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(54) BOX FOR CONTAINING BOTTLES

(57) Box for containing bottles comprising a bottom wall (2), a perimeter wall (3), which rises from the bottom wall (2), delimits with the latter a containment volume (V) and is provided with an upper edge (31).

The box also comprises a vertical separation structure (4), placed within the containment volume (V) and comprising at least one first and one second separation wall (41, 42) placed on intersecting planes and adapted to divide the containment volume (V) in multiple housing seats (8).

At least the first separation wall (41) is extended between a lower end (41'), and an upper end (41"), placed inside the containment volume (V).

The box is also provided with at least one neck stop wall (6), placed within the containment volume (V), in abutment against at least the upper end (41") of the first separation wall (41), and with at least one lateral band (7), which is extended with a first fold (710) starting from a first side (310) of the upper edge (31) of the perimeter wall (3). The lateral band (7) comprises a closure wall (71), substantially parallel to the neck stop wall (6), and at least one support wall (72), which is extended with a second fold (720) starting from the closure wall (71), substantially orthogonal to the latter and provided with a free end (73) placed in abutment against the neck stop wall (6).

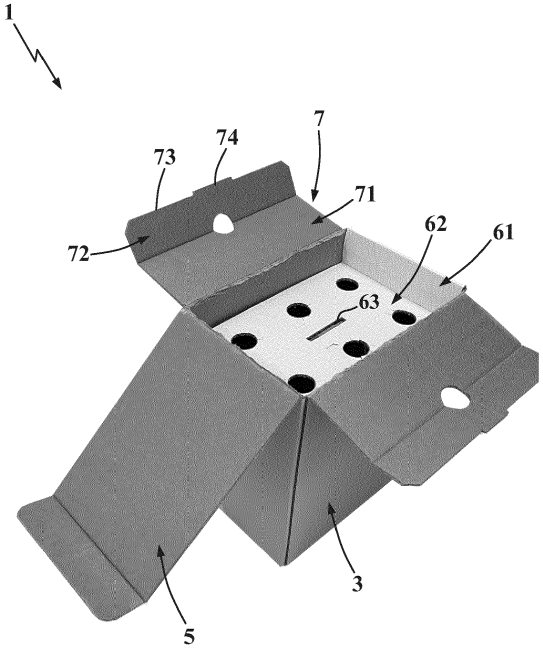

Fig. 1

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Description

Field of application

[0001] The present invention regards a box for containing bottles, according to the preamble of the main independent claim.

[0002] The present box is intended to be employed in the field of packaging in order to contain bottles, advantageously vertically placed inside and intended to be transported, for example by a producer to a distributor in order to be introduced on the market or delivered to a final client.

[0003] The box, object of the present invention, is advantageously intended to be employed for containing bottles, in particular bottles of alcoholic drinks, such as for example wine, intended for sale in packages.

State of the art

[0004] In the field of packaging, boxes are presently widely diffused that are made starting from a sheet of die-cut cardboard and folded, which are intended to contain articles that are quite different from each other. For example, boxes are known that are intended to contain bottles, and in particular glass bottles of alcoholic beverages, for example wine, beer, grappa, liquors or other beverages.

[0005] The aforesaid boxes of known type conventionally have prismatic shape, i.e. they are provided with a bottom wall, usually rectangular, on which the bottles are intended to be vertically abutted with their extension axis orthogonal to the bottom wall itself. From the lower perimeter edge of the aforesaid bottom wall, a perimeter wall is extended which on the upper part defines an upper edge of the box, which delimits an access opening, through which the bottles are intended to be inserted.

[0006] In addition, the boxes of known type comprise a vertical separation structure, placed within the box in order to separate the containment volume of the box into multiple housing seats for the bottles. The vertical support structure is provided with a height lower than the height of the box, so as to be standardized for multiple types of bottles to be contained.

[0007] The boxes of known type are also provided with a closure cover which is susceptible of being placed to cover the access opening, preventing its content from exiting outward. More in detail, the cover is placed in abutment against the same bottles, and in particular against the upper ends of the necks.

[0008] Therefore, in the boxes of known type described above, the bottles themselves, with the ends of the respective necks, define a support surface for the cover, so as to confer sufficient strength to the latter for positioning multiple boxes on top of each other. The boxes for containing bottles of the type briefly described above have in practice shown that they do not lack drawbacks.

[0009] The main drawback of these boxes lies in the fact that they are not very stable, and are easily subjected to deformation, in particular when stacked on top of each other in order to be transported in a group, e.g. by means of pallet.

[0010] In addition, the aforesaid boxes of known type are suitably designed and sized for each type of bottle that they must contain, and in particular they are sized based on the height of the bottles to be contained. Indeed, as indicated above, the internal height must be equal to the height of the bottles, in order to allow a stable abutment of the closure cover and prevent this from bending towards the interior of the box when a load is abutted thereon.

[0011] Therefore, the above-described boxes of known type are unsuitable for being filled with mixed bottles, hence provided with heights and/or diameters that are different from each other.

[0012] Filling the aforesaid boxes with bottles of different heights indeed does not allow having the tops of the necks at the same height and thus does not ensure a safe abutment of the cover, preventing the stacking of multiple boxes on top of each other in a stable and safe manner. In addition, also the positioning of bottles of different diameter has proven problematic since the bottles with lower diameter are not stably retained by the vertical separation structure, the latter being sized for also receiving the bottles with greater diameter. This can lead to undesired movements of the bottles within the box, rendering it difficult to handle and some cases even leading to breakage of the bottles themselves.

[0013] In order to at least partially overcome the drawbacks of the common boxes described briefly up to now, boxes have been developed for containing bottles in which the vertical separation structure is provided with a height equal to the internal height of the box, so as to improve the stability of the latter in particular during the storage of multiple boxes stacked on each other, since the cover rests both on the necks and on the vertical separation structure.

[0014] Also the aforesaid boxes for containing bottles with vertical separation structure throughout its height, described briefly above, have in practice shown that they do not lack drawbacks.

[0015] The main drawback lies in the fact that also in such case, the above-described boxes are unsuitable for being filled with mixed bottles, have provided with heights and/or diameters that are different from each other.

[0016] In particular, such boxes do not resolve the problem of housing of bottles with different diameter, which can be subjected to movements and impact during the movement of the box.

[0017] In addition, even if stronger than the previously-described boxes, also the latter boxes have proven to have poor strength when they are stored in a pallet and stacked on each other.

[0018] Also known, for example from the patent EP 1477413, are boxes for containing bottles in which the vertical separation structure is extended in a single body

with the rest of the box. In particular, such vertical separation structure comprises a first separation wall, which is extended from a lateral wall of the box towards the interior of the containment volume and is extended up to an upper end thereof placed at the access opening of the box. In addition, the separation structure comprises a second separation wall, which is extended projecting from the bottom wall of the box, in a single body with the latter and is extended orthogonal to the first separation wall in order to define, with the latter, a plurality of seats for containing bottles.

[0019] The box described in the aforesaid patent also comprises a neck stop wall, which is provided with a plurality of housing openings, each adapted to retain the neck of a respective bottle to be retained.

[0020] More in detail, the neck stop wall is attained by means of two half-walls, which are extended in a single body by means of a fold respectively from the upper end of the first vertical separation wall and from the perimeter upper edge of a lateral wall of the box.

[0021] In such box of known type, therefore, the neck stop wall is extended at the same height, substantially coplanar with respect to the perimeter upper edge of the box.

[0022] Also known from the patent WO 2007/007358 is a box for packaging coffee machines, which comprises a horizontal separator, attained with a separate panel, adapted to separate the internal volume of the box into a lower space, in which the machine is placed, and an upper space in which the accessories of the machine itself are placed.

[0023] Such box also comprises two shaped bands, which are extended from two opposite sides of the upper edge of the box and are folded towards the interior of the latter up to abutting against the horizontal separator, defining two corresponding spacers provided with corresponding notches intended to be engaged by tabs of the box covers.

[0024] Both the aforesaid boxes of known type have in practice shown that they do not lack drawbacks, since like the above-described boxes these are also unsuitable for being filled with mixed bottles, hence provided with heights and/or diameters that are different from each other.

[0025] In addition, also such boxes have proven to have poor stability and strength, in particular when they are stored in a pallet and stacked on top of each other.

Presentation of the invention

[0026] In this situation, the problem underlying the present invention is therefore that of overcoming the drawbacks manifested by boxes of known type, by providing a box for containing bottles that is safe and stable during the normal use, also with high loads.

[0027] A further object of the present invention is to provide a box which is safe and stable during the normal use also when contains bottles of different sizes.

[0028] A further object of the present invention is to provide a box which is versatile in the design and adaptable in a simple manner for different types of bottles to be contained.

[0029] A further object of the present invention is to provide a box for containing bottles which allows an efficient placement and separation of the bottles.

[0030] A further object of the present invention is to provide a box that is quick to be assembled.

[0031] A further object of the present invention is to provide a box that is aesthetically appreciable.

[0032] A further object of the present invention is to provide a box that is easy and inexpensive to make.

Brief description of the drawings

[0033] The technical characteristics of the invention, according to the aforesaid objects, can be clearly seen in the contents of the below-reported claims and the advantages thereof will be more evident in the following detailed description, made with reference to the enclosed drawings, which represent merely exemplifying and non-limiting embodiments of the invention, in which:

- figure 1 shows a perspective view of the box, in accordance with a first embodiment, with lateral bands raised;
- figure 2 shows a perspective view of the box of figure 1, with one of the two lateral bands abutted against a neck stop wall;
- figure 3 shows a top perspective view of a vertical separation structure of the box of figure 1;
- figure 4 shows a top plan view of the box of figure 1, non-assembled;
- figure 5 shows a perspective view of the box, in accordance with a second embodiment, with the lateral bands raised;
- figure 6 shows a perspective view of the box of figure 5, with one of the two lateral bands abutted against a neck stop wall;
- figure 7 shows a top plan view of the box of figure 5, non-assembled;
- figure 8 shows a perspective view of the box, in accordance with a third embodiment, with the lateral bands raised;
- figure 9 shows a perspective view of the box of figure 8, with one of the two lateral bands abutted against a neck stop wall;
- figure 10 shows a top plan view of the box of figure 8, non-assembled;
- figure 11 shows a perspective view of the box, in accordance with a fourth embodiment, with the lateral bands raised;
- figure 12 shows a perspective view of the box of figure 11, with one of the two lateral bands abutted against a neck stop wall;
- figure 13 shows a top plan view of the box of figure 11, non-assembled;

- figure 14 shows a perspective view of the box, in accordance with a fifth embodiment, with the lateral bands raised;
- figure 15 shows a perspective view of the box of figure 14, with one of the two lateral bands abutted against a neck stop wall;
- figure 16 shows a top plan view of the box of figure 14, non-assembled;
- figure 17 shows a perspective view of the box, in accordance with a sixth embodiment, with the lateral bands raised;
- figure 18 shows a perspective view of the box of figure 17, with one of the two lateral bands abutted against a neck stop wall;
- figure 19 shows a top plan view of the box of figure 17, non-assembled;
- figure 20 shows a perspective view of the box, in accordance with a seventh embodiment, with the lateral band raised;
- figure 21 shows a perspective view of the box of figure 20, with the lateral band abutted against a neck stop wall;
- figure 22 shows a top plan view of the box of figure 20, non-assembled.

Detailed description of a preferred embodiment

[0034] With reference to the enclosed drawings, reference number 1 overall indicates a box for containing bottles according to the present invention, and preferably for containing bottles of alcoholic beverages, for example wine.

[0035] The box 1, object of the present invention, is preferably intended to contain a plurality of bottles provided with a wide base and with a narrow neck, which are extended along a main extension axis and are connected to each other by a shoulder.

[0036] Advantageously, the present box 1 is made of cardboard, and in particular of die-cut cardboard, which is susceptible of being cut and folded in order to obtain the box 1 itself in a single body.

[0037] In accordance with the invention the present box 1 comprises a bottom wall 2, which is advantageously perimetrically delimited by a lower edge 21, preferably quadrangular.

[0038] The box 1 is intended to contain bottles of any type, such as for example "Bordeaux", "Burgundy", "Rhine" or "champagnotte" sparkling wine-type bottle. The latter in particular connect the wide base to the narrow neck by means of a shoulder shaped with a double curvature comprising a first convex curvature and a second concave curvature that are substantially symmetric with respect to each other. Of course, the box 1, object of the present invention, is intended to contain bottles of any shape, different from that of the abovementioned bottles, without departing from the scope of the present patent.

[0039] Preferably, the bottles are placed vertically within the box 1, with their own bases abutted against the bottom wall 2.

[0040] The present box 1 also comprises, preferably in a single body with the bottom wall 2, a perimeter wall 3, which rises starting from the bottom wall 2, preferably from the lower edge 21 of the bottom wall 2.

[0041] The perimeter wall 3 delimits, with the bottom wall 2, a containment volume V for bottles and is provided with an upper edge 31 which defines an access opening to the containment volume V.

[0042] For such purpose, the perimeter wall 3 advantageously rises orthogonal to the bottom wall 2, in order to define a box-like body with the latter.

[0043] Advantageously, the perimeter wall 3 is provided with four faces and the upper edge 31 is provided with four sides 310, 320, 330, 340 that is two-by-two parallel.

[0044] Advantageously, the upper edge 31 of the perimeter wall 3 is substantially rectangular and is provided with two greater sides and two smaller sides, two-by-two parallel.

[0045] Preferably, the lower edge 21 and the upper edge 31 have the same rectangular shape.

[0046] The present box 1, in addition, comprises a vertical separation structure 4, which is placed within the containment volume V and comprises at least one first separation wall 41 and at least one second separation wall 42, which are placed on intersecting planes and are adapted to divide the containment volume V in multiple housing seats 8, each susceptible of containing at least one bottle.

[0047] Advantageously, the first and the second separation wall 41, 42 are placed orthogonal to each other, and preferably parallel each to two pairs of sides of the upper edge 31.

[0048] Otherwise, without departing from the protective scope of the present invention, the separation walls 41, 42 can be placed cross-orthogonal to each other, parallel to the diagonals of the upper edge 31.

[0049] At least the first separation wall 41 is extended between a first lower end 41', placed in abutment against the bottom wall 2, and a first upper end 41", placed inside the containment volume V.

