile panel portion **28** can move while maintaining two junctions with the base side panel **16**. The cardboard packaging **8**, in particular the pre-cut portions **26**, can comprise a graphic element for example to show a user where to push to move the mobile panel portion **28**. Preferably, these mobile panel portions **28** are pushed inwardly, meaning that a user pushes the mobile panel portion **28** within the inner volume, or interior, of the base **10**. The pre-cut portions **26** are preferably orifices, or through-holes, in the cardboard thickness and are arranged in dotted lines. The length and spacing of these orifices delimit the value of the force for which there is will break. The through-holes may have the shape of aligned segments, and in particular the through-holes are of the shape rectangular and aligned. It is, however, entirely possible to consider different shapes, for example dots, triangles or even one single elongated linear hole, without going beyond of the scope of the invention.

[0057] The cardboard packaging **8** can further comprise a pre-cut division **30** arranged transversally, e.g. on the X axis as illustrated in FIG. 4, between the base **10** and top **14**, preferably between the bottom side panels **16** and the top side panels **20**, to enable the separation, or detachment, of the top **14** from the base **10**.

[0058] The top **14** can further comprise at least one cut-out **32** that can serve as a gripping feature. As illustrated in FIG. 4, a top side panel **20** can comprise one or two cut-outs **32**, preferably the longer top side panels **20** comprises two cut-outs **32** whereas the shorter top side panels **20** comprises one cut-out **32**.

[0059] The cardboard packaging **8** may also comprise a strip **34** arranged at one longitudinal end (in relation to direction X) on which an adhesive material can be applied in order to unite, or connect, the two base side panels **16** arranged at opposite longitudinal (direction X) ends when assembling by folding the cardboard packaging **8**. Naturally, the pre-cut portion(s) **26**, may also extend on the strip **34**.

[0060] As illustrated in FIG. 4, the fastening element **24** delimits a mobile panel portion **28** comprising a height h_{28} and width w_{28} delimited by the length of the pre-cut portion(s) **26**. To ensure that each mobile panel portion **28** delimits a proper receiving space to receive the arms **12**, the height h_{16} of the base side panel **16** is from 1.5 time to 4 times greater than the height h_{28} of the mobile panel portion **28**, preferably about 2 times greater, and/or the width w_{16} of the base side panel **16** is from 2 times to 8 times greater than the width w_{28} of the mobile panel portion **28** depending on the face of the rectangular cuboid. As illustrated here, the height h_{28} of the mobile panel portion **28** is about the half of the height h_{16} of the base side panel **16**.

[0061] As illustrated in FIG. 4, a base side panel **16** and a top side panel **20** aligned, or joined, relative to the

Z direction (height) have the same dimensions in terms of length (X) and height (Z). Two successive side panels **16,20**, in respect with the X direction, have different lengths (X), the width of a larger side panel **16,20** is from 1.5 to 3 times greater than the width of the smaller side panel **16,20**, such dimensions are optimal for packaging the appropriate amount of pre-packed units of products **4**.

[0062] As illustrated in FIG. 4, the surface area delimited by the cut-out **32** is from 3 times to 15 times lesser than the surface area delimited by the mobile panel portion **28** in relation to the plane (X,Z). According to a preferred embodiment, when two cut-outs **32** are arranged on a top side panel **20**, one single cut-out **32** is arranged on the following top side panel **20** in relation to the X direction, when the cardboard packaging **8** is unfolded or laid flat. In other words, when assembled, when two cut-outs **32** are arranged on a top side panel **20**, one single cut-out **32** is arranged on the two adjacent top side panels **20**, and inversely, when one single cut-out **32** is arranged on a top side panel **20**, two cut-outs **32** are arranged on the two adjacent top side panels **20**.

[0063] The stack **2** of pre-packed units of products **4** once stabilized can be further stabilized by at least partially wrapping a sheet or film over the stack **2** of pre-packed units of products **4** and the cardboard packaging **8**.

