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(72) Inventors:
• **DIAZ, Carlos Eduardo**
1080 Molenbeek (BE)
• **PIERAETS, Peter**
3000 Leuven (BE)

(74) Representative: **Vanzini, Christian et al**
Jacobacci & Partners S.p.A.
Corso Emilia 8
10152 Torino (IT)

(71) Applicant: **DS Smith Packaging Limited**
London W2 1DL (GB)

(54) **CHILDPROOF BOX**

(57) The childproof box (54) is erectable from a single cardboard or corrugated board blank (10) and comprises a bottom wall (18), a polygonal side wall including a back face (20), two facing side faces and a front face (16), and a lid (55) hinged on a top edge (60) of the back face (20), which delimit an inner cavity (56). The lid (55) has a top panel (22) parallel to said bottom wall (18) and a front flap (24) and two opposite side flaps (28), which flaps (24, 28) are orthogonal to the top panel (22). The front face (16) has two trigger tabs (32), each of which is cut in a respective lateral portion of the front face (16) and hinged thereto. Each side flap (28) has a protruding locking wing (38) at least partially attached to a respective corner distal portion (50) of an external surface of the front flap (24). The front (24) and side (28) flaps are within the internal cavity (56) and contiguous to the front face (16) and side faces, respectively, and each trigger tab (32) is contiguous to the respective locking wing (38) in a closure configuration of the box (54).

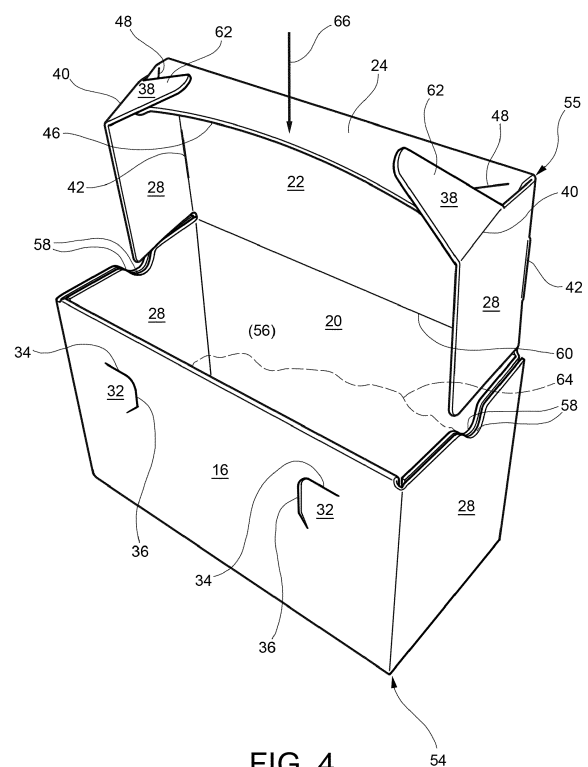


FIG. 4

Description

[0001] The present invention relates to a box, in particular for containing a plurality of articles, such as laundry detergent caps.

[0002] It is known to arrange on such a box two distanced trigger tabs which allow the opening of the lid of the box due to a contemporaneous pushing action thereon, that releases respective locking wings of the lid. Small children are not able to exercise such contemporaneous pushing action, so that the box is childproof.

[0003] One object of the present invention consists in providing an improved box of this kind.

[0004] According to the present invention, this object is achieved by means of a childproof box which is erectable from a single cardboard or corrugated board blank, said box comprising a bottom wall, a polygonal side wall including a back face, two facing side faces and a front face, and a lid hinged on a top edge of said back face, which delimit an inner cavity,

wherein said lid has a top panel substantially parallel to said bottom wall and a front flap and two opposite side flaps, which flaps are substantially orthogonal to said top panel,

wherein said front face has two trigger tabs, each of which is cut in a respective lateral portion of the front face and hinged thereto,

wherein each side flap has a protruding locking wing at least partially attached to a respective corner distal portion of an external surface of said front flap, and wherein said front and side flaps are within said internal cavity and contiguous to said front face and side faces, respectively, and each trigger tab is contiguous to the respective locking wing in a closure configuration of the box.