[0050] More in detail, the first upper end 41" of the first separation wall 41 is placed below, spaced from the upper edge 31 of the perimeter wall 3 which defines the access opening of the box 1.

[0051] Advantageously, the second separation wall 42 is extended between a second lower end 42', placed in abutment against the bottom wall 2, and a second upper end 42", placed inside the containment volume V.

[0052] The present box 1, in addition, comprises a neck stop wall 6 placed within the containment volume V, preferably parallel to the bottom wall 2.

[0053] Preferably, the neck stop wall 6 is made in a single body and, in particular, is extended substantially on the entire transverse section of the containment volume V of the box 1.

[0054] Advantageously, the neck stop wall 6 is placed

below the upper edge 31 of the perimeter wall 3 and, preferably, divides the containment volume V into a lower portion VI, interposed between the bottom wall 2 and the neck stop wall 6 and adapted to contain the bodies of the bottles, and an upper portion V2, interposed between the neck stop wall 6 and the upper edge 31, in which the upper portion of the necks of the bottles contained in the box 1 are susceptible of being housed.

[0055] Such configuration of the neck stop wall 6 placed within the containment volume V, at a lower height than the access opening defined by the upper edge 31 of the perimeter wall 3, allows placing, within the box 1, bottles provided with different heights, allowing the correct retention of the respective necks and simultaneously allowing their complete containment within the containment volume V of the box 1. According to the invention, the neck stop wall 6 is placed in abutment against at least the upper end 41" of the first separation wall 41 and provided with retention openings 60 susceptible of engaging the neck of the bottles in order to maintain them in position in the containment volume V.

[0056] In this manner possible weights supported by the neck stop wall 6 are transferred to the bottom wall 2 by means of at least the first separation wall 41, conferring a greater stability to the box 1.

[0057] Advantageously, the retention openings 60 are provided with radial notches, which are extended from the peripheral edge of each opening and together define a plurality of retention tabs in order to allow retaining necks of different sizes.

[0058] In particular, during use, with the bottles placed within the box 1, the neck of each bottle is inserted within the respective retention opening 60 and advantageously the retention tabs are placed in abutment against the shoulder of the bottle.

[0059] Advantageously, the first separation wall 41 is provided with a first vertical extension, measured along a first extension direction X orthogonal to the bottom wall 2, which is lower than the height of the perimeter wall 3, measured along the aforesaid first extension direction X.

[0060] Advantageously, the second separation wall 42 is provided with a second vertical extension, measured along the first extension direction X, lower than the height of the perimeter wall 3, measured along the first extension direction X.

[0061] Preferably, the first vertical extension of the first separation wall 41 and the second vertical extension of the second separation wall 42 are substantially equal, and the neck stop wall 6 is placed in abutment against both separation walls 41, 42, in a manner such to define a greater abutment surface. Advantageously, both the separation walls 41, 42 are interposed between the bottom wall 2 and the neck stop wall 6, in abutment against the latter in order to transfer the loads supported by the neck stop wall 6 directly to the bottom wall 2.

[0062] Advantageously, the first upper end 41" of the first separation wall 41 and the second upper end 42" of the second separation wall 42 are placed substantially coplanar

[0063] Of course, without departing from the protective scope of the present patent, the second separation wall 42 can be provided with a second vertical extension which is smaller than the first vertical extension of the first separation wall 41.

[0064] In accordance with the idea underlying the present invention the box 1 comprises a lateral band 7, which is extended with a first fold 710 starting from a first side 310 of the upper edge 31 of the perimeter wall 3. Preferably, the first fold 710 is extended along the entire the first side 310 of the upper edge 31.

[0065] The lateral band 7 comprises a closure wall 71, substantially parallel to the neck stop wall 6, and preferably parallel to the bottom wall 2 when the box 1 is mounted.

[0066] More in detail, the closure wall 71 is extended between the first fold 710 of the lateral band 7 and a corresponding terminal edge 711.

[0067] The lateral band 7 also comprises at least one support wall 72, which is extended with a second fold 720, preferably parallel to the first fold 710, starting from the closure wall 71, substantially orthogonal to the latter, and is provided with a free end 73 placed in abutment against the neck stop wall 6.

[0068] In this manner, the closure wall 71 advantageously discharges, directly on the bottom wall 2, the supported loads, first by means of the support wall 72, in abutment against the neck stop wall 6, and subsequently against the separation wall 41, which is in abutment against the bottom wall 2.

[0069] In this manner the box for containing bottles 1 can stably support, by means of at least the closure wall 71 of the lateral band 7, high loads and can simultaneously allow stacking multiple boxes with the bottles housed without incurring deformations of the same boxes and consequently without incurring risks that the created stack will fall.

[0070] In addition, in such a manner, it is possible to house bottles of different height, since it is the same box to sustain the loads placed thereon regardless of the bottles contained therein, and of different diameter, since the neck stop wall 6 allows stably retaining the necks of the bottles, preventing the latter from being moved within the containment volume V.

[0071] Advantageously, in accordance with the embodiments illustrated in the enclosed figures, the support wall 72 is extended with the aforesaid second fold 720 starting from the terminal edge 711 of the closure wall 71.

[0072] Otherwise, without departing from the protective scope of the present invention, the support wall 72 can be extended with the aforesaid second fold 720 starting from an internal portion of the closure wall 71, defining a flap cut directly from the closure wall 71.

[0073] Preferably, the box comprises two lateral bands 7, which are extended, each with a first fold 710, from two opposite sides 310, 330 of the upper edge 31.

[0074] In accordance with the first and the second em-

bodiment, respectively illustrated in figures 1-4 and 5-7, the closure walls 71 of the two lateral bands 7 are placed with the corresponding terminal edges 711 at, preferably in abutment against each other, so as to substantially entirely close the access opening to the containment volume V inside the box 1.

[0075] In this manner the closure walls 71 together define an upper abutment surface that is planar and substantially continuous.

[0076] In accordance with the third, fourth, fifth and sixth embodiment, respectively illustrated in figures 8-10, 11-13, 14-16 and 17-19, the closure walls 71 of the two lateral bands 7 are placed with the corresponding terminal edges 711 spaced, advantageously closing the aforesaid access opening only partially, defining a free space therebetween.

[0077] In accordance with the seventh embodiment, illustrated in figures 20-22, the box comprises only one lateral band 7, which is placed to partially cover the access opening.

[0078] Advantageously, the lateral band 7 comprises a grip notch 700, which can be placed on the closure wall 71 or on the support wall 72, preferably at the second fold 720 astride the two walls 71, 72. In this manner the opening of the lateral bands 7 is facilitated, in particular in case of lateral bands 7 placed to totally cover the access opening (in accordance with the preceding above-described embodiment variant). Advantageously, the neck stop wall 6 comprises an abutment wall 62, which abuts against at least the first upper end 41" of the first separation wall 41.

[0079] In accordance with the fifth and sixth embodiment, respectively illustrated in figures 14-16 and 17-19, the neck stop wall 6 is made separately with respect to the remaining components of the box 1.

[0080] Preferably, in accordance with the aforesaid embodiments, the neck stop wall 6 comprises one or more connector sections 65, which are extended folded from the abutment wall 62 and are placed facing, preferably close to, the perimeter wall 3 in order to retain the neck stop wall 6 within the containment volume V at least via friction.

[0081] Advantageously, the neck stop wall 6 is made in a single body with the perimeter wall 3 and is extended with a third fold 600 starting from a second side 320 of the upper edge 31 of the perimeter wall 3. Preferably, the third fold 600 is extended along the entire length of the second side 320.

[0082] Advantageously, the neck stop wall 6 comprises a connector wall 61, which is extended between the third fold 600 and a fourth fold 601.

[0083] Advantageously, the connector wall 61 is placed parallel to the second face of the perimeter wall 3 and preferably close to the latter when the box 1 is mounted. Advantageously, the connector wall 61 is divided into two portions by a weakening section 610, preferably parallel to the third fold 600, so as to allow a bending of the connector wall 61 which facilitates the mounting of the box 1. More in detail, the weakening section 610 can be obtained by means of folding or by means of one or more notches. Preferably, the neck stop wall 6 is made in a single body with the rest of the box 1. In particular, the entire box 1 is made with a single cardboard, suitably folded and cut.

[0084] Advantageously, in the event in which the neck stop wall 6 is made in a single body with the perimeter wall 3, the abutment wall 62, is extended between the fourth fold 601 and an end edge 620. Preferably, the abutment wall 62 is provided with a length substantially equivalent to the length of the sides contiguous to the second side 320 from which the neck stop wall 6 is extended and the end edge 620 is placed substantially at, preferably in abutment against, the fourth side 340, opposite the second side 320. In accordance with the second, third and seventh embodiment, respectively illustrated in figures 5-7, 8-10 and 20-22 the box comprises two neck stop walls 6, which are extended, each with a third fold 600, from two opposite sides 320, 340 of the upper edge 31 up to a corresponding end edge 620. Advantageously, the abutment walls 62 of the two neck stop walls 6 are provided with an overall length (obtained by the sum of the two single lengths) substantially equivalent to the length of the sides contiguous to the second and fourth side 320, 340 from which the two neck stop walls 6 are extended. Preferably, the two abutment walls 62 have the same length and meet at the middle line of the access opening.

[0085] Advantageously, the end edges 620 of the two neck stop walls 6 are placed close to each other, and preferably in abutment against each other.

[0086] Preferably, each abutment wall 62 comprises at least one engagement section 621, which is extended from the corresponding end edge 620 and is provided with at least one component orthogonal to the side from which is extended the corresponding neck stop wall 6. More in detail, in accordance with the seventh embodiment illustrated in figures 20-22, the engagement section 621 of one of the two abutment walls 62 defines a concave half-moon, while the engagement section 621 of the other abutment wall 62 defines a convex half-moon, engageable with each other in order to retain the neck stop wall 6 in abutment against at least the first separation wall 41.

[0087] Otherwise, in accordance with the second embodiment illustrated in figures 5-8, the two abutment walls 62 can be counter-shaped as an L.

[0088] Otherwise, without departing from the protective scope of the present invention, it is possible to make the two abutment walls 62 of the neck stop walls 6 in a manner such that their dimensions summed together are greater than the dimension of the side contiguous thereto.

[0089] In particular, at least one abutment wall 62 is provided with a fifth fold 622, preferably parallel to the end edge 620 and extended along the entire width of the abutment wall 62, which defines a handle portion 64 fold-

ed on the abutment wall 62.

[0090] More in detail, the handle portion 64 is extended between the fifth fold 622 and the end edge 620 and comprises a first and a second handle wall connected together, preferably at the middle line, by a sixth fold 641.

[0091] Preferably, both abutment walls 62 comprise the aforesaid handle portion 64, which face each other, preferably with the second handle walls, extended between the sixth fold 641 and the end edge 620, close to each other.

[0092] Advantageously, each handle portion 64 comprises a grip opening 641, aligned with the opposite grip opening 641 and intended to be engaged by a user in order to lift the box.

[0093] Advantageously, on each handle portion 64, a first coupling notch 642 is attained, preferably at the sixth fold 641 and astride the first and the second handle wall, which defines a cavity in which the lateral band 7 abuts.

[0094] More in detail, the lateral band 7 advantageously comprises a second coupling notch 723 made on the support wall 72, counter-shaped to the first coupling notch 642 of the handle portion 64 in order to place the support wall 72 in abutment against the handle portion 64, thus allowing a safe and stable grip of the box 1.

[0095] Advantageously, at least one neck stop wall 6 comprises at least one housing slit 63, preferably through, and the support wall 72 comprises at least one engagement tab 74, adapted to engage the housing slit 63 retaining the lateral band 7 in abutment against the neck stop wall 6.

[0096] Preferably, the engagement tab 74 is inserted in a through manner within the housing slit 63, preferably in order to abut at least against the upper end 41" of the first separation wall 41.

[0097] Advantageously, the housing slit 63 is made on the abutment wall 62 of the neck stop wall 6 and the engagement tab 74 is made projecting from the free end 73 of the support wall 72. Preferably, the engagement tab 74 is extended for a reduced portion of the support wall 72.

[0098] In accordance with the third and seventh embodiment illustrated in figures 8-10 and 20-22, at least one housing slit 63 is made on the connector wall 61 of the neck stop wall 6, the support wall 72 comprises two lateral edges 721 that are opposite each other and at least one engagement tab 74 is made on at least one of the lateral edges 721.

[0099] Advantageously, the neck stop wall 6 comprises two housing slits 63 and, in the event in which the box 1 comprises two lateral bands 7, each of these lateral bands 7 comprises an engagement tab 74, engageable in one of the two housing slits 63.

[0100] Otherwise, in accordance with the first and second embodiment of figures 1-4 and 5-7, two engagement tabs 74 of two separate lateral bands 7 are engageable in a common housing slit 63, which is for such purpose made of greater size, in order to allow retaining two separate engagement tabs 74.

[0101] In accordance with the third embodiment illustrated in figures 8-10, in which the abutment wall 62 comprises a handle portion 64, the support wall 72 comprises a seventh fold 722, which allows folding the support wall in order to stiffen it. Preferably, the second coupling notch 723 is made at the seventh fold 722 and preferably the support wall 72 comprises two support tabs 74 on each lateral edge 721, which are placed spaced in a manner such that once the support wall 72 is folded around the seventh fold 722, the two support tabs 74 of each lateral edge 721 are superimposed to form a single support tab 74. Advantageously, at least one housing slit 63 at least partially surmounts the first separation wall 41. More in detail, at least part of the first separation wall 41 intercepts the opening defined by the housing slit 63. Preferably, at least one housing slit 63 is placed aligned with the upper edge 41" of the first separation wall 41, and the support wall 72 is substantially coplanar with the first separation wall 41 when the box 1 is mounted. In this manner the support wall 72 axially abuts against the first separation wall 41, allowing the box 1 to sustain high loads placed thereon. Advantageously, when the engagement tab 74 is inserted within the housing slit 63 defines an ideal extension of the first separation wall 41 and reduces the bending of the latter following the loading of the box 1.

[0102] Advantageously, the box 1 comprises at least one cover 5, preferably made in a single body, which is adapted to close the access opening.

[0103] Preferably, the cover 5 is extended with an eighth fold 51 starting from one side of the upper edge 31 of the perimeter wall 3, up to a closure edge.