[0064] Such cardboard packaging **8** can set use to stabilize a stack **2** of pre-packed units of products **4** by a single user. μ

METHOD

[0065] The method to package and stabilize a stack **2**, or plurality, of pre-packed units of products **4** using a cardboard packaging **8** as described previously will now be described. FIG. 5A to FIG. 5F illustrate some of the steps of said method.

[0066] The method comprises the following steps:

- a) providing a cardboard packaging **8** as described previously ;
- b) if not already done, apply adhesive material on the strip **34** and glue said strip **34** to the base **10** and top **14** edges arranged on the opposite side to obtain a structure as illustrated in FIG. 5A.
- c) pivoting the base side panels **16** and bottom panel(s) **18** to delimit an open container with a bottom floor as illustrated in FIG. 5B.
- d) arranging an arm **12** at each corner of the base **10** and top **14** as illustrated in FIG. 5D;
- e) placing a number of pre-packed units of products **4** in said container delimited by the base **10** and top **14** as illustrated in FIG. 5E, (the cardboard packaging **8** is greyed in said drawings to distinguish it from the pre-packed units of products **4**);
- f) once a given number of pre-packed units of products **4** are arranged within the base **10** and top **14**, for example between a fourth and the half of final

stacks **2** of pre-packs units of absorbent articles, separating the base **10** from the top **14** by pulling on the top **14**, eventually with the cut-outs **32**, until the pre-cut division **30** yield and lifting, or raising, sliding up or moving upward, the top **14** as illustrated in FIG. 5F. g) pivoting, or folding, the top panels **22** over the stack **2** of units of absorbent articles **4** to close the top and obtain a packaged and stabilized stack **2** as illustrated in FIG. 2.

[0067] Alternatively, it is possible to use a cardboard packaging **8** where the base **10** and top **14** are provided as separate, or distinct, elements. The arms **12** are thus arranged at the corners of the base **10** (step d), the pre-packed units of products **4** are then placed (step e) and then the top **14** is placed on the stack **2** of pre-packed units of products **4** and the top panels **22** are folded (step g), hence step f) is optional. However step f), meaning a method where the top **14** and base **10** are provided together with a pre-cut division **30** in-between, is preferable as lifting the top **14** enables to slightly re-arrange pre-packed units of products **4** and reduce overhangs risks, in other words, the raising of the top **14** ensures that the pre-packed units of products **4** stays within the inner volume delimited by the base **10**, arms **12** and top **14**.

[0068] The method can comprise an additional step, step h), of pushing the fastening element **24**, specifically pushing onto the cardboard portion(s) **28** inward, meaning within the inner volume delimited by the base side panel **16** and bottom panel **18**, the pre-cuts **26** thereby yielding, and the mobile panel portion **28** delimiting a receiving space **36** with two passing holes **40** where an arm **12** can slide through as illustrated in FIG. 5C. This step is optional as we've seen there can be alternative fastening mechanisms. Preferably step h) is between step c) and step d).

[0069] The method can comprise a further additional step, step i), if the method comprises a step h), where once the arms **12** are arranged in the receiving space, the mobile panel portion **28** is pushed outward until it abuts against the L-shape arm **12**. Preferably step i) is between step d) and step e) or between step e) and step f) or between step e) and step g).

[0070] This embodiment is illustrated in FIG. 6A to FIG. 6D, which illustrate a top-view cross section close-up of a corner of the base **10**. FIG. 6A illustrates the cardboard packaging **8**, namely the base **10**, prior to step h). FIG. 6B illustrates the cardboard packaging **8** after step h), meaning once the cardboard portion **28** is pushed inwardly towards the interior, or within the inner volume **38**, of the container delimited by the base side panel **16** and bottom panel **18**. The cardboard portion **28** delimits a receiving space **36** delimited by the base side panels **16** and the cardboard portion **28** with two passing holes **40** (FIG. 3) in which the arm **12** can slide through. FIG. 6C illustrates the cardboard packaging **8** after step d), once the L-shaped arm **12** has been slid in through the passing holes **40** and the receiving space **36** until it abuts against the

