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(54) **RECYCLABLE AND WATER RESISTANT PACKAGING**

(57) The present invention relates to a folded packaging (1), said folded packaging comprising a folded sheet of a packaging material, said folded sheet of packaging material having a plurality of fold lines defining a bottom section, a plurality of wall sections each one of which extending from a respective side of said bottom section, and lip sections (105) arranged between said wall sections, wherein each one of said lip sections con-

nects one of said wall sections with one of its neighbouring wall sections, wherein said bottom section, wall sections and lip sections are integrally formed with each other, and wherein said lip sections (105) are folded such that an intersection between each pair of neighbouring wall sections is defined by the fold lines between each one of said pair of neighbouring wall sections and one of its corresponding lip sections.

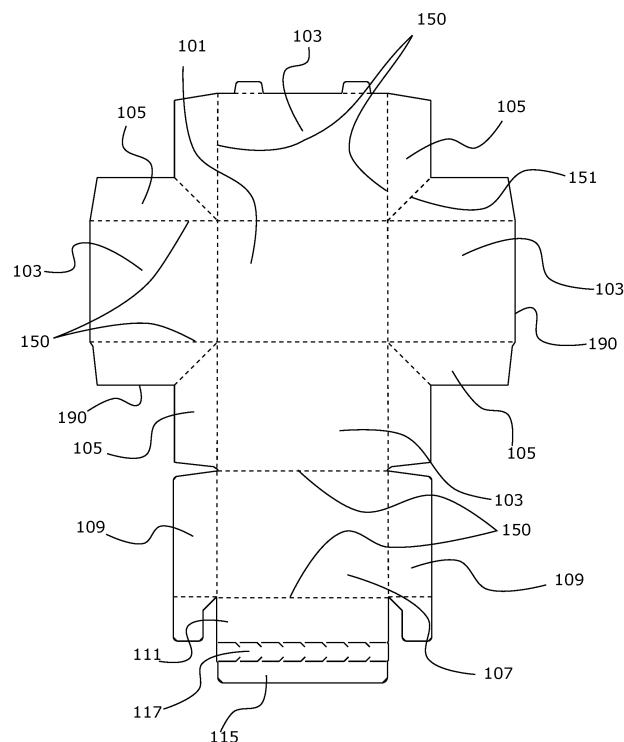


Figure 2

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a recyclable and water resistant packaging. More specifically, the present invention relates to a packaging that is folded such that a water resistant exterior is achieved.

BACKGROUND OF THE INVENTION

[0002] Currently available packaging solutions for storing fasteners are often made from plastic if they are to be used in environments where the packaging might come into contact with water. This allows for a packaging that functions both in dry environments, and in wet environments. However, there is generally a desire to reduce the amount of plastic used in packaging solutions. An alternative to plastic packaging solutions are commonly available packages made from folded cardboard or paper. However, such packaging solutions cannot be used in wet environments, as the structural integrity of the packaging deteriorates as it gets wet.

SUMMARY OF THE INVENTION

[0003] It is an object of the present invention to alleviate at least some of the mentioned drawbacks of the prior art and to provide a folded packaging that is both water resistant and recyclable. This and other objects, which will become apparent in the following, are accomplished by a folded packaging as defined in the accompanying independent claim.

[0004] The term exemplary should in this application be understood as serving as an example, instance or illustration.

[0005] The present invention is at least partially based on the realisation that by providing a folded packaging, in particular one made from a recyclable material, and one that is folded such that all edges of the wall sections and the bottom section of the packaging are arranged on the inside of the packaging, a water resistant and recyclable packaging is achieved.

[0006] According to a first aspect of the present invention, a folded packaging is provided. The folded packaging comprises a folded sheet of a packaging material. The folded sheet of packaging material has a plurality of fold lines defining a bottom section, a plurality of wall sections each one of which extends from a respective side of said bottom section, and lip sections arranged between said wall sections. Each one of said lip sections connects one of said wall sections with one of its neighbouring wall sections. The bottom section, wall sections and lip sections are integrally formed with each other. The lip sections are folded such that an intersection between each pair of neighbouring wall sections is defined by the fold lines between each one of said pair of neighbouring wall sections and one of its corresponding lip

sections.

