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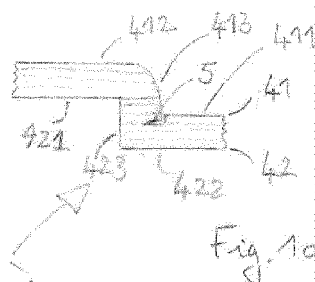
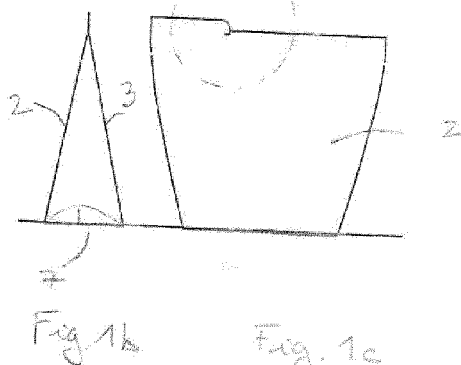
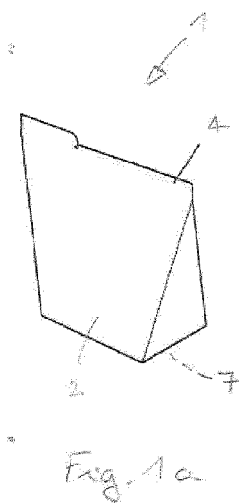
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(54) **Pouch for easy pouring and dosing**

(57) The invention concerns a flexible film packaging pouch (1) comprising :
- a sealed seam bottom (7) in gusset shape,

- a top sealed seam (4),
wherein the top sealed seam (4) is designed so as to be easily opened without tool and in a proper manner.



Description

Field of the invention

[0001] The present invention relates to flexible bags for storing bulk products like powders and liquids.

Background of the invention

[0002] Many bulk products like powders, granulates, liquids and gels can be stored in flexible film pouches or pouches. These packagings present the advantages of being easy to manufacture from flexible film sheets and of presenting a much reduced volume in bin when they are emptied. Moreover after production they are easy to pile and store.

[0003] Different forms of flexible film pouches exist depending on their further uses. Some pouches have to present some rigidity in particular for being able to stand up on their own. Rigidity can be provided by the nature of the film used for manufacturing the pouches and also by the particular arrangement of the seams for assembling the different faces of the pouches. Depending on the arrangement of the seams the complexity for manufacturing the flexible pouches can increase.

[0004] Flexible pouches often present seams arranged for forming a gusset. Gussets present the interest of keeping a large interior volume in the bag even next to the sealed edges of the pouch contrary to pillow bags. The best optimisation of the volume consists in providing gussets at the top and bottom of the pouch.

[0005] When flexible pouches are used for refilling a container, the top edge of the pouch is opened and the pouch is turned so as to pour the product in the container. If the pouch presents a gusset the fact of cutting a corner of the gusset usually does not enable the direct pouring of the product from the cut corner : usually it is necessary that operators pull with their fingers a part of the cut gusset to open said gusset and increase the surface of the opening ; then a more efficient pouring can be done. Besides the seams the gusset is made of usually create an opening presenting recesses in which powder or granulates may be blocked which prevents a rapid and full refilling.

[0006] Moreover due to the mechanical strength of the seams of flexible pouches operators have to create an opening by cutting the top edge of the pouch with a cutting tool, e.g. a scissor. This operation is not convenient for the operators who must have a cutting tool at their disposal. It also increases the time for refilling. In the past it has been proposed flexible pouches of which at least one side seam presents an indentation so that by tearing on the flexible pouch near to said indentation the operators can tear the pouch and create an opening. Yet usually the tearing is not well controlled and the resulting opening can present various shapes depending on the force of the operators and the orientation of their movements during the tearing. The resulting opening can fi-

nally present a too small surface and then the refilling is too long or the resulting opening can finally present a too big surface and then the operator can pour powder out of the refillable container during pouring.

[0007] Consequently there is a need for flexible film pouches used for refilling machines or containers which present the property of being rapidly openable without any tool.

[0008] There is also a need for flexible film pouches used for refilling machines or containers of which tearing systematically produced the same desired size of opening.

