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(54) **Quick-assembly divider for packing bottles on their sides in boxes and a box provided with such dividers**

(57) A divider (35, 36) used inside boxes (30) designed to contain bottles (40) horizontally on their sides or other fragile items which must be kept separate in order to prevent damage during transport. The box (30) comprises a die-cut cardboard sheet (31) with four bottom flaps (32), four side walls (33) and four upper closing flaps (34). The divider is made from a single-piece cardboard die-cutting which has a bottom gluing strip (37) for gluing to one of the side walls of the box (30), folding creases (38) and precuts (39) which enable crossways opening, when seen in cross-section, of the divider (35, 36) where a flap (41) of the divider (35, 36) when in position forms a horizontal divider between a pair of bottles (40) one on top of the other and where the other flap of the divider (35, 36) when in position forms a vertical divider between a pair of bottles (40) lying side by side inside the box (30).

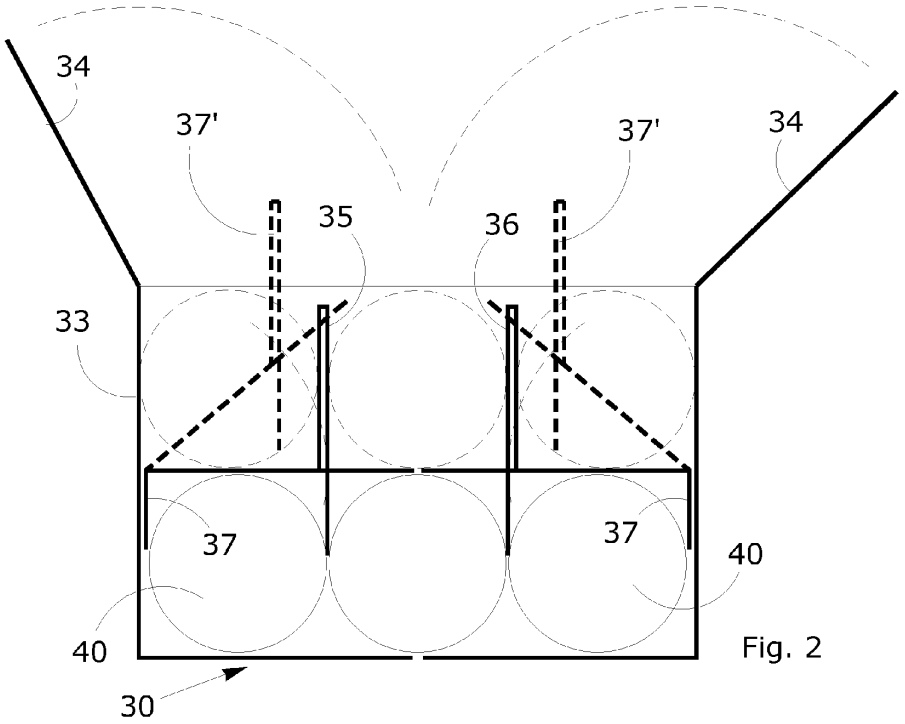

Fig. 2

EP 2 687 452 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to a quick-assembly divider for packing bottles on their sides in boxes.

[0002] In particular the present invention relates to a box container suitable for packing items inserted on their sides provided with divider elements of the self-erecting type, that is, dividers designed as a single piece with the box body so that there is no need to add further, separate divider elements as would be the case with known solutions.

[0003] The box container provided with self-erecting divider elements according to the present invention has, inside the box, fixed divider elements which enable the user to fill the pack with bottles on their sides using a divider structure made from ready-shaped cardboard to be used for the self-erecting of cardboard packing containers.

[0004] These cardboard containers are generally used for the transport or storage of glass bottles containing liquids of various types such as wine, beer, beverages, oil or similar or for transporting and storing a plurality of other products such as jars of jam, tinned food and food products in general.

[0005] This invention can be applied in the packaging industry and in particular in the sector for packaging bottles.