[0104] Advantageously, the cover 5 comprises a closure band 52, which is extended with a ninth fold 53 starting from the closure edge of the cover 5, distal with respect to the eighth fold 51. Preferably, such closure band 52 is susceptible of being inserted within the containment volume V of the box 1, in order to retain the cover 5 in a closed position, in which it is placed to cover bottles. Otherwise, the closure band 52 can be susceptible of remaining outside the containment volume, and is susceptible of being connected to the side of the perimeter wall 3 opposite that from which the cover 5 is extended, for example by means of an adhesive element.

[0105] Advantageously, in accordance with the sixth embodiment illustrated in figures 17-19, the box 1 comprises two covers 5, which are extended from opposite sides of the upper edge 31, each with an eighth fold 51.

[0106] In accordance with the aforesaid embodiments, at least one closure band 52 of the covers 5, preferably both, comprises a tenth fold 54, which defines a wide first section 521 on the closure band 52 and a narrow second section 522.

[0107] Advantageously, the first section 521 is engageable with the grip notch 700 in order to retain the cover 5 in abutment against the corresponding lateral band 7.

[0108] Preferably, moreover, in accordance with the third, fourth, fifth and sixth embodiment, previously de-

scribed, in which the lateral bands 7 are placed with the respective terminal edges 711 spaced, the second section 522 of the closure band 52 of the cover is inserted, preferably to size, orthogonal to the two closure walls between the terminal edges of the latter.

[0109] Advantageously, the second section 522 is placed, preferably in abutment, against the neck stop wall 6, in order to improve the stability of the box 1, in particular in the case of a load that abuts at the free space between the terminal edges 711 of the closure walls 71.

[0110] Advantageously, the bottom wall 2 is attained in automatic bottom form and the vertical separation structure 4 is made in a single body with the bottom wall 2.

[0111] More in detail, the bottom wall 2 comprises in a single body the two first lower wings 22 and two second lower wings 23, extended starting from the lower edge 21, each from one side of the lower edge 21. Advantageously, in addition, each of the first lower wings 22 is hinged to a corresponding wing of the second lower wings 23 along a junction line 24, which is tilted with respect to the lower edge 21.

[0112] In accordance with a possible embodiment, the junction line 24 along which a first and a second lower wing 22, 23 are hinged coincides with a fold line provided on the second lower wing 23, and from such fold line the second lower wing 23 is extended with a junction flap 23' susceptible of being fixed to the first lower wing 23. Advantageously, in this manner, the first and the second lower wing 22, 23 are joined together by the aforesaid junction flap 23', with the second lower wing 23 free to rotate with respect to the first lower wing 22 around the junction line 24.

[0113] Indeed, in operation the first lower wing 22 is susceptible of being rotated with respect to the second lower wing 23 around the corresponding junction line 24 between a retracted position and an extended position.

[0114] More in detail, in the aforesaid retracted position, the first and the second lower wing 22, 23 are susceptible of being placed substantially parallel to each other and parallel to the perimeter wall 3 of the box 1, with the box 1 placed in a collapsed configuration and not adapted for containing the bottles at its interior.

[0115] In addition, in the extended position, the first and the second lower wing 22, 23 are susceptible of being placed coplanar with respect to each other and perpendicular to the perimeter wall 3, with the box 1 placed in an open configuration adapted to contain the bottles at its interior.

[0116] Advantageously, in the aforesaid open configuration of the box 1, the first and the second lower wing 22, 23 substantially constitute one half of the bottom wall 2 and are susceptible of being fit with the corresponding opposite first and second lower wings 22, 23 in order to constitute the entire bottom wall 2. The two pairs of lower wings hinged to each other along the junction line 24 are thus susceptible of being fit with each other, e.g. via shape coupling or by partial superimposition, along an engagement line 25, which is advantageously extended parallel to two sides of the lower edge 21 and at the middle line on the bottom wall 2 itself.

[0117] Advantageously, the bottom wall 2 thus attained is susceptible of being constituted by a shape joint of the first and second lower wings 22, 23 and allows a quicker assembly of the box 1, since it does not require fixing the first and second lower wings 22, 23 for example by means of adhesive tape or other fixing means.

[0118] Of course the bottom wall 2 can also be made of other modes without departing from the protective scope of the present patent. For example, the box 1 can be provided with a bottom wall of the type known in the field "American bottom" in which the lower wings are simply surmounted and fixed together by means of adhesive tape.

[0119] Advantageously, the vertical separation structure 4 comprises two first separation walls 41, placed spaced from each other and each provided with a passage opening 410.

[0120] Advantageously, the second separation wall 42 is placed orthogonal to the first separation walls 41 and is placed to at least partially cross the passage openings 410 in order to divide, with the first separation walls 41, the containment volume V into six housing seats 8.

[0121] In accordance with the embodiments illustrated in the enclosed figures, the vertical separation structure 4 comprises two second separation walls 42, facing and placed orthogonal to the first separation walls 41. Preferably, each second separation wall 42 is placed to at least partially cross at least one passage opening 410, preferably to traverse both, in order to divide, with the first separation walls 41, the containment volume V into six housing seats 8.

[0122] Advantageously, the first separation walls 41 are extended, each with an eleventh fold 411 from a corresponding second first lower wing 22 of the bottom wall 2 and the second separation walls 42 are extended, each with a twelfth fold 420 from a corresponding second lower wing 23 of the bottom wall 2. In particular, the first lower ends 41' of the first separation walls 41 coincides with the eleventh folds 411 and the second lower ends 42' of the second separation walls 42 coincide with the twelfth folds 420. Advantageously, the passage openings 410 are placed in a central portion of the corresponding separation walls 41 so as to not interrupt the perimeter continuity of the same separation wall 41.

[0123] Advantageously, the aforesaid passage openings 410 are shaped as a trapezoid, preferably rectangular trapezoid, and are placed with the greater base directed towards the first lower end 41' of the first separation wall 41 and the smaller base directed towards the first upper end 41" of the first separation wall 41.

[0124] Advantageously, the oblique side of each passage opening 410 is directed towards the first lower wing 22 from which the corresponding second separation wall 42 is extended which is inserted at its interior.

[0125] Advantageously, each separation wall 42 comprises a central section 421, which is extended from the

twelfth fold 420 up to the second upper end 42" of the second separation wall 42, and a shaped flap 422, which projects laterally from the central section 421 towards the corresponding first separation wall 41 with which the second separation wall 42 is engaged.

[0126] Advantageously, each second separation wall 42 is placed to traverse the passage opening 410 with at least its shaped flap 422.

[0127] Preferably, the shaped flap 422 has dimensions substantially equivalent to the corresponding passage opening 410 in which it is inserted and in particular has smaller dimensions, along the first extension direction X, with respect to the central section 421.

[0128] In this manner, when the shaped flap 422 is placed to traverse the corresponding passage opening 410, the second separation wall 42 is engaged transversely, along a direction parallel to the first extension direction X, to the first separation wall 41, thus preventing the mutual moving away of the two separation walls 41, 42 and simultaneously allowing abutting against the first separation wall 41 (and against the bottom wall 2) when the second separation wall 42 is thrust downward by the loads placed on the box 1. The box 1 thus conceived therefore attains the pre-established objects.

Claims

1. Box for containing bottles, comprising:

- a bottom wall (2);
- a perimeter wall (3), which rises from said bottom wall (2), delimits with the latter a containment volume (V) for bottles and is provided with an upper edge (31) which defines an access opening to said containment volume;
- a vertical separation structure (4), placed within said containment volume (V) and comprising at least one first separation wall (41) and at least one second separation wall (42), placed on intersecting planes and adapted to divide said containment volume (V) into multiple housing seats (8), each susceptible of containing at least one of said bottles;

at least said first separation wall (41) extended between a first lower end (41'), placed in abutment against said bottom wall (2) and a first upper end (41"), placed inside said containment volume (V);

- at least one neck stop wall (6), placed within said containment volume (V), in abutment at least against the upper end (41") of said first separation wall (41) and provided with retention openings (60) susceptible of engaging the neck of said bottles in order to maintain them in position in said containment volume (V);

said box being **characterized in that** it comprises at least one lateral band (7), which is extended with a first fold (710) starting from a first side (310) of the upper edge (31) of said perimeter wall (3) and comprises a closure wall (71), substantially parallel to said neck stop wall (6) and at least one support wall (72), which is extended with a second fold (720) starting from said closure wall (71), substantially orthogonal to the latter and is provided with a free end (73) placed in abutment against said neck stop wall (6).

2. Box according to claim 1, **characterized in that** said neck stop wall (6) is made in a single body with said perimeter wall (3) and is extended with a third fold (600) starting from a second side (320) of the upper edge (31) of said perimeter wall (3) and comprises a connector wall (61), extended between said third fold (600) and a fourth fold (601), and an abutment wall (62), extended between said fourth fold (601) and an end edge (620).

3. Box according to claim 2, **characterized in that** it comprises two neck stop walls (6), which are extended, each with a third fold (600), from two opposite sides (320, 340) of said upper edge (31) up to a corresponding end edge (620).

4. Box according to any one of the preceding claims, **characterized in that** said at least one neck stop wall (6) comprises at least one housing slit (63), and that said support wall (72) comprises at least one engagement tab (74), adapted to engage said housing slit (63), retaining said lateral band (7) in abutment against said neck stop wall (6).

5. Box according to claim 4, **characterized in that** said at least one housing slit (63) is made on the abutment wall (62) of said neck stop wall (6) and that said engagement tab (74) is made projecting from the free end (73) of said support wall (72).

6. Box according to claim 4, **characterized in that** said at least one housing slit (63) is made on the connector wall (61) of said neck stop wall;
said support wall (72) comprising two lateral edges (721) that are opposite each other and said at least one engagement tab (74) being made on at least one of said lateral edges (721).

7. Box according to any one of the claims from 4 to 6, **characterized in that** said at least one housing slit (63) at least partially surmounts said first separation wall (41).

8. Box according to claim 7, **characterized in that** said at least one housing slit (63) is placed aligned with the upper edge (41") of said first separation wall (41) and that said support wall (72) is coplanar with said first separation wall (41).

9. Box according to any one of the preceding claims, **characterized in that** said bottom wall (2) is attained in automatic bottom form and said vertical separation structure (4) is attained in a single body with said bottom wall (2).

10. Box according to any one of the preceding claims, **characterized in that** said vertical separation structure (4) comprises two first separation walls (41), placed spaced from each other and each provided with a passage opening (410);
said second separation wall (42) being placed orthogonal to said first separation walls (41) and being placed to at least partially cross said positioning openings (410) in order to divide, with said first separation walls (41), said containment volume (V) into six housing seats (8).

