



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 476 369 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**02.11.2006 Bulletin 2006/44**

(51) Int Cl.:  
**B65D 77/04** <sup>(2006.01)</sup> **B65D 77/06** <sup>(2006.01)</sup>  
**B31B 3/00** <sup>(2006.01)</sup>

(21) Application number: **03739448.3**

(86) International application number:  
**PCT/EP2003/000860**

(22) Date of filing: **29.01.2003**

(87) International publication number:  
**WO 2003/068628 (21.08.2003 Gazette 2003/34)**

(54) **PALLET WITH BOXES**

PALLETE MIT SCHACHTELN&#x9;  
PALETTE AVEC BOITES

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
HU IE IT LI LU MC NL PT SE SI SK TR**

- **DE TURCKHEIM, Bernard**  
**F-45160 Olivet (FR)**
- **BARRON, Edouard**  
**F-45470 Trainou (FR)**

(30) Priority: **13.02.2002 FR 0201909**  
**28.11.2002 FR 0214957**

(74) Representative: **Hirsch & Associés**  
**58, avenue Marceau**  
**75008 Paris (FR)**

(43) Date of publication of application:  
**17.11.2004 Bulletin 2004/47**

(73) Proprietor: **MARS, INCORPORATED**  
**McLean, Virginia 22101-3883 (US)**

(56) References cited:  
**EP-A- 0 681 970 EP-A- 0 726 205**  
**DE-A- 19 602 688 FR-A- 2 774 941**

(72) Inventors:  
• **POIRIER, Jean-Luc**  
**F-45000 Orleans (FR)**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

**EP 1 476 369 B1**

## Description

[0001] The invention relates to a novel box, in particular a palletizable box, to the pallet comprising this box, and to their methods of manufacture.

[0002] Various types of packaging are known such as primary packages contained in other packages called secondary packages. It is known, for example, to pack a cardboard box (secondary package) with units (primary package) such as pouches, in particular flexible pouches of the uniformly flat type, also referred to as three-sided or four-sided sealed pouches (pillow pouch), or of the "doypack" type.

[0003] This secondary package (box) is placed on the shelf directly and sold with the primary packages (pouches) inside it. A package is thus obtained called a "multipack" which can hold a single variety or multiple varieties, the different pouches containing different products.

[0004] This type of packaging poses a number of problems.

[0005] The first problem is the problem of palletization. Two standards are at present applied in the trade. In the first case, the characteristic dimensions of the pallet are 800 x 1200 mm, whereas in the second case the characteristic dimensions are 1000 x 1200 mm.

[0006] The number of pouches per box varies greatly, depending on the type of product and on how the latter is marketed. It is possible to have 7 pouches per box for a 1 pouch per day use. The number of pouches can also vary for the same product, for example during sales promotions (with 2 extra pouches free).

[0007] In the prior art, the pouches are arranged vertically in the box. Thus, the width of the box is imposed by the dimensions of the pouches, which dimensions are chosen to be unique. The height of the box is likewise imposed. However, the length of the box varies depending on the number of pouches in it (the "case count"). Problems are therefore bound to be encountered with this type of box in terms of optimizing the pallet configuration since a box of variable length cannot optimize the occupation of the surface of the pallet for different "case counts". The distribution or organization of the boxes in layers on the pallet has to be modified when this "case count" is modified.

[0008] Alternatively, DE-A-196 02 688 teaches to lay the pouches flat in the bottom part of the box in transport condition.

[0009] The second problem encountered is the manufacture of such boxes. They conventionally comprise side walls, a base and a lid, the base being integral with the side walls, whereas the lid can be added. For the manufacture of such boxes, use is made of a mandrel (metal preform) which shapes the material of the box by folding in a cavity. The cavity and the mandrel have, as characteristic dimensions, the width and length of the box. Thus when the length of the box changes, it is also necessary to change the manufacturing tool. This increases the manufacturing difficulties and the final cost.

[0010] The invention therefore relates to a secondary package which contains a plurality of flexible primary packages or pouches and which permits maximum occupation of the surface of the pallet and is easy to manufacture, irrespective of the number and type of pouches.

[0011] The invention thus makes available a pallet comprising a plurality of boxes, these boxes containing pouches, wherein the pouches are arranged flat in relation to the pallet and the boxes have widths and lengths corresponding to dimensions, which are submultiples of 400 x 600 mm.

[0012] According to one embodiment, the pouches are of the doypack type and are placed head-to-tail in the boxes.

[0013] According to another embodiment, the pouches are of the uniformly flat type and are partially superpositioned.

[0014] According to a further embodiment, the boxes open at their top.

[0015] According to another further embodiment, the boxes open at their side.

[0016] According to one embodiment, the boxes are obtained by folding with a mandrel, the mandrel having the same width and length as the boxes.

[0017] According to another embodiment, the pallet measures are 800 x 1200 mm.

[0018] According to a further embodiment, the pallet measures are 1000 x 1200 mm.

[0019] The invention also relates to a box containing pouches, said box having width and a length corresponding to dimensions which are submultiples of 400 x 600 mm, the pouches being arranged flat in the plane defining said widths and lengths.

[0020] According to one embodiment, the pouches are of the doypack type and are placed head-to-tail in the box.

[0021] According to another embodiment, the pouches are of the uniformly flat type and are partially superpositioned.