BACKGROUND ART

[0006] It is known that in the glass bottle packaging industry divider elements are widely used to keep glass bottles in packages separate from each other and to stop them knocking against each other and breaking.

[0007] These divider elements are generally used in the traditional cardboard containers used for packing products of various types such as jars of jam, tinned food and food products in general and in particular glass bottles containing liquids of various types such as wine, beer, beverages, oil or similar.

[0008] In some cases side-by-side packing boxes are used and these have the various shape types currently available on the market. The bottle divider elements are formed partly by the shape of the box itself and partly by divider elements inserted separately. In other cases the bottle divider elements consist solely of dividers inserted separately. The divider elements are inserted by hand. Most commonly, the box is formed and then the divider parts, where present, provided by the shape of the box are positioned. Where necessary a first divider element is inserted. Next, the first layer of bottles is inserted followed by other divider elements. The second layer of bottles is inserted and the box is then closed. This method presents a series of problems for the end user who has to prepare the box and the divider elements to be inserted in two separate operations. The user loses valuable time in erecting the box which arrives folded flat from the box maker, inserting the first row of bottles, inserting the divider elements and then inserting the second row of bottles. A further problem is that the user has to provide separate storage for the various elements making up the single item of packaging.

[0009] It is clear that these operations form a considerable part of managing the bottle packaging and packing process. They also have a considerable effect on the costs of final packaging especially if one considers the large number of bottles which have to be packed by wine making companies.

[0010] Other known solutions use side-by-side boxes with complex shapes which obtain the separator elements from the form of the box itself. In these cases there is a considerable waste of cardboard necessary to obtain the box shape and a considerable expenditure of time in erecting a box which is particularly complex.

[0011] Examples of this type are provided in the known solutions proposed in patents FR2799436 and CN200974633 where the separator elements require the box to be erected by hand only and where many steps are required to form the finished packaging. An additional problem is that where the bottles are separated from each other and from the two layers below by less than 50% of their surfaces, the position of the bottles will be dictated by the structure of the box. This means that the bottles can only be packed bottom-to-bottom between the two layers because this is the only way of preventing them from touching each other and preventing the related problems which would otherwise ensue.

[0012] A further solution on the market employs vertical packaging where both the box and the bottle are in the vertical position. The separators can be obtained from the shape of the box, ready-assembled inside the box and can be inserted automatically or by hand.

[0013] The resulting appearance obtained is substantially different for that of boxes with the bottles packed on their sides because these are nothing other than vertical boxes which when packed will be laid on their sides at 90°.

[0014] This solution requires the use of automated packaging lines of varying degrees of complexity.

DESCRIPTION OF THE INVENTION

[0015] The present invention provides quick-assembly dividers for packing bottles on their sides in boxes which make it possible to eliminate or at least reduce the drawbacks described above.

[0016] The invention also provides quick-assembly dividers which can be applied to boxes for packing bottles on their sides which is very simple to make and above all is very easy to use for the personnel employed in packing the bottles.

[0017] This is achieved by means of a quick-assembly divider for boxes for containing bottles whose characteristics are described in the main claim.

[0018] The dependent claims of the solution herein describe advantageous embodiments of the invention.

[0019] The principal advantages of this solution, in addition to all those which derive from its simple, easy to manufacture design, primarily concern the fact that the operators employed in packaging operations can use divider elements which are already part of the folded box provided by the box maker. This means that in order to prepare the box for packing the operator only has to open the folded box which arrives from the box maker and insert the first row of bottles. Next, the operator positions the divider forming part of the box by opening it from its folded position where the divider flaps are partially glued inside the box and then filling the box with any remaining bottles.

[0020] The box container provided with quick-assembly dividers elements for packing bottles on their sides according to the present invention substantially comprises one or preferably two shaped, cardboard, divider elements which are partially glued inside the two opposite flaps of the box and where the divider elements are shaped to enable them to be positioned by simply pulling them into position by hand.

