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(54) **Cardboard box with built-in pallet structure**

(57) Cardboard box which is assembled from a single sheet, and comprises of two larger sides, two smaller sides positioned in an aligned and alternating manner, and emerging from the larger sides where from lower edge of the smaller sides (2) various consecutive extensions (4) emerge, separated by crease lines (5), which are used for the assembly of prismatic supports (15), and from the lower edge of the larger sides (1) means of holding the prismatic supports (15) emerge, in addition to flaps for the assembly of the bottom of the box. Thanks to the sheet it is possible to join the box and the pallet part in a single piece, achieving an optimised use of the cardboard, a reduction in the storage space, the design is easy to assemble and capable of supporting the contents of the box.

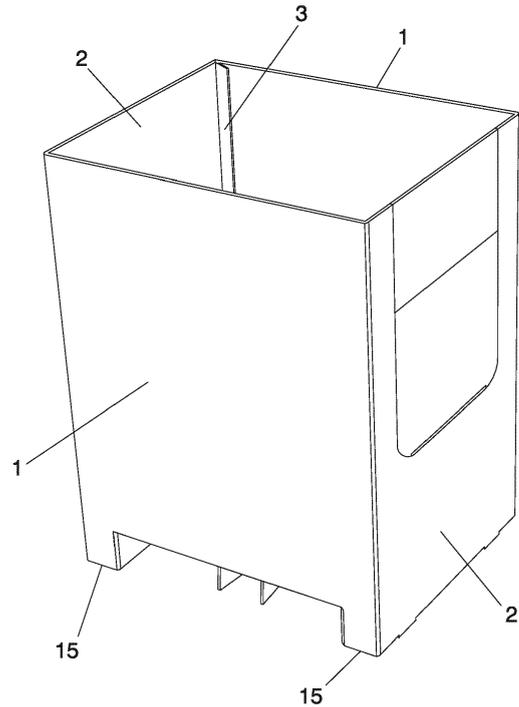


FIG. 7

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Description**OBJECT OF THE INVENTION**

[0001] Object of the present invention is a cardboard box with built-in pallet structure, i.e., refers to a box which at the same time acts as a pallet, a pallet understood as a horizontal platform which is used to store, transport and distribute goods as unit loads, and which disposes of incorporated supports.

[0002] The present invention is characterised by the special configuration and design of the sheet of cut carton board from which a section is separated for the manufacture of the cardboard box object of the invention, such that a box is obtained that has the double function of that of a box and that of a pallet, all of this in a built-in way, creating a single object obtained from a single sheet of cardboard.

[0003] As a result, the present invention is found within the field of boxes, and more specifically amongst those boxes which dispose of associated means which carry out the functions of a pallet, in order to facilitate their transport.

BACKGROUND OF THE INVENTION

[0004] Until now it has been possible to consider pallets as rigid horizontal platforms, generally made out of wood, with their height reduced to the minimum compatible with their handling using forklift trucks, transpallets or any other appropriate lifting mechanism, used as a base to group, stack, store and handle and transport goods and loads in general.

[0005] Pallets are known, which instead of being made out of wood have been made out of corrugated cardboard, and which in some cases attempts have been made to associate them with cardboard boxes, however, these structural solutions have various problems.

[0006] On the one hand, although the pallet was made out of corrugated cardboard, it was a specific piece, separated from the box itself, which involves in one way, specific handling and separate transport. The manipulation had to be carried out by the packaging manufacturers, also leading to a stock of pallets, which implies occupying a great deal of space in the warehouses.

[0007] Some examples of corrugated cardboard boxes which act as pallet boxes are:

FR 2663004 shows a cardboard box which in its lower part disposes of means which allow it to be configured as a pallet. However, it is not obtained from a single sheet of cardboard, it being necessary for additional moulded plastic elements to be used which have feet and ridges.