[0022] According to another embodiment, the box opens at the top.

[0023] According to a further embodiment, the box opens at the side.

[0024] According to another further embodiment, the box is obtained by folding with a mandrel, the mandrel having the same width and length as the box.

[0025] The invention also relates to a method of manufacturing a pallet according to the invention, comprising the following steps :

- (i) provision of boxes containing pouches according to the invention;
- (ii) orientation of said boxes in such a way as to have the pouches flat in relation to the pallet; and
- (iii) palletization of said boxes.

[0026] The invention also relates to a method of manufacturing a box according to the invention, comprising the following steps:

- (i) provision of an empty box having at least two dimensions corresponding to dimensions, which are submultiples of 400 x 600 mm;
- (ii) filling of said box with pouches, the plane of the pouches corresponding to the plane defining said at least two dimensions; and
- (iii) closure of the box.

**[0027]** According to one embodiment, step (i) comprises a step of folding with the mandrel, the mandrel having the same at least two dimensions as the box.

**[0028]** According to another embodiment, step (ii) comprises inserting the pouches horizontally.

**[0029]** The invention also relates to a device for carrying out the method of manufacture according to the invention, comprising

- (i) a conveyor belt delivering empty boxes, the boxes being arranged on the conveyor belt in a plane containing said at least two dimensions;
- (ii) at least one conveyor belt delivering pouches and arranged substantially perpendicular to the conveyor belt delivering empty boxes, said pouches being arranged flat on said conveyor belt;
- (iii) an arm arranged above said conveyor belts and comprising a gripper device at its end, said arm alternating between a position for gripping the pouches and a position for filling the box; and
- (iv) a device for closing the box.

**[0030]** The invention is now described in greater detail in the following description and with reference to the attached drawings, in which:

- Figure 1 shows a box according to a first embodiment of the invention;
- Figures 2a and 2b show a pallet loading configuration;
- Figure 3 shows a cross section through a box according to the invention;
- Figure 4 shows the web before being folded into the box according to the first embodiment;
- Figure 5 shows a device for filling the box according to the invention;
- Figure 6 shows a box according to a second embodiment of the invention;
- Figure 7 shows the web before being folded into the box according to the second embodiment.

**[0031]** Figure 1 depicts a package according to a first embodiment. The package is a cardboard box 1 containing a plurality of pouches 2a, 2b, 2c, etc. These are arranged horizontally in the box. The latter thus has a width and a length which are fixed by the characteristics of the pouch and therefore remain fixed irrespective of the number of pouches in the box. Alternatively, once the dimensions of the box have been chosen, it is possible to adapt those of the pouch. This box can therefore have

dimensions "on the base" or on a pallet which are identical and which can in particular correspond to dimensions, which are submultiples of 400 x 600 mm. The dimensions are submultiples of 400 x 600 mm when they result from the division of the 400 x 600 mm rectangle. Thus, the following dimensions are submultiples: 300 x 400 mm (division by 2); 200 x 400 mm (division by 3); 200 x 300 mm (division by 4); 130 x 300 mm (division by 6); 200 x 200 mm (division by 6); 150 x 200 mm (division by 8); 100 x 300 mm (division by 8); 130 x 200 mm (division by 9); 130 x 150 mm (division by 12); 100 x 200 mm (division by 12); 100 x 150 mm (division by 16). These dimensions permit optimized stacking of the pallet in layers since it is always possible to reconstruct a base block measuring 400 x 600 mm. A pallet configuration is shown in Figures 2a and 2b which corresponds to 800 x 1200 mm and 1000 x 1200 mm respectively, with a "base module" of 400 x 600 mm.

**[0032]** Such a box with pouches arranged flat when it is palletized therefore affords advantages in terms of palletization. As has been seen above, it is adapted to the two current standards. A variable number of pouches causes only the height of the box to vary, but not the layer or pallet base configuration which remains the same. A variation of the height of the box changes only the number of layers (which incidentally is already variable from one country to another, the maximum admissible heights of pallets varying from 2 m to 1.60 m). Automatic palletization is thus easy to implement because no control operation is any longer necessary, only the programming of the number of layers. The logistics are therefore improved.

**[0033]** The pouches situated in the box are of a conventional type. They can be of the uniformly flat type or preferably of the "doypack" type (namely a square pouch having a surface forming a base and allowing the pouch to stand upright). The pouches of the doypack type will be preferred. Referring to Figure 3, this shows a cross section through a package according to the invention. The doypack pouches are again labelled 2a, 2b, 2c, etc. They alternate in a head-to-tail arrangement. This permits better utilization of the available volume in the box. Indeed, the at least partial superpositioning of the doypack pouches makes it possible to increase the number of pouches per box (uniformly flat pouches losing a little useful volume at the four edges) and thus ultimately the number of pouches per pallet. The partial superpositioning of the pouches also permits adaptation of the box with respect to the length of the pouches, thus making it possible to allow for the characteristic dimensions of, for example, 130 x 200 mm (or any other submultiple of 400 x 600 mm close to the dimensions of the pouch in question). Such a doypack arrangement provides an interlocking effect.

