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(54) **CHILD-RESISTANT CONTAINER**

(57) The present invention relates to a child-resistant container (1) comprising a storage (2) lockable by a closure system (7). The container comprises a first coupling portion (12) carried by the closure system (7) and a second coupling portion (13) carried by the storage (2) and configured to cooperate with the first coupling portion (12) for locking the container in a closure condition. The container also includes a support panel (20) carried by the storage (2) which is configured, in the locking condition of the container, to contact at least one side wall of the storage (2) directly carrying the second coupling portion (13).

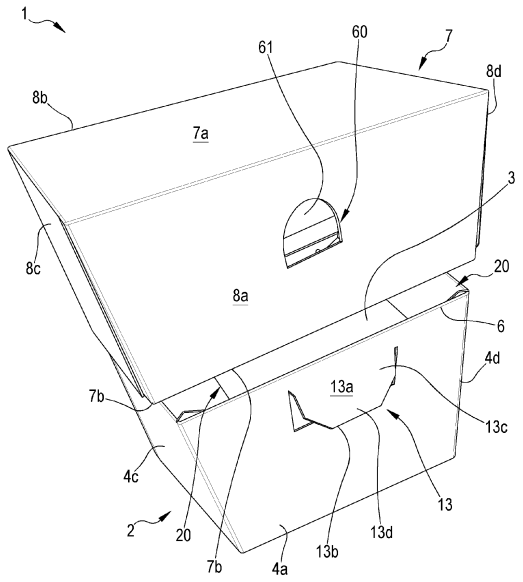


FIG.1

EP 4 438 511 A1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a child-resistant container and a process of making the same. The container may be used for packaging medicines, cosmetics, cleaning products (laundry and dishwashing detergents), food and tobacco products.

STATE OF THE ART

[0002] Child-resistant containers designed to be difficult to open for children under 5 years of age are known, to prevent children from coming in contact with products that are potentially harmful to them.

[0003] A first type of child-resistant container is described in the following patent applications: US 2005/0173291 A1, EP 2 808 265 A1, WO 2005/068304 A2, US 2014/262839 A1, EP 2 810 885 A1, US 2012/234701 A1, CN 204 642 380 U, WO 2012/112538 A1, WO 2009/038219 A1, US 1,253,489 A, WO 2021/044266 A1, IT 2019 0001 5357, US 2017/008664 A1. These containers have a locking system allowing to keep the containers in a closed condition; The containers may be opened from the outside thanks to a through access defined on a side wall of an external case allowing a user to act on the closure system.

[0004] A second type of child-resistant container is described in patent applications no. WO 2022/125331 A1 and EP No. 4 059 857 A1. The container, in addition to the containers of the first type described above, include a stiffening panel made of paper material carried by a storage of the container which is configured to house the products. The stiffening panel is fixed by gluing to a pair of support wings carried by the storage itself and overlapped to the panel.

[0005] The Applicant noted that the known containers are not free from limitations and may therefore be improved in several aspects.

SCOPE OF THE INVENTION

[0006] The object of the present invention is therefore to substantially solve at least one of the drawbacks and/or limitations of the preceding solutions.

[0007] An object of the present invention is to provide an effective and extremely safe child-resistant container suitable to prevent children from opening the container, but at the same time may be easily opened by an adult. Then, it is an object of the present invention to provide a container that is flexible in use, with a compact and resistant structure; in particular, the object of the present invention is to provide a container capable of guaranteeing its integrity following multiple uses. The purpose of the present invention is to provide a container with a simple structure, which may be made quickly and cheaply.

[0008] These objects and others, which will appear more clearly from the following description, are substantially achieved by a container in accordance with one or more of the attached claims.

SUMMARY

[0009] In a 1st aspect, a child-resistant container (1) is provided, the container (1) comprising:

- a storage (2) defining a compartment (3) and having at least one side wall defining a passage opening (5) delimited by a free edge (6), said a passage opening (5) being configured to connect the compartment (3) with the external environment,
- a relatively movable closure system (7) and storage (2) at least between:
  - a closure condition where the closure system (7) prevents the communication between the compartment (3) of the storage (2) and the external environment,
  - an opening condition where the closure system (7) allows the communication between the compartment (3) of the storage (2) and the external environment,
- at least one first coupling portion (12) carried by the closure system (7),
- at least one second coupling portion (13) carried by at least one side wall of the storage (2),

wherein the first and second coupling portions (12, 13) are configured to engage with each other in the closure condition to define a locking condition of the container (1) where said first and second coupling portions (12, 13) prevent the closure system (7) from switching from the closure to the open condition.