bottom panel **18**. FIG. 6D illustrates the cardboard packaging **8** after step i), meaning once the cardboard portion **28** is pushed outwardly towards the exterior of the cardboard packaging **8** until it abuts against the L-shaped arm **12**. The L-shaped arm **12** is thereby reversibly secured to the base **10** and can be separated from the base **10** by moving again the cardboard portion **28** inwards toward the interior **38** to reach again the configuration illustrated in FIG. 6C and by pulling out the L-shaped arm **12** from the receiving space **36**.

[0071] The invention also pertains to the use of a cardboard packaging **8** as described previously to stabilize a stack **2** of pre-packed unit of products **4**, preferably a stack of pre-packed unit of absorbent articles.

[0072] The invention also pertains to an assembly comprising a stack **2** of pre-packed unit of products **4**, said stack **2** comprising a plurality of absorbent article and a cardboard packaging **8** as described previously.

[0073] It is supposed that the present invention is not restricted to any form of realization described previously and that some modifications can be added to the presented example of fabrication without reappraisal of the appended claims.

Claims

1. Cardboard packaging (8) for stabilizing a stack (2) of pre-packed units of products (4), preferably a stack of pre-packed units of absorbent articles, wherein said cardboard packaging (8) comprises three distinct components comprising:
 - a. a base (10) comprising at least one bottom panel (18) and four bottom side panels (16) and delimiting a container to stack pre-packed units of products (4),
 - b. at least two elongated arms (12) extending in a perpendicular direction in relation to the plane delimited by the bottom panel (18), and
 - c. a top (14) comprising at least one top panel (22), four side panel (20) and delimiting a container to stack pre-packed units of products (4),
 wherein, the base (10) comprises a fastening element (24) to fasten said arms (12) to the base (10).
2. Cardboard packaging (8) according to claim 1, wherein the cardboard packaging (8) comprises a pre-cut division (30) arranged transversally between the base (10) and top (14) enabling the detachment of the base (10) from the top (14).
3. Cardboard packaging (8) according to any of the preceding claims, wherein the top (14) comprises a fastening element (24) to fasten said arms (12) to the top (14).
4. Cardboard packaging (8) according to any of the preceding claims, wherein the fastening element (24) comprises two pre-cut portions (26) extending parallel to one another and in one direction arranged at the junction between two side panels (16) and extending on both side panels (16) on both side of said junction.
5. Cardboard packaging (8) according to claim 4, wherein the pre-cut portions (26) delimit a mobile panel portion (28) that can be moved toward the inner volume of the container delimited by the base (10).
6. Cardboard packaging (8) according to any of the preceding claims, wherein the top (14) comprises at least one cut-out (32) serving as a gripping feature.
7. Cardboard packaging (8) according to claim 5, wherein the mobile panel portion (28) comprises a height (h_{28}) and a width (w_{28}), wherein the height (h_{16}) of the bottom side panel (16) is from 1.5 time to 4 times greater than the height (h_{28}) of the mobile panel portion (28), preferably around 2 times greater, and/or the width (w_{16}) of the bottom side panel (16) is from 3 times to 8 times greater than the width (w_{28}) of the mobile panel portion (28).
8. Cardboard packaging (8) according to claims 5 and 6, wherein the surface area delimited by the cut-out (32) is from 3 times to 15 times lesser than the surface area delimited by the mobile panel portion (28).
9. Cardboard packaging (8) according to claim 6 or 8, wherein two cut-outs (32) are arranged on a top side panel (20) and one single cut-out (32) is arranged on the two adjacent top side panels (20).
10. Use of a cardboard packaging (8) as described previously to stabilize a stack (2) of pre-packed unit of products (4), preferably a stack of pre-packed unit of absorbent articles.
11. Method to stabilize a stack (2) of pre-packed units of products (4) using a cardboard packaging (8) as described in any of the claims 1 to 9, wherein the method comprises the following steps:
 - a. providing a cardboard packaging (8) as described in claims 1 to 9;
 - b. pivoting the side panels (16,20) and bottom panel(s) (18) to delimit an open container;
 - c. arranging an arm (12) at each corner of the base (10) and/or top (14);
 - d. arranging a stack (2) of pre-packed units of products (4) in said container delimited by the base (10) and/or top (14) and arms (12);
 - e. separating the base (10) from the top (14) and raising the top (14) or placing the top (14) on top