[0021] These dividers can have different shapes but are in any case elements which self-erect during filling of the box with bottles and thereby overcome the difficulties experienced with the traditional systems for positioning dividers of the known types.

DESCRIPTION OF THE DRAWINGS

[0022] Other features and advantages of the invention will become clear on reading the description given below of one embodiment, provided as a non-binding example, with the help of the accompanying drawings, in which:

- Figures 1 and 2 show cross-sections of a cardboard bottle box in the first and second steps of filling respectively.
- Figures 3, 4 and 5 show the three steps for assembling the box and dividers according to the present invention.

DESCRIPTION OF ONE EMBODIMENT OF THE INVENTION

[0023] In the annexed figures, the numeral 30 indicates in its entirety a box container or a box for packing bottles on their sides which, according to the present invention, comprises quick-assembly dividers.

[0024] Figures 1 and 3 show that the box 30 is of the horizontal type and comprises a die-cut cardboard sheet 31, generally but not necessarily made from corrugated cardboard, with four bottom flaps 32, four side walls 33 and four upper closing flaps 34 and where the die-cut sheet is made using traditional manufacturing methods and can have the various shapes normally used on the market.

[0025] The figures also show the lines along which the flaps are folded in order to erect the box 30.

[0026] According to the present invention, the cardboard box 30 designed for containing bottles on their sides, has divider elements, in this case the two divider elements 35 and 36 which are fixed on the two opposite inner sides of the box, in this case the two larger sides 33 and 33' of the box.

[0027] Each of the two divider elements 35 and 36 has a bottom gluing strip 37, folding creases 38 and precuts 39 which define a flap 41 designed to form a horizontal divider element and where the crease lines enable the formation of a self-erecting structure which is easy to position on the first row of bottles 40 and enables the second row of bottles to be positioned on top of the first.

[0028] Figures 1 and 2 show that the bottom strips 37 of the divider elements 35 and 36 are glued to the horizontal, middle, inside sectors of the walls 33 and 33' of the box. Figure 4 shows other gluing points 37'. Figure 4 and 5 show that the upper part of the dividers is folder again through 180° onto the lower part and that these parts are glued to the gluing points 37'. Thanks to this layout the dividers 35, 36 initially remain adjacent to the two larger inner sides of the box in a substantially vertical position as shown in Figure 1.

[0029] This enables the box 30 to be formed so that it has a substantially flat form suitable for stocking prior to selling to wine producers. At this stage the divider elements 35 and 36 remain in the flattened-position inside the overall dimensions of the box.

[0030] To use the divider elements it is sufficient to open the box in the traditional manner ready to insert the first row of bottles 40 as shown in Figure 1 and then start to extend the divider elements as shown in Figures 10 and 11 by rotating them inwards towards the bottom with the hinge strip corresponding to the upper folding crease to the gluing strips 37.

[0031] In this way the self-erecting dividers form the upper, horizontal cover for the first row of bottles, and the vertical dividing walls enable the separation of each bottle from the one alongside it.

[0032] The final position is shown by the continuous line in Figure 2 which shows that all the bottles remain on their sides in the horizontal position, each bottle being separated from the one next to it so that they cannot knock against each other and break during transport of the package.

[0033] The invention as described above refers to a preferred embodiment. It is nevertheless clear that the invention is susceptible to numerous variations which lie within the scope of its disclosure, in the framework of technical equivalents.

Claims

1. A divider (35, 36) for boxes (30) designed to contain bottles (40) horizontally on their sides or other fragile

items which must be kept separate in order to prevent damage during transport where the box (30) comprises a die-cut cardboard sheet (31) with four bottom flaps (32), four side walls (33) and four upper closing flaps (34), **characterised in that** the divider is made from a single-piece cardboard die-cutting which has a bottom gluing strip (37) for gluing to one of the side walls of the box (30), folding creases (38) and precuts (39) which enable crossways opening, when seen in cross-section, of the divider (35, 36) where a flap (41) of the divider (35, 36) when in position forms a horizontal divider between a pair of bottles (40) one on top of the other and where the other flap of the divider (35, 36) when in position forms a vertical divider between a pair of bottles (40) lying side by side inside the box (30).