[0008] In patent EP0283006 supports are used which are stuck to the lower part of the boxes, but in no way could they be considered as forming a cardboard box

with built-in pallet structure incorporated from a single sheet.

[0009] Patent FR2548139 discloses a cardboard box which can be configured as a pallet box from one sheet of cardboard. But as it can be seen in the figures, it is necessary to use an additional sheet, which duly folded defines a stored structure which is complemented with the defined structure which we could define as the main sheet.

[0010] In W00007888, although it is stated that it is constructed from a single sheet, it can be observed in the figures that the supports, or lower struts that define a cavity where the forks of a forklift truck can be inserted, are independent pieces which are attached separately.

[0011] As a result, all the known pallet boxes in the state of the art, have as a common characteristic the fact that they dispose of a specific or additional piece to form the part of the pallet, such as supports, and as a consequence the object of the invention is to overcome said difficulty by designing a box made out of corrugated cardboard which is formed from a single sheet, which disposes of an incorporated built-in pallet structure.

DESCRIPTION OF THE INVENTION

[0012] The invention of a cardboard box with an incorporated built-in pallet structure, is characterised in that it is formed from a single sheet, defined in such a way that in addition to obtaining the assembly of the box itself, at the lower part a pallet is assembled, defining supports, a free lower space which allows the arms of a forklift truck to pass through, and a reinforced structure which ensures its structural stability.

[0013] The sheet, from which the cardboard box with built-in pallet structure object of the present invention is assembled, is a sheet of cut corrugated carton board, comprising:

- Larger sides
- Smaller sides in aligned and alternating positions

[0014] From the smaller sides and at their lower ends emerge a succession of extensions or consecutive flaps which are used to assemble the supports. In a possible embodiment the number of extensions or flaps is four, forming a skid with a rectangular prismatic cross section, although this factor is a mere design option, and never restricting.

[0015] In a possible embodiment, on the free edge of the last extension some tabs emerge which together with slots made on the fold line of the lower edge of the smaller sides with the first of the extensions, act to attach and secure the assembly of the supports.

[0016] From the larger sides and on the lower edges and at their ends there are some projections of equal size to the cross section of the supports, said projections at one of their edges disposing of a joining flap with the supports.

[0017] Additionally, and in a complementary way, in the event of wanting to reinforce the structural resistance of the box, from the larger sides and at their lower end emerge a first and a second flap positioned in a consecutive or successive way, with a series of cuts and crease lines which form a reinforced structure in the lower central part of the box.

[0018] The first flap which emerges from the lower edge of each larger side acts to form the bottom of the box, while the second extension, positioned after the first flap, acts to form a reinforced structure at the bottom of the box and is placed in the centre.

[0019] Thanks to these characteristics presented by the boxes object of the invention, it is possible to:

- On the one hand join the box and the part which performs the function of pallet in a single piece
- Obtain an optimised use of the cardboard, given that it practically disposes of the same development as if it were a single box.
- As it is possible to distribute the sheet in a folded form from which the box with an incorporated built-in pallet structure is formed, it occupies little space in the warehouse.
- Disposes of a structure which gives it sufficient structural resistance to support its contents.
- It is very easy to assemble, it being possible for the assembly of the box with an incorporated built-in pallet structure to be carried out by the consumer of the packaging.
- The central structure could be left out, for which handling is simplified even more.

DESCRIPTION OF THE DIAGRAMS

[0020] To complete the description that is being made and with the object of assisting in a better understanding of the characteristics of the invention, in accordance with a preferred example of practical embodiment thereof, accompanying said description as an integral part thereof, is a set of drawings wherein, by way of illustration and not restrictively, the following has been represented:

In figure 1, the sheet of cut carton board, with the crease lines necessary for the assembly of the box with an incorporated built-in pallet structure object of the present invention.

In figure 2, the sheet of folded cardboard is shown, as it is distributed.

In figure 3, the first step is shown for the assembly of the box object of the invention.

In figure 4, the complete assembly of the bottom is shown.