[0009] There is also a need for flexible film pouches used for refilling machines or containers of which opening enable an efficient, proper and rapid pouring of the powders in a container or machine.

[0010] An object of the present invention is to solve the above problems.

Summary of the invention

[0011] According to a first aspect, the invention concerns a flexible film packaging pouch comprising :

- a sealed seam bottom in gusset shape,
 - a top sealed seam,
- wherein :
- the top sealed seam is horizontally oriented and extends between an upper edge and a bottom edge of the top sealed seam,
 - said bottom edge of the top sealed seam runs parallel to the upper edge of the pouch and is stepped making an angle transition between an upper bottom edge and a lower bottom edge,
 - the top sealed seam comprises an indentation positioned at the angle transition and oriented so that the flexible film can be under the upper bottom edge and above the lower bottom edge from the angle transition to one lateral end of the top sealed seam.

[0012] The pouch preferably presents a globally rectangular shape with the gusset shape at its bottom. Then the pouch can stand up on its own. The gusset shape is generally obtained by the arrangement of several sealed seams as known in the art. At its top the pouch is closed by a simple sealed seam that is horizontally oriented and that defines the upper edge of the pouch. Then the pouch is not gusseted at its top.

[0013] The top sealed seam is stepped and runs parallel to the outside edge of the top end making an angle transition between the both lateral ends of the top sealed seam. The indentation is positioned in the angle transition. According to the preferred embodiment the bottom edge of the top sealed seam is stepped according to an approximately right angle transition.

[0014] According to said preferred embodiment the in-

dentation is designed so that its end is horizontally oriented. This enables a better control of the tearing parallel to the upper edge of the pouch.

[0015] The indentation is positioned and oriented so that the fact of tearing the flexible film at the indentation level creates an opening at the top of the pouch. For all pouches of the present invention presenting the same indentation the same shape of the tearing - parallel to the outer edge - and the same shape of the opening can be reproduced.

[0016] According to a preferred embodiment the angle transition is positioned closer to one lateral end of the top sealed seam. This implementation enables the creation of an opening in the pouch that is not too large. This would enable a better and more proper control of the pouring.

[0017] According to a first implementation the upper edge of the top sealed seam can be extending as straight line between its two lateral ends. In this implementation a sign can be drawn on the top sealed seam to indicate the position of the indentation and induce the operator to tear the top sealed seam in one direction.

[0018] According to a second implementation the upper edge of the top sealed seam is stepped making an angle transition between an upper top edge and a lower top edge similar to the angle transition of the bottom of the top sealed seam.

[0019] Preferably the film material of the pouch of the present invention is oriented according to at least one axial direction and the film is oriented in the pouch so that the top sealed seam is parallel to one axial direction of the film. This kind of film guarantees that the tearing of the film is parallel to the top edge of the pouch and not slanted. Consequently the shape of the opening is controlled at each tearing.

[0020] Preferably the film is a multilayer film. The sealed seams of the pouch can be sealed by heating or welding. When the seam is made by heating, the film usually presents a heat sealing layer on one surface (that would correspond to the internal side of the pouch).

[0021] The pouch can contain a pourable food or beverage bulk product. The product can be in the form of powder, granule, liquid or gel.

[0022] According to a preferred embodiment the angle transition of the bottom of the top sealed seam is positioned between the lateral ends of the top sealed seam in order to define a pouring opening that fits in a corresponding refillable container opening. The pouch of the present invention can be specifically designed so that the shape of the opening created by tearing at the top of the pouch delivers a flow of product stored in the pouch that efficiently enters in the inlet of a refillable container.

[0023] The flexible film packaging pouch according such as described hereabove can be particularly used for refilling the powder canisters of a beverage preparation machine.

[0024] According to another preferred embodiment the pouch comprises a dosable product and wherein the an-

gle transition of the bottom of the top sealed seam is positioned between the lateral ends of the top sealed seam in order to define a pouring opening corresponding to a predetermined dose of the dosable product.