[0005] Preferred features of the box of the present invention are disclosed by the claims that follow and depend on claim 1.

[0006] A further subject-matter of the present invention is constituted by a blank for the erection of the above-captioned box, having a central part comprising a series extending along a central longitudinal axis of a front face, a bottom wall, a back face, a top panel and a front flap, which are delimited by first folding lines substantially parallel to each other and substantially orthogonal to said central longitudinal axis,

wherein said front face, bottom wall, back face, and top panel are provided of respective opposite side flaps which are delimited by second folding lines substantially orthogonal to the first folding lines,

wherein said front face has two trigger tabs, each of which is cut in a respective lateral portion of the front face and hinged thereto, and

wherein each side flap of the front panel has a locking wing laterally protruding from a distal portion thereof.

[0007] Preferred features of the blank of the present invention are disclosed by the claims that follow and depend on claim 6.

[0008] The one-blank arrangement of the box of the present invention provides the advantages of saving cardboard and reducing manufacturing costs.

[0009] Furthermore, since the locking wings are, in the box of the present invention, attached, e.g. adhered or glued, to respective corner distal portion of the front flap of the lid, it is quite simple and easy closing the lid by pressing on its front flap and causing the retraction of the attached locking wings. Once the lid is in the closed configuration and the pressing action is released, the locking wings interfere with the front face of the side wall of the box and ensure a firm closure, until the two trigger tabs are contemporaneously pushed.

[0010] Further advantages and features of the present invention will be apparent from the following detailed description, given by way of non-limiting example with reference to the appended drawings, in which:

figure 1 is a plan view of a blank which can be erected into a box according to the invention,

figure 2 is a perspective view of a box in closed configuration, which is erected from the blank of figure 1, and

figures 3 and 4 are respective perspective views of successive steps of an opening procedure of the closed box of figure 2.

[0011] Figure 1 illustrates a monolithic cardboard, corrugated board or like material blank 10, which is symmetrical in respect of a central longitudinal axis 12.

[0012] The blank 10 has a central part comprising a series extending along the central longitudinal axis 12 of an end panel 14, a front face 16, a bottom wall 18, a back face 20, a top panel 22 and a front flap 24 of the front panel 22, which are delimited by first folding lines 26 parallel to each other and substantially orthogonal to the longitudinal axis 12.

[0013] The front face 16, bottom wall 18, back face 20, and top panel 22 are provided of respective opposite side flaps 28 which are delimited by second folding lines 30 substantially orthogonal to the first folding lines.

[0014] The front face 16 has two trigger tabs 32, each of which is cut in a respective lateral portion of the front face 16 and hinged thereto. Each trigger tab 32 has an upper cut side 34 (the adjective "upper" being referred to the erected configuration of the blank) which is substantially parallel to the first folding lines 26 and a further cut side 36 which is substantially orthogonal to the upper cut side 34.

[0015] Each side flap 28 of the top panel 22 has a locking wing 38 laterally protruding from a distal portion thereof. Each locking wing 38 has a trapezoidal shape and a major basis 40 which is hinged to an inclined edge of the respective side flap 28. Preferably, the height of each locking wing 38 is at least twice longer than the basis 40.

An area 44 for glue application is provided on a proximal part of each locking wing 38.

[0016] The front flap 24 of the top panel 22 has a generally rectangular shape with a concave distal side 46, and two inclined cuts 48 which delimit respective distal corner portions 50 respectively attached to proximal corner portions of the front flap 24.

[0017] The side flaps 28 of the front faces 16 have respective areas 52 to be glued.

[0018] The end panel 14 has a generally rectangular distal recess 51 having two lateral extensions 53 delimiting a central rectangular protrusion 55 into the recess 51. An oblong area 57 to be glued extends on the surface of the protrusion 55.