2. A divider (35, 36) according to claim 1, **characterised in that** the bottom gluing strip (37) is glued to the inner, middle section of a wall (33, 33') of the box in order to ensure that the divider (35, 36) is fixed to the box (30) and is in the flattened position against the wall (33, 33') prior to erection of the box (30).

3. A divider (35, 36) according to any one of the preceding claims, **characterised in that** one of the divider flaps is folder again through 180° along one of the crease lines (38) and is glued internally.

4. A divider (35, 36) according to any one of the preceding claims, **characterised in that** it is made from corrugated cardboard.

5. A divider (35, 36) according to any one of the preceding claims, **characterised in that** each of the larger side walls of the box is connected to a divider element and **in that** when in position the open dividers have a cross configuration where the horizontal portions are substantially coplanar and the vertical portions of the dividers are substantially parallel to each other.

6. A quick-assembly box (30) for holding a plurality of bottles (40) on their sides on at least two rows one on top of the other and where the box (30) is obtained starting from a die-cut cardboard sheet (31) with four bottom flaps (32), four side walls (33) and four upper closing flaps (34) where the box is **characterised in that** each of the larger side walls is connected, prior to box erection, to a divider (35, 36) according to any one of the preceding claims.

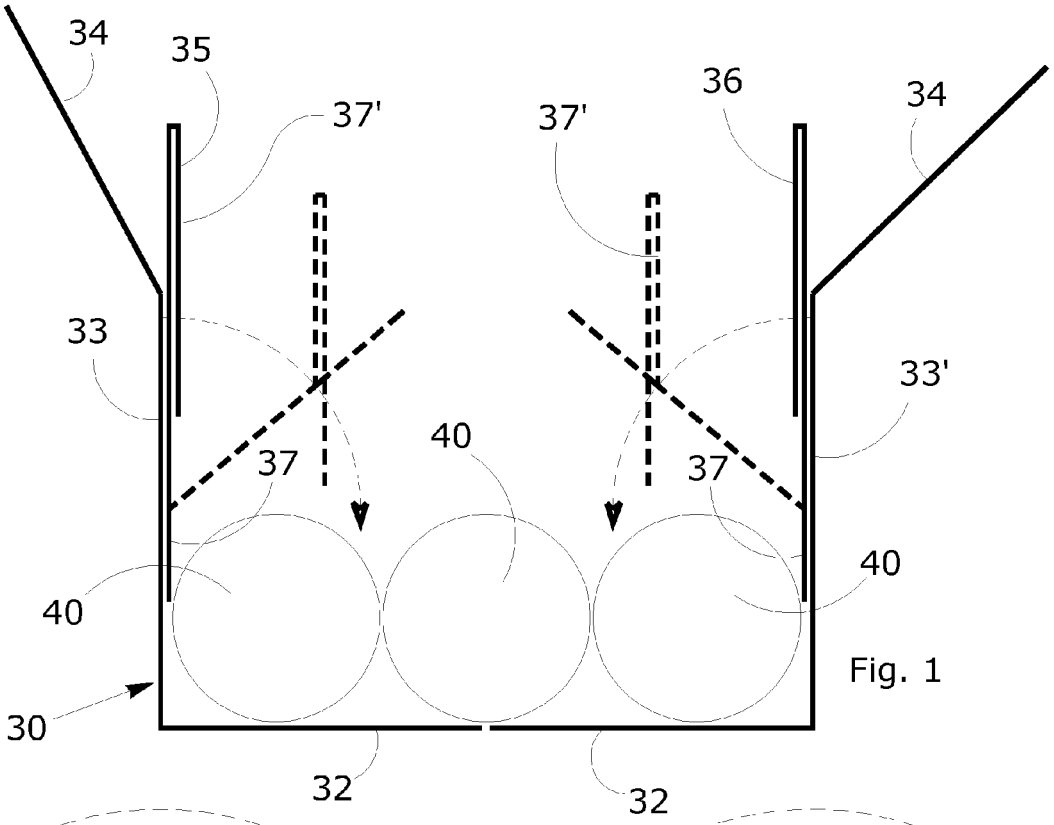
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Fig. 1