[0010] In a 2nd aspect, according to the preceding aspect, the first and second coupling portions (12, 13), in the locking condition, are engaged outside the compartment (3) of the storage (2).

[0011] In a 3rd aspect, according to any one of the preceding aspects, at least one side wall of the storage (2) includes at least one front wall (4a) and at least one opposite rear wall (4b). In a 4th aspect, according to the preceding aspect, the front wall and the rear wall are connected to each other by a first and a second side wall (4c, 4d) opposed to each other. In a 5th aspect, according to the preceding aspect, the front wall (4a), the rear wall (4b), the first side wall (4c) and the second side wall (4d) emerge from a perimeter edge of a bottom wall (4f) of the storage (2) to define in cooperation with the bottom wall (4f) said compartment (3). In a 6th aspect, according to any one of the two preceding aspects, said the front wall (4a), the rear wall (4b), the first side wall (4c) and the second side wall (4d) define, on the opposite side of the bottom wall (4f), the passage opening (5) delimited by the free edge (6). In a 7th aspect, according to any

one of the preceding aspects, the container includes only one passage opening (5) opposite the bottom wall (4f).

[0012] In an 8th aspect according to any one of the five preceding aspects, the second coupling portion (13) is carried by at least one of said front wall (4a) and rear walls (4b), optionally by at least one of said front wall (4a), rear wall (4b), first side wall (4c) and second side wall (4d). In a 9th aspect, according to any one of the six preceding aspects, the second coupling portion (13) is carried by the front wall (4a) of the storage (2). In a 10th aspect according to any one of the preceding seven aspects, the container comprises:

a second coupling portion (13) carried by the front wall (4a) of the storage,
a second coupling portion (13) carried from the rear wall (4b) of the storage.

[0013] In an 11th aspect according to any one of the eight preceding aspects, the first and second side wall (4c, 4d) do not carry the second coupling portion (13).

[0014] In a 12th aspect, according to any one of the preceding aspects, the side wall of the storage (2) carrying the second coupling portion (13) includes at least one outer panel (41). In a 13th aspect according to the preceding aspect, the outer panel (41) defines at least a part of an external surface of the storage (2). In a 14th aspect, according to either of the two preceding aspects, the side wall of the storage (2) carrying the second coupling portion (13) includes said outer panel (41) and an inner panel (42) facing and engaged each other. In a 15th aspect according to the preceding aspect, the inner panel (42) defines at least a part of an internal surface of the storage. In a 16th aspect, according to either of the two preceding aspects, the inner panel (42) delimits at least a part of the compartment (3) of the storage. In a 17th aspect, according to any one of the three preceding aspects, the outer panel (41) has an surface extension greater than the surface extension of the inner panel (42). In an 18th aspect, according to any one of the preceding aspects, the outer panel and the inner panel delimit at least a part of the compartment of the storage.

[0015] In a 19th aspect, according to any one of the aspects from 12th to 18th, at least the front wall (4a) includes said outer panel (41). In a 20th aspect, according to any one of the aspects from 12 to 19, the front wall (4a) and the rear wall (4b) of the storage (2) comprise said outer panel (41) and said inner panel (42).

[0016] In a 21st aspect, according to any one of the aspects from 14th to 20th, the outer panel (41) and the inner panel (42) are joined in a single piece at a folding edge and facing each other to define a folded portion. In a 22nd aspect according to the preceding aspect, the folding edge defines at least one section of the free edge (6) of the storage (2). In a 23rd aspect according to any one of the aspects from 14th to 22nd, the outer panel (41) and the inner panel (42) are overlapped and fixed to each other, optionally by means of glue. In a 24th aspect, according to any one of the aspects from 14th to 23rd, the outer panel (41) and the inner panel (42) lie on respective planes substantially parallel.