[0019] The blank 10 is conventionally erected into a box 54 illustrated in figures 2 to 4 by folding and gluing together contiguous parts thereof.

[0020] The box 54 is a parallelepiped having rectangular cross-section and has a bottom wall 18, a polygonal, specifically rectangular, side wall substantially orthogonal to the bottom wall 18, and a lid 55, which together delimit an inner cavity 56.

[0021] The lid 55 is hinged on a top edge 60 of the back face 20, and is formed by the top panel 22, the two opposite side flaps 28 of the top panel 22 and the front flap 24, which flaps 28, 24 are substantially orthogonal to the top panel 22. The folding lines 30 are interrupted by respective cuts 42 in the portions between the center of the top panel 22 and the flaps 28 thereof.

[0022] The side wall includes the back face 20 and the front face 16 facing to each other and two side faces facing to each other and each of which is formed by the flaps 28 of the bottom wall 16, back face 20 and front face 24, glued together by the areas 52, so as to form a sturdy arrangement quite resistant to possible break-in attempts. The central portion of the upper edge of each side face of the side wall has a recess 58 that render accessible the respective side flap 28 of the front panel 22, so that acting on the lid 55 is facilitated, as it will be explained in detail below. The upper portion of the front face 16 is reinforced by the end panel 14 which is folded inside the inner cavity 56 and glued to the back surface of the front face 16 by the glued area 57.

[0023] The glued areas 44 of the proximal parts of the locking wings 38 are attached, in particular adhered, to the respective distal corner portions 50 of the external surface of the front flap 24 of the lid 55, whose anterior part assumes in the open configuration and in the absence of any external force or constriction the configuration illustrated in figure 4, wherein distal portions 62 of the locking wings 38 are divaricated from the front flap 24.

[0024] The erected box 54 in the open configuration illustrated by figure 4 can thus be filled with desired articles 64.

[0025] In order to close the lid 55, the user presses the front flap 24 thereof (see arrow 66 in figure 4), so that the locking wings 38, including the distal portions 62, become aligned thereto. Hence, when the lid 55 is succes-

sively rotated about the top edge 60 of the back face 20, its side flaps 28, front flap 24 and associated locking wings 38 enter into the inner cavity 56 and are contiguous to respective parts of the side wall of the box 55, whereas the front panel 22 of the lid 55 is arranged parallel to the bottom wall 18 and closes the inner cavity 56 (see figure 2).

[0026] In this configuration, the distal portions 62 of the locking wings 38 tend again to divaricate from the front flap 24, but are contrasted by the front face 16 and trigger tabs 32 and such interference keeps closed the lid 55.

[0027] In order to open the lid 55, a user must push contemporaneously on the trigger tabs 32 (see arrows 68 in figure 3) which thus push inwards the respective locking wings 38. The shape of the extensions 53 of the recess 51 and of the protrusion 55 prevents an excessive and undesired pushing of the tabs 32 within the inner cavity 56 of the box 54.

[0028] The trigger tab pushing brings about a slight rotation of the lid 55 about the top edge 60 of the back face 20 and the user can easily complete such rotation by pressing on the front 24 and/or side flaps 28 of the lid 55 which - due to the initial rotation - protrude outside the inner cavity 56 and are easily accessible. Such pressing action is rendered more effective by the cuts 42.

[0029] Once the lid 55 is open, it is possible to take away from the inner cavity 56 any desired number of articles 64 and then close again the lid 55 following the above indicated procedure. It goes without saying that such closure/opening cycle can be repeated any desired number of times.