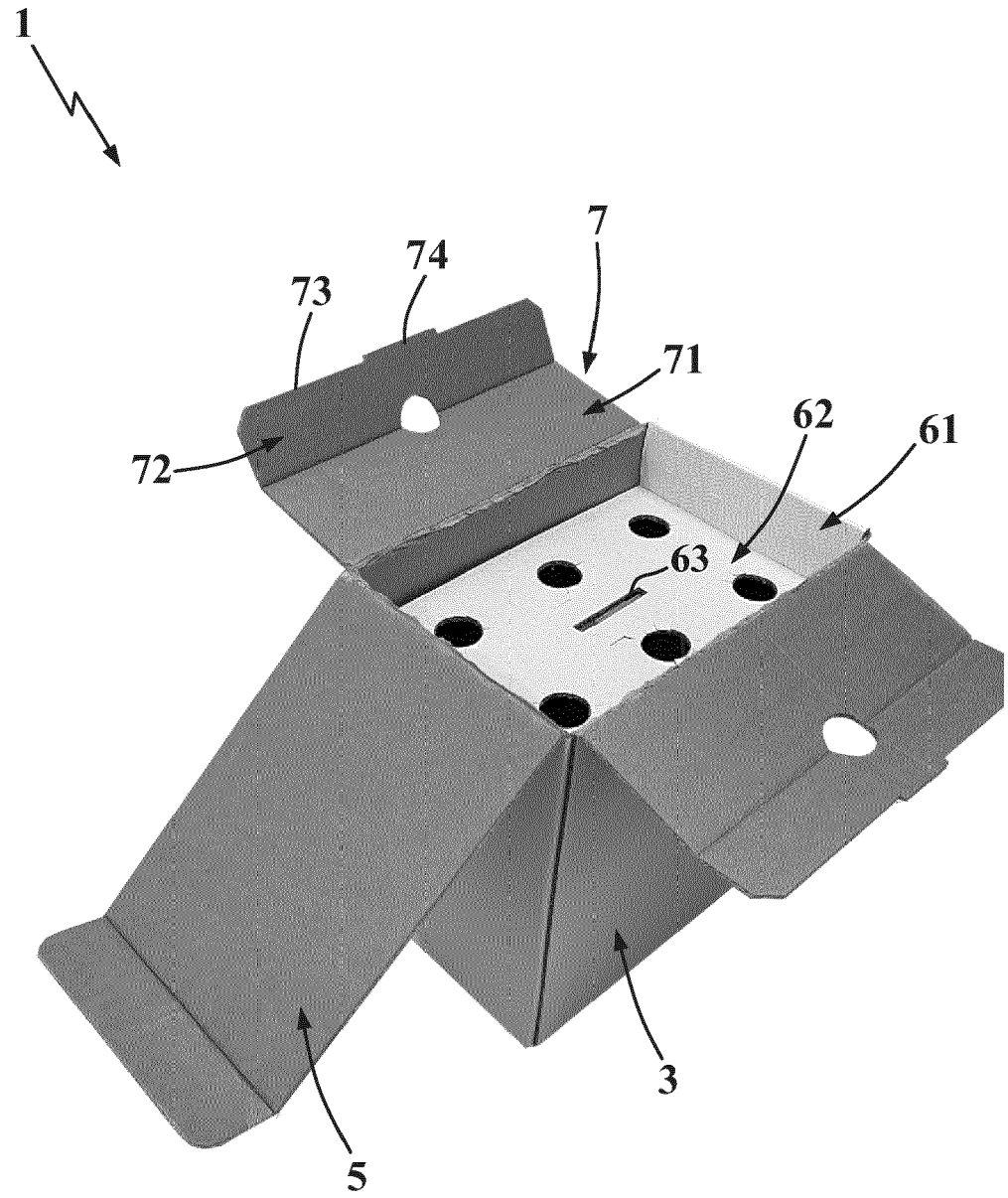


Fig. 1

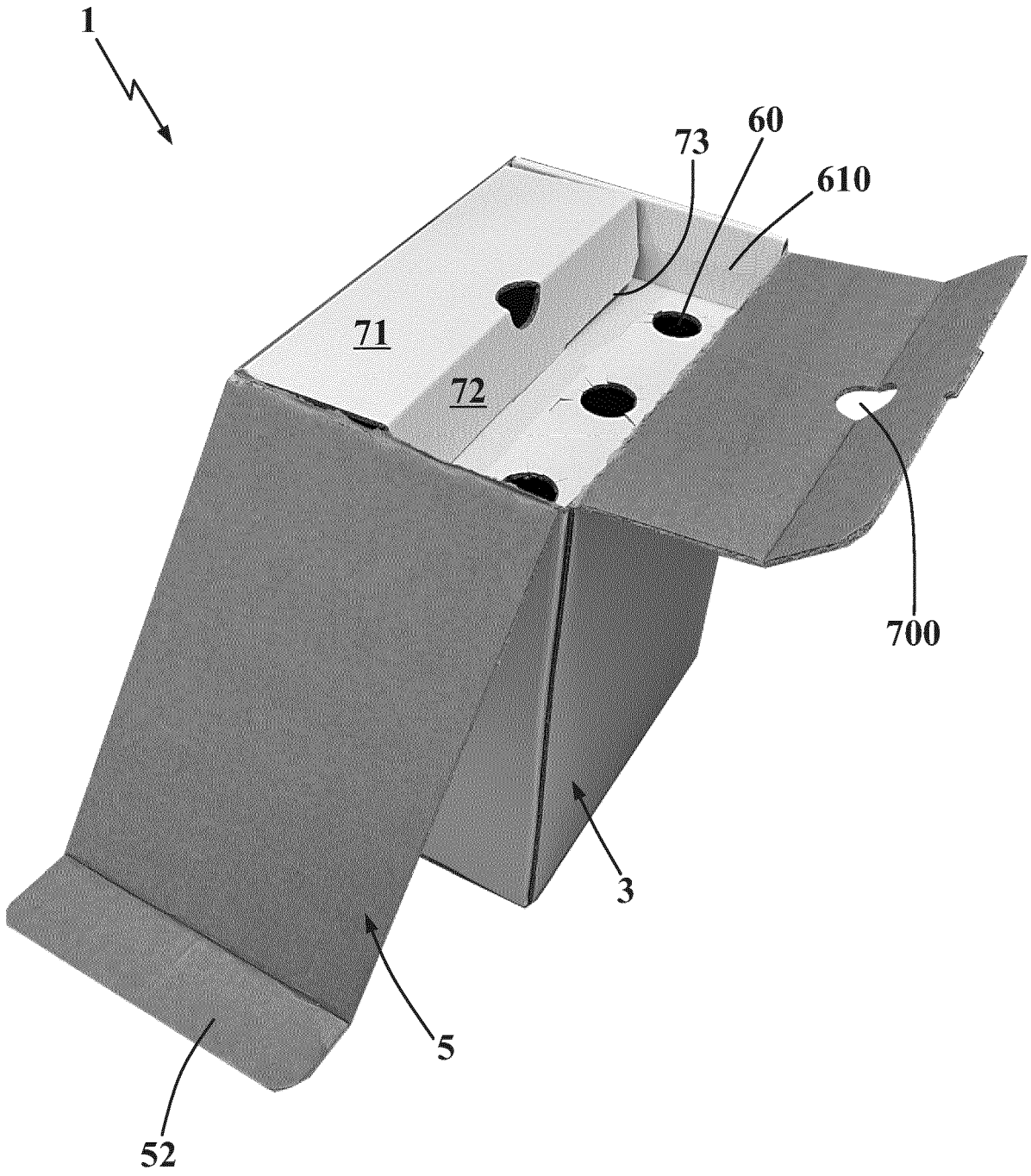


Fig. 2

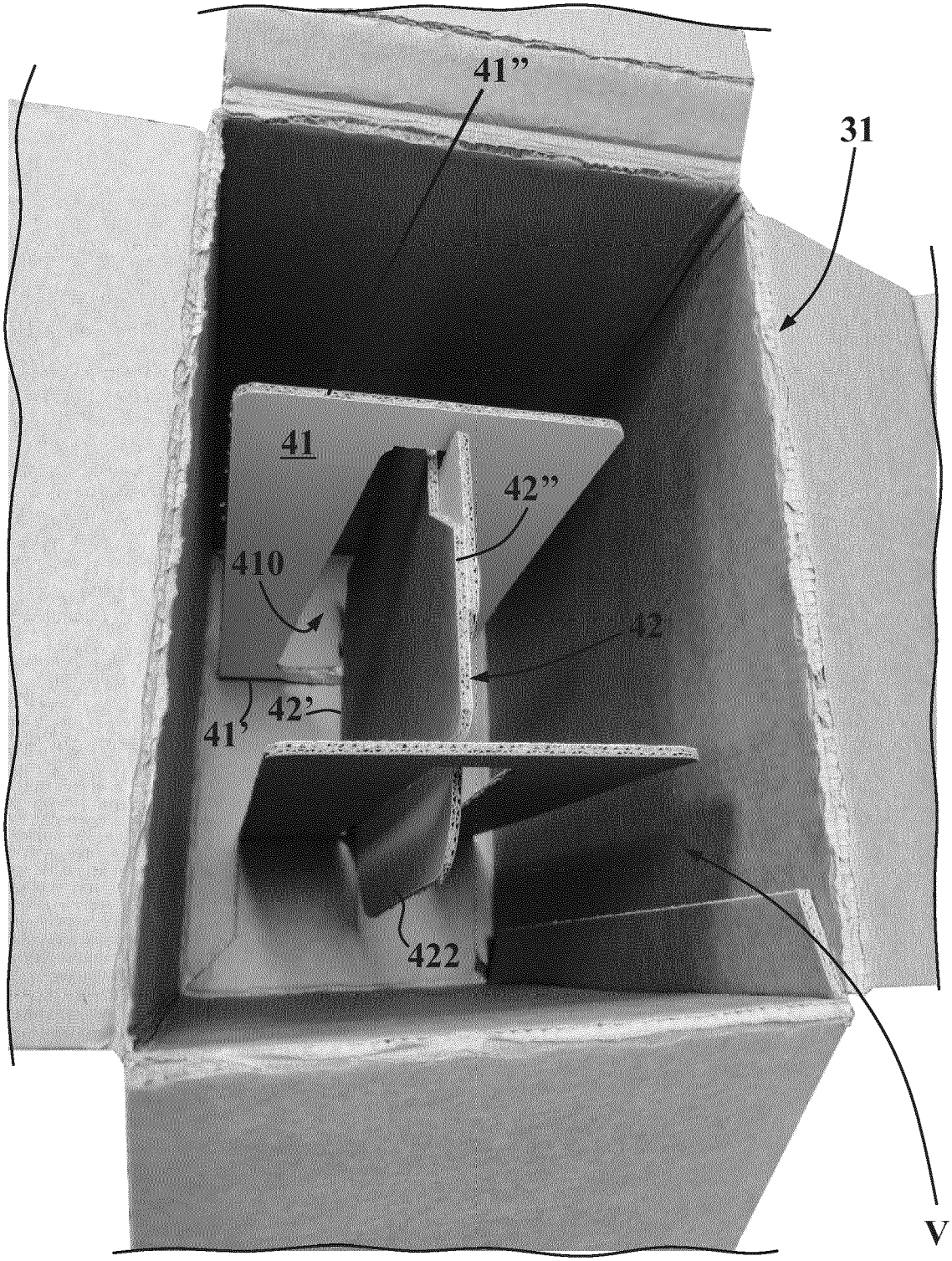
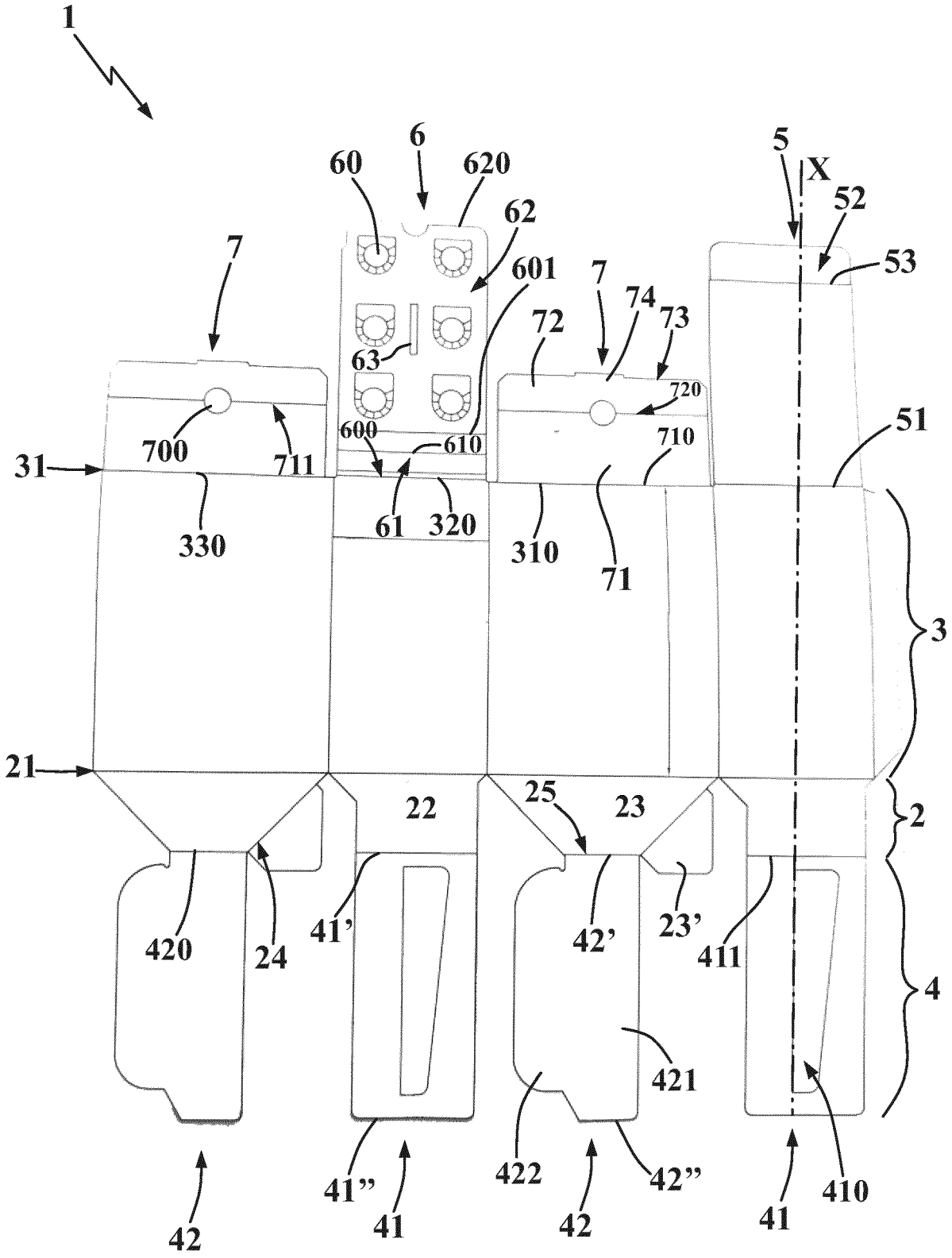


Fig. 3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72
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Fig. 4