[0007] A folded packaging according to the first aspect of the present invention has a benefit over previous folded packages in that it is folded such that no edge of the sheet of packaging material is accessible from the outside of the packaging. As the edges of the packaging material are the most susceptible to water damages, keeping these on the inside allows for a more water-resistant packaging.

[0008] Integrally is to be understood as meaning that the sections are formed from one piece, and not from separate pieces that are glued together or otherwise connected to each other. This simplifies and reduces the total production cost for manufacturing the folded packaging of the present invention. Also, providing these sections as a single piece means that there are fewer edges at which there is an increased risk of damage to the packaging due to water penetrating the edges of the packaging material.

[0009] According to at least one exemplary embodiment, said folded packaging comprises a box portion and a lid portion, wherein said lid portion is integrally formed with said box portion.

[0010] The box portion may be arranged to hold for example a plurality of small articles, such as nails, screws or other fasteners. The lid portion may be arranged to cover the opening of said box portion, such that the articles held therein are prevented from leaving the box portion and such that they are protected from rain and dirt entering the box portion.

[0011] According to at least one exemplary embodiment, said lid portion comprises a top lid section that extends from one of said wall sections, lateral lid sections that extends from said top lid section, and a front lid section that extends from said top lid section.

[0012] Thus, the wall sections are covered by lid portion, thus protecting them from water damage. The lateral lid sections protect the upper edges of the wall section, as does the front lid section. Furthermore, the front lid section may be provided with means for being releasably attached to one of the wall sections. Thus, a seal may be provided, preventing unintended opening of the box portion.

[0013] According to at least one exemplary embodiment, said lateral lid sections and said front lid section cover at least a portion of the wall sections from which said top lid section does not extend. This provides increased water resistance of the packaging.

[0014] According to at least one exemplary embodiment, said front lid section comprises a locking portion, said locking portion comprising a base, wherein said base is adhered to the wall section opposite the wall section from which the top lid section extends such that said lid portion is held in place on said box portion. The base may be adhered to the wall section, such that the lid portion of the packaging is held shut by means of an adhesive.

[0015] According to at least one exemplary embodi-

ment, said locking portion comprises a perforated strip. Said perforated strip is arranged between said base and said top lid section such that said base and said top lid section may be disconnected from each other by removing said perforated strip.

[0016] According to at least one exemplary embodiment, said lip sections are folded such that each pair of neighbouring wall sections intersect at the fold lines between each one of said pair of neighbouring wall sections and one of its corresponding lip sections.

[0017] According to at least one exemplary embodiment, said folded sheet of packaging material has a plurality of fold lines defining four wall sections.

[0018] According to at least one exemplary embodiment, each lip section connects one of said wall sections with one of its two neighbouring wall sections.

[0019] According to at least one exemplary embodiment, said wall section has a bottom side that is connected to said bottom section and two lateral sides that are connected to a respective lip section.

[0020] According to at least one exemplary embodiment, the connection between each one of said wall sections and said bottom section is defined by one of said fold lines of said wall section. This means that there is no edge accessible at the intersection between the wall sections and the bottom section. Similarly, no edge is accessible at the intersection between two neighbouring wall sections, due to the arrangement of the lip sections therebetween.

[0021] According to at least one exemplary embodiment, each wall section is a rectangular wall section having a bottom side that is connected to said bottom section and two lateral sides from which a respective lip section extends.

[0022] According to at least one exemplary embodiment, said two lateral sides of each one of said wall sections are connected to a respective lip section which extends continually to a lateral side of a neighbouring wall section.

[0023] According to at least one exemplary embodiment, each one of said lip sections extends continually between two neighbouring wall sections.

[0024] According to at least one exemplary embodiment, each wall section is defined by at least three fold lines, one of which connects said wall section with said bottom section, and the other two connecting said wall section with two of said lip sections.

