

(19)



(11)

EP 3 020 644 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
18.05.2016 Bulletin 2016/20

(51) Int Cl.:
B65D 5/50 (2006.01) **B65D 5/42 (2006.01)**
B65D 5/66 (2006.01) **B65D 77/04 (2006.01)**

(21) Application number: **14193299.6**

(22) Date of filing: **14.11.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

- **Lacchini, Livio**
43126 Parma (IT)
- **Remoli, Nazzareno**
20061 Carugate (MI) (IT)
- **Santoni, Giorgio**
41043 Formigine (MO) (IT)
- **Davi, Daniele**
40123 Ferrara (IT)
- **Rosignoli, David**
40123 Ferrara (IT)

(71) Applicant: **Tetra Laval Holdings & Finance S.A.**
1009 Pully (CH)

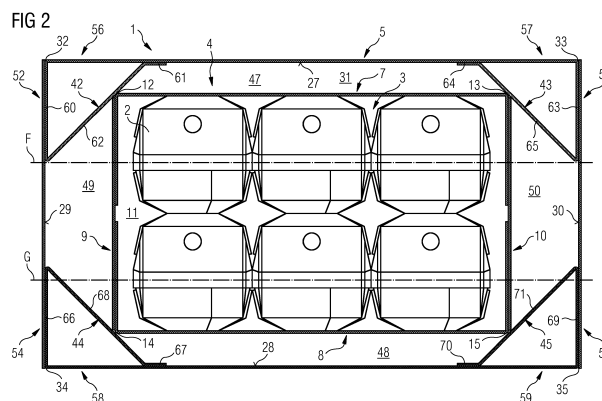
- (72) Inventors:
- **Clemente, Francesco**
41011 Campogalliano (IT)
 - **Ferrari, Fabio**
41043 Formigine (MO) (IT)
 - **Ansaloni, Roberto**
41043 Formigine (MO) (IT)

(74) Representative: **Tetra Pak - Patent Attorneys SE**
AB Tetra Pak
Patent Department
Ruben Rausing's gata
22186 Lund (SE)

(54) **Package for containers of pourable food products**

(57) A package for containers (2) of pourable food comprises a container supporting element (4) arranged to receive and retain said containers (2) and a box element (5) separate from said container supporting element (4) and arranged to receive and retain said container supporting element (4), said container supporting element (4) having an end wall (6) and a plurality of side walls (7, 8, 9, 10) that delimit a seat (11) arranged to house said containers (2), said side walls (7, 8, 9, 10) forming a plurality of corners (12, 13, 14, 15), said box element (5) comprising an end face (26) and a plurality of side faces (27, 28, 29, 30) that delimit a compartment

(31) arranged to house said container supporting element (4), said side faces (27, 28, 29, 30) forming a plurality of corner areas (32, 33, 34, 35), said package (1) further comprising a plurality of spacers (42, 43, 44, 45) arranged at said corner areas (32, 33, 34, 35) and interacting with said corners (12, 13, 14, 15) when said container supporting element (4) is housed in said compartment (31) so that each side wall (7, 8, 9, 10) of said side walls faces a corresponding side face (27, 28, 29, 30) of said side faces and a corresponding gap (47, 48, 49, 50) is defined between said each side wall (7, 8, 9, 10) and said corresponding said side face (27, 28, 29, 30).



EP 3 020 644 A1

Description

[0001] The present invention relates to a package for containers of pourable food products.

[0002] Many liquid or pourable food products, such as fruit juice, UHT milk, wine, tomato sauce, etc., are sold in containers made of sterilized packaging material.

[0003] A typical example of this type of container is the parallelepiped-shaped container known as Tetra Brik or Tetra Brik Aseptic (registered trademarks), which is made by folding and sealing laminated strip packaging material.

[0004] The packaging material has a multilayer structure substantially comprising a base layer for stiffness and strength, which may comprise a layer of fibrous material, e.g. paper, or mineral-filled polypropylene material, and a number of layers of heat-seal plastic material, e.g. polyethylene film, covering both sides of the base layer.

[0005] In the case of aseptic containers for long-storage products, such as UHT milk, the packaging material also comprises a layer of gas- and light-barrier material, e.g. aluminium foil or ethyl vinyl alcohol (EVOH) film, which is superimposed on a layer of heat-seal plastic material, and is in turn covered with another layer of heat-seal plastic material eventually forming the inner face of the container contacting the food product.

[0006] As is known, containers of this sort are produced on fully automatic packaging machines, on which a continuous tube is formed from the web-fed packaging material. The web of packaging material is sterilized on the packaging machine, e.g. by applying a chemical sterilizing agent such as a hydrogen peroxide solution, which is subsequently removed from the surfaces of the packaging material, e.g. evaporated by heating. The web of packaging material so sterilized is maintained in a closed, sterile environment, and is folded and sealed longitudinally to form a vertical tube.

[0007] The tube is filled continuously downwards with the sterilized or sterile-processed food product, and is sealed and subsequently cut along equally spaced cross sections to form pillow packs, which are folded mechanically to form respective finished, e.g. substantially parallelepiped-shaped, containers.

[0008] Alternatively, the packaging material may be cut into blanks, which are formed into containers on forming spindles, filled with the food product, and sealed. One example of this type of container is the so-called "gable-top" container known by the trade name Tetra Rex (registered trademark).

[0009] Once formed, filled and sealed, the containers disclosed above are housed in groups inside respective packages for delivery to sales outlets.

[0010] One kind of package - the so called gift-box package - comprises a box having a bottom wall, a top wall and four side walls, which define an internal space arranged to receive a group of containers.

[0011] The package comprises a number of spacers interposed between each of the side walls and the group

of containers, so that the group of containers does not contact the side walls.

[0012] One of the side walls - intended to be the front wall - may have an opening through which the consumer can see the containers, the containers being placed at a certain distance from the front wall.

[0013] The spacers may be made of foamed polystyrene or cardboard.

[0014] The spacers are assembled separately from the box.

[0015] Once the group of packages has been housed in the box, the spacers are manually positioned between the group of packages and the side walls and connected to the side walls.

[0016] The assembly of the package disclosed above is quite time consuming and not very efficient since the spacers have to be manufactured separately from the box and then placed into the box by a dedicated worker.

[0017] In addition, in case the box is made of cardboard or cardboard-based material and the spacers are made of polystyrene, recycling of the package is not very straightforward since the cardboard or cardboard-based material and the polystyrene have to be separated from each other and recycled independently.

[0018] It is an object of the invention to improve the packages for containers of pourable food products.

[0019] It is another object of the invention to provide a package for containers of pourable food products in which spacers can be easily manufactured and simply placed between the containers and side walls of the package.

[0020] It is another object of the invention to provide a package for containers of pourable food products which can be easily recycled.

[0021] According to a first aspect of the invention there is provided a package for containers of pourable food comprising a container supporting element arranged to receive and retain said containers and a box element separate from said container supporting element and arranged to receive and retain said container supporting element, said container supporting element having an end wall and a plurality of side walls that delimit a seat arranged to house said containers, said side walls forming a plurality of corners, said box element comprising an end face (26) and a plurality of side faces that delimit a compartment arranged to house said container supporting element, said side faces forming a plurality of corner areas, said package further comprising a plurality of spacers arranged at said corner areas and interacting with said corners when said container supporting element is housed in said compartment so that each side wall of said side walls faces a corresponding side face of said side faces and a corresponding gap is defined between said each side wall and said corresponding side face.