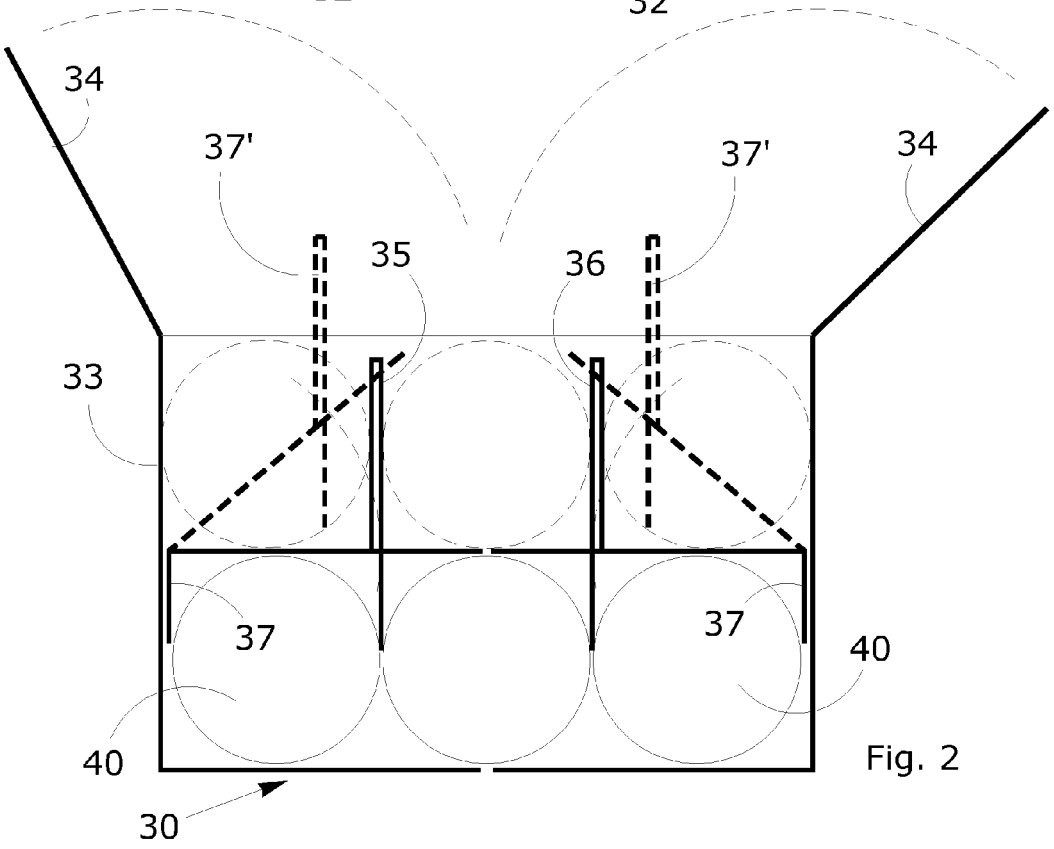
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Fig. 2