of the stack (2) of pre-packed units of products (4), and pivoting the top panels (22) over the stack (2) of pre-packed units of products (4).

- 12.** Method according to claim 11 dependent of claim 5 and following, wherein the method comprises an additional step f. where the mobile panel portion (28) is moved inward the container delimited by the base (10) delimiting a receiving space (36) with two passing holes (40) where an arm (12) can slide through.
- 13.** Method according to claim 12, wherein the method comprises an additional step g. where the mobile panel portion (28) is moved outward, once the arm (12) has been arranged within the receiving space (36), up to the point where the mobile panel portion (28) abuts against said arm (12).
- 14.** Assembly comprising a stack (2) of pre-packed unit of products (4), said stack (2) comprising a plurality of absorbent articles and a cardboard packaging (8) according to any of the claims 1 to 9.

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FIG. 1

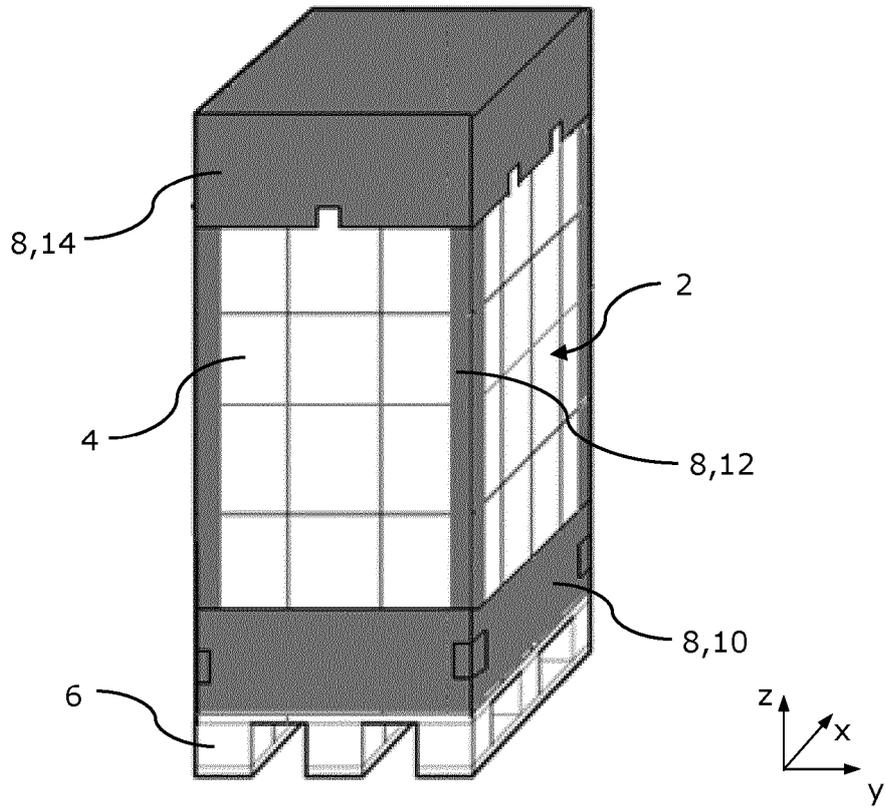


FIG. 2

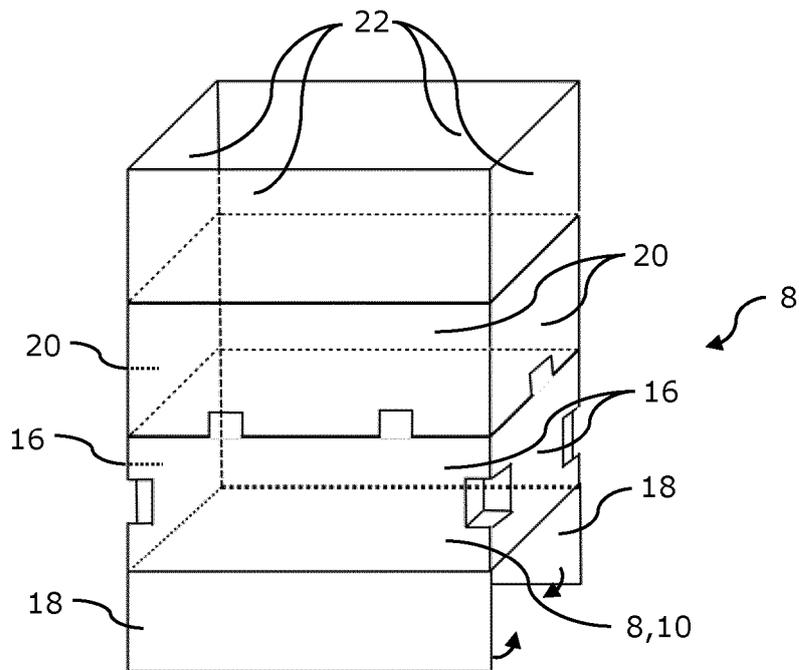


FIG. 3

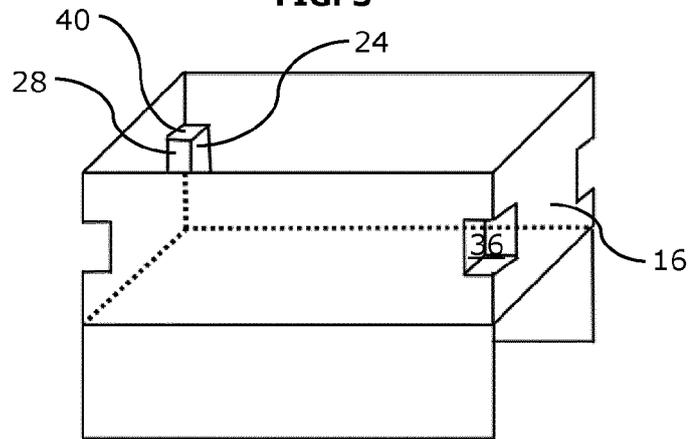