[0022] According to a second aspect of the invention there is provided a blank of packaging material for producing a box element of a package for containers of pour-

able food, comprising a base panel arranged to form an end face of said box element, a side panel adjacent to said base panel and arranged to form a side face of said box element, a crease line extending between said base panel and said side panel, said blank further comprising an appendix panel extending from an edge of said side panel adjacent to said first crease line, said appendix panel comprising a panel portion, a further panel portion and a still further panel portion, which are arranged to form a spacer of said box element, another crease line being interposed between said side panel and said panel portion, a further crease line being interposed between said panel portion and said still further panel portion and a still further crease line being interposed between said further panel portion and said still further panel portion, said another crease line, said further crease line and said still further crease line being parallel to each other and perpendicular to said crease line.

[0023] A preferred, non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a package for containers of pourable food products according to the invention;

Figure 2 is an enlarged top view of the package of Figure 1.

Figure 3 is a perspective view of a box element of the package of Figure 1;

Figure 4 is a container supporting element of the package of Figure 1;

Figure 5 is a blank of packaging material, which can be folded to obtain the box element of Figure 3;

Figure 6 is a blank of packaging material, which can be folded to obtain the container supporting element of Figure 4.

[0024] With reference to Figures 1 to 4 there is shown a package 1 for housing and transporting a group 3 of containers 2 of pourable food products.

[0025] More specifically, the containers 2 in the group 3 are arranged in two superimposed layers.

[0026] The containers 2 of each layer are arranged in a first row extending along a first direction F and a second row extending along a second direction G, parallel to the first direction F.

[0027] In the example shown, the first row and the second row contains each three containers 2.

[0028] In this way, the group 3 comprises twelve containers 2.

[0029] The containers 2 are preferably sealed aseptically, contain a pourable food product, such as pasteurized or UHT milk, fruit juice, wine, etc., and are made of laminated strip packaging material, as described in detail above.

[0030] The package 1 comprises a container supporting element 4 arranged to receive and retain the group 3 of containers 2 and a box element 5 separate from the

container supporting element 4 and arranged to receive and retain the container supporting element 4.

[0031] The container supporting element 4 and the box element 5 may be made from folded blanks, or units, made of cardboard or cardboard-based material, as better explained herebelow.

[0032] The container supporting element 4 comprises a bottom wall 6, and four side walls.

[0033] In particular, the container supporting element 4 comprises a first side wall 7, a second side wall 8, a third side wall 9 and a fourth side wall 10.

[0034] The first side wall 7 and the second side wall 8 face each other.

[0035] The third side wall 9 and the fourth side wall 10 face each other.

[0036] The first side wall 7, the second side wall 8, the third side wall 9 and the fourth side wall 10 delimit a seat 11 arranged to house the group 3 of containers 2.

[0037] The above-mentioned side walls form four corners.

[0038] In particular, the first side wall 7 and the third side wall 9 form a first corner 12. The first side wall 7 and the fourth side wall 10 form a second corner 13. The second side wall 8 and the third side wall 9 form a third corner 14. The second side wall 8 and the fourth side wall 10 form a fourth corner 15.

[0039] The first side wall 7 comprises an aperture 16 through which a user can see the group 3 of packages 2, as better explained herebelow.

[0040] The container supporting element 4 further comprises a top tab 17 extending from the first side wall 7.

[0041] When the container supporting element 4 is housed in the box element 5, the top tab 17 is folded towards the seat 11 so as to increase the stiffness of the first wall 7.

[0042] The container supporting element 4 comprises a first side wall portion 18 extending from a first edge portion 19 of the first side wall 7 and a second side wall portion 20 extending from a second edge portion 21, opposite to the first edge portion 19, of the first side wall 7.

[0043] The container supporting element 4 further comprises a third side wall portion 22 extending from a third edge portion 23 of the second side wall 8 and a fourth side wall portion 24 extending from a fourth edge portion 25, opposite to the first edge portion 23, of the second side wall 8.

[0044] The container supporting element 4 further comprises a first side flap 74 extending from a first border 75 of the bottom wall 6 and a second side flap 76 extending from a second border 77, opposite to the first border 75, of the bottom wall 6.

[0045] The first side wall portion 18 and the third side wall portion 22 are connected to the first side flap 74 so as to form the third side wall 9.

[0046] The second side wall portion 20 and the fourth side wall portion 24 are connected to the second side flap 76 so as to form the fourth side wall 10.

[0047] The second side wall 8 comprises a recess 78

whose function will be better explained herebelow. The recess 78 is positioned at a border zone of the second side wall 8 opposite to the bottom wall 6.

[0048] The box element 5 comprises a bottom face 26 and four side faces.

[0049] In particular, the box element 5 comprises a first side face 27, a second side face 28, a third side face 29 and a fourth side face 30.

[0050] The first side face 27 and the second side face 28 face each other.

[0051] The third side face 29 and the fourth side face 30 face each other.

[0052] The first side face 27, the second side face 28, the third side face 29 and the fourth side face 30 delimit a compartment 31 arranged to house the container supporting element 4.

[0053] The first side face 7 comprises an opening 46.

[0054] When the container supporting element 4 is positioned inside the compartment 31, the opening 46 and the aperture 16 are mutually aligned and face each other so that a user can see the group 3 of packages 2 through the opening 46 and the aperture 16.

[0055] The above-mentioned side faces form four corner areas.

[0056] In particular, the first side face 27 and the third side face 29 form a first corner area 32. The first side face 27 and the fourth side face 30 form a second corner area 33. The second side face 28 and the third side face 29 form a third corner area 34. The second side face 28 and the fourth side face 30 form a fourth corner area 35.

[0057] The box element 5 comprises four spacers positioned at the four above-mentioned corner areas and arranged to interact with the four above-mentioned corners when the container supporting element 4 is housed in the box element 5.

[0058] In particular, the box element 5 comprises a first spacer 42 arranged at the first corner area 32, a second spacer 43 arranged at the second corner area 33, a third spacer 44 arranged at the third corner area 34 and a fourth spacer 45 arranged at the fourth corner area 35.

[0059] The container supporting element 4 is housed in the compartment 31 so that the first side wall 7 faces the first side face 27, the second side wall 8 faces the second side face 28, the third side wall 9 faces the third side face 29 and the fourth side wall 10 faces the fourth side face 30.

[0060] A first gap 47 is defined between the first side wall 7 and the first side face 27.

[0061] A second gap 48 is defined between the second side wall 8 and the second side face 28.

[0062] A third gap 49 is defined between the third side wall 9 and the third side face 29.

[0063] A fourth gap 50 is defined between the fourth side wall 10 and the fourth side face 30.

[0064] The above-mentioned spacers are defined by appendices of the above-mentioned side faces.

[0065] The above-mentioned appendices are bent inside the compartment 31.

[0066] In particular, the first spacer 42 is defined by a first appendix 52 extending from a first end zone 56 of the first end face 27. The second spacer 43 is defined by a second appendix 53 extending from a second end zone 57, opposite to the first end zone 56, of the first end face 27. The third spacer 44 is defined by a third appendix 54 extending from a third end zone 58 of the second end face 28. The fourth spacer 45 is defined by a fourth appendix 55 extending from a fourth end zone 59, opposite to the third end zone 58, of the second side face 28.

[0067] Each appendix of the above-mentioned appendices comprises a portion extending from one of the above-mentioned side faces and connected to another one of the above-mentioned side faces adjacent to the side face from which the appendix projects, a further portion connected to the side portion from which the appendix projects and a still further portion, interposed between the portion and the further portion and arranged to contact a corresponding corner of the above-mentioned corners.

[0068] The first portion is integral, i.e. made as a single piece, with the side face from which the appendix projects and is attached to the further side face adjacent to the side face from which the appendix projects and the further portion is attached to the side face from which the appendix projects.

[0069] The portion may be connected to the side face adjacent to the side face from which the appendix project by gluing.

[0070] The further portion may be connected to the side face from which the appendix project by gluing.