[0025] According to at least one exemplary embodiment, said folded sheet of packaging material has an inward-facing side and an outward-facing side, wherein at least said outward-facing side of said folded sheet of packaging material is provided with a water-resistant coating. The water-resistant coating may for example be a biologically degradable polymer or another biodegradable material. This biodegradable coating contributes towards a recyclable packaging that is water-resistant.

[0026] The outward-facing side of the folded sheet of packaging material may be coated with said water-resistant

coating, as well as the inward-facing side. This further increases the water resistance of the folded packaging.

[0027] According to at least one exemplary embodiment, said packaging material is a biologically degradable fibrous material, such as cardboard or paper.

[0028] According to at least one exemplary embodiment, said lip sections are folded inwards, such that they do not protrude outwards from said folded packaging. As such, said folded packaging is box shaped without protruding pieces of packaging material extending from said bottom section, from said wall sections, or from the intersections therebetween.

[0029] According to at least one exemplary embodiment, said lip sections are folded such that said lip sections are on the inside of said folded packaging.

[0030] This should be understood as said lip sections being folded inwards such that the edges of the folded sheet of packaging material are on the inside of said folded packaging box. As such, no edge of the folded sheet of packaging material is accessible from a lower half of the folded packaging, thus providing it with increased water resistance.

[0031] Furthermore, no edge of the folded sheet of packaging material is accessible from the wall sections of the folded packaging.

[0032] As the edges are especially susceptible to absorbing water from the environment, arranging these on the inside of the box allows for a more water-resistant packaging.

[0033] According to at least one exemplary embodiment, each one of said lip sections is adhered to one of the two wall sections that said lip section connects. Thus, an increased stability of the folded packaging is achieved.

[0034] According to at least one exemplary embodiment, each one of said lip sections has a central fold line, along which said lip section is folded inwards such that two halves of said lip section meet, wherein said two halves are adhered to each other. Thus, an increased stability of the folded packaging is achieved.

[0035] According to one aspect of the invention, a folded packaging box is provided, wherein said packaging box comprises a sheet of a packaging material that is folded such that no edge thereof faces outwards from a wall section or bottom section of said packaging box.

[0036] Generally, all terms used in the description are to be interpreted according to their ordinary meaning in the technical field, unless explicitly defined otherwise herein. All references to "a/an/the [element, device, component, means, step, etc.]" are to be interpreted openly as referring to at least one instance of said element, device, component, means, step, etc., unless explicitly stated otherwise.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037] These and other features and advantages of the present invention will now be further clarified and described in more detail, with reference to the appended

drawings showing different embodiments of a rotational assembly according to the present invention.

Figure 1 is a perspective view of a folded packaging according to one aspect of the present invention, Figure 2 is a top view of the sheet of packaging material of the folded packaging of Figure 1, in an unfolded state.

DETAILED DESCRIPTION OF EMBODIMENTS

[0038] In the following detailed description, some embodiments of the present invention will be described. However, it is to be understood that features of the different embodiments are exchangeable between the embodiments and may be combined in different ways, unless anything else is specifically indicated. Even though in the following description, numerous specific details are set forth to provide a more thorough understanding of the present invention, it will be apparent to one skilled in the art that the present invention may be practiced without these specific details. In other instances, well known constructions or functions are not described in detail, so as not to obscure the present invention.