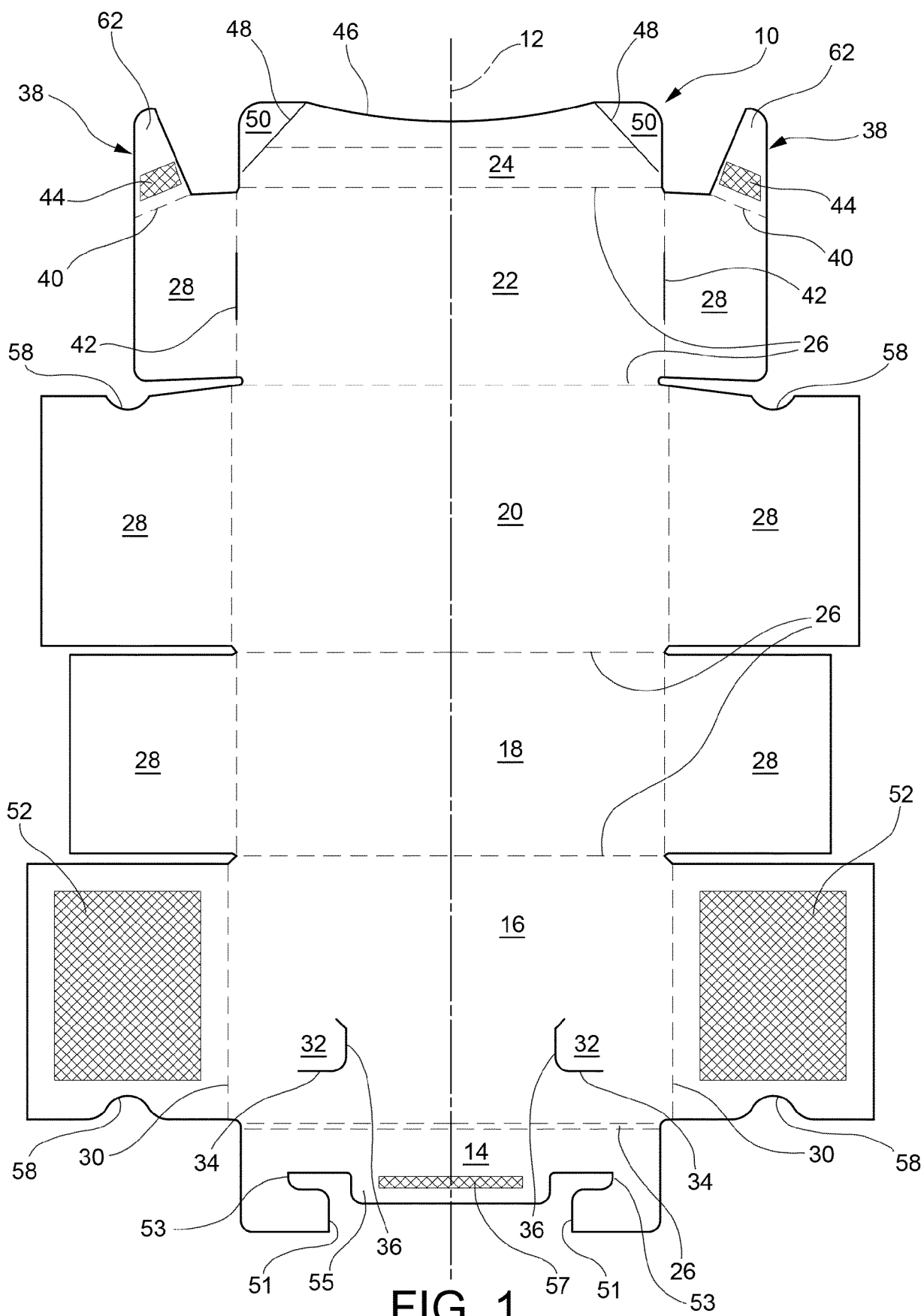
[0030] Of course, the principles of the invention remaining the same, the details of construction and embodiments may be widely varied with respect to those described purely by way of example, without thereby departing from the claimed scope. E.g., the box of the invention might be obtained by folding a differently shaped blank, and have any suitable shape. Furthermore, the locking wings might be attached through further intermediate protruding elements to the front flap of the lid.