**[0034]** The manufacture of the box is conventional; the box is obtained by folding a cardboard web 3, the layout of which is shown in Figure 4. The box 1 is formed by folding of a cardboard web 3. The latter has zones cor-

responding to the different parts of the box. The zone indicated by hatching is the zone which will be pushed firmly by the mandrel (not shown) into the corresponding cavity or impression (alternatively it is also possible to surround the mandrel with the web). This zone corresponds here to the base 11 of the box. It is flanked by two sides 12 and 13. The base 11 and the sides 12 and 13 are provided with flaps 11a and 11b, 12a and 12b, 13a and 13b, respectively. These flaps are adhesively bonded to one another to form the box, the flaps 11a, 12a and 13a, on the one hand, and 11b, 12b and 13b, on the other, thus forming the third and fourth sides 14 and 15, respectively. The box is then filled with pouches by a suitable machine, the pouches being generally inserted flat. The lid 16 (attached before or after filling) is then closed. It is also possible to make the lid integral with the other faces of the box, in which case the lid 16 is in the continuation of one of the flaps 11a or 11b.

**[0035]** Figure 5 shows a device for filling the box according to the first embodiment. It comprises, for example, a conveyor belt 21 delivering empty boxes and, perpendicularly, two conveyor belts 22 and 23 delivering pouches (arranged flat). According to a preferred variant, the pouches are placed the opposite way round on the conveyor belts in order to achieve a head-to-tail arrangement in the box. The device additionally comprises an arm 24 which rotates above the box and the pouches. The pouches are gripped, for example, with the aid of suction cups 25a and 25b arranged at the end of the arm. The arm thus alternately fills the box with pouches from one conveyor belt and then from the other conveyor belt. A device (not shown) for closing the box is also used in a conventional manner.

**[0036]** Figure 6 shows a package according to a second embodiment. The package is a cardboard box 1 containing a plurality of pouches 2a, 2b, 2c, etc. These are arranged horizontally in the box. In contrast to the first embodiment, the opening is via a face of the box. Alternatively, it is possible to turn the box a quarter of a turn in such a way that the opening is at the top, the pouches then being arranged vertically (it is this variant which is preferred for the second embodiment). The dimensions of the box remain given for the pouches being arranged flat. In the second embodiment, the box is used (preferred variant) in another sense than that for the palletization, in contrast to the first embodiment. In the second embodiment, the pouches can have markings on their edge which makes it easier for consumers to identify them, particularly in the case of a multi-pack containing multiple varieties.

**[0037]** The manufacture of the box according to the second embodiment is conventional; the box is obtained by folding a cardboard web 4, the layout of which is shown in Figure 7. The box 1 is formed by folding a cardboard web 4. The latter has zones corresponding to the different parts of the box. The zone indicated by hatching is the zone which will be pushed firmly by the mandrel (not shown) into the corresponding cavity or impression. This

zone corresponds here to the base 11 of the box. It is flanked by two sides 12 and 13, the latter also being flanked by the upper part 16. The base 11 and the side 13 and the top 16 are provided with flaps 11a and 11b, 13a and 13b, 16a and 16b, respectively. These flaps are adhesively bonded to one another to form the box, the flaps 11a, 13a and 16a, on the one hand, and 11b, 13b, and 16b, on the other, thus forming the third and fourth sides 14 and 15, respectively. The box is then filled with pouches by a suitable machine. The box is filled via the opening side (here 12), the pouches this time being introduced vertically (for example via the top, the box being turned). In this case, the opening side is closed after filling and not the top, as in the first embodiment.

**[0038]** The filling of these boxes according to the second embodiment is done as with the boxes according to the first embodiment, the device described with reference to Figure 5 also being adapted.

**[0039]** The cardboard box can be replaced by a box made of another rigid material, such as polymer materials. In the invention, "box" means any package that can be stacked on a (rigid) pallet. Generally, these boxes are of substantially parallelepipedal shape. Other shapes distinct from a rectangle are also suitable, especially when they permit paving of the surface of the pallet. The boxes otherwise have the conventional characteristics of such secondary packages.

**[0040]** The pouches can contain various types of products, in particular pastes, granules, liquids, which may or may not be foods. These products will preferably be moist food products. The pouches otherwise have the conventional characteristics of such primary packages.

**[0041]** The invention is not limited to the embodiments which have been described, but instead it is open to numerous variants easily accessible to the skilled person.

## Claims

1. Pallet comprising a plurality of boxes (1), these boxes having widths and lengths corresponding to dimensions which are submultiples of 400 x 600 mm and containing pouches (2a, 2b, 2c, 2d), wherein the pouches are arranged flat in relation to the pallet.
2. Pallet according to Claim 1, in which the pouches are of the doypack type and are placed head-to-tail in the boxes.
3. Pallet according to Claim 1, in which the pouches are of the uniformly flat type and are partially superpositioned.
4. Pallet according to any one of claims 1 to 3, in which the boxes open at their top.
5. Pallet according to any one of Claims 1 to 3, in which the boxes open at their side.