In figure 5, the beginning of the assembly of the supports is shown,

In the figure 6, represented in perspective is the complete lower view of the assembly of the box.

In figure 7, the completely assembled pallet box ob-

ject of the invention can be seen.

PREFERRED EMBODIMENT OF THE INVENTION

[0021] Proceeding in view of the figures mentioned, a way of preferred embodiment of the invention is stated, but in no way restrictive.

[0022] The object of the invention is a cardboard box assembled from a single sheet of cardboard, in such a way that a box is obtained which disposes of an incorporated built-in pallet structure, which allows the box to be used as if it were positioned on a pallet.

[0023] In figure 1, we see the sheet of cut carton board which allows the assembly of the box with an incorporated built-in pallet structure object of the present invention. It is a single sheet, and comprises of two larger sides (1), two smaller sides (2) positioned in an alternating and consecutive manner. On the free edge of one of the sides, in the case represented on the edge of a smaller side (3) a flap (3) for closing the assembly is found.

[0024] From the lower edge of the smaller sides (2) emerge four consecutive extensions (4), separated by crease lines (5), which allow the folding of one extension with respect to the consecutive one. Said four extensions (4) are used for the assembly of prismatic supports (15) (figure 6) with a rectangular cross-section.

[0025] At the free end of the last extension (4) there are closing tabs (7), which for the assembly of the supports, said tabs are made to fit into the slots (6) defined on the folding or crease line which separates the smaller side (2) of the first extension (4).

[0026] Optionally, in a complementary way to the previous structure, from the lower edge of the larger sides (1), for better assembly of the supports, and in one possible embodiment, there are projections (9) of equal surface to the cross section of the supports (15) (figure 6), and so that on one of its sides there is a joining flap (10) with the prismatic supports. In addition there are flaps which will be used for the assembly of the bottom of the box. In such a way that having assembled the supports (15) (figure 6) the rest of the bottom of the box is left elevated with respect to the ground, which allows the arms of a forklift truck to be passed through.

[0027] In the case represented, the sheet of cardboard shown allows the assembly of a box with an incorporated built-in pallet structure, reinforced in its central part, which as previously mentioned is an alternative execution, and in no way restrictive, given that it will depend on the structural resistance which the user wants to give the box.

[0028] As such, from the lower border of the larger sides (1) a first flap emerges (14), which acts to assemble the bottom of the box. After the first flap it is possible to have a second flap (13), both with a series of cuts and crease lines which allow the assembly of a reinforced structure or central support of the box, without limitation of the lower gap for the arms of a forklift truck to be passed through.

[0029] In one possible configuration for the assembly

of the reinforced structure at the bottom of the box, on the first flap (14) defined in the central part of said first flap (14) there is, a strip (11) joined by a folding line to the rest of the first flap (14). This strip (11) at its free edge has at least one transverse slot (12) on the free edge.

[0030] On the other hand, on the end flap (13) there is a central section (13.1) defined, which has adjacent to each side two end sections (13.2), the central section (13.1) is joined to the first flap (14) by a crease line (13.5), while the end sections (13.2) are joined to the central section by lateral crease lines (13.3). On the upper edges of the end sections (13.2), there are transverse slots (13.4) made with a depth equal to the depth of at least the slot (12) of the strip (11), in such a way that once the end sections (13.2) are fitted into the strip (11) through the respective slots the reinforced structure is assembled (see figures 5 and 6).

[0031] In figure 2, it is shown how delivery is made with the distribution of the sheet from which the cardboard box with an incorporated built-in pallet structure is assembled, with the volume and space occupied being very similar to that of a normal box, while now with the sheet shown the box itself and the pallet part is distributed, which results in a saving in material and space for storage and distribution.

[0032] In figure 3, firstly it is shown how to proceed with the folding of the flaps (14) and (13), and in the case of disposing of reinforced structures such as those shown in the assembly of the same. In figure 4, it is shown how the bottom of the box looks assembled, together with the reinforced structure, thanks to the strip (11) and the end flap (13).