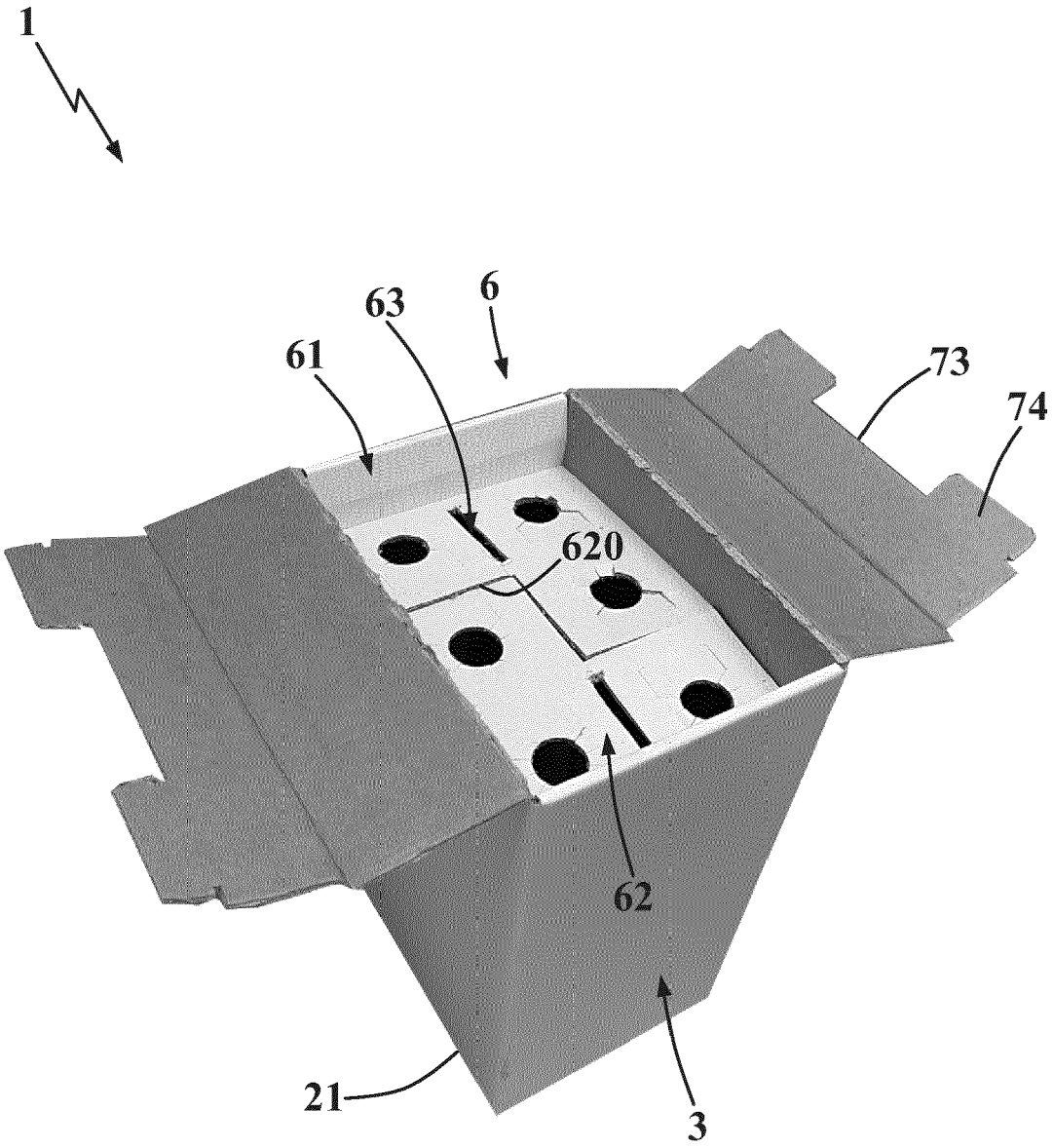
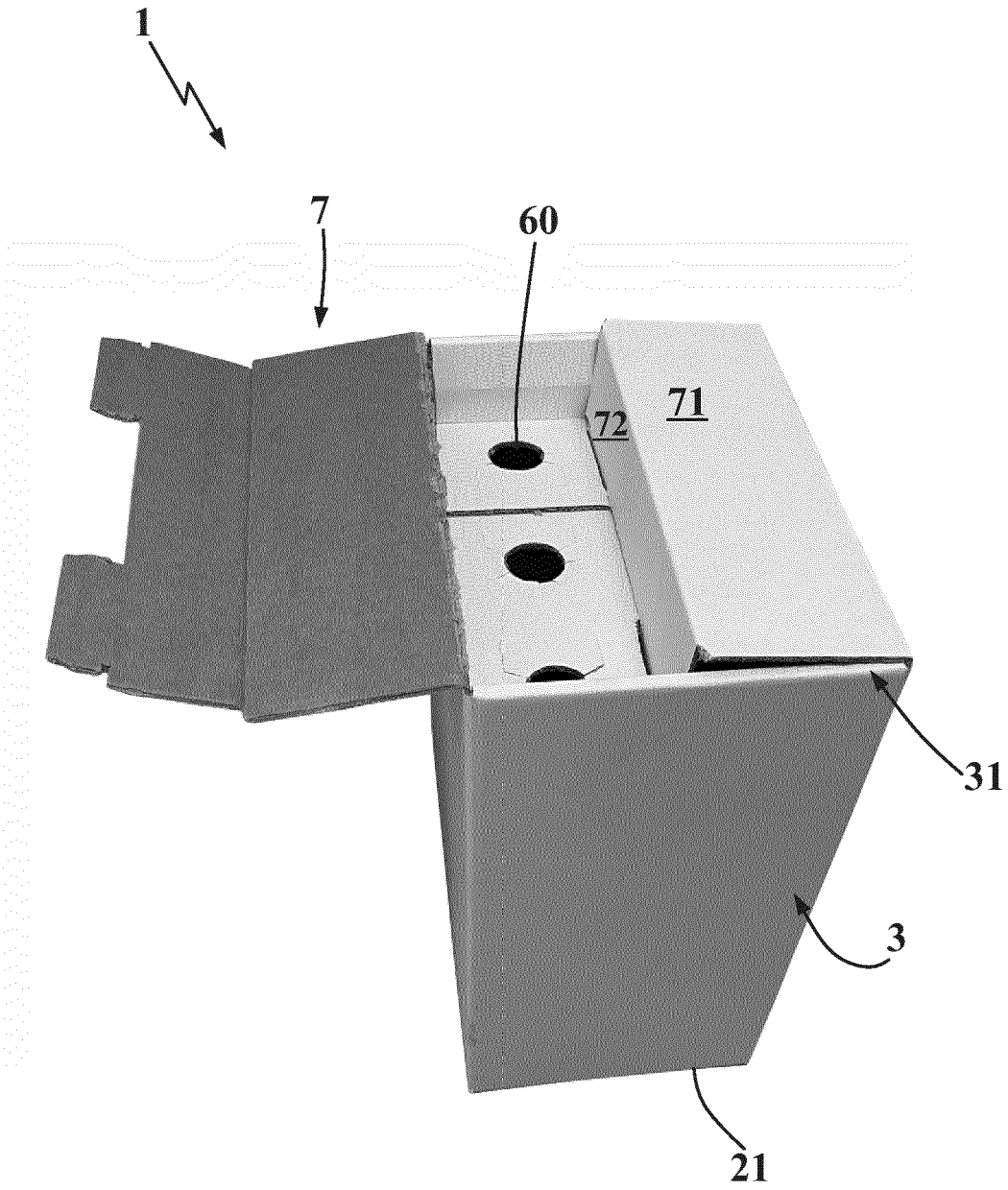


Fig. 5



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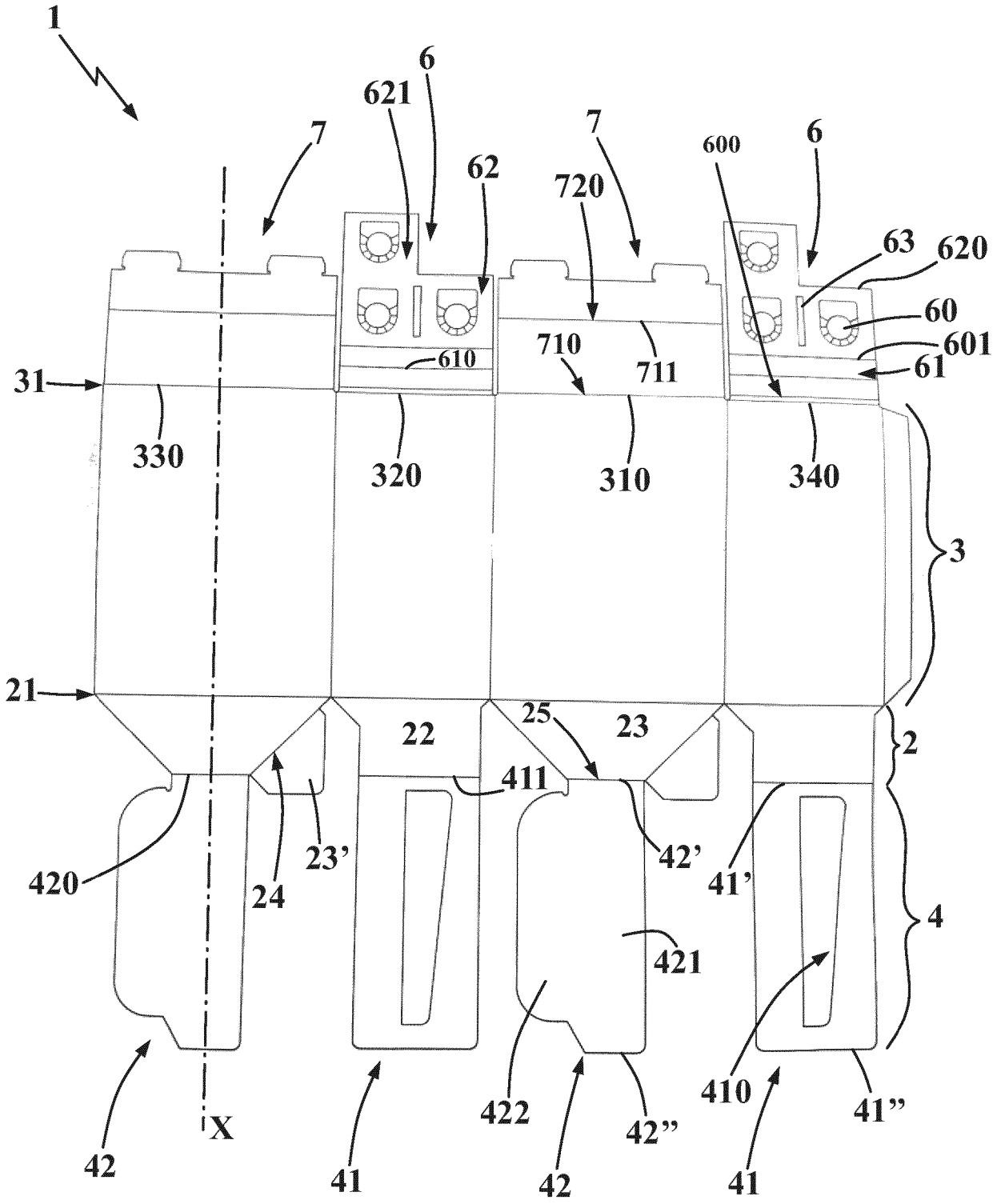
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Fig. 7