[0039] Figure 1 is a perspective view of a folded packaging 1 according to one aspect of the present invention. The folded packaging 1 is made from a folded sheet 100 of a packaging material that has been folded to form a box 11 with a lid 13 attached thereto. The box 11 and the lid 13 are integrally formed with each other. The folded sheet 100 of packaging material has a plurality of fold lines 150 defining a bottom section 101, four wall sections 103, and four lip sections 105 arranged between each one of the wall sections 103. The lip sections 105 connect each one of the wall sections 103 with its neighbours, as is more clearly seen in Figure 2. The wall sections 103 extend from a respective side of the bottom section 101. No edges 190 of the folded sheet 100 of packaging material are accessible from the bottom section 101 or lower half of the folded packaging 1, nor from the sides of the folded packaging 1. As is seen in more detail in Figure 2, the bottom section 101, the wall sections 103 and the lip sections 105 are integrally formed with each other, separated only by the fold lines 150. The lip sections 105 are folded such that the intersections 151 between each pair of neighbouring wall sections 101, i.e. the four side edges of the box 11, are defined by the fold lines 150 between each one of the neighbouring wall sections 101 and its corresponding lip sections 105, and not the edges 190 of the folded sheet 100 of packaging material.

[0040] The lid 13 has a top lid section 107, two lateral lid sections 109, and a front lid section 111. The top lid section 107 extends from one of the wall section 103, such that a hinged lid 13 is formed. The lateral lid sections 109 and the front lid section 111 extend from the top lid section 107 and downwards, towards the bottom section 101, such that the lid 13 provides a skirt-like structure around the upper portion of the box 11. This skirt-like

structure prevents the upper edges of the wall sections 103 from being subjected to rain or other liquids coming from above the folded packaging 1. The lateral lid sections 109 and the front lid section 111 cover an upper portion of the three wall sections 107 from which the top lid section 107 does not extend. As the upper edge of the wall section 107 from which the top lid section 107 extends is defined by a fold line 150 between the lid 13 and the box 11, there is no need for covering this edge with a lid.

[0041] The front lid section 111 also has a locking portion 113 for keeping the lid 13 locked in place on top of the box 11 before being opened by a user. The locking portion 113 has a base 115 that is adhered to the wall section 103 that is opposite the wall section 103 from which the top lid section 107 extends, such that the lid 13 is held in place on top of the box 11. Furthermore, the locking portion 113 includes a perforated strip 117 that separates the base 115 from the rest of the lid 13. When the perforated strip 117 is removed by means of a user pulling on one of its ends, the lid 13 is free to open as its connection with the base 115 is broken.

[0042] Figure 2 is a top view of the sheet of packaging material of the folded packaging of Figure 1, in an unfolded state. Here, the sheet 100 of packaging material is clearly seen, with fold lines 150 defining four wall sections 103 extending outwards from a rectangular bottom section 101. Between each wall section 103, there is a lip section 105. The connection between the wall sections 103 and said bottom section 101 is defined by the fold lines 150 described above. Each wall section 103 is a rectangular wall section 103 having a bottom side that is connected to the bottom section 101 and two lateral sides from each of which a respective lip section 105 extends. The bottom side of the wall section 103 is the side of the wall section 103 that is closest to the bottom section 101, while the lateral sides of the wall section 103 are the sides from which the lip sections 105 extend. The two lateral sides of each one of the wall sections 103 are connected to a respective lip section 105 that extends continually to a lateral side of a neighbouring wall section 103.

[0043] The sheet 100 of packaging material has an inward-facing side and an outward-facing side. In the illustrated embodiment, the outward-facing side of the sheet 100 of packaging material is provided with a water resistant coating. However, the inward facing side may also be provided with such a coating. As is seen in Figure 1, the lip sections 105 are folded inwards, such that they do not protrude outwards from the folded packaging 1. Each one of the lip sections 105 has a central fold line 151, along which the lip section 105 is folded such that two halves of the lip section 105 meet. Then, the two halves are adhered to each other, and the lip section 105 is adhered to one of the two wall sections 103 that the lip section 105 connects.

[0044] The person skilled in the art realizes that the present invention by no means is limited to the embodiments described above. The features of the described

embodiments may be combined in different ways, and many modifications and variations are possible within the scope of the appended claims. In the claims, any reference signs placed between parentheses shall not be construed as limiting to the claim. The word "comprising" does not exclude the presence of other elements or steps than those listed in the claim. The word "a" or "an" preceding an element does not exclude the presence of a plurality of such elements.