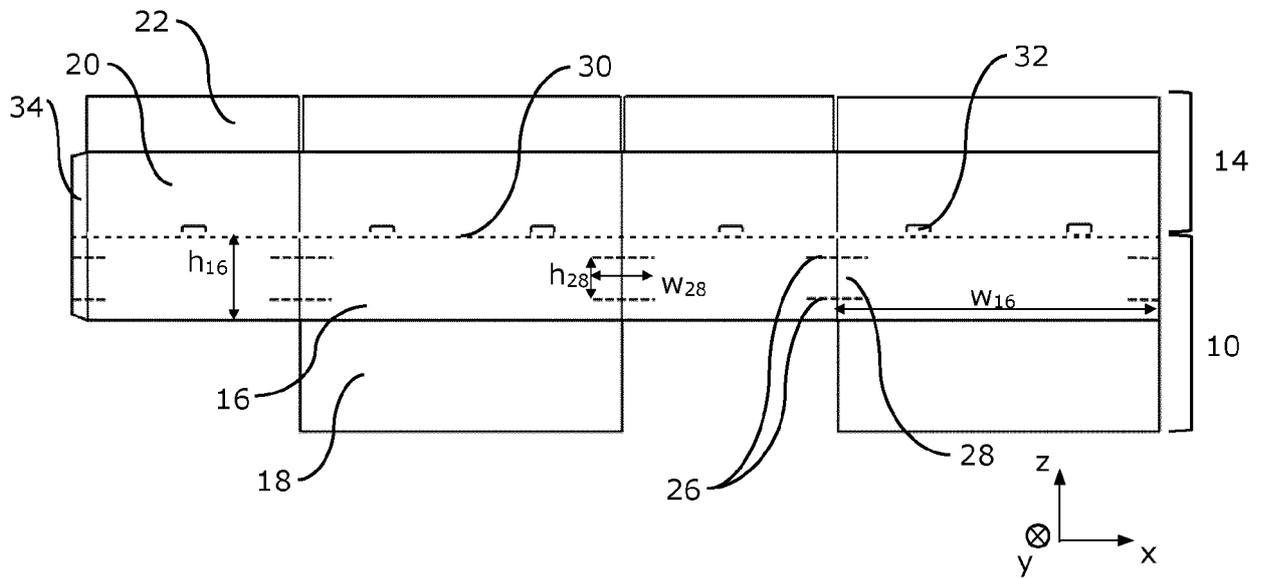
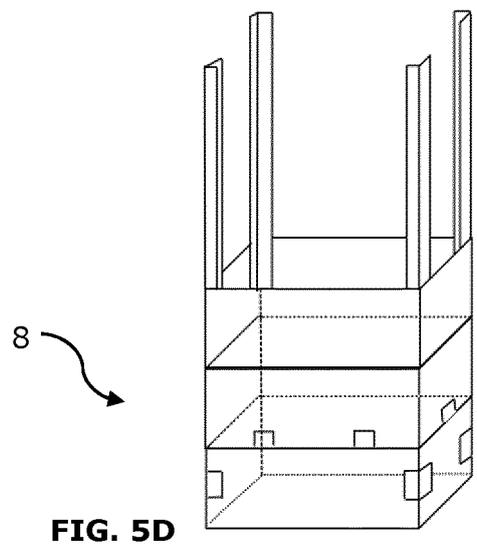
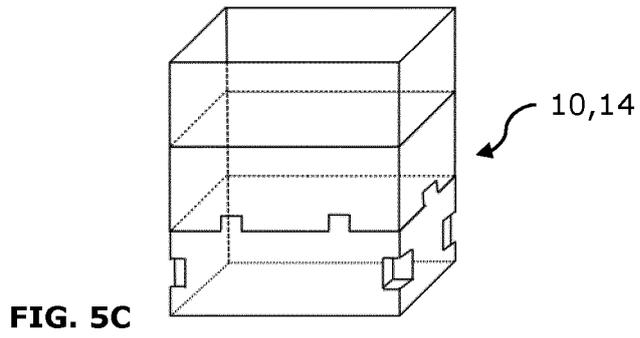
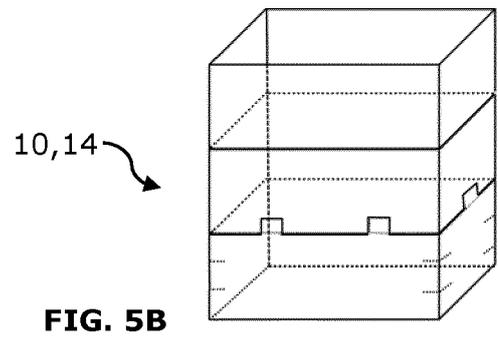
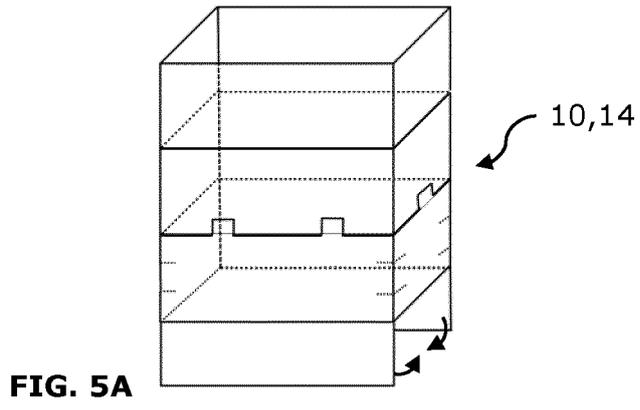
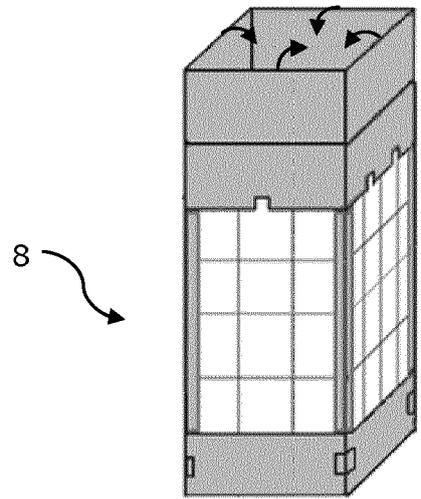
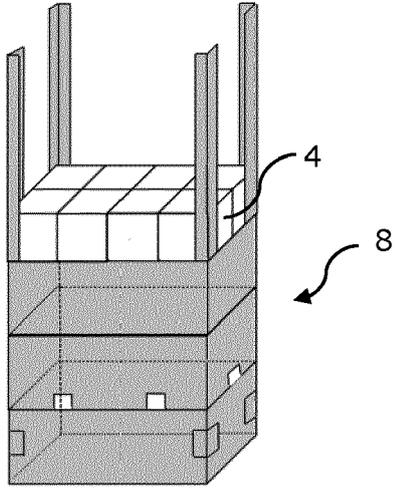
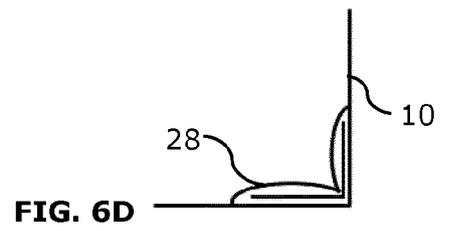
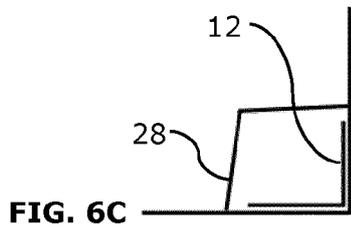
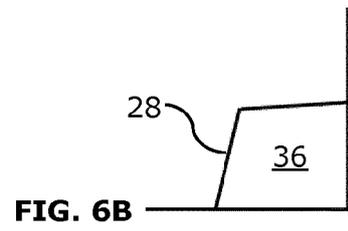
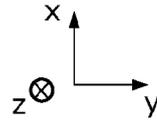
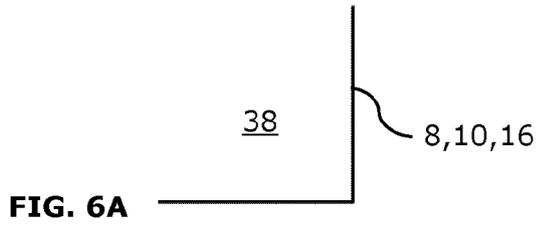


FIG. 4











EUROPEAN SEARCH REPORT

Application Number

EP 22 16 7887

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A	* page 4, line 26 - page 6, line 17; figure 1 *	2, 4, 5, 7-9, 11-13	B65D71/00

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A	* column 2, line 45 - column 5, line 50; figures *	11	

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			B65D
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Place of search		Date of completion of the search	Examiner
The Hague		15 September 2022	Fournier, Jacques
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

15-09-2022

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