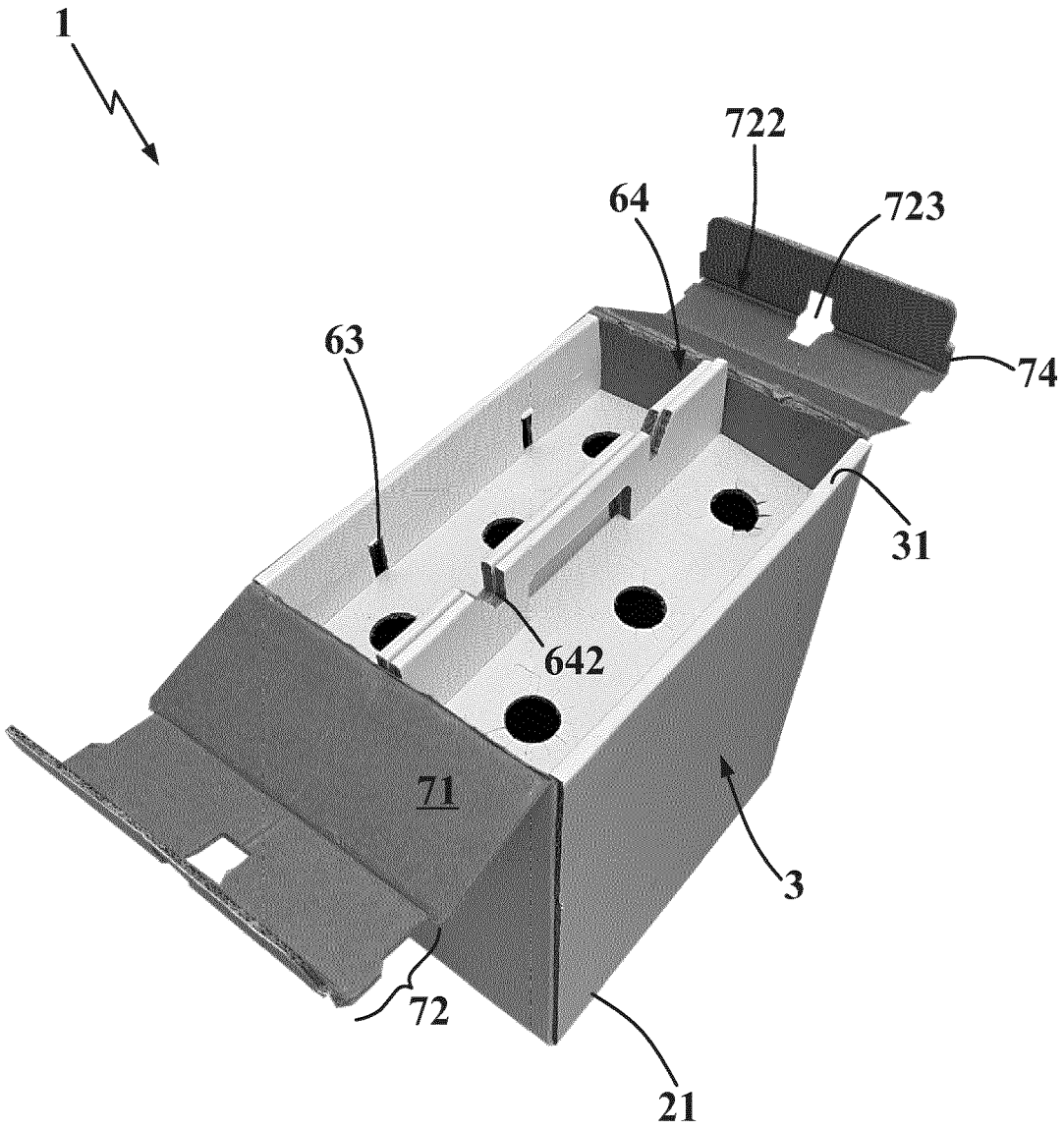

Fig. 8

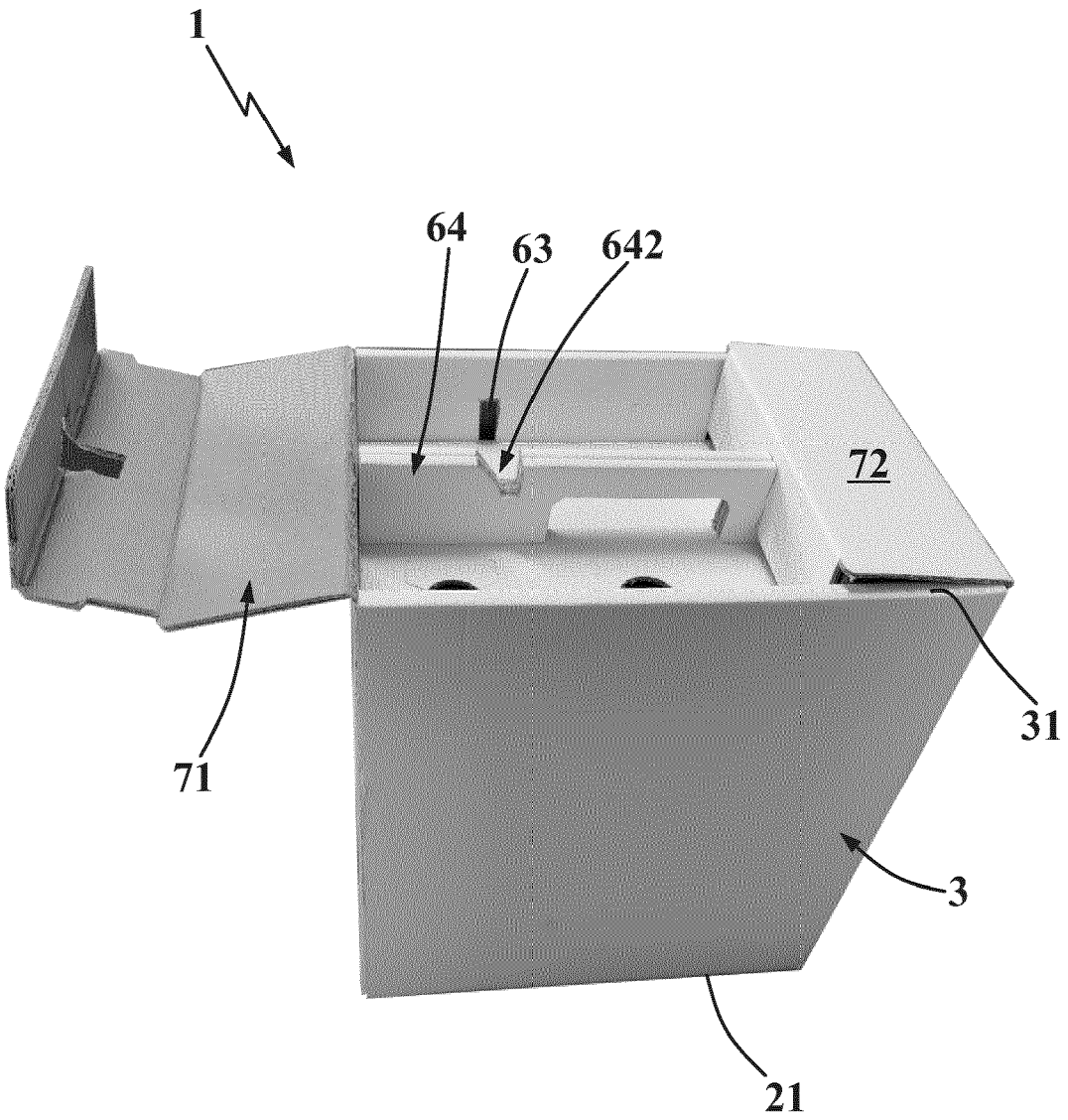

Fig. 9

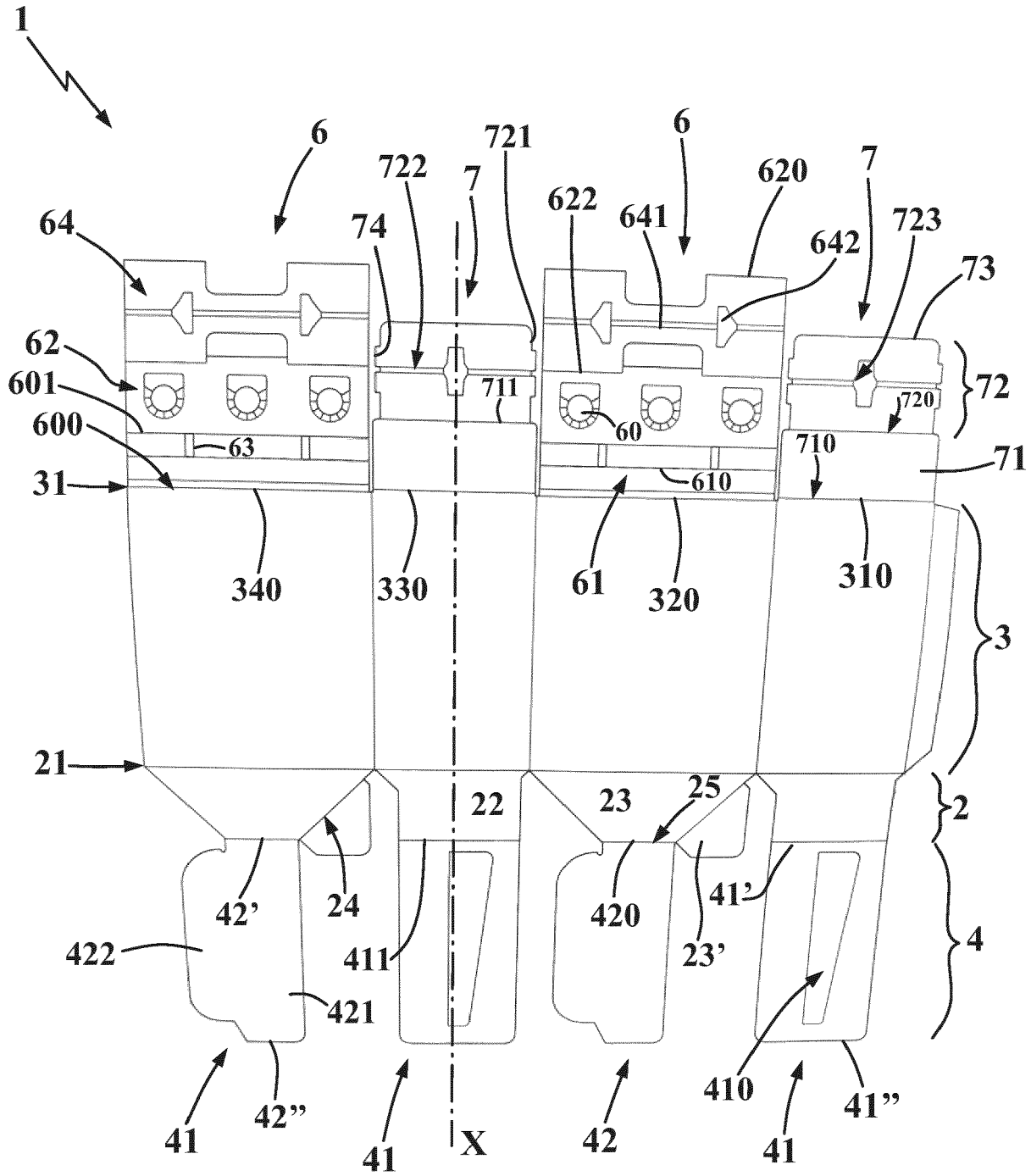
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Fig. 10