[0033] In figure 5, the assembly of a first skid is shown, by way of the folding of the four extensions (4), around the projections (9) from the lower edge of the larger sides (1), before the definitive assembly of the supports fitting, the flaps (10) into the interior of the supports, finally fitting the tabs (7) into the slots (6) formed on the crease line between the lower edge of the smaller side and the first of the extensions (4).

[0034] In figure 6, it is possible to observe the final assembly of the box, appreciating how on its lower part prismatic supports (15) are left defined, which leave the rest of the structure of the box elevated, in such a way that allows the arms of a forklift truck to be passed through. In the event that it were necessary it is possible to equip the bottom of the box with a support structure to reinforce its structural resistance, but leaving a path free for the arms of a forklift truck to be passed through.

[0035] In figure 7, the assembled box can be observed, where it is possible to appreciate the supports (15), and how between them there is a space is left that is elevated with respect to the ground, which allows the lifting forks to be introduced, which means the box can function as a pallet box.

[0036] The essential nature of this invention is not altered with variations in materials, shape, size and availability of the component elements, described non restric-

tively, with this being sufficient for its reproduction by an expert.

5 Claims

1. Cardboard box with built-in pallet structure which is assembled from a single sheet which comprises of two larger sides (1), two smaller sides (2) positioned in an alternating and consecutive manner, from where at the lower edge of the smaller sides (2) four consecutive extensions (4) emerge, separated by crease lines (5), which are used for the assembly of prismatic supports (15), and from the lower edge of the larger sides (1) flaps emerge for the assembly of the bottom of the box, **characterised in that** the box disposes of a reinforced structure at the bottom in such a way that from the lower edge of the larger sides (1) a first flap emerges (14), to which a second flap (13) follows, where a series of folds and slots are included with the aim of creating a reinforced structure at the bottom of the assembled packaging.
2. Cardboard box with built-in pallet structure, according to claim 1, **characterised in that** the number of consecutive extensions (4) which emerge from the lower edge of the smaller sides (2) is four.
3. Cardboard box with built-in pallet structure, according to claim 1 or 2, **characterised in that** at the free end of the last extension (4) there are closing tabs (7), which for the assembly of the supports, said tabs are fitted into the slots (6) defined on the folding or crease line which separates the smaller side (2) of the first extension (4).
4. Cardboard box with built-in pallet structure, according to claim 1, **characterised in that** from the lower edge of the larger sides (1) means of holding the prismatic supports (15) emerge consisting of projections (9) of equal surface to the cross section of the supports (15) where said projections on one of their sides disposes of a joining flap (10) with the supports.
5. Cardboard box with built-in pallet structure, according to claim 1, **characterised in that** the reinforced structure at the bottom of the packaging is formed with a strip (11), defined on the first flap (14) and is joined by a folding line to the rest of the first flap (14). This strip (11) on its free edge disposes of at least one transverse slot (12), while on the end flap (13) there is a central section (13.1) defined, which has adjacent to each side two end sections (13.2), on the upper edges of which there are transverse slots (13.4) made which at least fit into the slot (12) of the strip (11) of the flap (14).
6. Cardboard box with built-in pallet structure, accord-

ing to claim 1, **characterised in that** on the free edge of one of the larger or smaller sides a closing flap (3) of the assembly is found.