6. Pallet according to one of Claims 1 to 5, measuring 800 x 1200 mm.
7. Pallet according to one of Claims 1 to 5, measuring 1000 x 1200 mm. 5
8. Box (1) containing pouches (2a, 2b, 2c, 2d), in which said box has a width and a length, the pouches being arranged flat in the plane defining said widths and lengths, **characterized in that** said width and length correspond to dimensions which are submultiples of 400 x 600 mm. 10
9. Box according to Claim 8, in which the pouches are of the doypack type and are placed head-to-tail in the box. 15
10. Box according to Claim 8, in which the pouches are of the uniformly flat type and are partially superpositioned. 20
11. Box according to any one of Claims 8 to 10, opening at the top.
12. Box according to any one of Claims 8 to 10, opening at the side. 25
13. Method of manufacturing a pallet according to any one of Claims 1 to 7, comprising the following steps: 30
  - (i) provision of boxes containing pouches according to any one of claims 8 to 12;
  - (ii) orientation of said boxes in such a way as to have the pouches flat in relation to the pallet; and
  - (iii) palletization of said boxes. 35
14. Method of manufacturing a box according to any one of Claims 8 to 12, comprising the following steps: 40
  - (i) provision of an empty box having at least two dimensions corresponding to dimensions which are submultiples of 400 x 600 mm;
  - (ii) filling of said box with pouches, the plane of the pouches corresponding to the plane defining said at least two dimensions; and 45
  - (iii) closure of the box.
15. Method according to Claim 14, in which step (i) comprises a step of folding with a mandrel, the mandrel having the same at least two dimensions as the box. 50
16. Method according to Claim 14 or 15, in which step (ii) comprises inserting the pouches horizontally.
17. Device for carrying out the method according to Claim 16, comprising : 55
  - (i) a conveyor belt (21) delivering empty boxes,

the boxes being arranged on the conveyor belt in a plane containing said at least two dimensions;

(ii) at least one conveyor belt (22, 23) delivering pouches and arranged substantially perpendicular to the conveyor belt (21) delivering empty boxes, said pouches being arranged flat on said conveyor belt (22, 23);

(iii) an arm (24) arranged above said conveyor belts and comprising a gripper device (25a, 25b) at its end, said arm alternating between a position for gripping the pouches and a position for filling the box; and

(iv) a device for closing the box.

#### Patentansprüche

1. Palette, die eine Vielzahl von Schachteln (1) umfaßt, wobei diese Schachteln Breiten und Längen aufweisen, die zu Abmessungen korrespondieren, die Unterteile von 400 x 600 mm sind, und Beutel (2a, 2b, 2c, 2d) enthalten, wobei die Beutel in bezug auf die Palette flach angeordnet sind.
2. Palette nach Anspruch 1, bei der die Beutel vom Standbeutel-Typ (Doypack-Typ) sind und von Kopf-nach-Fuß (head-to-tail) in den Schachteln angeordnet sind.
3. Palette nach Anspruch 1, bei der die Beutel vom einheitlich flachen Typ sind und teilweise übereinanderliegend sind.
4. Palette nach einem der Ansprüche 1 bis 3, bei welcher die Schachteln sich an ihrer Oberseite öffnen.
5. Palette nach einem der Ansprüche 1 bis 3, bei welcher die Schachteln sich an ihrer Seite öffnen.
6. Palette nach einem der Ansprüche 1 bis 5, mit einer Abmessung von 800 x 1.200 mm.
7. Palette nach einem der Ansprüche 1 bis 5, mit einer Abmessung von 1.000 x 1.200 mm.
8. Schachtel (1) enthaltend Beutel (2a, 2b, 2c, 2d), wobei die Schachtel eine Breite und eine Länge aufweist, wobei die Beutel flach in der Ebene definierend die Breiten und Längen angeordnet sind, **dadurch gekennzeichnet, daß** die Breite und Länge zu Abmessungen korrespondieren, die Unterteile von 400 x 600 mm sind.
9. Schachtel nach Anspruch 8, wobei die Beutel vom Standbeutel-Typ sind und von Kopf-nach-Fuß in der Schachtel angeordnet sind.

10. Schachtel nach Anspruch 8, wobei die Beutel vom einheitlich flachen Typ sind und teilweise übereinanderliegend sind.

11. Schachtel nach einem der Ansprüche 8 bis 10, die sich an der Oberseite öffnet.

12. Schachtel nach einem der Ansprüche 8 bis 10, die sich an der Seite öffnet.

13. Verfahren zum Herstellen einer Palette nach einem der Ansprüche 1 bis 7, umfassend die folgenden Schritte:

- (i) Bereitstellung von Beuteln enthaltenden Schachteln nach einem der Ansprüche 8 bis 12;
- (ii) Orientierung der Schachteln in einer solchen Weise, um die Beutel flach in bezug auf die Palette zu haben; und
- (iii) Palettierung der Schachteln.

14. Verfahren zum Herstellen einer Schachtel nach einem der Ansprüche 8 bis 12, umfassend die folgenden Schritte:

- (i) Bereitstellung einer leeren Schachtel mit wenigstens zwei Abmessungen, die mit Abmessungen korrespondieren, die Unterteile von 400 x 600 mm sind;
- (ii) Befüllen der Schachtel mit Beuteln, wobei die Ebene der Beutel zur Ebene, die die wenigstens zwei Abmessungen definiert, korrespondiert; und
- (iii) Verschuß der Schachtel.

15. Verfahren nach Anspruch 14, bei dem Schritt (i) einen Schritt des Faltens mit einem Dorn umfaßt, wobei der Dorn die gleichen wenigstens zwei Abmessungen wie die Schachtel aufweist.