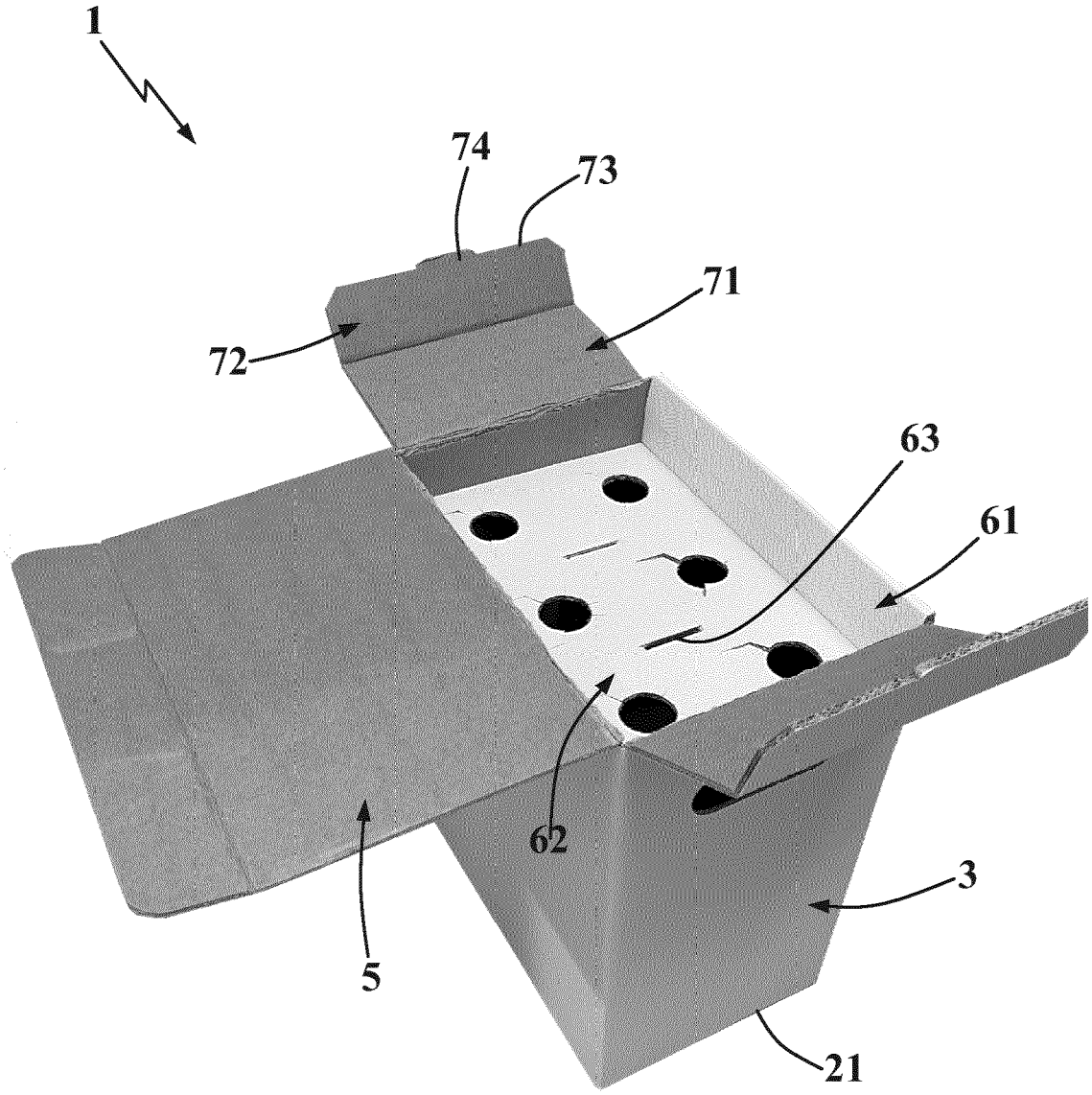

Fig. 11

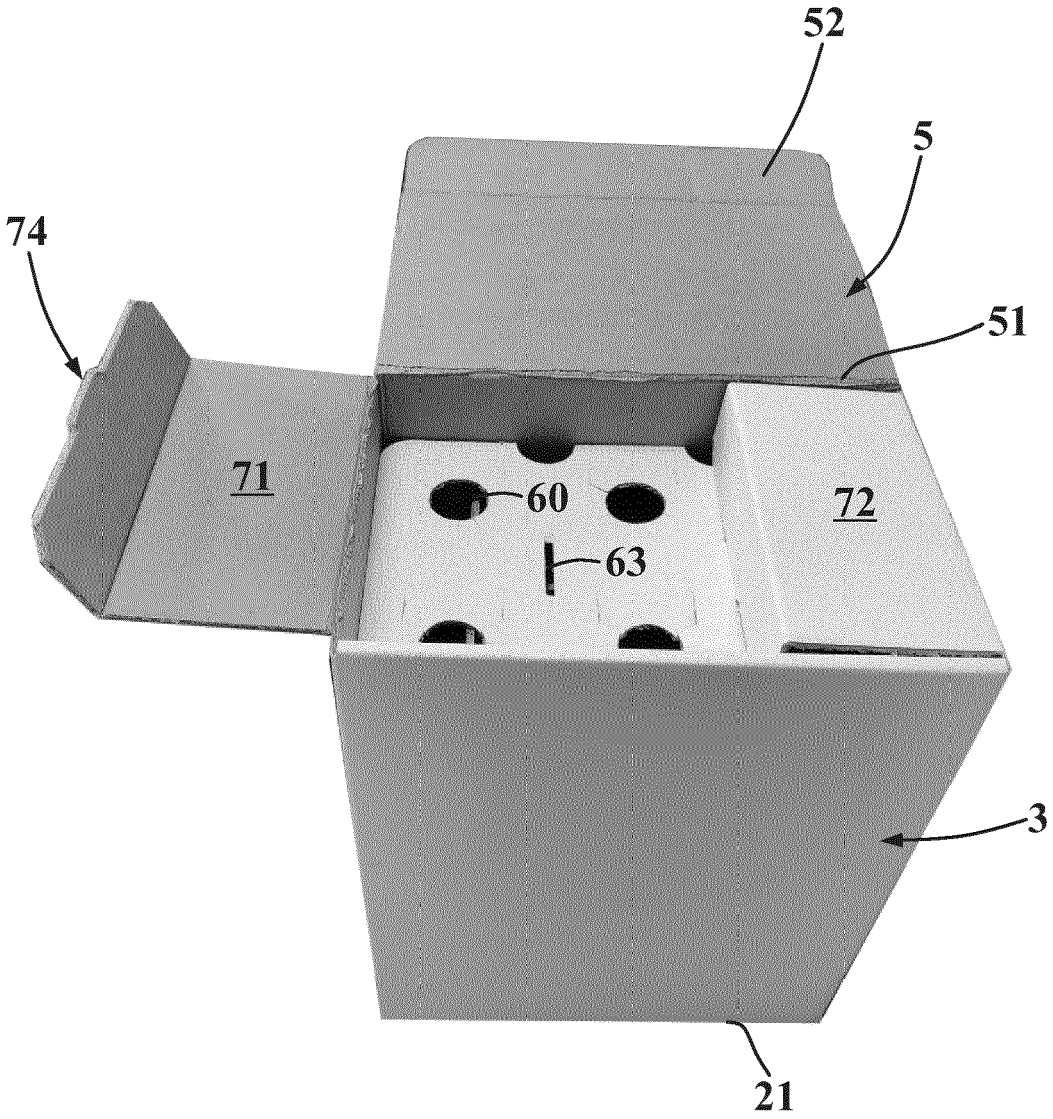

Fig. 12

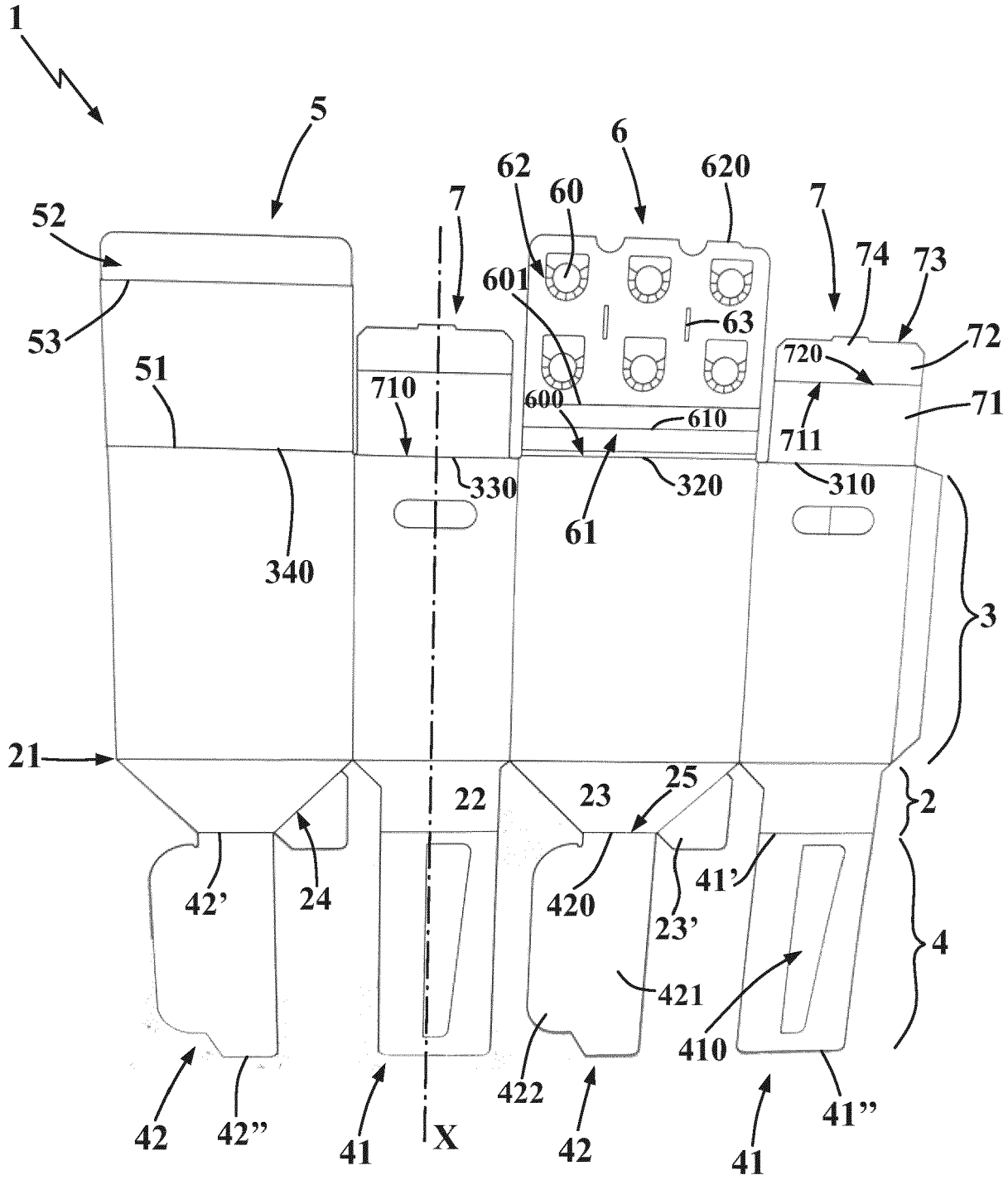
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Fig. 13

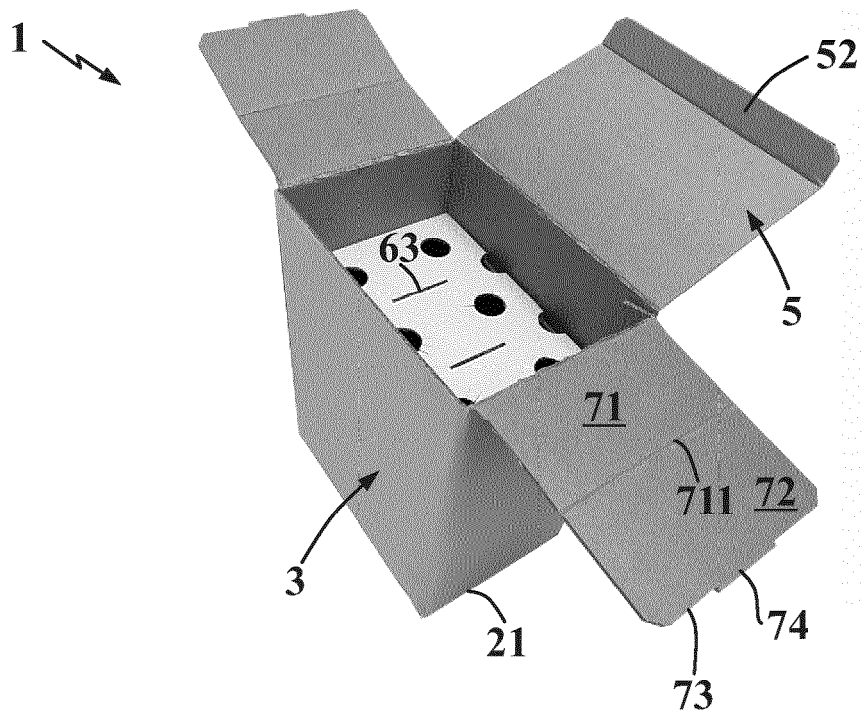

Fig. 14

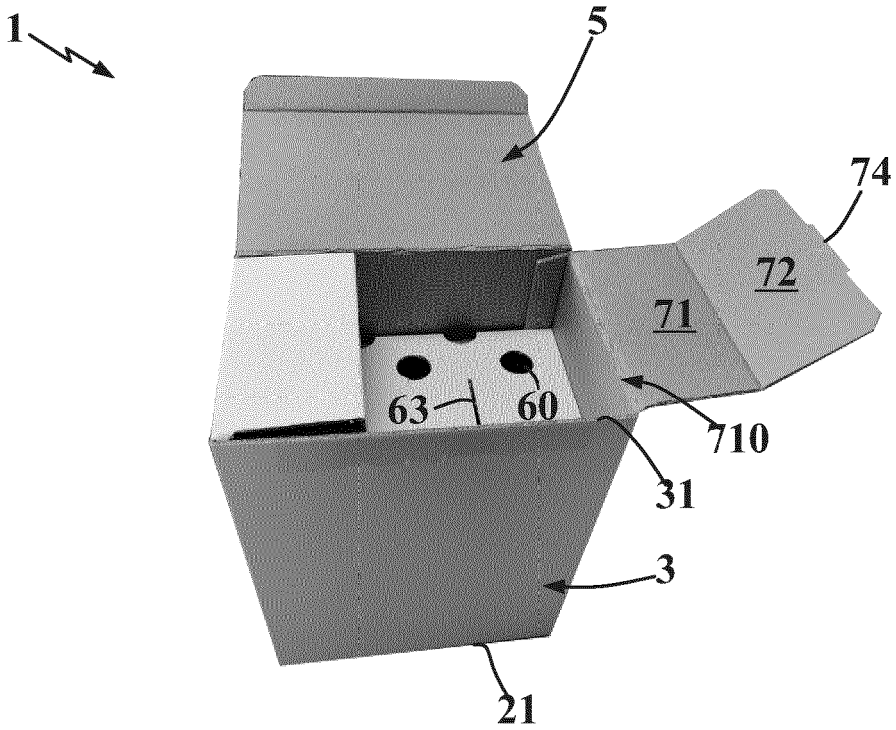

Fig. 15

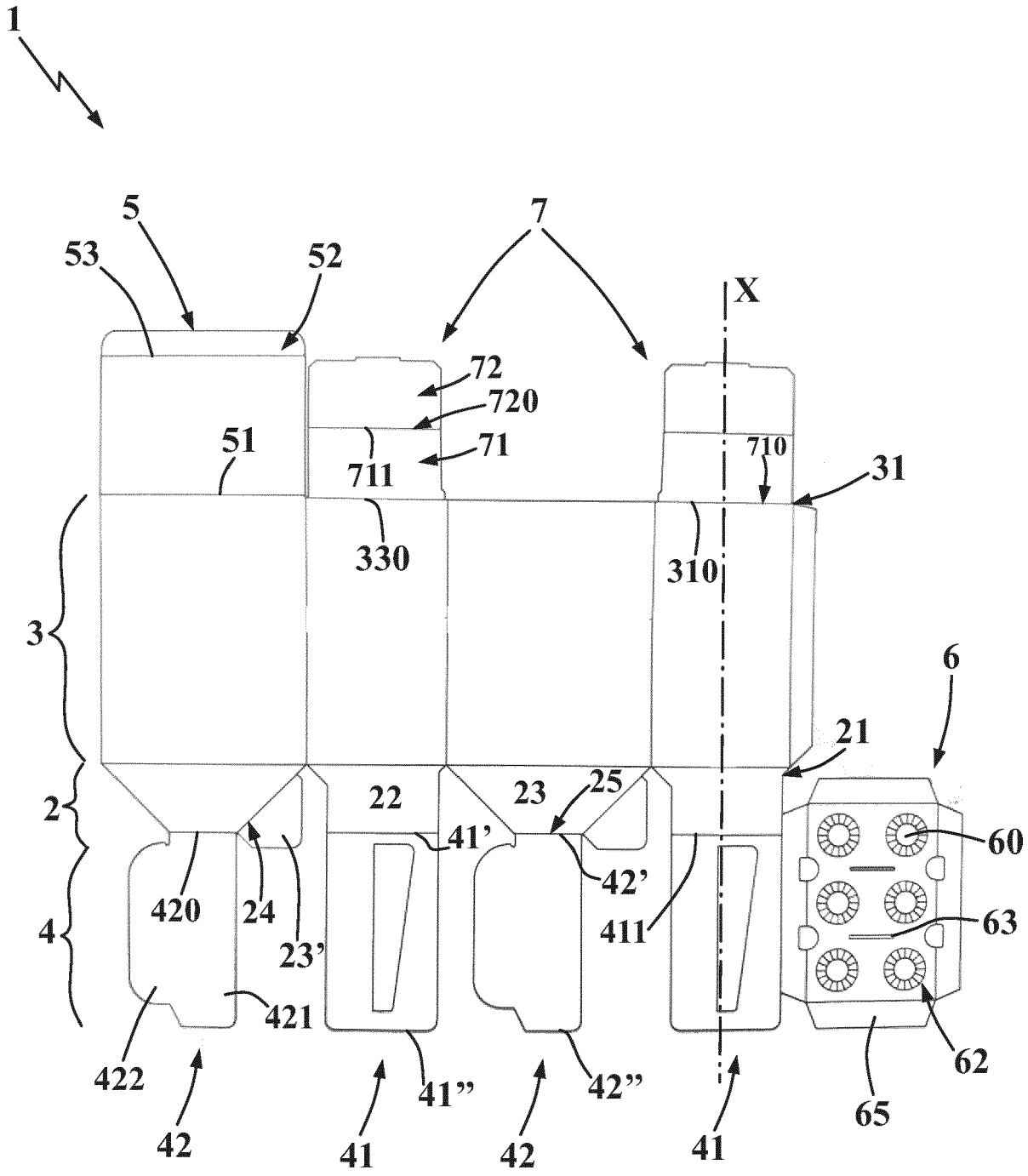
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Fig. 16

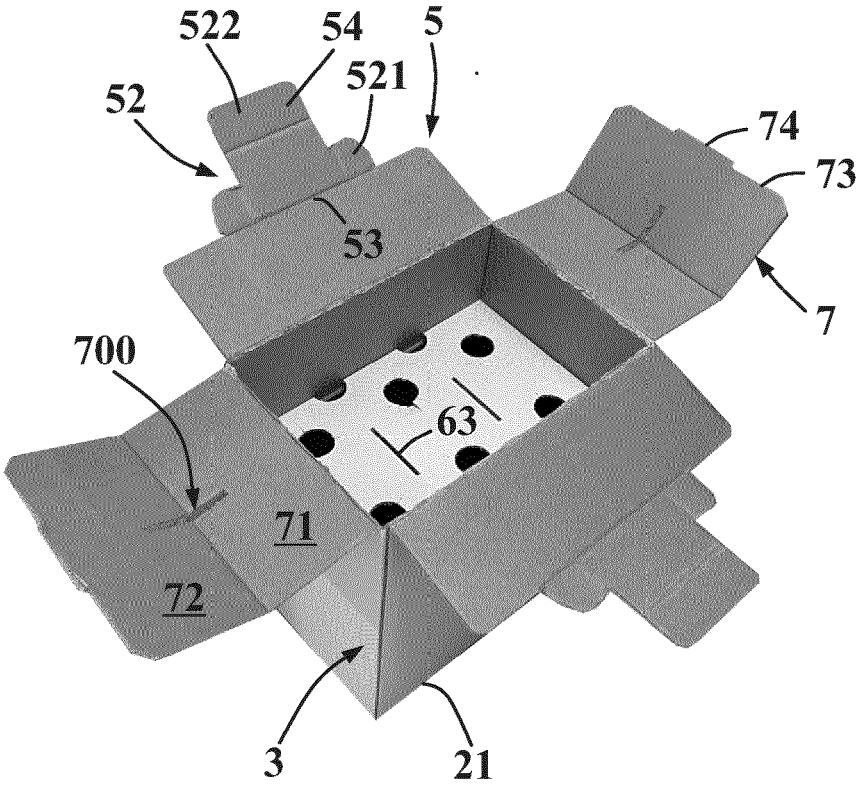
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Fig. 17

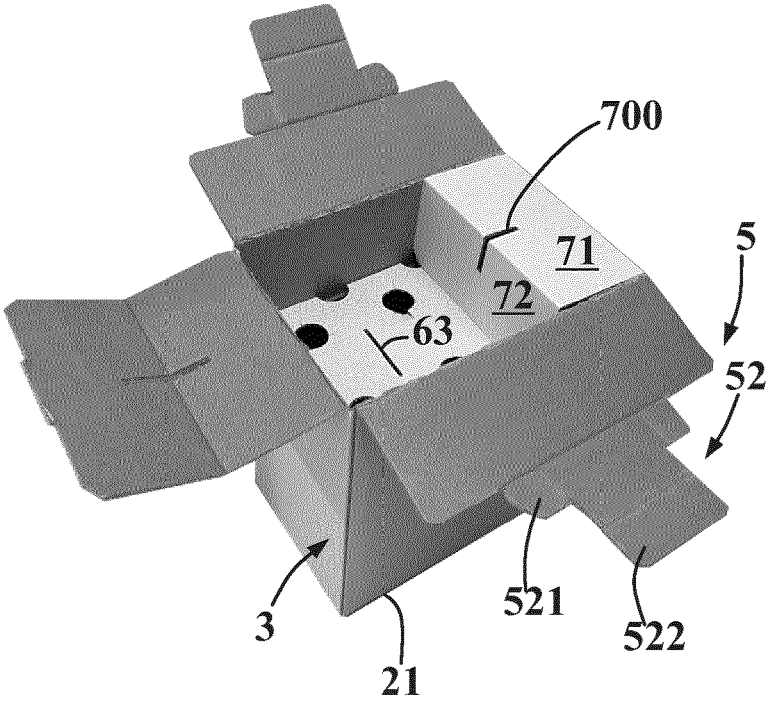
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Fig. 18