[0025] The invention also concerns a method for dosing a dosable product contained in such a flexible film packaging pouch comprising the steps of :

- a) opening the pouch while maintaining the pouch with the opening globally upwardly,
- b) tilting the pouch so that the dose of dosable product next to the opening goes out of the opening,
- c) straightening up the pouch so that a new dose of dosable product takes place next to the opening,
- d) repeating steps b) and c) for each new dosing.

[0026] This embodiment that enables the dosing of the product contained in the pouch is particularly adapted for long pasta like spaghettis.

Brief description of the drawings

[0027] The characteristics and advantages of the invention will be better understood in relation to the following figures :

- Figures 1a, 1b, 1c are perspective, side and front views of a pouch according to the first embodiment of the present invention when it is closed.
- Figure 1 d is a magnified view of the top sealed seam of the pouch of Figure 1 c.
- Figures 2a, 2b are perspective and front views of the pouch of Figures 1a, 1c during opening.
- Figure 3 is a perspective view of the pouch of Figure 1a when opened.
- Figure 4 is a front view of the pouch of Figure 1c during emptying.
- Figure 5a is a front view of a pouch according to the second embodiment of the present invention when it is closed.
- Figure 5b is a magnified view of the top sealed seam of the pouch of Figure 5a.
- Figure 6 illustrates the refilling of a container with a pouch according to the present invention.
- Figure 7a is a perspective view of a top gusset pouch according to the prior art.
- Figure 7b is a perspective view of the top gusset pouch of Figure 7a once opened.
- Figure 8 illustrates a method for dosing a product from a pouch/pouch according to the invention.

Detailed description of the drawings

[0028] Figures 1a, 1b, 1c illustrate a pouch 1 made of flexible film. The pouch presents a bottom 7 presenting a gusset shape. Due to this gusset shape at the bottom the pouch is a stand up pouch. The pouch also presents a front side 2 and a back side 3 ; the gusset extends at

the bottom of these two sides. The pouch comprises a top sealed seam 4. The pouches also presents a longitudinal sealed seam (not illustrated) extending along the back side 3 between the top sealed seam 4 and the gusset at the bottom 2.

[0029] Figure 1d details the top sealed seam 4 : this top sealed seam is horizontally oriented. In the present invention the terms "bottom", "top", "lateral" and "horizontal" are used to describe the relational positioning of features of the invention. These terms should be understood to refer to the pouch in its normal orientation with the gusset at the bottom as shown for example in Figure 1 a. The top sealed seam 4 extends between an upper edge 41 and a bottom edge 42 of the top sealed seam. The upper edge 41 corresponds to upper edge of the pouch. The bottom edge 42 runs parallel to the upper edge of the bag and is stepped : it makes an angle transition 423 between an upper bottom edge 421 and a lower bottom edge 422. The top sealed seam 4 also comprises an indentation 5 positioned at the angle transition 423. As illustrated in Figures 2a, 2b, 3 the indentation is oriented so that when an operator pulls the top sealed seam 4 above the indentation then the flexible film is torn under the upper bottom edge 421 and above the lower bottom edge 422 ; consequently an opening is created in the pouch only under the upper bottom edge 421. Then depending on the choice of the position of the angle transition 423 the width of the opening can be predetermined. Due to the position of the indentation 5 in the angle transition 423, the operator is induced to tear the top sealed seam 4 from the angle transition 423 to one of the lateral end 9 of the pouch. This enables a better control of the size of the opening 6 compared to a pouch in which the indentation is provided at the lateral end of the top and where the operator creates a tear from said lateral side to the centre of the pouch : such an embodiment does not enable a control of the form of the opening.

[0030] The top of the pouch does not present a gusset shape and consequently the simple tearing of the flexible film from the angle transition 423 to the lateral end 9 of the pouch creates an opening 6 of which sides open automatically on their own without the need of manually moving them aside.

[0031] Preferably the end part of the indentation is horizontally oriented so that the tear remains as horizontal as possible. Then the both sides of the pouch are torn parallel to the outside edge of the top end of the bag. This control of the tearing according to the horizontal direction can be reinforced by the use of an oriented film drawn according to at least one axial direction ; the pouch can be manufactured with such a film oriented so that the indentation allows the pouch to be torn in the same direction as the drawing direction of the drawn film.