16. Verfahren nach Anspruch 14 oder 15, bei dem Schritt (ii) ein horizontales Einsetzen der Beutel umfaßt.

17. Vorrichtung zum Durchführen des Verfahrens nach Anspruch 16, umfassend:

- (i) ein Förderband (21), das leere Schachteln liefert, wobei die Schachteln auf dem Förderband in einer Ebene, die die wenigstens zwei Abmessungen enthält, angeordnet sind;
- (ii) wenigstens ein Förderband (22, 23), das Beutel liefert und im wesentlichen senkrecht zum Förderband (21), das leere Schachteln liefert, angeordnet ist, wobei die Beutel flach auf dem Förderband (22, 23) angeordnet sind;
- (iii) einen Arm (24), der oberhalb der Förderbänder angeordnet ist und eine Greifvorrichtung (25a, 25b) an seinem Ende umfaßt, wobei der

Arm zwischen einer Position zum Greifen der Beutel und einer Position zum Befüllen der Schachteln wechselt; und  
(iv) eine Vorrichtung zum Verschließen der Schachtel.

## Revendications

1. Palette comprenant une pluralité de boîtes (1), ces boîtes présentant des largeur et longueur correspondant à des dimensions sous-multiples de 400x600mm et contenant des pochons (2a, 2b, 2c, 2d), dans laquelle les pochons sont disposés à plat par rapport à la palette.
2. Palette selon la revendication 1, dans laquelle les pochons sont du type doypack et sont placés tête-bêche dans les boîtes.
3. Palette selon la revendication 1, dans laquelle les pochons sont du type plat uniforme et sont partiellement super-positionnés.
4. Palette selon l'une des revendications 1 à 3, dans laquelle les boîtes sont à ouverture sur leur dessus.
5. Palette selon l'une des revendications 1 à 3, dans laquelle les boîtes sont à ouverture sur leur côté.
6. Palette selon l'une des revendications 1 à 5, de dimension 800x1200mm.
7. Palette selon l'une des revendications 1 à 5, de dimension 1000x1200mm.
8. Boîte (1) contenant des pochons (2a, 2b, 2c, 2d), ladite boîte présentant une largeur et une longueur, les pochons étant disposés à plat dans le plan définissant lesdites largeur et longueur, **caractérisé en ce que** lesdites largeur et longueur correspondent à des dimensions sous-multiples de 400x600mm
9. Boîte selon la revendication 8, dans laquelle les pochons sont du type doypack et sont placés tête-bêche dans la boîte.
10. Boîte selon la revendication 8, dans laquelle les pochons sont du type plat uniforme et sont partiellement super-positionnés.
11. Boîte selon l'une des revendications 8 à 10, à ouverture sur le dessus.
12. Boîte selon l'une des revendications 8 à 10, à ouverture sur le côté.
13. Procédé de fabrication d'une palette selon l'une

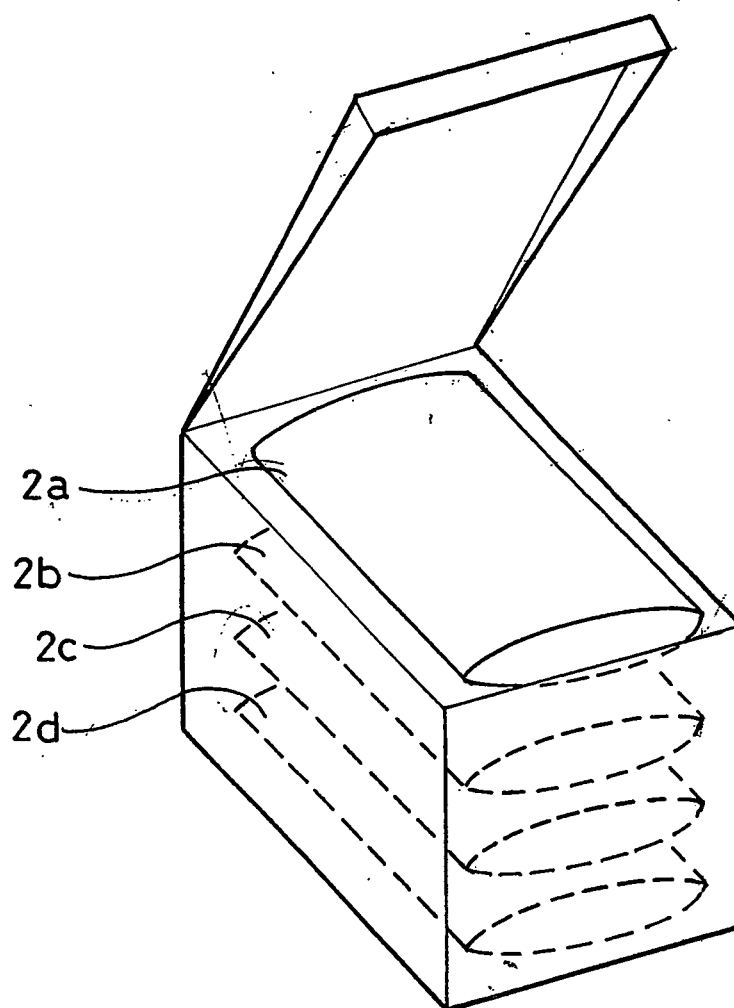
quelconque des revendications 1 à 7, comprenant les étapes suivantes:

- (i) fourniture de boîtes contenant des pochons selon l'une des revendications 8 à 12; 5
  - (ii) orientation desdites boîtes de sorte à obtenir les pochons à plat par rapport à la palette; et
  - (iii) palettisation desdites boîtes.
- 14.** Procédé de fabrication d'une boîte selon l'une quelconque des revendications 8 à 12, comprenant les étapes suivantes: 10
- (i) fourniture d'une boîte vide ayant au moins deux dimensions correspondant à des dimensions sous-multiples de 400x600mm; 15
  - (ii) chargement de ladite boîte avec des pochons, le plan des pochons correspondant au plan définissant lesdites au moins deux dimensions; et 20
  - (iii) fermeture de la boîte.
- 15.** Procédé selon la revendication 14, dans lequel l'étape (i) comprend une étape de pliage au mandrin, le mandrin ayant les mêmes au moins deux dimensions que la boîte. 25
- 16.** Procédé selon la revendication 14 ou 15, dans lequel l'étape (ii) comprend un chargement des pochons horizontalement. 30
- 17.** Dispositif pour la mise en oeuvre du procédé selon la revendication 16, comprenant
- (i) un tapis (21) d'amenée de boîtes vides, les boîtes étant disposées sur le tapis dans un plan contenant lesdites au moins deux dimensions; 35
  - (ii) au moins un tapis (22, 23) d'amenée de pochons, disposé sensiblement perpendiculairement au tapis (21) d'amenée de boîtes vides, lesdits pochons étant disposés à plat sur ledit tapis (22, 23); 40
  - (iii) un bras (24) disposé au-dessus desdits tapis et comprenant à son extrémité un dispositif préhenseur (25a, 25b), ledit bras alternant entre une position de préhension des pochons et une position de chargement de la boîte; et un dispositif de fermeture de la boîte. 45