[0071] In particular, the first appendix 52 comprises a first portion 60 connected to the third side face 29, a first further portion 61 connected the first side face 27 and a first still further portion 62, interposed between the first portion 60 and the first further portion 61 and arranged to contact the first corner 12. The first portion 60 is substantially perpendicular to the first side face 27, the first further portion 61 is substantially parallel to the first side face 27 and the first still further portion 62 is inclined with respect to the first side face 27. In the embodiment shown, the first still further portion 62 forms an angle of approximately 45 degrees with the first side face 27.

[0072] The second appendix 53 comprises a second portion 63 connected to the fourth side face 30, a second further portion 64 connected the first side face 27 and a second still further portion 65, interposed between the second portion 63 and the second further portion 64 and arranged to contact the second corner 13. The second portion 63 is substantially perpendicular to the first side face 27, the second further portion 64 is substantially parallel to the first side face 27 and the first still further portion 65 is inclined with respect to the first side face 27. In the embodiment shown, the second still further portion 65 forms an angle of approximately 45 degrees with the first side face 27.

[0073] The third appendix 54 comprises a third portion 66 connected to the third side face 29, a third further portion 67 connected the second side face 28 and a third

still further portion 68, interposed between the third portion 66 and the third further portion 67 and arranged to contact the third corner 14. The third portion 66 is substantially perpendicular to the second side face 28, the third further portion 67 is substantially parallel to the second side face 28 and the third still further portion 68 is inclined with respect to the second side face 28. In the embodiment shown, the third still further portion 68 forms an angle of approximately 45 degrees with the second side face 28.

[0074] The fourth appendix 55 comprises a fourth portion 69 connected to the fourth side face 30, a fourth further portion 70 connected to the second side face 28 and a fourth still further portion 71, interposed between the fourth portion 69 and the fourth further portion 70 and arranged to contact the fourth corner 15. The fourth portion 69 is substantially perpendicular to the second side face 28, the fourth further portion 70 is substantially parallel to the second side face 28 and the fourth still further portion 71 is inclined with respect to the second side face 28. In the embodiment shown, the fourth still further portion 71 forms an angle of approximately 45 degrees with the second side face 28.

[0075] The box element 5 further comprises a first top face portion 36 extending from the first side face 27 and a second top face portion 37 extending from the second side wall 28.

[0076] When the box element 5 is in a closed configuration, the first top face portion 36 is superimposed on the second top face portion 37 so that the first top face portion 36 and the second top face portion 37 form a top face of the box element 5.

[0077] The first top face portion 36 comprises a locking tab 38 arranged to be received and maintained in a slot 39 of the second top face portion 37 to keep the box element 5 in the closed configuration.

[0078] When the container supporting element 4 is housed in the box element 5, the recess 78 prevents any interaction of the the locking tab 38 with the second wall 8.

[0079] The second top face portion 37 further comprises two holes 40 arranged to receive end portions of a handle to be applied to the box element 5.

[0080] The first top face portion 36 further comprises a further hole 41.

[0081] When the box element 5 is in the closed configuration, the handle connected to the second top face portion 37 passes through the further hole 41 and projects from the top face.

[0082] The box element 5 comprises a flap 72 extending from the third side wall 29 and a further flap 73 extending from the fourth side wall 30.

[0083] When the box element 5 is in the closed configuration, the flap 72 projects toward the compartment 31 and at least partially covers the first spacer 42 and the third spacer 44.

[0084] Similarly, when the box element 5 is in the closed configuration, the further flap 73 projects toward the compartment 31 and at least partially covers the sec-

ond spacer 43 and the fourth spacer 45.

[0085] When a user lifts the package 1 through the above-mentioned handle, the first top face portion 36 and the second top face portion 37 may tend to bend upwardly. In this case, the flap 72 and the further flap 73 prevent access to the compartment 31.

[0086] Figure 5 shows a blank 80 of cardboard or cardboard-based material, which can be folded to obtain the box element 5.

[0087] The blank 80 comprises a base panel 81 arranged to form the bottom face 26 of the box element 5.

[0088] The blank 80 further comprises a first side panel 82 adjacent to the base panel 81 and arranged to form the first side face 27 of the box element 5.

[0089] The first side panel 82 extends from a first border portion 170 of the base panel 81.

[0090] A first crease line 83 extends between the base panel 81 and the first side panel 82.

[0091] The blank 80 further comprises a first appendix panel 84 extending from a first edge 85 of the first side panel 82 adjacent to the first crease line 83.

[0092] The first appendix panel 84 forms the first appendix 52 and, therefore, the first spacer 42.

[0093] The first appendix panel 84 comprises a first panel portion 86, a first further panel portion 87 and a first still further panel portion 88, arranged to form, respectively, the first portion 60, the first further portion 61 and the first still further portion 62.

[0094] A first another crease line 89 is interposed between the first side panel 82 and the first panel portion 86.

[0095] A first further crease line 90 is interposed between the first panel portion 86 and the first still further panel portion 88.

[0096] A first still further crease line 91 is interposed between the first further panel portion 87 and the first still further panel portion 88.

[0097] The first another crease line 89, the first further crease line 90 and the first still further crease line 91 are parallel to each other and perpendicular to the first crease line 83.

[0098] The first panel portion 86, the first further panel portion 87 and the first still further panel portion 88 have each a rectangular shape and the same length H measured along a direction parallel to the first another crease line 89, the first further crease line 90 and the first still further crease line 91.

[0099] The first panel portion 86 extends from the first side panel 82, the first still further panel portion 88 extends from the first panel portion 86 and the first further panel portion 87 extends from the first still further panel portion 88.

[0100] The first side panel 82 comprises an opening element 138 arranged to form the opening 46 of the box element 5.

[0101] The blank 80 further comprises a second appendix panel 94 extending from a second edge 95, opposite to the first edge 85, of the first side panel 82 adjacent to the first crease line 83.

[0102] The second appendix panel 94 forms the second appendix 53 and, therefore, the second spacer 43.

[0103] The second appendix panel 94 comprises a second panel portion 96, a second further panel portion 97 and a second still further panel portion 98, arranged to form, respectively, the second portion 63, the second further portion 64 and the second still further portion 65.

[0104] A second another crease line 99 is interposed between the first side panel 82 and the second panel portion 96.

[0105] A second further crease line 100 is interposed between the second panel portion 96 and the second still further panel portion 98.

[0106] A second still further crease line 101 is interposed between the second further panel portion 97 and the second still further panel portion 98.

[0107] The second another crease line 99, the second further crease line 100 and the second still further crease line 101 are parallel to each other and perpendicular to the first crease line 83.

[0108] The second panel portion 96, the second further panel portion 97 and the second still further panel portion 98 have each a rectangular shape and the same length H measured along a direction parallel to the second another crease line 99, the second further crease line 100 and the second still further crease line 101.

[0109] The second panel portion 96 extends from the first side panel 82, the second still further panel portion 98 extends from the second panel portion 96 and the second further panel portion 97 extends from the second still further panel portion 98.

[0110] The blank 80 further comprises a second side panel 102 adjacent to the base panel 81 and arranged to form the second side face 28 of the box element 5.

[0111] The second side panel 102 extends from a second border portion 171, opposite to the first border portion 170, of the base panel 81.

[0112] A second crease line 103 extends between the base panel 81 and the second side panel 102.

[0113] The blank 80 further comprises a third appendix panel 104 extending from a further first edge 105 of the second side panel 102 adjacent to the second crease line 103.

[0114] The third appendix panel 104 forms the third appendix 54 and, therefore, the third spacer 44.

[0115] The third appendix panel 104 comprises a third panel portion 106, a third further panel portion 107 and a third still further panel portion 108, arranged to form, respectively, the third portion 66, the third further portion 67 and the third still further portion 68.

[0116] A third another crease line 109 is interposed between the second side panel 102 and the third panel portion 106.

[0117] A third further crease line 110 is interposed between the third panel portion 106 and the third still further panel portion 108.