[0032] Once opened the pouch can be turned to pour the product 8 it contains. The pouch can particularly be used to refill a container e.g. the powder canister 9 of a beverage dispenser preparing beverages by dissolution of a soluble beverage ingredient in water as illustrated in

Figure 6. The size of the opening 6 can be designed so that when the product flows from the opening the product flow presents a size such that it exactly fits in the inlet of the canister 9 and so that no powder falls around the canister making the refilling particularly proper. As illustrated in Figure 1c the angle transition 423 is preferably positioned closer to one lateral end 9 of the top sealed seam in order to create an opening 6 that is not too large ; a too large opening would make pouring less proper as product 8 could overlap the edge of the refillable container inlet.

[0033] According to Figure 1d the upper edge 41 of the top sealed seam is stepped making an angle transition 413 between an upper top edge 411 and a lower top edge 412 similar to the angle transition 423 of the bottom of the top sealed seam. Then the width of the top sealed seam remains globally the same between its two lateral ends and the upper edge of the bag presents a stepped aspect. This configuration makes the indentation particularly apparent and can help the operator to immediately see the indentation and understand where to pull the top sealed seam in order to open the pouch.

[0034] Figures 5a and 5b illustrates another embodiment of the pouch that differs from the pouch of Figures 1a-1d by the upper edge 41 of the top sealed seam : in this alternative embodiment the upper edge 41 of the top sealed seam is extending as a straight line between its two lateral ends. Then the width of the top sealed seam varies between its two lateral ends. This configuration provides the pouch 1 with a nicer aspect since all its lateral sides are straight. In order to help the operator to understand where to pull the top sealed seam in order to open the pouch, a sign 10 can be drawn on the top sealed seam.

[0035] In the illustrated figures the indentation does not go beyond the area of the top sealed seam. In particular the pouch does not comprise any perforation in the non sealed areas that could affect its tightness.

[0036] In the illustrated figures the bottom edge 42 of the top sealed seam is stepped according to an approximately right angle transition 423, yet other angles transition are possible though less preferred.

[0037] Figures 7a illustrates a flexible film pouch 10 presenting gusset shapes at its bottom and its top according to the prior art. Once the top 104 is opened by tearing a corner of the top, an opening 106 is created as illustrated in Figure 7b. This opening is not optimised for an efficient pouring of the product contained in the pouch. First the opening presents a small surface due to the presence of a fold 106b at the lateral end of the opening ; the operator has to pull out this fold to get a larger pouring surface. Secondly the opening presents two points 106a through which the product cannot easily flows even when the fold 106b has been pulled out.

[0038] The pouch of the present invention does not present such drawbacks : the opening created by tearing immediately opens without need of a further manual operation for unfolding the opening and the opening does

not present any point in which the product could be blocked. The bag of the present invention enables a rapid and full emptying.

[0039] Figure 8 illustrates the steps for dosing a product - here spaghetti 11 - from a pack/pouch according to the present invention. The length l between the lateral end of the top sealed seam and the indentation is determined so that a dose d of spaghetti can flow through during step b) when the pouch is tilted after it was opened (step a)). The dose d can correspond to a weight of spaghetti recommended for one person. The length of the opening l can be varied depending on the product stored in the pack/pouch. In step c) another dose of spaghetti can take place in front of the opening 6 and be dispensed again.

[0040] The pouch of the present invention presents the advantage of reducing the number of steps to get easily access to the product.

[0041] Another advantage of the present invention is that it secures the transfer of product from a pack/pouch to another container by enabling a homogeneous pouring of bulk materials.

Claims

1. A flexible film packaging pouch (1) comprising:

- a sealed seam bottom (7) in gusset shape,
 - a top sealed seam (4),
- wherein :

- the top sealed seam (4) is horizontally oriented and extending between an upper edge (41) and a bottom edge (42) of the top sealed seam,
- said bottom edge (42) of the top sealed seam runs parallel to the upper edge of the pouch and is stepped making an angle transition (423) between an upper bottom edge (421) and a lower bottom edge (422),
- the top sealed seam (4) comprises an indentation (5) positioned at the angle transition (43) and oriented so that the flexible film can be torn under the upper bottom edge (421) and above the lower bottom edge (422) from the angle transition (423) to the lateral end of the top sealed seam.