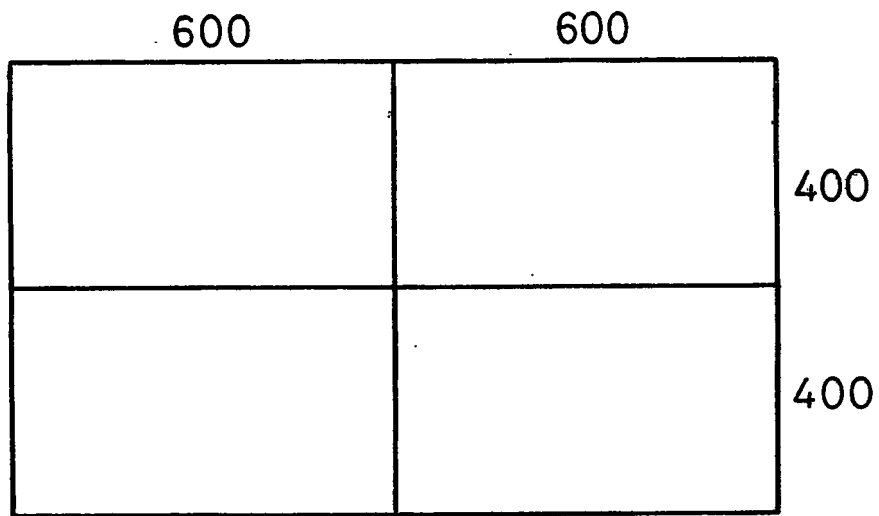
50

55

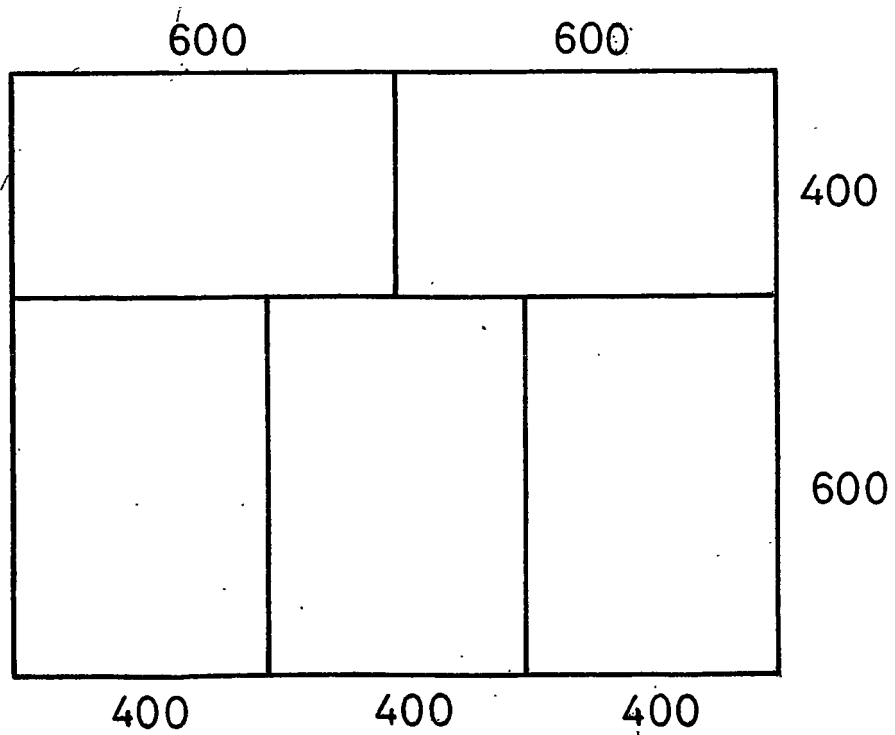
FIG\_1



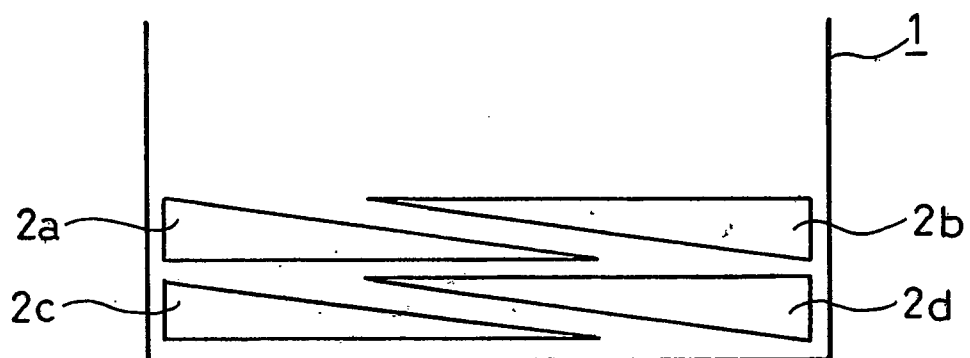
FIG\_2a