[0118] A third still further crease line 111 is interposed between the third further panel portion 107 and the third

still further panel portion 108.

[0119] The third another crease line 109, the third further crease line 110 and the third still further crease line 111 are parallel to each other and perpendicular to the second crease line 103.

[0120] The third panel portion 106, the third further panel portion 107 and the third still further panel portion 108 have each a rectangular shape and the same length H measured along a direction parallel to the first another crease line 109, the second further crease line 110 and the second still further crease line 111.

[0121] The third panel portion 106 extends from the second side panel 102, the third still further panel portion 108 extends from the third panel portion 106 and the third further panel portion 107 extends from the third still further panel portion 108.

[0122] The blank 80 further comprises a fourth appendix panel 114 extending from a further second edge 115, opposite to the further first edge 105, of the second side panel 102 adjacent to the second crease line 103.

[0123] The fourth appendix panel 114 forms the fourth appendix 55 and, therefore, the fourth spacer 45.

[0124] The fourth appendix panel 114 comprises a fourth panel portion 116, a fourth further panel portion 117 and a fourth still further panel portion 118, arranged to form, respectively, the fourth portion 69, the fourth further portion 70 and the fourth still further portion 71.

[0125] A fourth another crease line 119 is interposed between the second side panel 102 and the fourth panel portion 116.

[0126] A fourth further crease line 120 is interposed between the fourth panel portion 116 and the fourth still further panel portion 118.

[0127] A fourth still further crease line 121 is interposed between the fourth further panel portion 117 and the fourth still further panel portion 118.

[0128] The fourth another crease line 119, the fourth further crease line 120 and the fourth still further crease line 121 are parallel to each other and perpendicular to the second crease line 103.

[0129] The fourth panel portion 116, the fourth further panel portion 117 and the fourth still further panel portion 118 have each a rectangular shape and the same length H measured along a direction parallel to the fourth another crease line 119, the fourth further crease line 120 and the fourth still further crease line 121.

[0130] The fourth panel portion 116 extends from the second side panel 102, the fourth still further panel portion 118 extends from the fourth panel portion 116 and the fourth further panel portion 117 extends from the fourth still further panel portion 118.

[0131] The blank 80 further comprises a third side panel 122 adjacent to the base panel 81 and arranged to form the third side face 29 of the box element 5.

[0132] A crease line 123 extends between the base panel 81 and the third side panel 122.

[0133] The blank 80 further comprises a flap panel 124 extending from the third side panel 122 and arranged to

form the flap 72 of the box element 5.

[0134] A crease line 125 extends between the third side panel 122 and the flap panel 124.

[0135] The blank 80 further comprises a fourth side panel 126 adjacent to the base panel 81 and arranged to form the fourth side face 30 of the box element 5.

[0136] A crease line 127 extends between the base panel 81 and the fourth side panel 126.

[0137] The blank 80 further comprises a further flap panel 128 extending from the fourth side panel 126 and arranged to form the further flap 73 of the box element 5.

[0138] A crease line 129 extends between the fourth side panel 126 and the further flap panel 128.

[0139] The blank 80 further comprises a first top panel portion 130 extending from the first side panel 82 and arranged to form the first top side portion 36 of the box element 5.

[0140] A crease line 131 extends between the first side panel 82 and the first top panel portion 130.

[0141] The first top panel portion 130 comprises a locking tab panel 132 arranged to form the locking tab 38 of the box element 5.

[0142] The blank 80 further comprises a second top panel portion 133 extending from the second side panel 102 and arranged to form the second top face portion 37 of the box element 5.

[0143] A crease line 134 extends between the second side panel 102 and the second top panel portion 133.

[0144] The second top panel portion 133 comprises a slit element 135 arranged to form the slit 39 of the second top face portion 37.

[0145] The second top panel portion 133 comprises two cutouts 136 arranged to form the holes 40 of the second top face portion 37.

[0146] The first top panel portion 130 comprises a further cutout 137 arranged to form the further hole 41 of the first top face portion 36.

[0147] Figure 6 shows a blank 140 of cardboard or cardboard-based material, which can be folded to obtain the container supporting element 4.

[0148] The blank 140 comprises a base panel element 141 arranged to form the bottom wall 6 of the container supporting element 4.

[0149] The blank 140 further comprises a first side panel element 142 adjacent to the base panel element 141 and arranged to form the first side wall 7 of the container supporting element 4.

[0150] A crease line 143 extends between the base panel element 141 and the first side panel element 142.

[0151] The blank 140 further comprises a second side panel element 144 adjacent to the base panel element 141 and arranged to form the second side wall 8 of the container supporting element 4.

[0152] A crease line 145 extends between the base panel element 141 and the second side panel element 144.

[0153] The first side panel element 142 comprises an aperture element 146 arranged to form the aperture 16

of the container supporting element 4.

[0154] The second side panel element 144 comprises a recess element 147 arranged to form the recess 78 of the container supporting element 4.

[0155] The blank 140 further comprises a top tab panel element 148 extending from the first side panel element 142 and arranged to form the top tab 17 of the container supporting element 4.

[0156] A crease line 149 is interposed between the first side panel element 142 and the top tab panel element 148.

[0157] The blank 140 further comprises a first side portion panel element 150 extending from a first edge portion 151 of the first side panel element 142 adjacent to the crease line 143 and arranged to form the first side wall portion 18 of the container supporting element 4.

[0158] A crease line 152 is interposed between the first side panel portion element 150 and the first side panel element 142.

[0159] The blank 140 further comprises a second side portion panel element 153 extending from a second edge portion 154, opposite to the first edge portion 151, of the first side panel element 142 adjacent to the crease line 143 and arranged to form the second side wall portion 20 of the container supporting element 4.

[0160] A crease line 155 is interposed between the second side panel portion element 153 and the first side panel element 142.

[0161] The blank 140 further comprises a third side portion panel element 156 extending from a further first edge portion 157 of the second side panel element 144 adjacent to the crease line 145 and arranged to form the third side wall portion 22 of the container supporting element 4.

[0162] A crease line 158 is interposed between the third side panel portion element 156 and the second side panel element 144.

[0163] The blank 140 further comprises a fourth side portion panel element 159 extending from a further second edge portion 160, opposite to the further first edge portion 157, of the second side panel element 144 adjacent to the crease line 145 and arranged to form the fourth side wall portion 24 of the container supporting element 4.

[0164] A crease line 161 is interposed between the fourth side panel portion element 159 and the second side panel element 144.

[0165] The blank 140 further comprises a first side flap panel element 162 adjacent to the base panel element 141 and arranged to form the first side flap 74 of the container supporting element 4.

[0166] A crease line 163 extends between the base panel element 141 and the first side flap panel element 162.

[0167] The blank 140 further comprises a second side flap panel element 164 adjacent to the base panel element 141 and arranged to form the second side flap 76 of the container supporting element 4.

[0168] A crease line 165 extends between the base

panel element 141 and the second side flap panel element 164.

[0169] During operation, a group 3 of containers is placed on the blank 140, in particular on the base panel element 141, and the blank 140 is wrapped around the group 3 of containers 2 so as to form the container supporting element 4.

[0170] Subsequently, the container supporting element 4 is placed on the blank 80, in particular on the base panel 81, and the blank 80 is wrapped around the supporting element 4 so as to form the box element 5 and obtain a folded, filled and sealed package 1.

[0171] In particular, while the blank 80 is wrapped around the container supporting element 4, the above-mentioned appendices are folded so as to form the above-mentioned spacers.

[0172] All the operations disclosed above may be carried out automatically, through dedicated packaging machines.

[0173] Owing to the invention, it is possible to obtain a package in which the spacers are made during folding of the box element and do not need to be provided as separate parts.

[0174] In addition, there is no need do manufacture the spacers separately from the box element and insert the spacers into the pre-folded box element.