2. A flexible film packaging pouch according to Claim 1, wherein the bottom edge (42) of the top sealed seam is stepped according to an approximately right angle transition (423)

3. A flexible film packaging pouch according to Claim 1 or 2, wherein the angle transition (423) is positioned closer to one lateral end of the top sealed seam.

4. A flexible film packaging pouch according to any one of the precedent claims wherein the upper edge (41) of the top sealed seam is extending as a straight line between its two lateral ends.

5. A flexible film packaging pouch according to any one of Claims 1 to 3, wherein the upper edge (41) of the top sealed seam is stepped making an angle transition (413) between an upper top edge (411) and a lower top edge (412) similar to the angle transition (423) of the bottom of the top sealed seam.

6. A flexible film packaging pouch according to any one of the precedent claims wherein the film material is oriented according to at least one axial direction and the film is oriented in the pouch so that the top sealed seam is parallel to one axial direction of the film.

7. A flexible film packaging pouch according to any one of the precedent claims wherein the film is a multi-layer film.

8. A flexible film packaging pouch according to any one of the precedent claims wherein all the sealed seams of the pouch are sealed by heating or welding.

9. A flexible film packaging pouch according to any one of the precedent claims wherein the angle transition (423) of the bottom of the top sealed seam is positioned between the lateral ends of the top sealed seam in order to define a pouring opening (6) that fits in a refillable container opening.

10. A flexible film packaging pouch according to any one of the precedent claims wherein the pouch comprises a dosable product and wherein the angle transition (423) of the bottom of the top sealed seam is positioned between the lateral ends of the top sealed seam in order to define a pouring opening (6) corresponding to a predetermined dose of the dosable product.

11. A flexible film packaging pouch according to any one of the precedent claims wherein it contains a pourable food or beverage product (8).

12. Use of a flexible film packaging pouch according to any one of the precedent claims for refilling the powder canisters of a beverage preparation machine.

13. Method for dosing a dosable product contained in a flexible film packaging pouch according to Claim 10 comprising the steps of :

- a) opening the pouch while maintaining the pouch with the opening globally upwardly,
- b) tilting the pouch so that the dose of dosable product next to the opening goes out of the open-

ing,

c) straightening up the pouch so that a new dose of dosable product takes place next to the opening,

d) repeating steps b) and c) for each new dosing. 5

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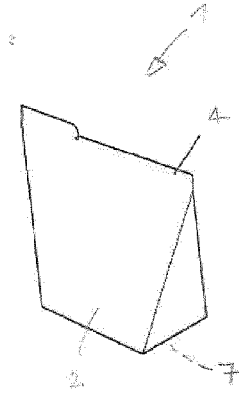