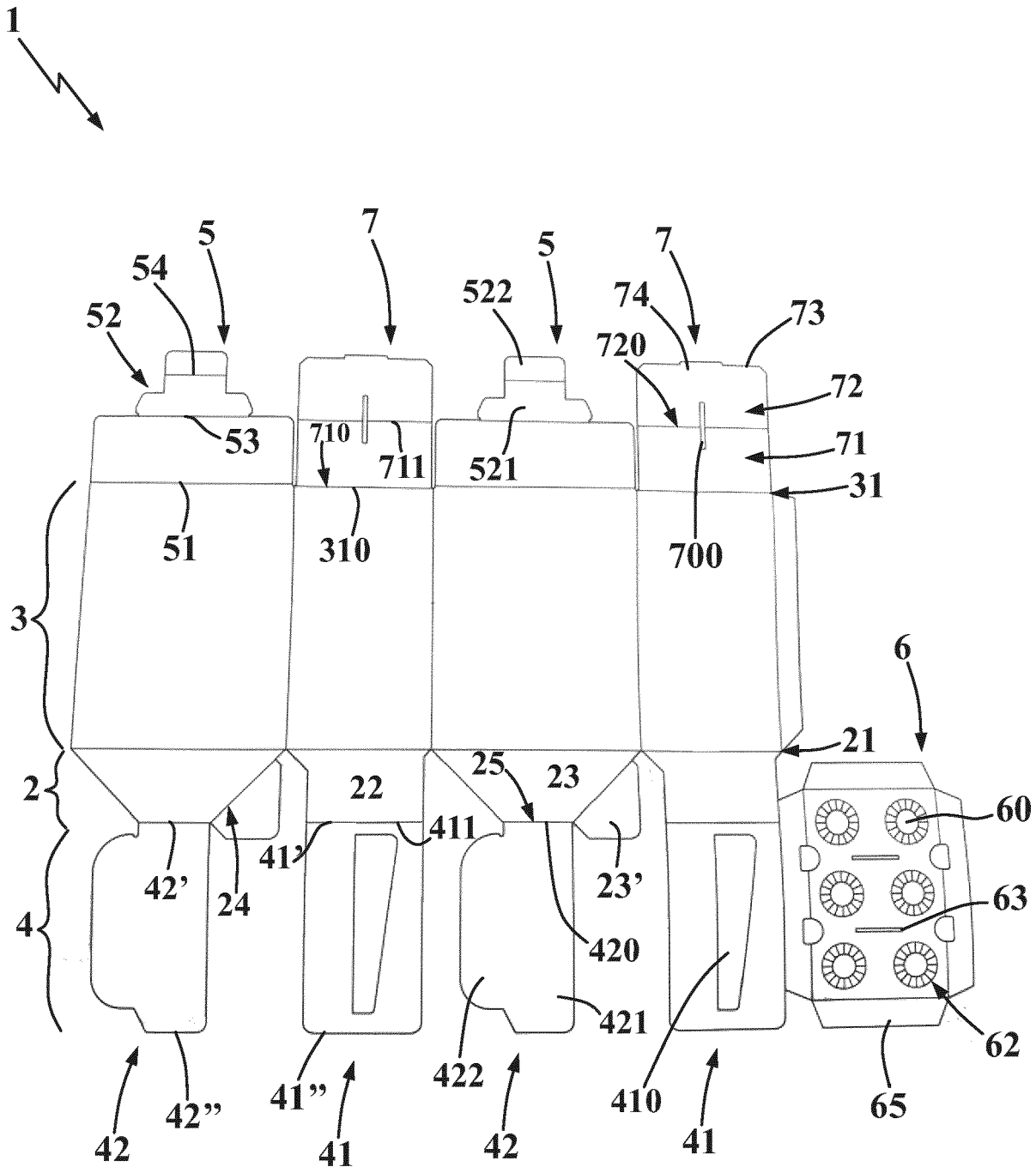
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Fig. 19

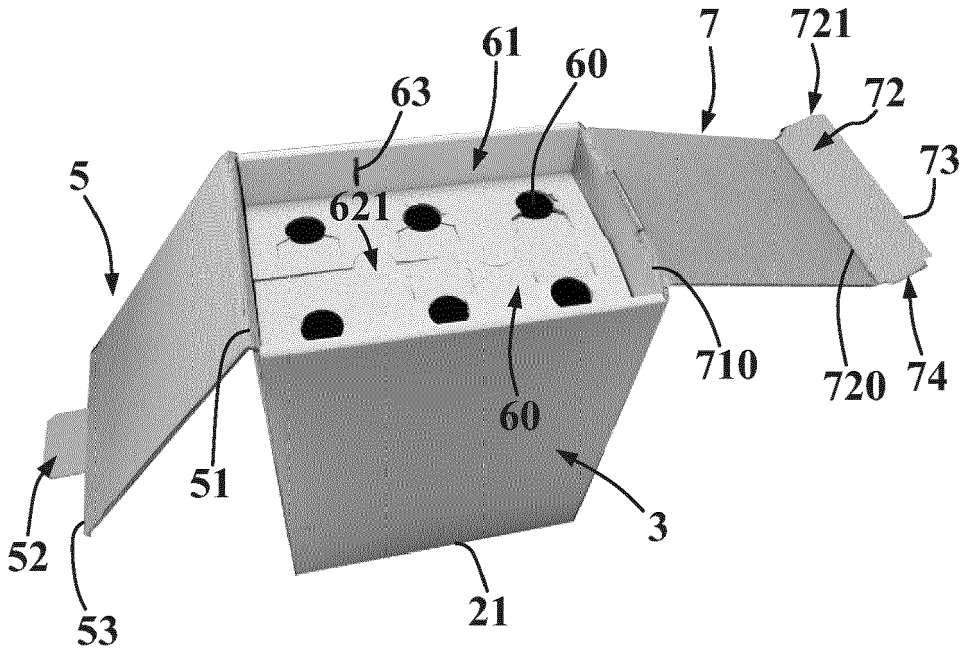
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Fig. 20

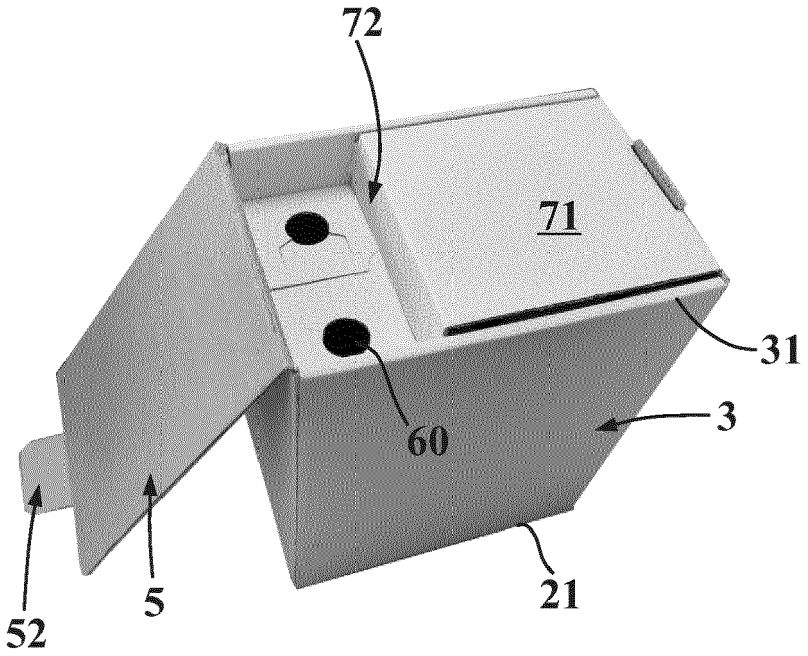
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Fig. 21

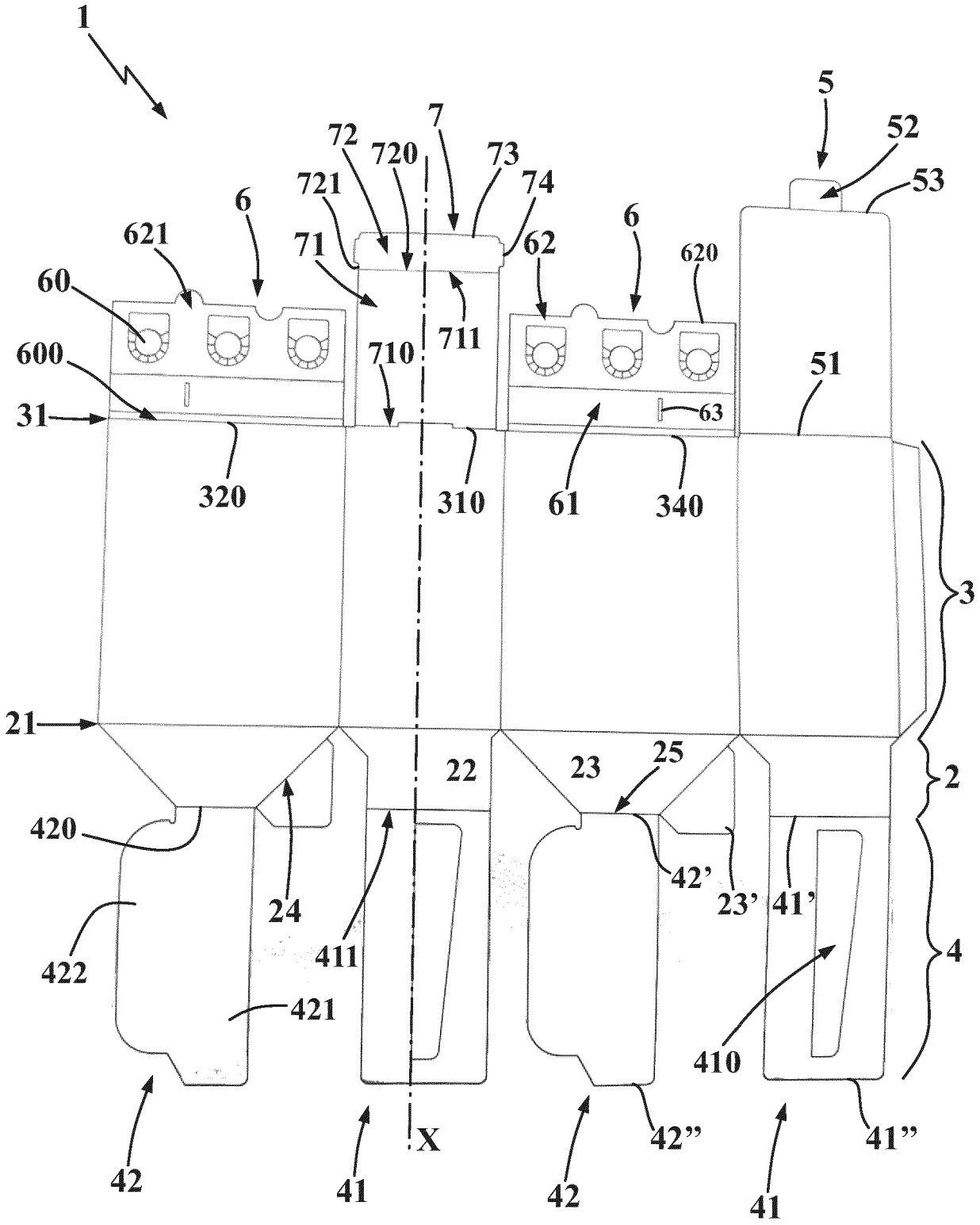
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Fig. 22

Europäisches Patentamt
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EUROPEAN SEARCH REPORT

Application Number
EP 22 16 7372

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y,D	EP 1 477 413 A1 (KAYSERSBERG PACKAGING SA [FR]) 17 November 2004 (2004-11-17) * figures 3, 4 *	1	INV. B65D5/48 B65D5/50 B65D5/46
Y,D	WO 2007/007358 A1 (ASSOGRAPH ITALIA [IT]; GORETTI FRANCO [IT]) 18 January 2007 (2007-01-18) * figures 5-7 *	1	
A	US 2 531 090 A (TURNER WILLIAM E) 21 November 1950 (1950-11-21) * figures 1, 2 *	1,2	
A	AU 2006 200 808 A1 (AMCOR LTD) 13 September 2007 (2007-09-13) * figure 1 *	1,2	
A	WO 2005/100174 A2 (MEADWESTVACO PACKAGING SYSTEMS [US]; BLIN PATRICK [FR]) 27 October 2005 (2005-10-27) * figures 8a-8f *	1,2	
			TECHNICAL FIELDS SEARCHED (IPC) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	2 September 2022	Balz, Oliver

CATEGORY OF CITED DOCUMENTS

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02-09-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1477413 A1	17-11-2004	AT 342199 T	15-11-2006
		DE 602004002719 T2	16-08-2007
		EP 1477413 A1	17-11-2004
		ES 2276246 T3	16-06-2007
		FR 2854879 A1	19-11-2004
		PL 1477413 T3	31-07-2007
WO 2007007358 A1	18-01-2007	AT 460345 T	15-03-2010
		EP 1901963 A1	26-03-2008
		US 2010116706 A1	13-05-2010
		WO 2007007358 A1	18-01-2007
US 2531090 A	21-11-1950	NONE	
AU 2006200808 A1	13-09-2007	NONE	
WO 2005100174 A2	27-10-2005	AU 2005233155 A1	27-10-2005
		CA 2563292 A1	27-10-2005
		CN 1980835 A	13-06-2007
		EP 1751013 A2	14-02-2007
		JP 2007532420 A	15-11-2007
		NZ 551121 A	28-01-2011
		US 2008257943 A1	23-10-2008
		WO 2005100174 A2	27-10-2005

EPO FORM P0459

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1477413 A **[0018]**
- WO 2007007358 A **[0022]**