[0017] In a 25th aspect according to any one of the preceding aspects, the second coupling portion (13) is placed outside the compartment (3). In a 26th aspect according to any one of the preceding aspects, the second coupling portion (13) includes at least one tab (13a). In a 27th aspect according to the preceding aspect, the tab (13a) of the second coupling portion (13) protrudes from the side wall of the storage. In a 28th aspect according to any one of the two preceding aspects, the tab (13a) of the second coupling portion (13) is spaced from the free edge (6) of the storage (2). In a 29th aspect according to any one of the three preceding aspects, the tab (13a) of the second coupling portion (13) is joined in a single piece with the storage (2), optionally it is joined in a single piece with the side wall of the storage. In a 30th aspect according to any one of the preceding four aspects, the tab (13a) of the second coupling portion (13) emerges from the side wall of the storage away from the latter.

[0018] In a 31st aspect according to any one of the preceding five aspects, the tab (13a) of the second coupling portion protrudes from the side wall of the storage starting from an attachment portion (13c). In a 32nd aspect according to the preceding aspect, the attachment portion (13c) is spaced from the free edge (6). In a 33rd aspect according to the preceding aspect, the attachment portion (13c) is placed at a minimum distance from the free edge greater than 2 mm, optionally between 3 mm and 30 mm, even more optionally between 3 mm and 20 mm.

[0019] In a 34th aspect according to any one of the aspects from 26th to 33rd, the tab (13a) of the second coupling portion (13) directly protrudes from the outer panel (41) of the storage, optionally starting from the attachment portion (13c). In a 35th aspect according to any one of the preceding aspects from 26th to 34th, the tab (13a) of the second coupling portion extends from the attachment portion (13c) to an opposing end portion (13d). In a 36th aspect according to the preceding aspect, the end portion (13d) of the tab (13a), at least in the locking condition, is distanced from the outer panel (41) of the storage (2). In a 37th aspect according to any one of the preceding aspects from 26th to 36th, the tab (13a) of the second coupling portion (13) is configured to engage the first coupling portion (12) to define said locking condition of the container (1).

[0020] In a 38th aspect, according to any one of the preceding aspects from 26th to 37th, the tab (13a) of the second coupling portion (13) is delimited by a perimeter edge (13b). In a 39th aspect according to the preceding aspect, at least one section of the perimeter edge (13b), in the locking condition, is configured to contact the first coupling portion (12) of the closure system (7).

[0021] In a 40th aspect according to any one of the preceding aspects from 35th to 39th, the tab (13a) of the

second coupling portion (13), in the condition of locking the container, is movable at least between:

a first operating position where the end portion (13d) is distanced from the outer panel (41) of the side wall of the storage (2) to allow the engagement of the tab (13a) of the second coupling portion with the first coupling portion (12),
a second operating position where the end portion (13d) is placed at a distance from the outer panel (41) lower than the distance between said outer panel (41) and said end portion (13d) when the tab (13a) is placed in the first operating position, wherein the tab (13), in the second operating position, is configured to disengage the first coupling portion (12) allowing the closure system and the storage to switch from the closure condition to the open condition.

[0022] In a 41st aspect according to any one of the preceding aspects from 26th to 40th, the tab (13a) emerges from the outer panel (41) of the storage (2), away from the free edge (6). In a 42nd aspect according to any one of the aspects from 26th to 41st the tab (13a) is folded with respect to the outer panel (41) of the storage (2). In a 43rd aspect according to any one of the aspects from 40th to 42nd, the tab (13a) of the second coupling portion (13) is normally placed in the first operating position. In a 44th aspect according to any one of the aspects from 40th to 43rd, the tab (13a) of the second coupling portion (13), in the second operating position, is folded in approach to the outer panel (41) of the storage (2).

[0023] In a 45th aspect according to any one of the aspects from 40th to 44th the tab (13a) of the second coupling portion (13), in the closure condition of the container and in the first operating position of the tab (13a), is engaged to the first coupling portion (12) to define said locking condition.

[0024] In a 46th aspect according to any one of the aspects from 12th to 45th, the second coupling portion (13) is obtained, optionally by carving, on the outer panel (41).