Claims

1. A childproof box (54) which is erectable from a single cardboard or corrugated board blank (10), said box (54) comprising a bottom wall (18), a polygonal side wall including a back face (20), two facing side faces and a front face (16), and a lid (55) hinged on a top edge (60) of said back face (20), which delimit an inner cavity (56),

wherein said lid (55) has a top panel (22) substantially parallel to said bottom wall (18) and a front flap (24) and two opposite side flaps (28), which flaps (24, 28) are substantially orthogonal to said top panel (22), wherein said front face (16) has two trigger tabs

- (32), each of which is cut in a respective lateral portion of the front face (16) and hinged thereto, wherein each side flap (28) has a protruding locking wing (38) at least partially attached to a respective corner distal portion (50) of an external surface of said front flap (24), and wherein said front (24) and side (28) flaps are within said internal cavity (56) and contiguous to said front face (16) and side faces, respectively, and each trigger tab (32) is contiguous to the respective locking wing (38) in a closure configuration of the box (54).
2. The box (54) according to claim 1, which is a parallelepiped having rectangular cross-section.
3. The box according to any one of the previous claims, wherein each trigger tab (32) has an upper cut side (34) which is substantially parallel to the bottom wall (18) and a further cut side (36) which is substantially orthogonal to the upper cut side (34).
4. The box according to any one of the previous claims, wherein each wing (38) has a trapezoidal shape and a major basis (40) which is hinged to an inclined edge (42) of the respective side flap (28).
5. The box according to any one of the previous claims, wherein said front flap (24) has a concave distal side (46), and two inclined cuts (48) which delimit the respective corner distal portions (50) to which the locking wings (38) are attached.
6. A blank (10) for the erection of a box (54) according to any one of the previous claims, having a central part comprising a series extending along a central longitudinal axis (12) of a front face (16), a bottom wall (18), a back face (20), a top panel (22) and a front flap (24), which are delimited by first folding lines (26) substantially parallel to each other and substantially orthogonal to said central longitudinal axis (12),
- wherein said front face (16), bottom wall (18), back face (20), and top panel (22) are provided of respective opposite side flaps (28) which are delimited by second folding lines (30) substantially orthogonal to the first folding lines (26), wherein said front face (16) has two trigger tabs (32), each of which is cut in a respective lateral portion of the front face (16) and hinged thereto, and
- wherein each side flap (28) of the front panel (22) has a locking wing (38) laterally protruding from a distal portion thereof.
7. The blank (10) according to claim 6, which is symmetrical in respect of said central longitudinal axis
- (12).
8. The blank (10) according to claim 6 or 7, wherein said central part further includes an end panel (14) adjacent to said front face (16).
9. The blank (10) according to claim 8, wherein said end panel (14) has a distal recess (51) having two lateral extensions (53) delimiting a central protrusion (55) into the recess (51).