Claims

1. A folded packaging, said folded packaging comprising a folded sheet of a packaging material, said folded sheet of packaging material having a plurality of fold lines defining a bottom section, a plurality of wall sections each one of which extending from a respective side of said bottom section, and lip sections arranged between said wall sections, wherein each one of said lip sections connects one of said wall sections with one of its neighbouring wall sections, wherein said bottom section, wall sections and lip sections are integrally formed with each other, and wherein said lip sections are folded such that an intersection between each pair of neighbouring wall sections is defined by the fold lines between each one of said pair of neighbouring wall sections and one of its corresponding lip sections.
2. A folded packaging according to claim 1, wherein said folded packaging comprises a box portion and a lid portion, wherein said lid portion is integrally formed with said box portion.
3. A folded packaging according to claim 2, wherein said lid portion comprises a top lid section that extends from one of said wall sections, lateral lid sections that extends from said top lid section, and a front lid section that extends from said top lid section.
4. A folded packaging according to claim 3, wherein said lateral lid sections and said front lid section cover at least a portion of the wall sections from which said top lid section does not extend.
5. A folded packaging according to any one of claims 3 and 4, wherein said front lid section comprises a locking portion, said locking portion comprising a base, wherein said base is adhered to the wall section opposite the wall section from which the top lid section extends such that said lid portion is held in place on said box portion.
6. A folded packaging according to claim 5, wherein said locking portion comprises a perforated strip and wherein said perforated strip is arranged between said base and said top lid section such that said base and said top lid section may be disconnected from each other by removing said perforated strip.
7. A folded packaging according to any one of the preceding claims, wherein said connection between said wall section and said bottom section is defined by one of said fold lines of said wall section.
8. A folded packaging according to any one of the preceding claims, wherein each wall section is a rectangular wall section having a bottom side that is connected to said bottom section and two lateral sides from each of which a respective lip section extends.
9. A folded packaging according to claim 8, wherein said two lateral sides of each one of said wall sections are connected to a respective lip section which extends continually to a lateral side of a neighbouring wall section.
10. A folded packaging according to any one of the preceding claims, wherein each one of said lip sections extends continually between two neighbouring wall sections.
11. A folded packaging according to any one of the preceding claims, wherein each wall section is defined by at least three fold lines, one of which connects said wall section with said bottom section, and the other two connecting said wall section with two of said lip sections.
12. A folded packaging according to any one of the preceding claims, wherein said folded sheet of packaging material has an inward-facing side and an outward-facing side, wherein at least said outward-facing side of said folded sheet of packaging material is provided with a water resistant coating.
13. A folded packaging according to any one of the preceding claims, wherein said lip sections are folded inwards, such that they do not protrude outwards from said folded packaging.
14. A folded packaging according to any one of the preceding claims, wherein each one of said lip sections is adhered to one of the two wall sections that said lip section connects.
15. A folded packaging according to claim 14 when dependent on claim 13, wherein each one of said lip sections has a central fold line, along which said lip section is folded inwards such that two halves of said lip section meet, wherein said two halves are adhered to each other.