[0025] In a 47th aspect, according to any one of the aspects from 12th to 46th, the outer panel (41) includes a pocket (43). In a 48th aspect according to the preceding aspect, the pocket (43) faces the inner panel (42). In a 49th aspect according to the preceding aspect, the inner panel (42) overlaps the pocket (43). In a 50th according to any one of the two preceding aspects, the pocket passes through the outer panel (41).

[0026] In a 51st aspect according to any one of the aspects from 26th to 50th, the tab (13a) of the second coupling portion (13) emerges from the outer panel (41) away from the inner panel (42). In a 52nd aspect, according to any one of the aspects from 47th to 51st, the tab (13a) of the second coupling portion (13) faces the pocket (43). In a 53rd aspect according to any one of the aspects from 31st to 52nd, the tab (13a) of the second coupling portion (13) is joined to the outer panel (41) by means of the attachment portion (13c).

[0027] In a 54th aspect, according to any one of the aspects from 31st to 53rd, the tab (13a) of the second coupling portion (13) is movable between the first and second operating positions, substantially around the attachment portion (13c). In a 55th aspect according to any one of the aspects from 14th to 54th, the tab (13a) of the second coupling portion (13) is movable, at least in the locking condition, approaching and moving away from the inner panel (42).

[0028] In a 56th aspect according to any one of the aspects from 26th to 55th, the tab (13a) protrudes from the side wall of the storage (2) to which this tab (13a) is joined in a single piece, in a direction exiting the compartment (3). In a 57th aspect according to any one of the aspects from 40th to 56th, the tab (13a) of the second coupling portion (13), both in the first and in the second operating position, protrudes at least in part from at least one side wall to which said tab (13a) is joined in a single piece, in a direction exiting the compartment (3). In a 58th aspect according to any one of the preceding aspects, the tab (13a) of the second coupling portion (13), in the first and second operating positions, directly protrudes from the outer panel (41) of at least one side wall to which said tab (13a) is joined in a single piece, according to a direction exiting the compartment (3).

[0029] In a 59th aspect, according to any one of the aspects from 26th to 58th, the tab (13a) of the second coupling portion (13) has a substantially rectangular or triangular or substantially trapezoidal or "V" or "C" shaped shape. In a 60th aspect according to any one of the aspects 38th to 59th, at least one section of the perimeter edge (13b) of the tab (13a) of that second coupling portion (13) is tilted with respect to the free edge (6) of the passage opening of the storage (2), optionally by an angle between 20° and 80°, even more optionally by an angle between 30° and 70°. In a 61st aspect, according to any one of the aspects from 26th to 60th, the tab (13a) of the second coupling portion (13) is tilted with respect to the side wall of the storage (2) to which the second coupling portion is engaged by an angle between 1° and 30°; optionally, said angle is measured between the surfaces which face the tab (13a) and the side wall of the storage (2) directly carrying (optionally joined in a single piece) said tab (13a).

[0030] In a 62nd aspect according to any one of the aspects from 26th to 61st the tab (13a) of the second coupling portion (13), in the first and second operating positions, is tilted with respect to the outer panel (41). In a 63rd aspect according to any one of the aspects from 40th to 62nd the tab (13a) of the second coupling portion (13), in the second operating position is tilted with respect to the outer panel (41) of the storage by an angle greater than 1°, optionally between 2° and 15°. In a 64th aspect according to any one of the aspects from 40th to 63rd, the tab (13a) of the second coupling portion (13), in the first operating position, is tilted with respect to the outer panel (41) of the storage by an angle greater than an

angle subtended by the same outer panel (41) and the same tab (13a) when the latter is in the second operating position.

[0031] In a 65th aspect, according to any one of the aspects from 5th to 64th, at least a second coupling portion (13) of the storage (2) is defined between the bottom wall (4f) and the free edge (6) of the storage (2).

[0032] In a 66th aspect according to any one of the preceding aspects, the container (1) includes at least two second coupling portions (13). In a 67th aspect, according to any one of the aspects from 3rd to 66th, the container comprises a second coupling portion (13) carried by the front wall (4a) of the storage (2) and a second coupling portion (13) carried by the rear wall (4b) of the storage (2).