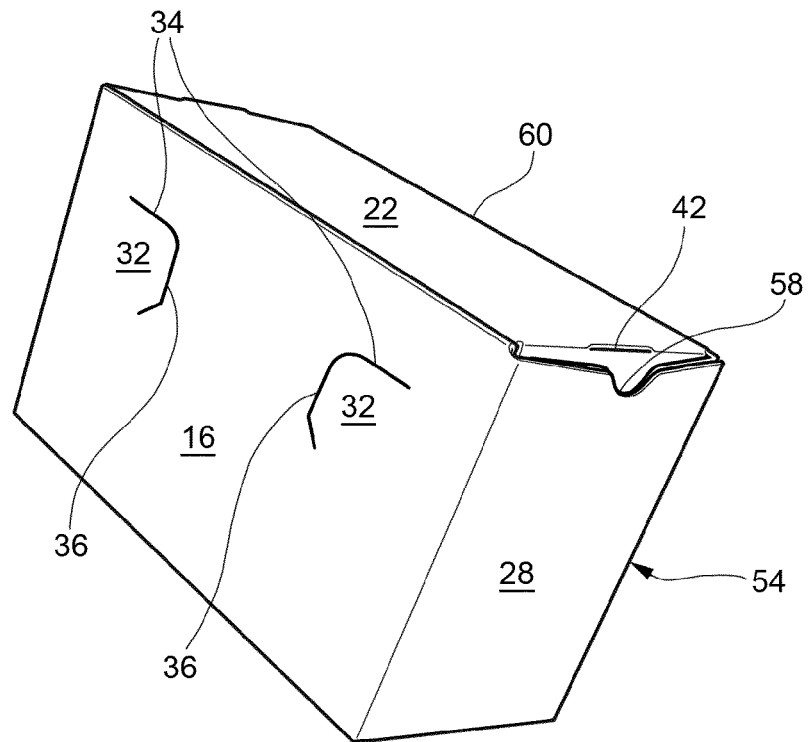


FIG. 2

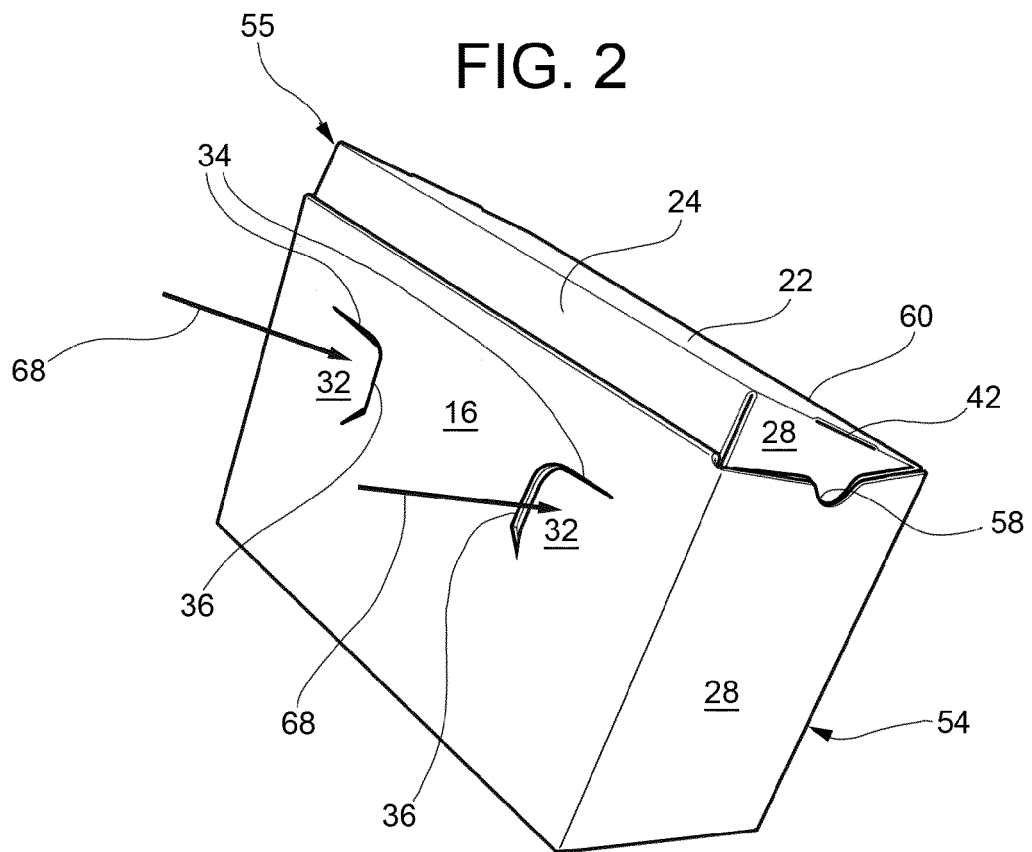
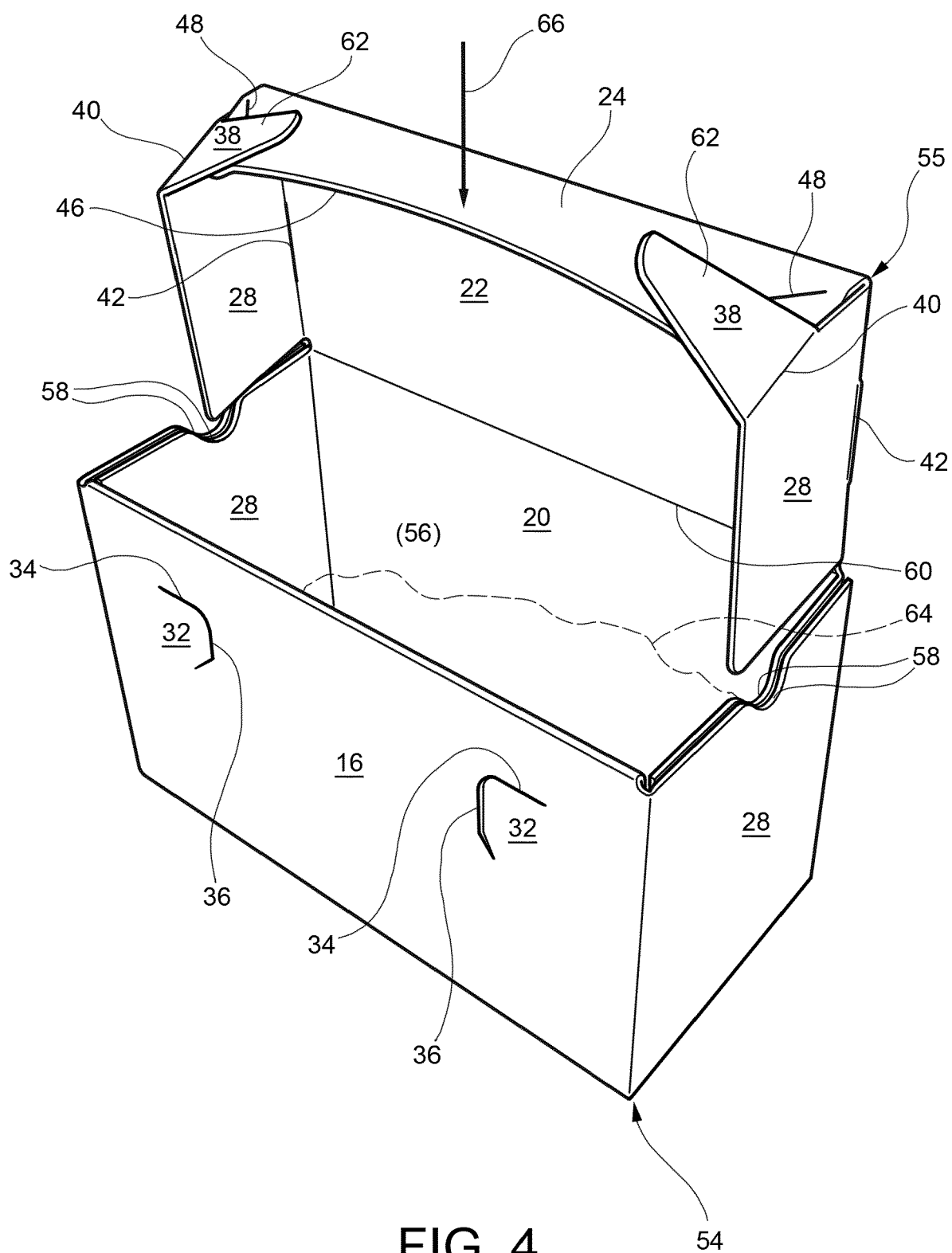


FIG. 3





EUROPEAN SEARCH REPORT

Application Number

EP 22 19 2087

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EPO FORM 1503 03.82 (P04C01)

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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 February 2023	Examiner Derrien, Yannick
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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