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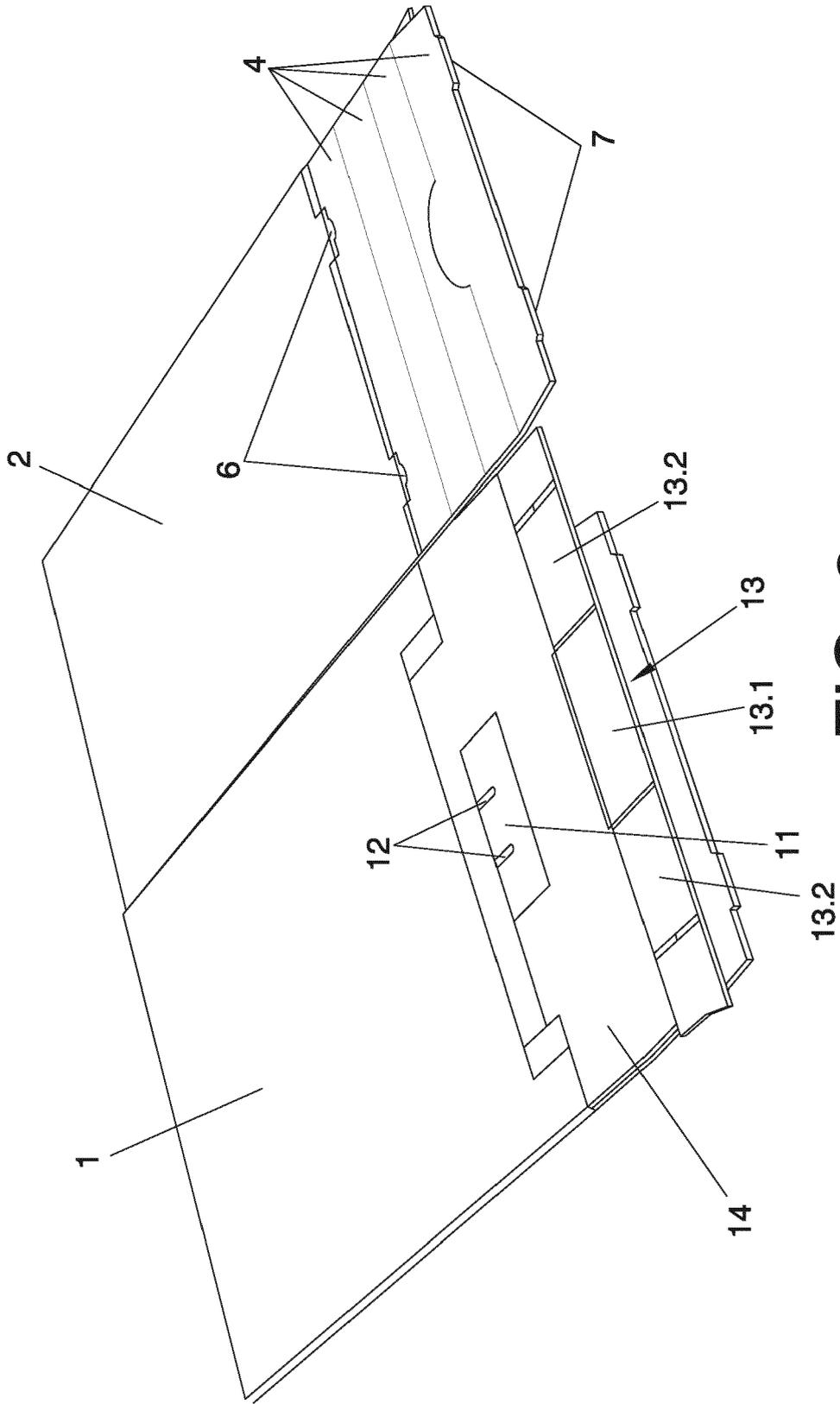