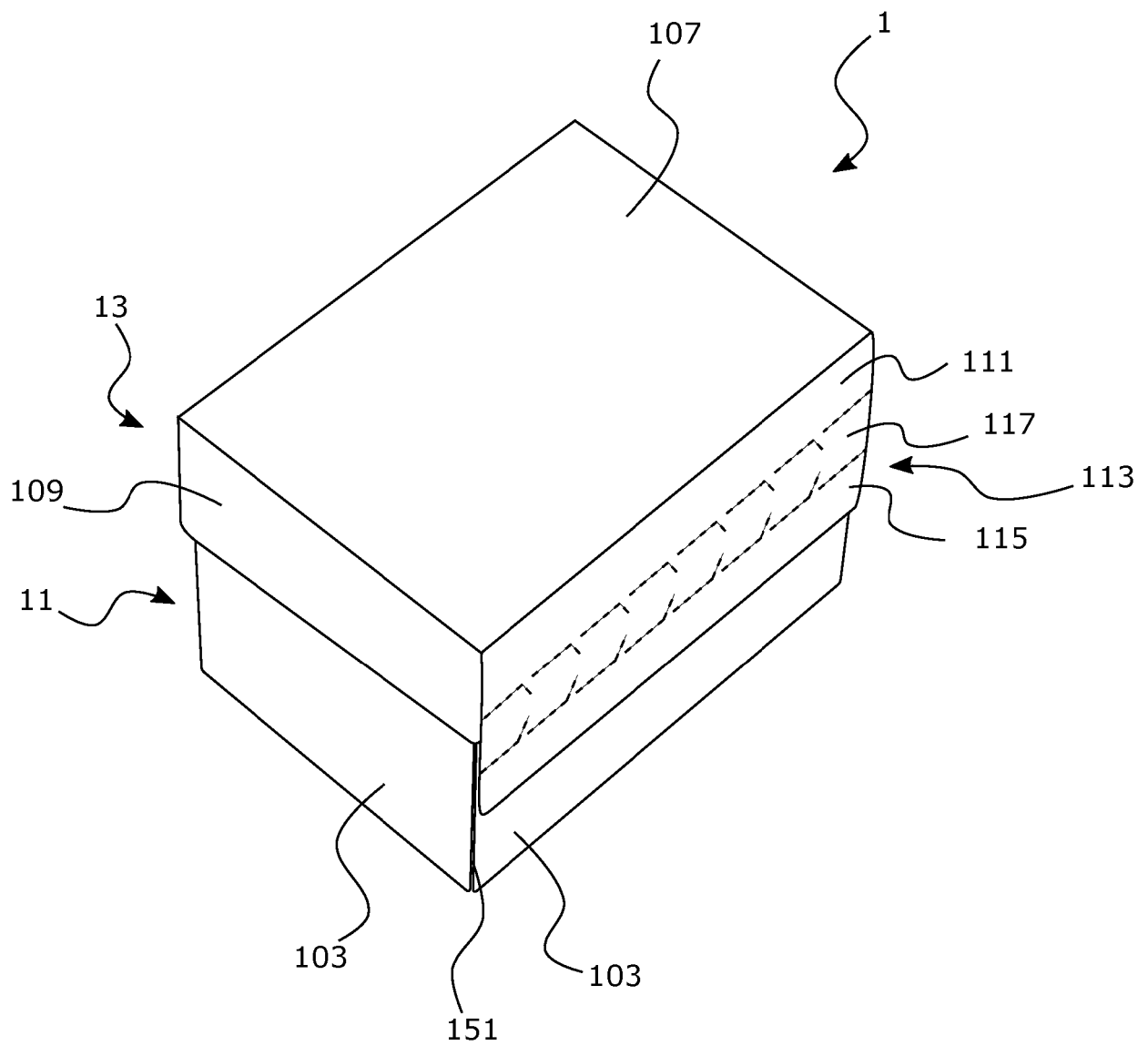


Figure 1

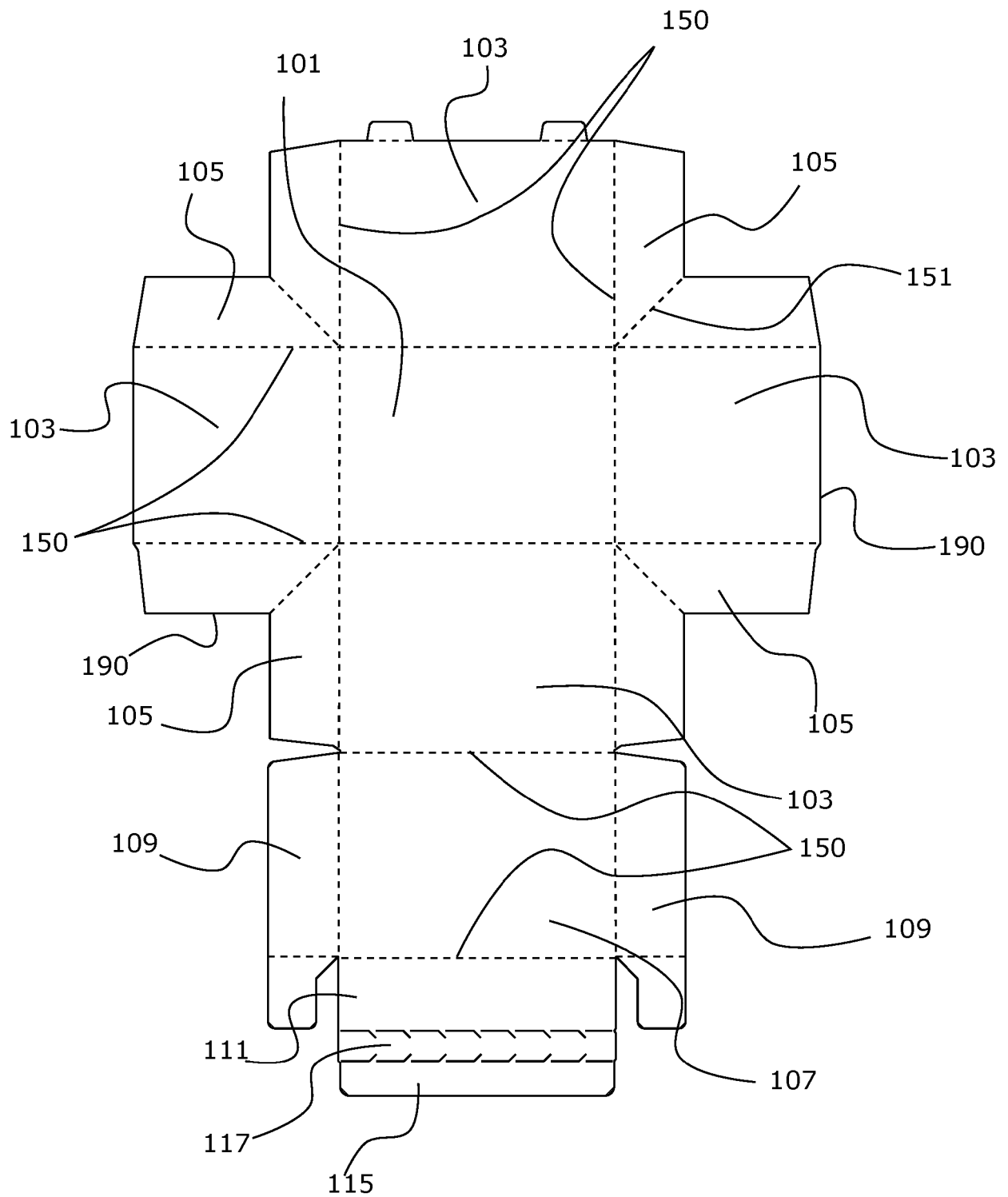


Figure 2



EUROPEAN SEARCH REPORT

Application Number
EP 19 15 2615

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2012 018758 A1 (THIMM VERPACKUNG GMBH & CO KG [DE]) 27 March 2014 (2014-03-27) * abstract; figures 1-5 * * paragraph [0026] - paragraph [0030] *	1-15	INV. B65D5/66 B65D5/20 B65D5/24 B65D5/54
X	WO 2006/003387 A1 (RECKITT BENCKISER NV [NL]; RECKITT BENCKISER UK LTD [GB]; AYATS ARDITE) 12 January 2006 (2006-01-12) * abstract; figures 1, 2C *	1-4,7-15	
A	----- * abstract; figures 1, 2C *	5,6	
X	WO 99/16675 A1 (JOHANNSEN PETER KURT [AU]) 8 April 1999 (1999-04-08) * abstract; figures 2,3 *	1,2,14, 15 3	
A	----- * abstract; figures 2,3 *		
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 15 February 2019	Examiner Segerer, Heiko
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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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
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15-02-2019

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