[0175] In particular, there is no need to manually position the spacers into the box element as in the known packages.

[0176] The spacers, in fact, are made at the same time as the box element and from the same blank.

[0177] In this way, the package is manufactured and filled with containers in a much easier way with respect to the known packages.

[0178] In addition, since the box element and the spacers are made of the same material, for example cardboard or cardboard-based material, disposal and recycling of the package are extremely simple.

[0179] Clearly, changes may be made to package 1 according to the present invention without, however, departing from the scope as defined in the accompanying claims.

Claims

1. A package for containers (2) of pourable food, comprising a container supporting element (4) arranged to receive and retain said containers (2) and a box element (5) separate from said container supporting element (4) and arranged to receive and retain said container supporting element (4), said container supporting element (4) having an end wall (6) and a plurality of side walls (7, 8, 9, 10) that delimit a seat (11) arranged to house said containers (2), said side walls (7, 8, 9, 10) forming a plurality of corners (12, 13, 14, 15), said box element (5) comprising an end face (26) and a plurality of side faces (27, 28, 29, 30)

that delimit a compartment (31) arranged to house said container supporting element (4), said side faces (27, 28, 29, 30) forming a plurality of corner areas (32, 33, 34, 35), said package (1) further comprising a plurality of spacers (42, 43, 44, 45) arranged at said corner areas (32, 33, 34, 35) and interacting with said corners (12, 13, 14, 15) when said container supporting element (4) is housed in said compartment (31) so that each side wall (7, 8, 9, 10) of said side walls faces a corresponding side face (27, 28, 29, 30) of said side faces and a corresponding gap (47, 48, 49, 50) is defined between said each side wall (7, 8, 9, 10) and said corresponding side face (27, 28, 29, 30).

2. A package according to claim 1, wherein said spacers (42, 43, 44, 45) are defined by appendices (52, 53, 54, 55) of said side faces (27, 28, 29, 30) bent inside said compartment (31).

3. A package according to claim 2, wherein each appendix (52, 53, 54, 55) of said appendices comprises a portion (60, 63, 66, 69) extending from a side face (27, 28, 29, 30) of said side faces and connected to a further side face (27, 28, 29, 30) of said side faces adjacent to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects, a further portion (61, 64, 68, 71) connected to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects and a still further portion (62, 65, 68, 71), interposed between said portion (60, 63, 66, 69) and said further portion (61, 64, 67, 70) and arranged to contact a corresponding corner (12, 13, 14, 15) of said corners.

4. A package according to claim 3, wherein said portion (60, 63, 66, 69) is integral with said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects and is attached to said further side face (27, 28, 29, 30) adjacent to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects and said further appendix (61, 64, 67, 70) is attached to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects.

5. A package according to claim 3, or 4, wherein said portion (60, 63, 66, 69) is substantially perpendicular to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects, said further portion (61, 64, 67, 70) is substantially parallel to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects and said still further portion (62, 65, 68, 71) is inclined with respect to said side face (27, 28, 29, 30) from which said appendix (52, 53, 54, 55) projects.

6. A package according to any one of claims 2 to 5, wherein said side faces comprises a couple of first

side faces (27, 28) facing each other and a couple of second side faces (29, 30) facing each other, a couple of appendices (52, 53; 54, 55) projecting from opposite end zones (56, 57; 58, 59) of each first side face (27; 28) of said couple of first side faces (27, 28).

7. A package according to claim 6, wherein each first side face (27; 28) comprises a first appendix (52; 54) of said couple of appendices extending from a first end zone (56; 58) of said opposite and zones, said first appendix (52; 54) comprising a first portion (60; 66) extending from said first side face (27; 28) and attached to one second side face (29) of said couple of second side faces, a first further portion (61; 67) attached to said first side face (27; 28) and a still further portion (62; 68) interposed between said portion (60; 66) and said further portion (61; 67) and wherein each first side face (27, 28) comprises a second appendix (53; 55) of said couple of appendices extending from a second end zone (57; 59) of said opposite and zones, said second appendix (53; 55) comprising a second portion (63; 69) extending from said first side face (27; 28) and attached to another second side face (30) of said couple of second side faces, a second further portion (64; 70) attached to said first side face (27; 28) and a second still further portion (65; 71) interposed between said second portion (63; 69) and said second further portion (64; 70).
8. A blank of packaging material for producing a box element (5) of a package (1) for containers (2) of pourable food, comprising a base panel (81) arranged to form an end face (26) of said box element (5), a side panel (82; 102) adjacent to said base panel (81) and arranged to form a side face (27; 28) of said box element (5), a crease line (83; 103) extending between said base panel (81) and said side panel (82; 102), said blank (80) further comprising an appendix panel (84; 94; 104; 114) extending from an edge (85; 95; 105; 115) of said side panel (82; 102) adjacent to said first crease line (83; 103), said appendix panel (84; 94; 104; 114) comprising a panel portion (86; 96; 106; 116), a further panel portion (87; 97; 107; 117) and a still further panel portion (88; 98; 108; 118), which are arranged to form a spacer (42; 43; 44; 45) of said box element (5), another crease line (89; 99; 109; 119) being interposed between said side panel (82; 102) and said panel portion (86; 96; 106; 116), a further crease line (90; 100; 110; 120) being interposed between said panel portion (86; 96; 106; 116) and said still further panel portion (88; 98; 108; 118) and a still further crease line (91; 101; 111; 121) being interposed between said further panel portion (87; 97; 107; 117) and said still further panel portion (88; 98; 108; 118), said another crease line (89; 99; 109; 119), said further crease line (90; 100; 110; 120) and said still further crease line (91; 101; 111; 121) being parallel to each

other and perpendicular to said crease line (83; 103).

9. A blank according to claim 8, wherein said panel portion (86; 96; 106; 116), said further panel portion (87; 97; 107; 117) and said still further panel portion (88; 98; 108; 118) have each a rectangular shape and a same length (H) measured along a direction parallel to said another crease line (89; 99; 109; 119), said further crease line (90; 100; 110; 120) and said still further crease line (91; 101; 111; 121).
10. A blank according to claim 8, or 9, wherein said panel portion (86; 96; 106; 116) extends from said side panel (82; 102), said still further panel portion (88; 98; 108; 118) extends from said panel portion (86; 96; 106; 116) and said further panel portion (87; 97; 107; 117) extends from said still further panel portion (88; 98; 108; 118).
11. A blank according to any one of claim 8 to 10, wherein a first side panel (82), arranged to form a first side face (27) of said box element (5), extends from a first border portion (170) of said base panel (81) and a second side panel (102), arranged to form a second side face (28) of said box element (5), extends from a second border portion (171), opposite to said first border portion (170), of said base panel (81).
12. A blank according to claim 11, wherein a first crease line (83) is interposed between said base panel (81) and said first side panel (82) and a second crease line (103) is interposed between said base panel (81) and said second side panel (102).
13. A blank according to claim 11, or 12, wherein a first appendix panel (84), arranged to form a first appendix (52) of said first side face (27), extends from a first edge (85) of said first side panel (82), a second appendix panel (94), arranged to form a second appendix (53) of said first side face (27), extends from a second edge (95), opposite to said first edge (85), of said first side panel (82), a third appendix panel (104), arranged to form a third appendix (52) of said second side face (28), extends from a further first edge (105) of said second side panel (102) and a fourth appendix panel (114), arranged to form a fourth appendix (52) of said second side face (28), extends from a further second edge (115), opposite to said further first edge (105), of said second side panel (102).
14. A blank according to claim 13, wherein a first another crease line (89) is interposed between said first side panel (82) and said first appendix panel (84), a second another crease line (99) is interposed between said first side panel (82) and said second appendix panel (94), a third another crease line (109) is interposed between said second side panel (102) and

said third appendix panel (104) and a fourth another crease line (119) is interposed between said second side panel (102) and said fourth appendix panel (114).