FIG. 2

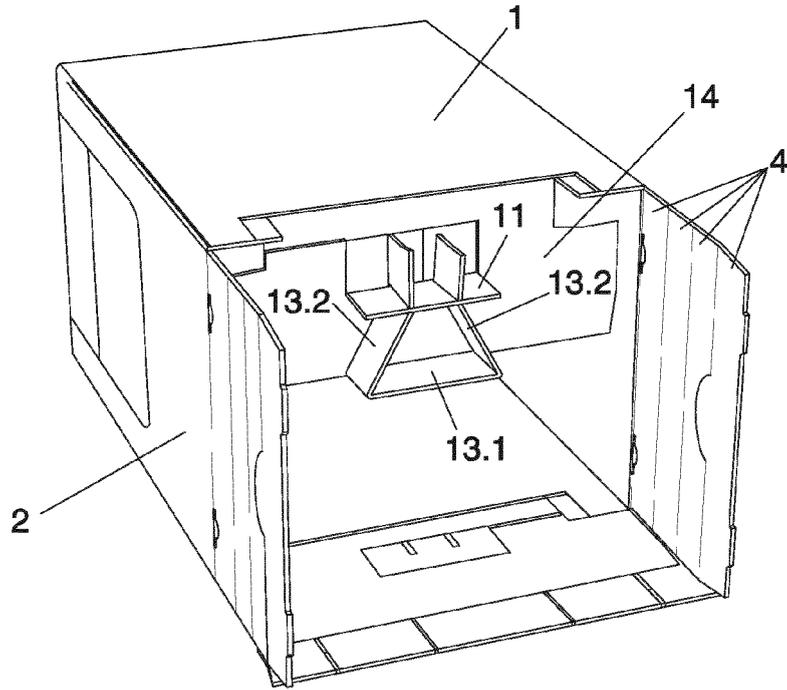


FIG. 3

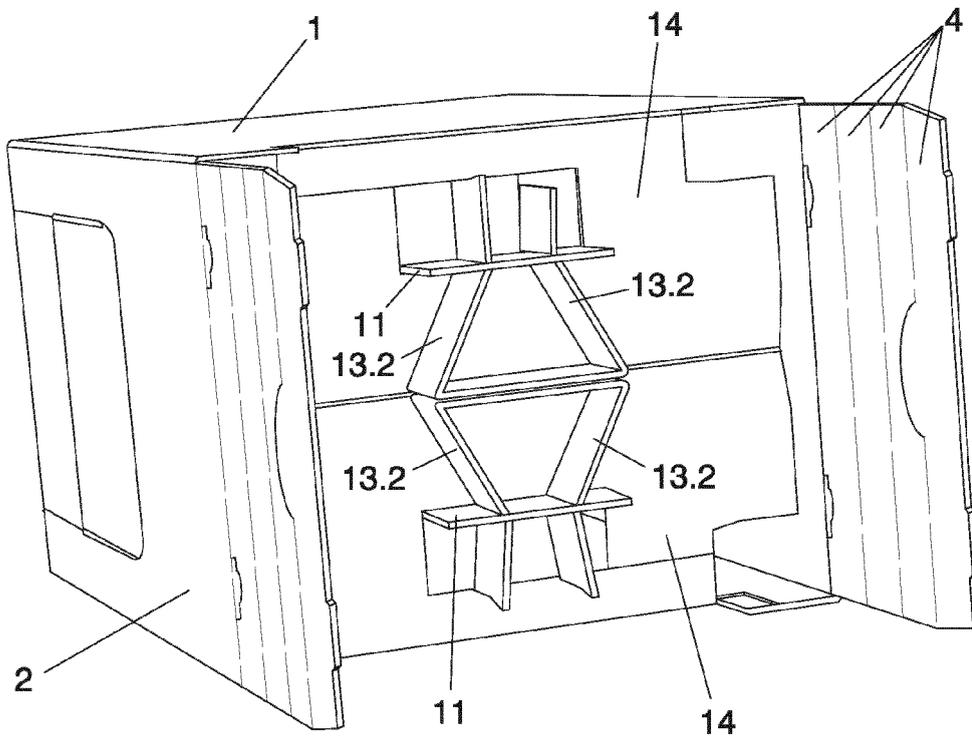


FIG. 4

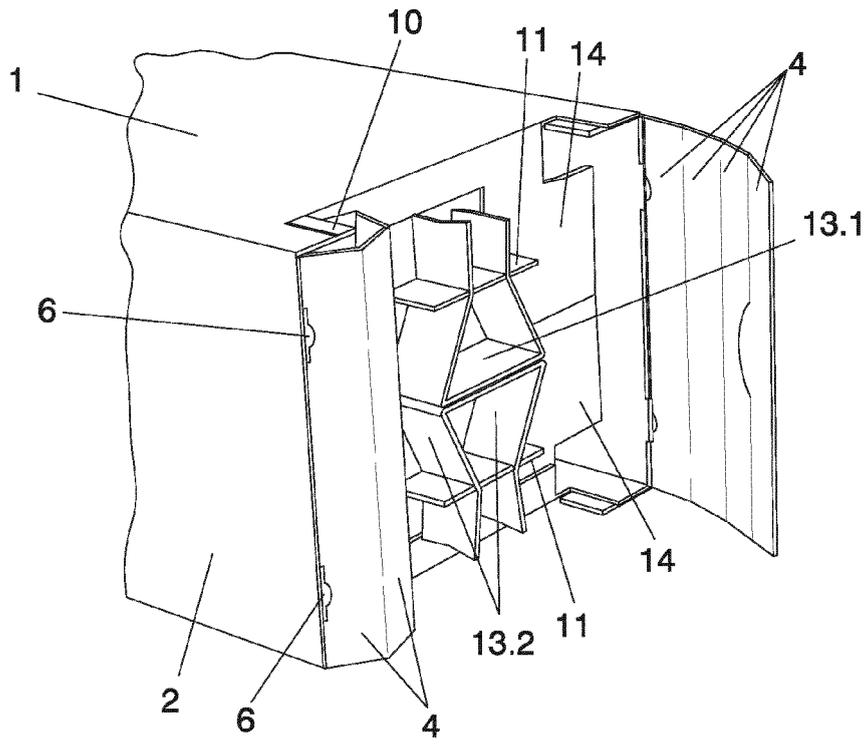


FIG. 5