Fig. 1a

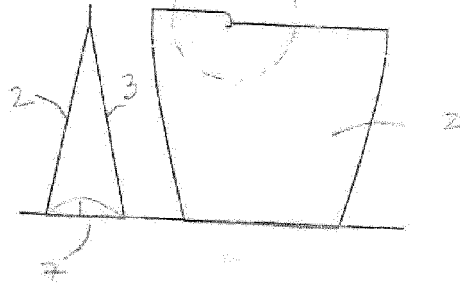


Fig. 1b

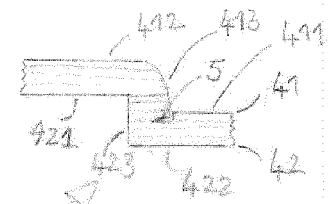


Fig. 1c

Fig. 1d

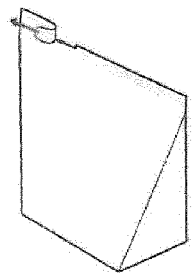


Fig. 2a

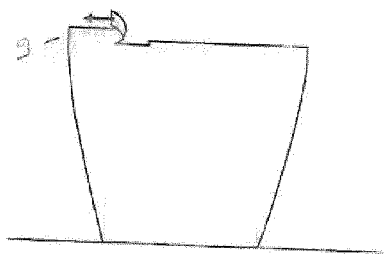


Fig. 2b

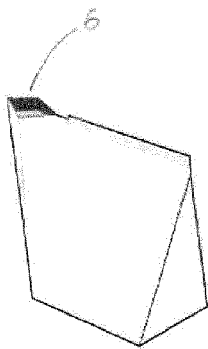


Fig. 3

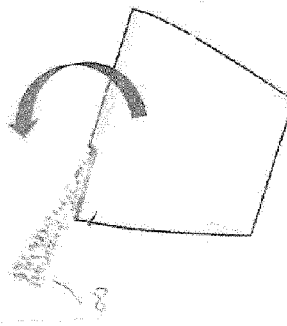


Fig. 4

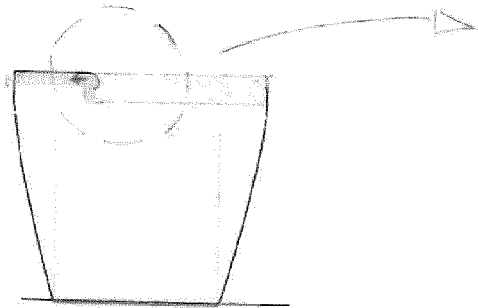


Fig. 5a

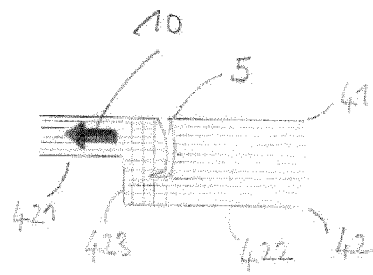


Fig. 5b

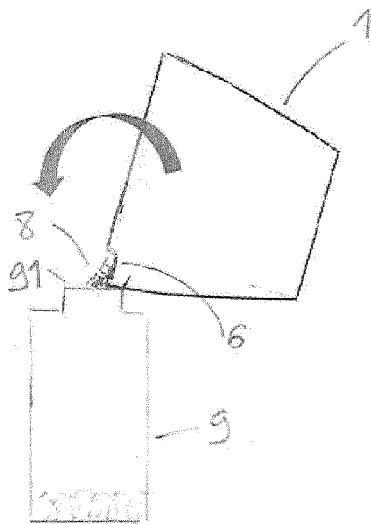


Fig. 6

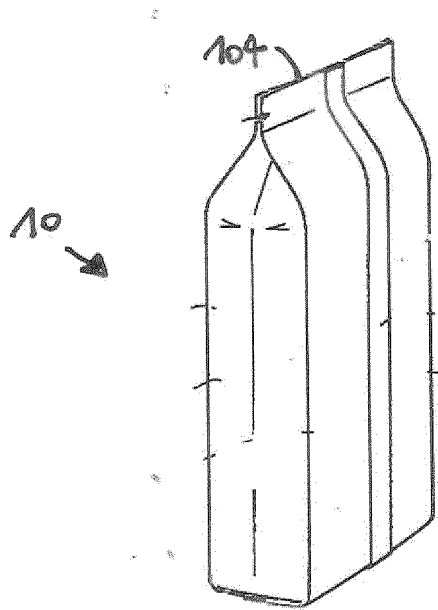


Fig. 7a

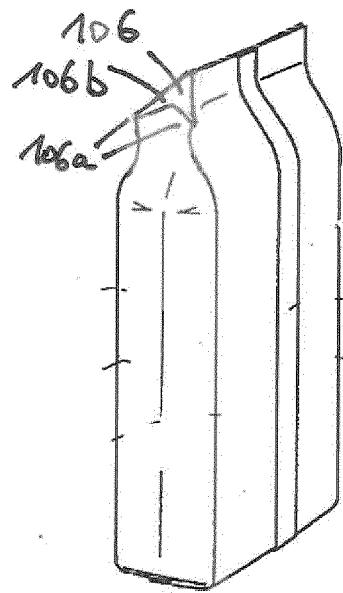
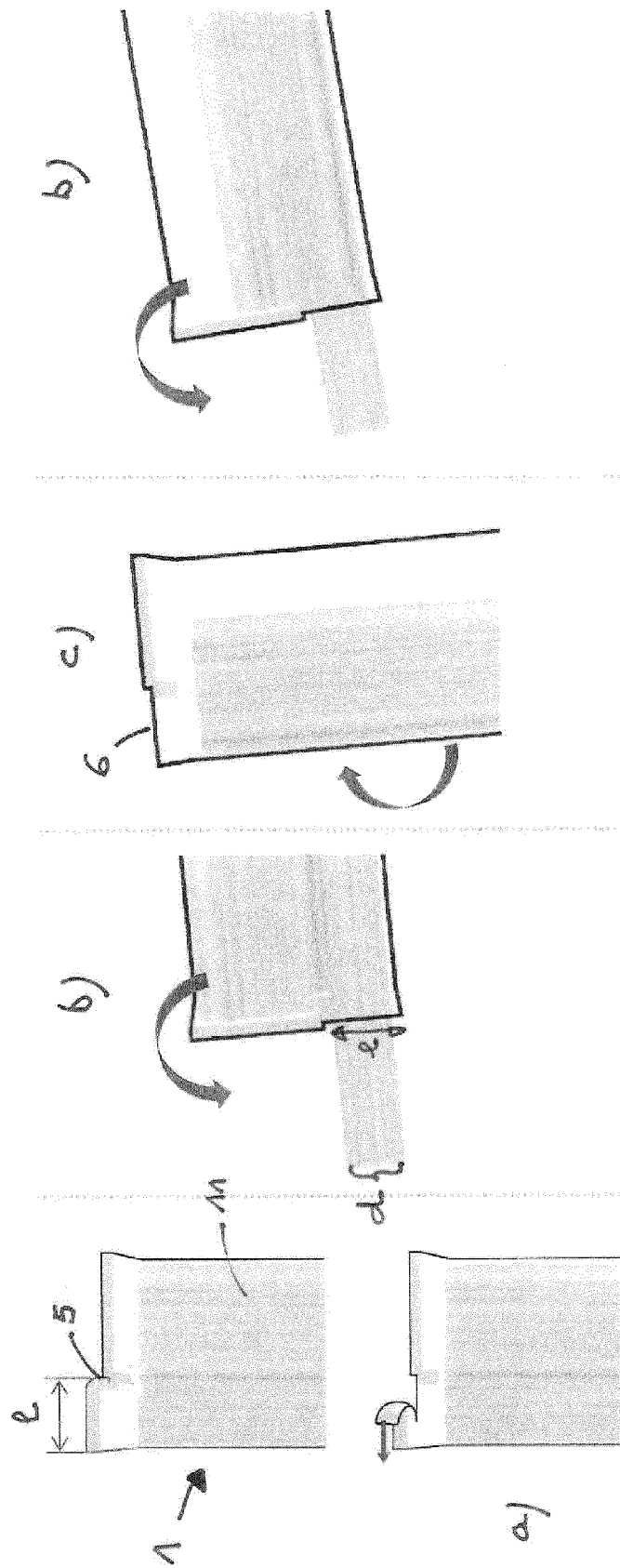


Fig. 7b





EUROPEAN SEARCH REPORT

Application Number
EP 13 15 3842

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	EP 1 223 114 A1 (DANISCO FLEXIBLE SCHUEPBACH AG [CH]) 17 July 2002 (2002-07-17) * paragraph [0014] - paragraph [0017]; figures 2-3 *	1-4,6-13	INV. B65D75/58
X	DE 195 01 369 A1 (ROVEMA GMBH [DE]) 25 July 1996 (1996-07-25) * column 3, line 34 - line 48; figures 2, 5 *	1-3,5-13	
			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 20 June 2013	Examiner Derrien, Yannick
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			

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

EP 13 15 3842

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The members are as contained in the European Patent Office EDP file on
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20-06-2013

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1223114	A1	17-07-2002	NONE	

DE 19501369	A1	25-07-1996	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82