5

10

15

20

25

30

35

40

45

50

55

FIG 1

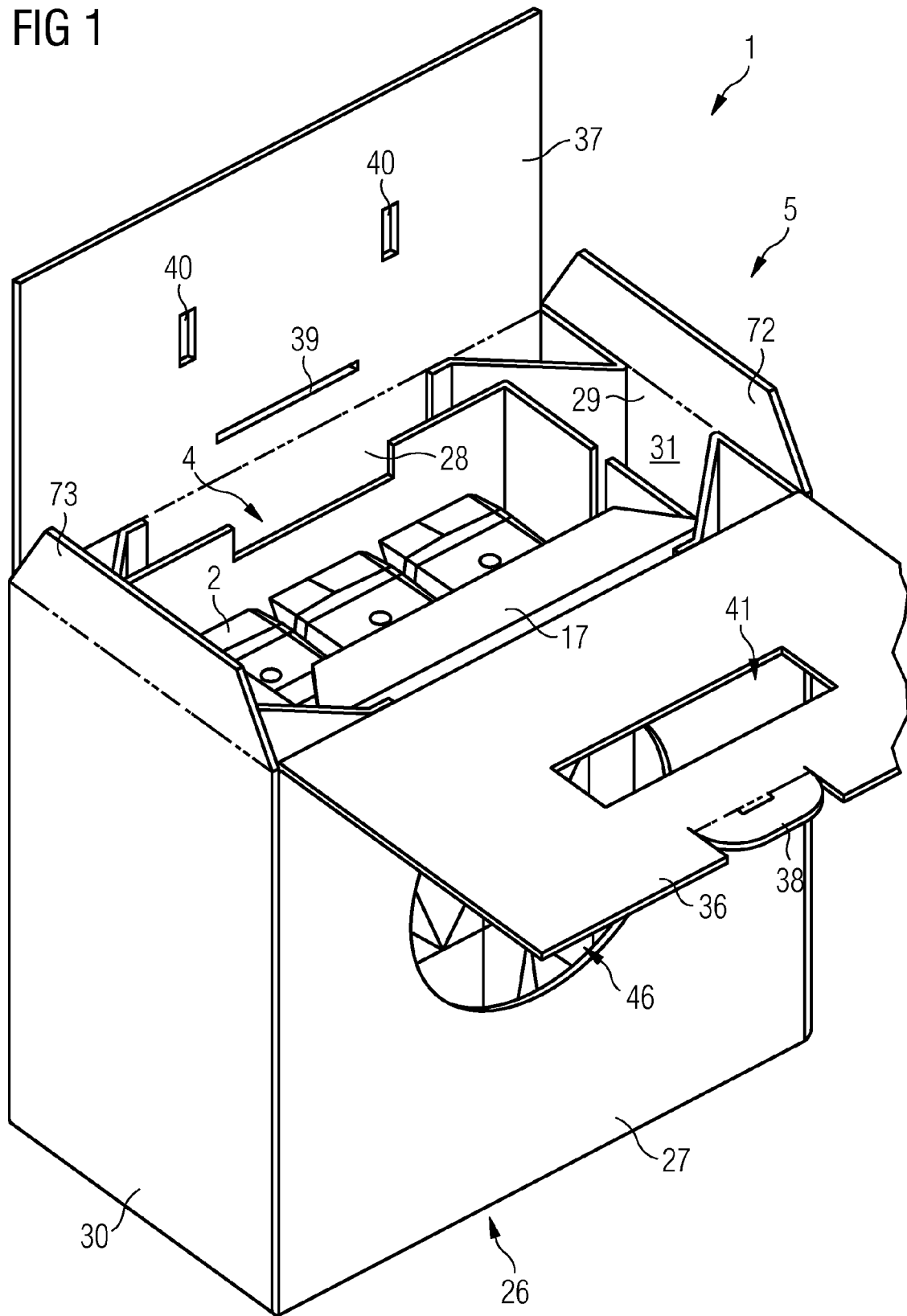


FIG 2

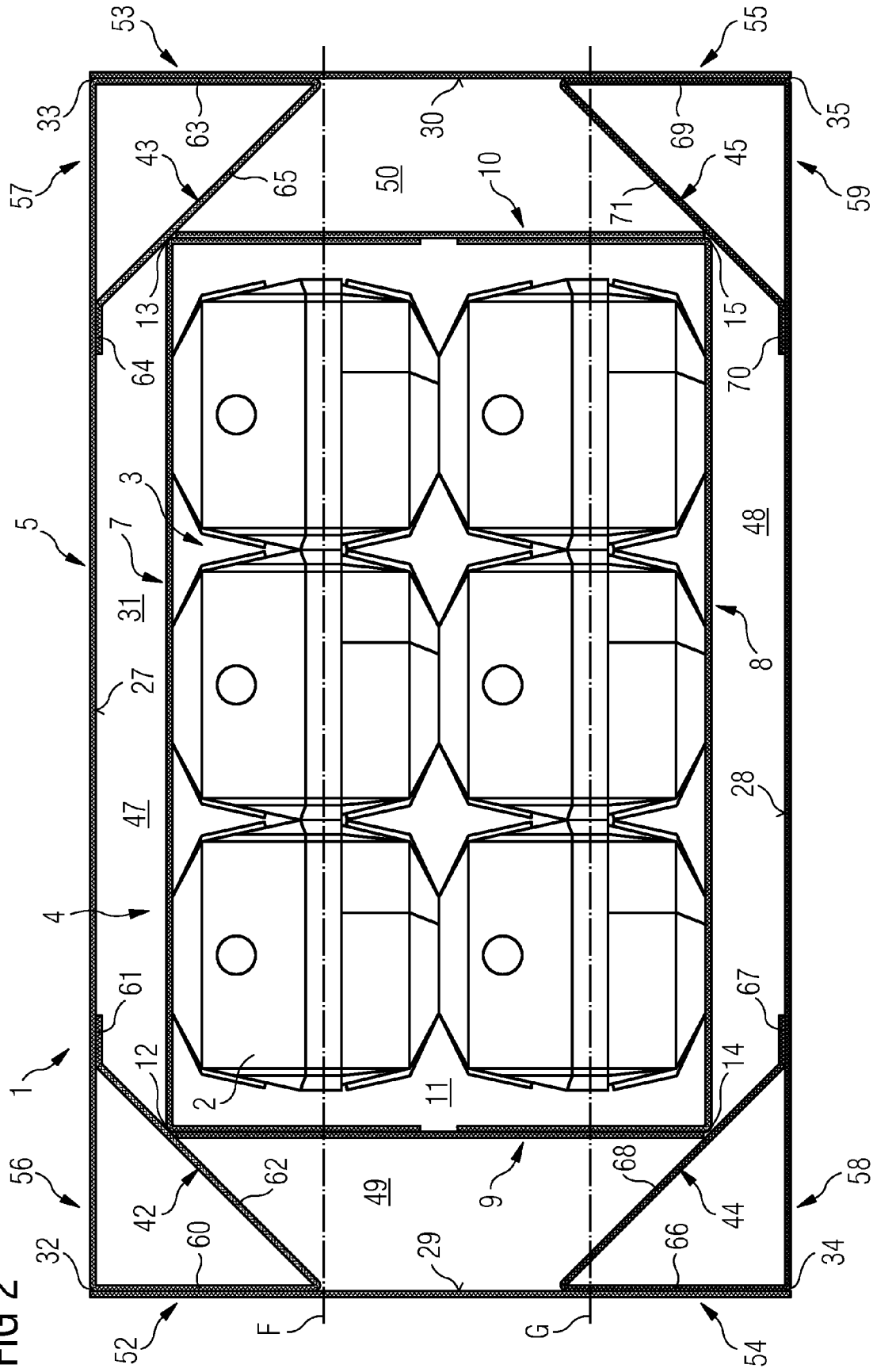


FIG 3

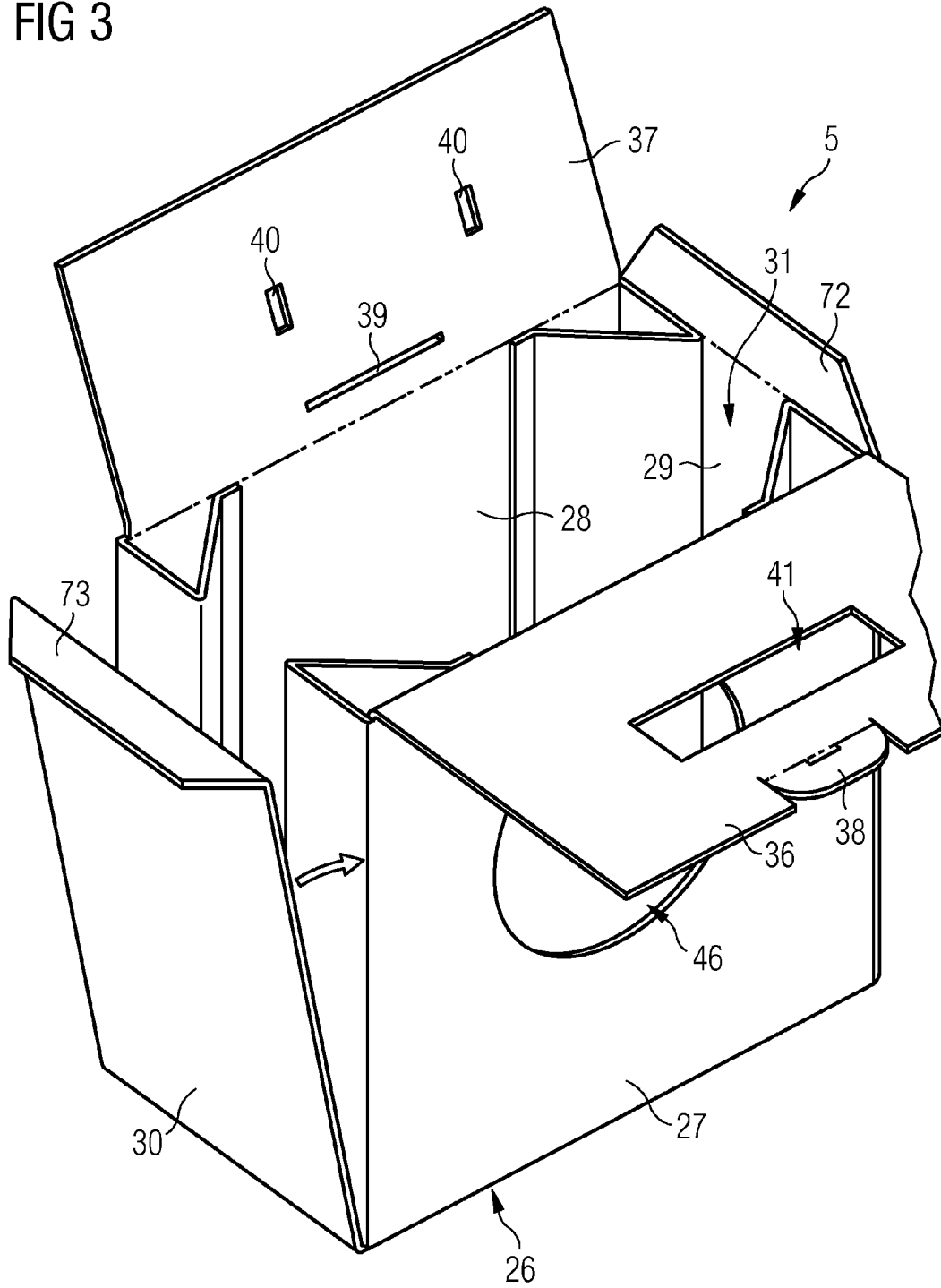


FIG 4

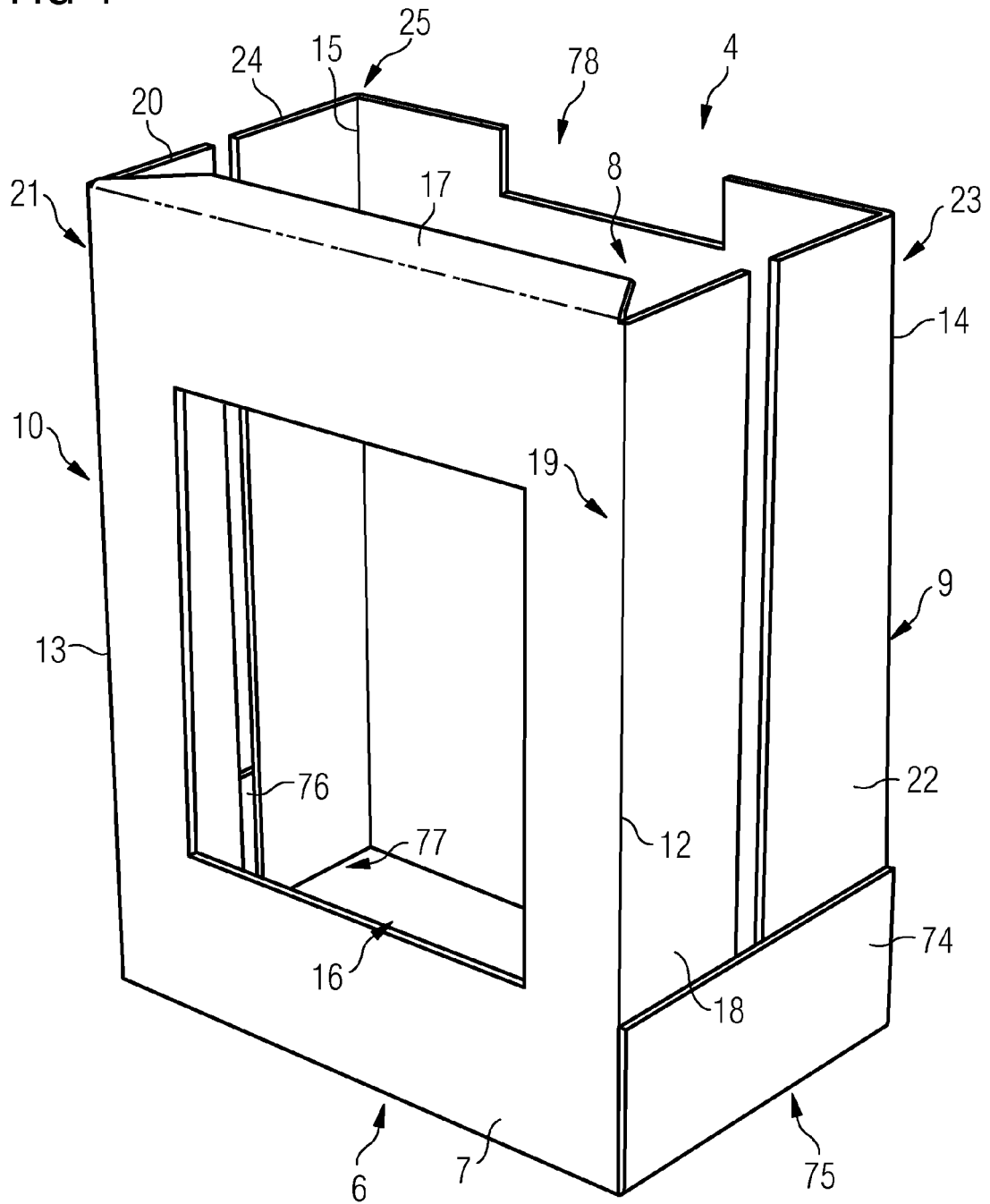


FIG 5

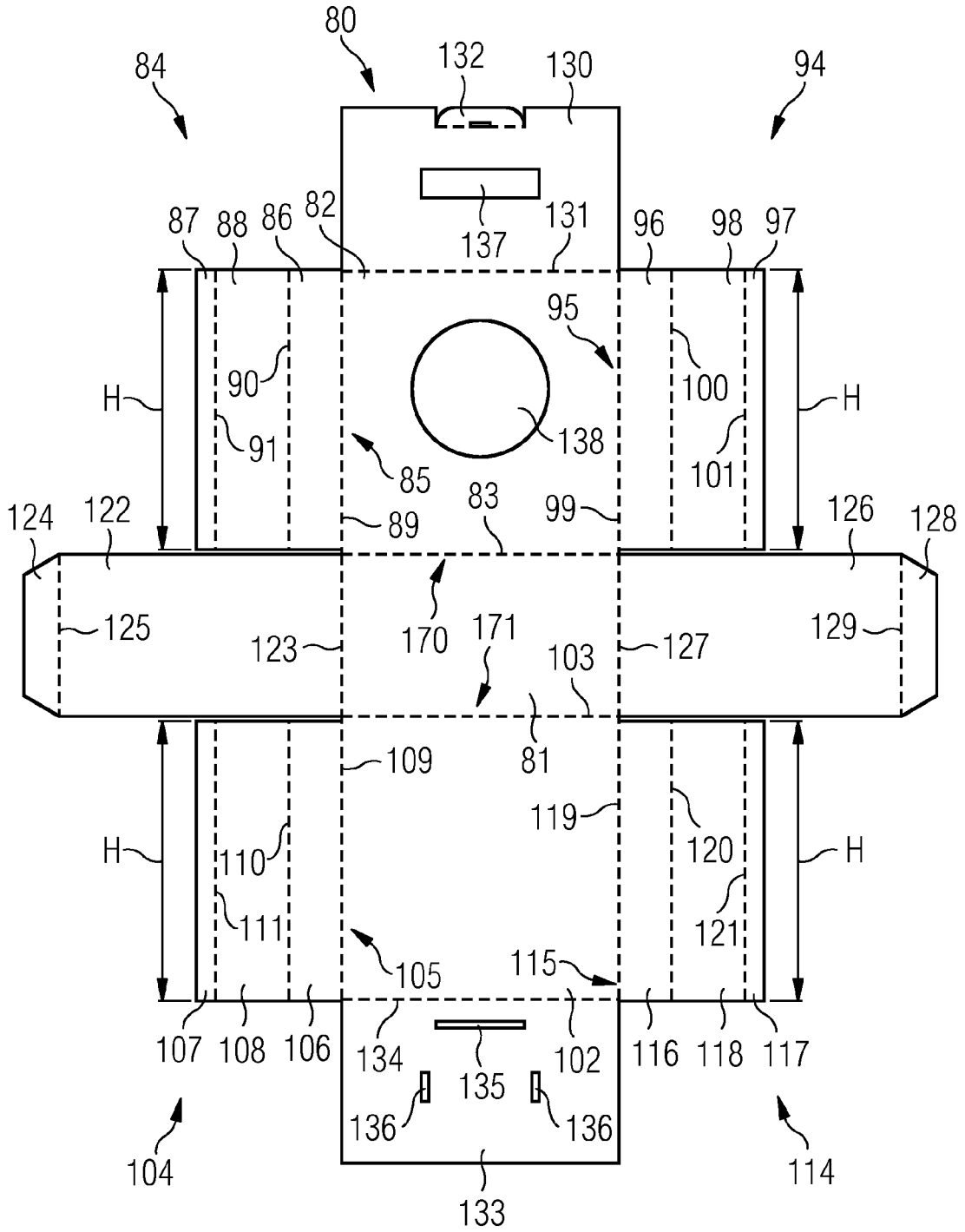
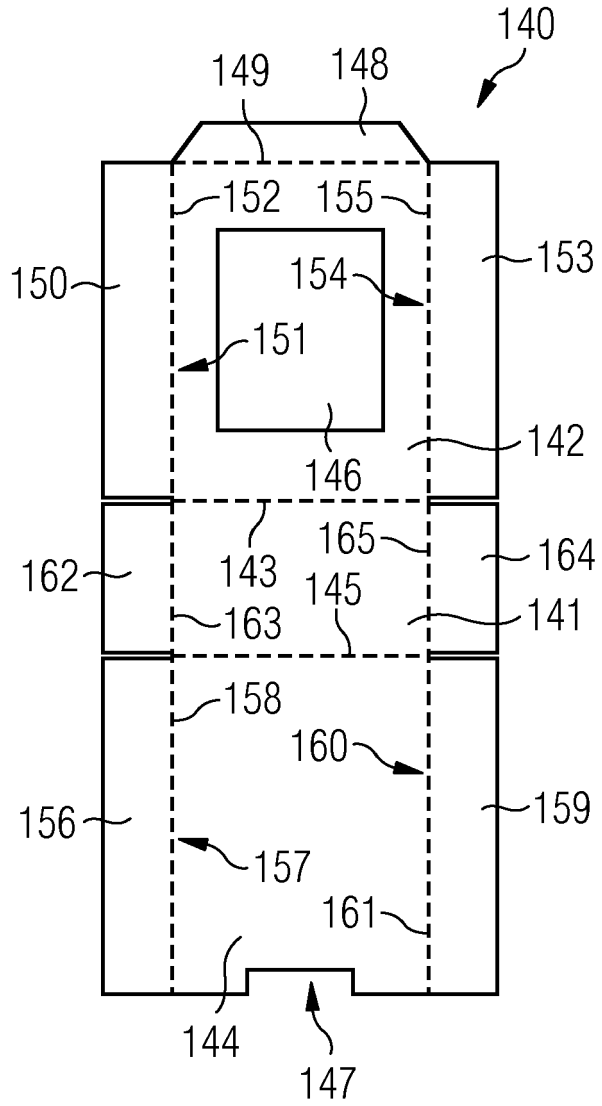


FIG 6





EUROPEAN SEARCH REPORT

Application Number
EP 14 19 3299

5

10

15

20

25

30

35

40

45

50

55

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	JP 2000 016421 A (TOSHIBA TEC KK) 18 January 2000 (2000-01-18)	1,2	INV. B65D5/50 B65D5/42 B65D5/66 B65D77/04
Y	* paragraph [0022] - paragraph [0051]; figures 1-5 *	3-7	
X	JP H05 10228 U (NN) 9 February 1993 (1993-02-09)	8-14	
Y	* paragraph [0010] - paragraph [0017]; figures 1-5 *	3-7	
X	JP 2010 143634 A (KAO CORP) 1 July 2010 (2010-07-01) * figures 1-4 *	8-14	
X	GB 18686 A A.D. 1909 (BOULT ALFRED JULIUS [GB]) 20 January 1910 (1910-01-20) * page 2, line 7 - line 38; figures 10-14 *	1	
			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 8 May 2015	Examiner Galli, Monia
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04/C01)

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

EP 14 19 3299

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

08-05-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2000016421 A	18-01-2000	JP 2000016421 A KR 20000006564 A KR 20000006567 A	18-01-2000 25-01-2000 25-01-2000
JP H0510228 U	09-02-1993	JP H079780 Y2 JP H0510228 U	08-03-1995 09-02-1993
JP 2010143634 A	01-07-2010	JP 5377952 B2 JP 2010143634 A	25-12-2013 01-07-2010
GB 190918686 A	20-01-1910	NONE	

EPO FORM P0459

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