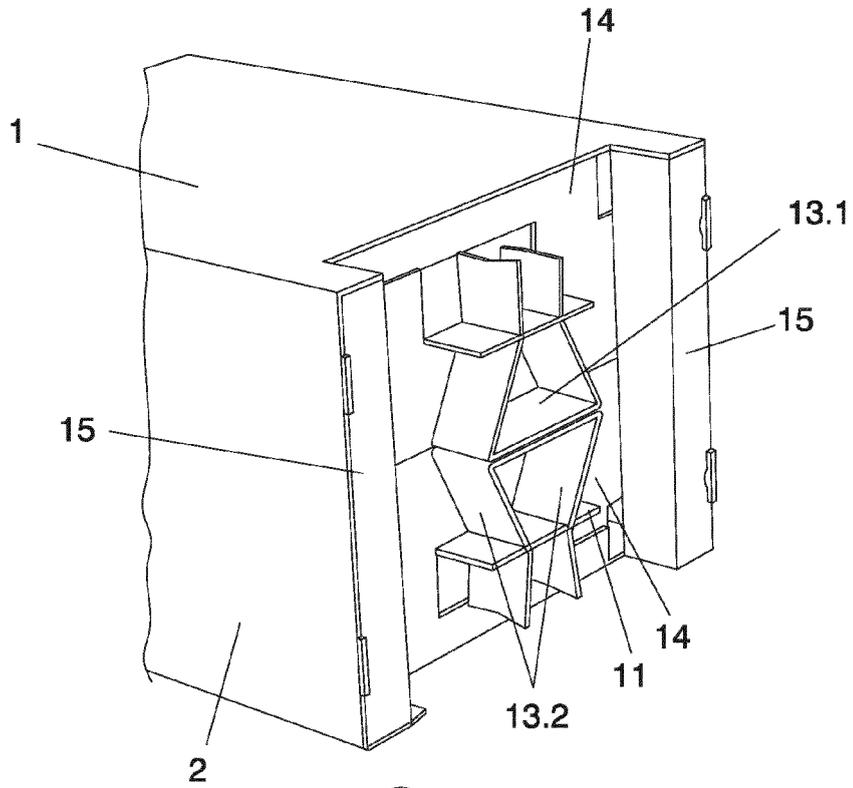


FIG. 6

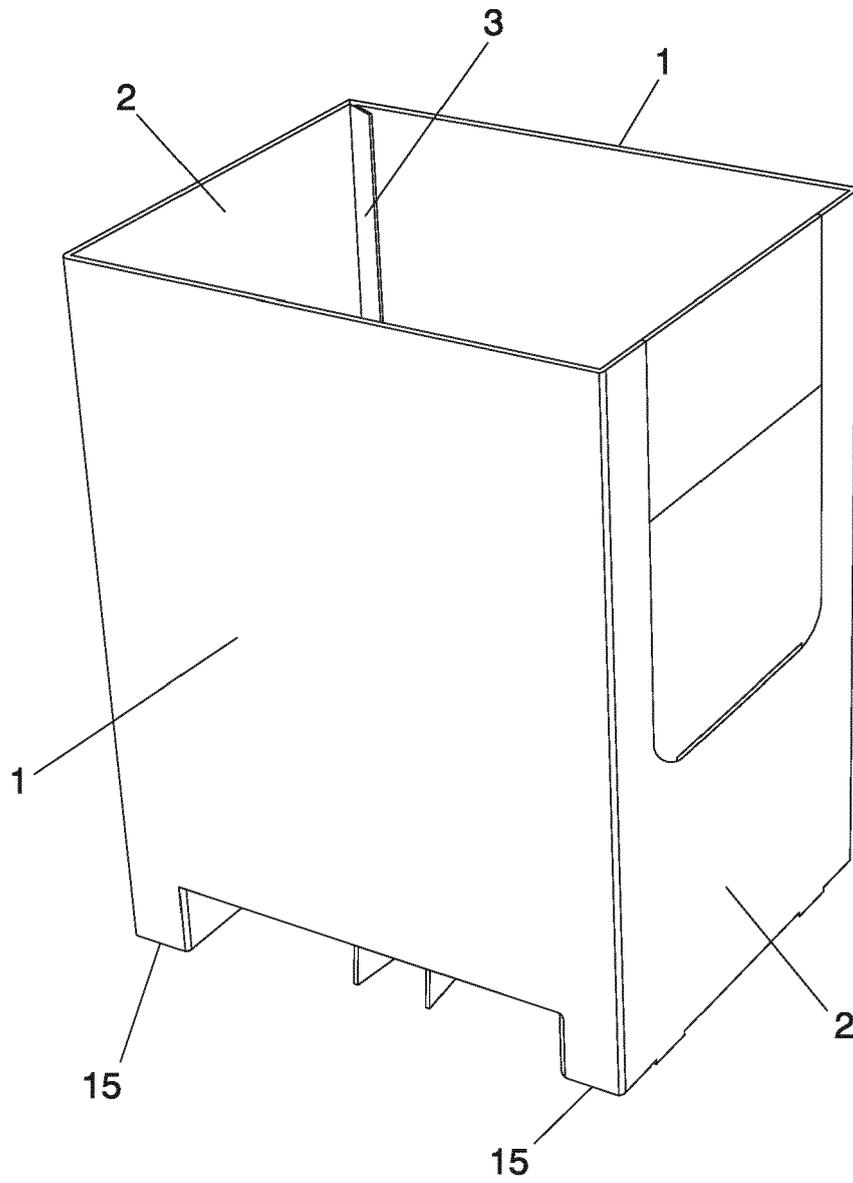


FIG. 7



EUROPEAN SEARCH REPORT

Application Number
EP 11 38 2292

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| Munich | | 13 June 2012 | Piolat, Olivier |
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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