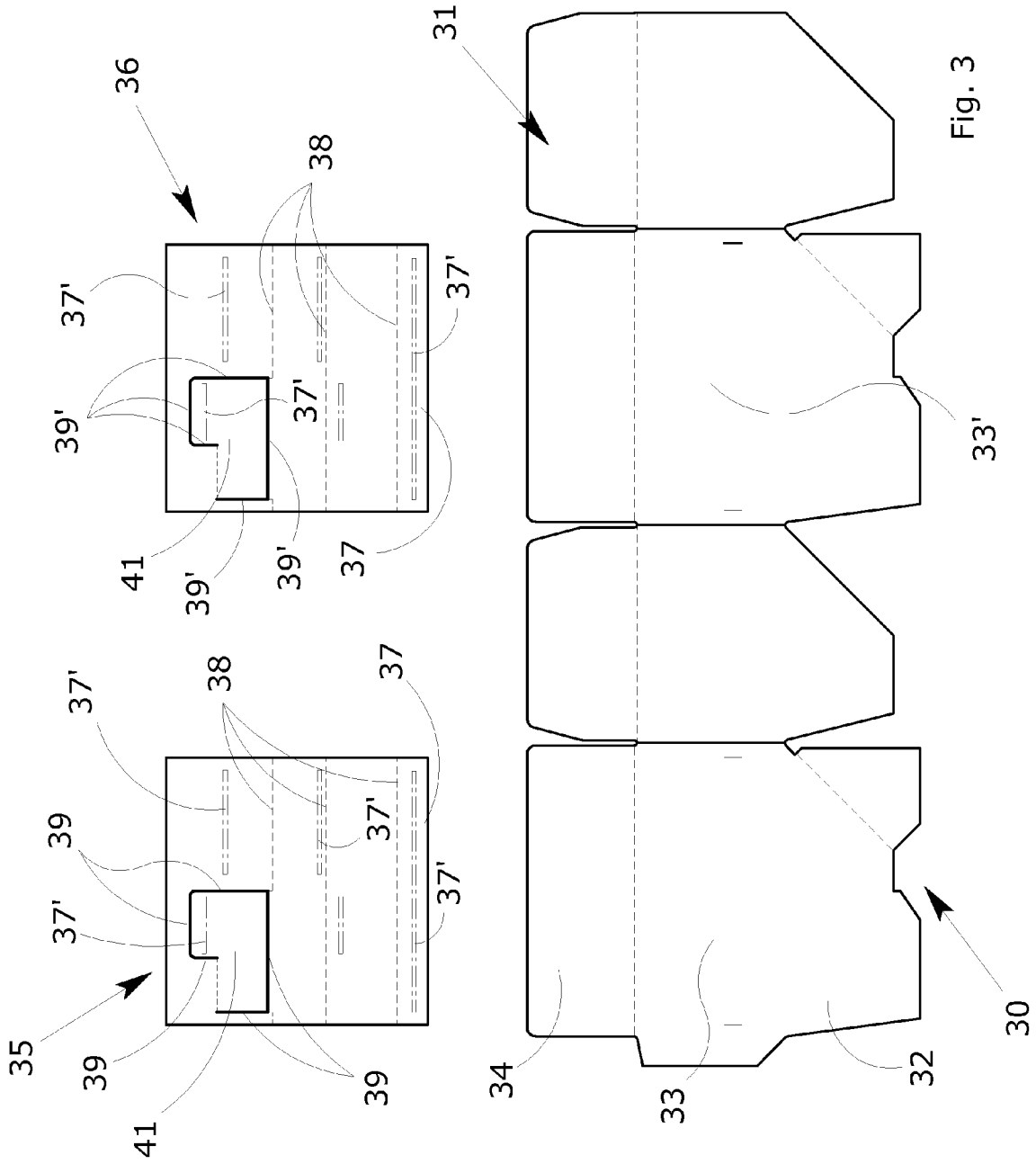

Fig. 3

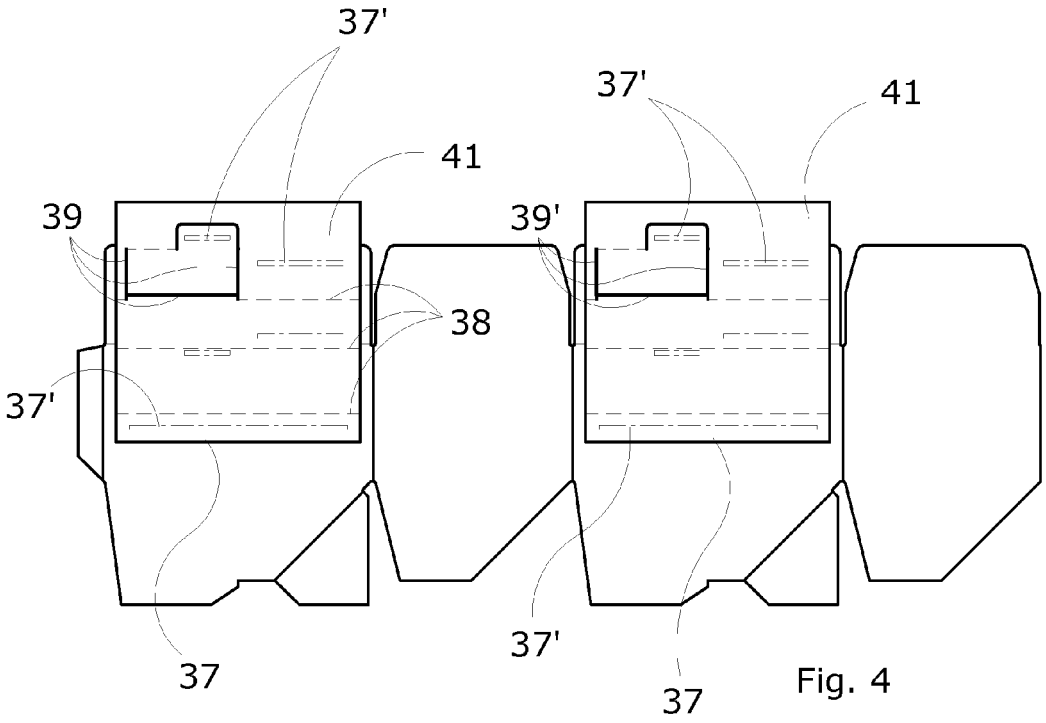

Fig. 4

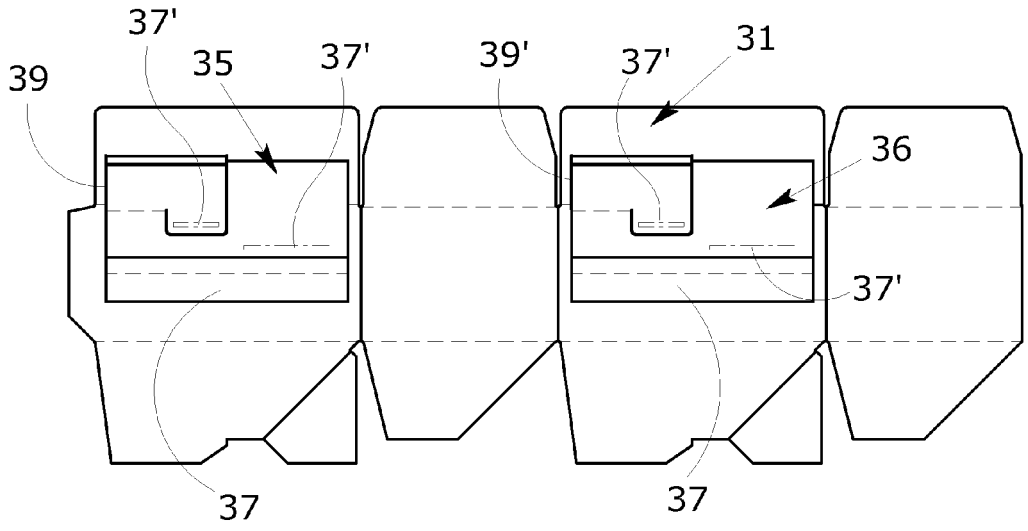

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 13 17 7499

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 October 2013	Piolat, Olivier

CATEGORY OF CITED DOCUMENTS

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

REFERENCES CITED IN THE DESCRIPTION

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