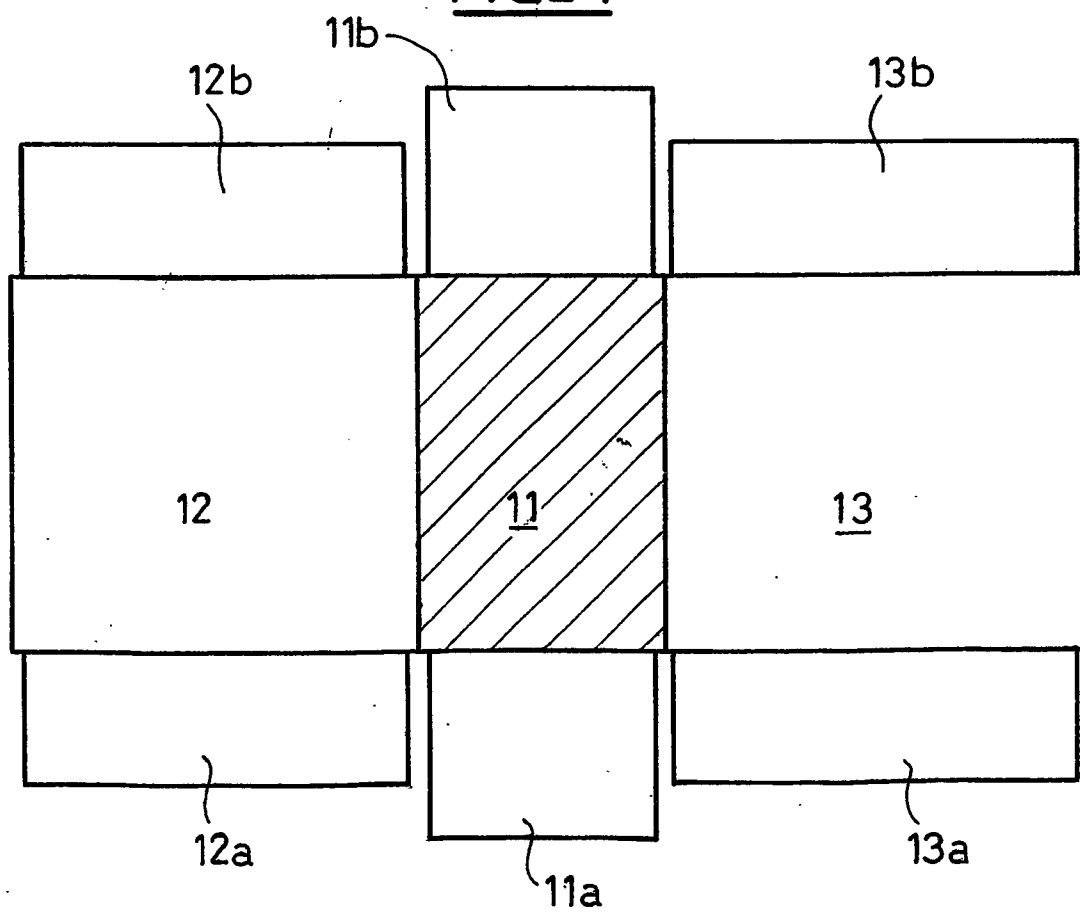
FIG\_2b

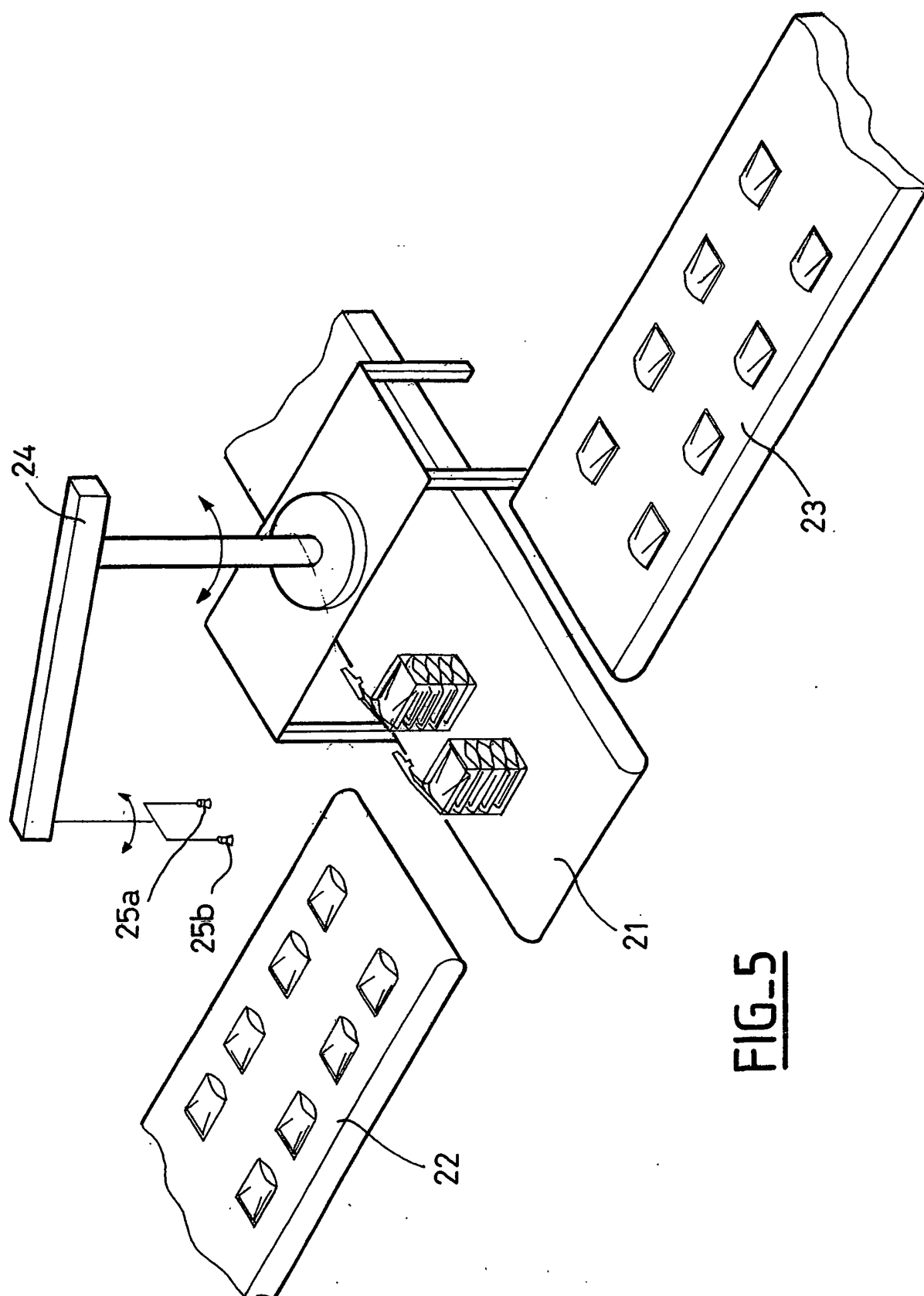


FIG\_3

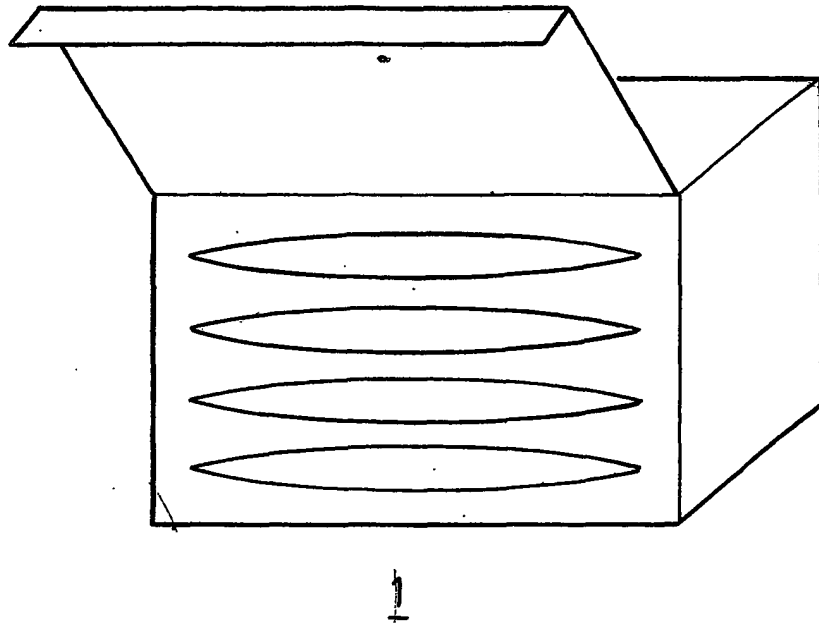


FIG\_4





FIG\_6



FIG\_7