[0033] In a 68th aspect according to any one of the preceding aspects, the closure system has an internal volume (7f). In a 69th aspect according to the preceding aspect, the internal volume (7f) is configured to house at least part of the storage (2). In a 70th aspect according to any one of the two preceding aspects, the storage (2), in the closure condition, is at least partly housed in the internal volume (7f) of the closure system (7). In a 71st aspect, according to any one of the three preceding aspects, the first coupling portion is arranged at least in part in the internal volume (7f) of said closure system (7).

[0034] In a 72nd aspect according to any one of the aspects from 68th to 71st the first and second coupling portions (12, 13), in the locking condition, are engaged in the internal volume (7f) of the closure system (7).

[0035] In a 73rd aspect, according to any one of the preceding aspects, the closure system (7) includes a top wall (7a) from which at least one side wall emerges. In a 74th aspect according to the preceding aspect, the top wall (7a) and the side wall of the closure system (7) delimit the internal volume (7f). In a 75th aspect, according to any one of the two preceding aspects, at least one side wall of the closure system (7) delimits, on the opposite side of the top wall (7a), a respective free edge (7b) configured to receive the storage (2) in passage. In a 76th aspect, according to any one of the preceding aspects, the closure system (7) may be engaged with the storage (2) to obstruct the passage opening (5).

[0036] In a 77th aspect according to any one of the preceding aspects, the container includes at least one release portion (60) configured to allow, at least in the locking condition, the disengagement between the first coupling portion (12) and the second coupling portion (13). In a 78th aspect according to the preceding aspect, the release portion (60) is defined on the closure system (7). In a 79th aspect, according to any one of the two preceding aspects, the release portion (60) is configured to define a through access (61) on the closure system (7). In an 80th aspect, according to any one of the three preceding aspects, the release portion (60) includes a through access (61) defined on at least one side wall of the closure system (7).

[0037] In an 81st aspect, according to any one of the four preceding aspects, the release portion (60) is configured to allow, at least in the locking condition, to intervene manually and/or by means of an opening device, from the outside of the container (1), on at least one of the said first and second coupling portions (12, 13) to allow their disengagement. In an 82nd aspect according to any one of the six preceding aspects, the release portion (60), in the locking condition, is placed at the first and second coupling portion (12, 13). In an 83rd aspect according to any one of the seven preceding aspects, the release portion (60), optionally the through access (61), is configured to allow a user, at least in the locking condition, to directly intervene (optionally manually and/or by means of an opening device) from the outside of the container (1), on the second coupling portion (13) to allow its disengagement with the first coupling portion (12). In an 84th aspect, according to any one of the eight preceding aspects, the second coupling portion (13) at least partially faces the through access (61) of the release portion (60). In an 85th aspect according to any one of the nine preceding aspects, the release portion (60), optionally the through access (61), is configured to allow a user, at least in the locking condition, to intervene (optionally manually and/or by means of an opening device) from the outside of the container (1) by directly pushing on the tab (13a) of the second coupling portion (13) to move said second coupling portion (13) towards the compartment (3) of the storage (2) to allow it to be disengaged with the first coupling portion (12).

[0038] In an 86th aspect, according to any one of the preceding aspects, the closure system includes two distinct release portions (60), respectively configured to allow the user to intervene on the second portion of the attachment (13) carried by the front wall (4a) and on the second portion of the attachment (13) carried by the rear wall (4b).

[0039] In an 87th aspect according to any one of the preceding aspects, the container (1) includes at least one support panel (20) carried by the storage (2). In an 88th aspect according to the preceding aspect, at least one support panel (20) is placed, at least in part, optionally for a preponderant part, in the compartment (3) of the storage (2). In an 89th aspect according to any one of the two preceding aspects, the support panel (20), at least in the locking condition, is configured to contact at least the side wall of the storage (2) directly supporting the second coupling portion (13).

[0040] In a 90th aspect according to any one of the three preceding aspects, at least one support panel (20), at least in the locking condition, is configured to contact at least one of the outer panel (41) and the inner panel (42) of the side wall of the storage (optionally of the front wall 4a and/or the rear wall 4b). In a 91st aspect according to any one of the four preceding aspects, the support panel (20), in the locking condition, is configured to limit a movement of the side wall of the storage (optionally of the front wall 4a and/or of the rear wall 4b) directly carrying the second coupling portion (13), optionally away

from the closure system. In a 92nd aspect according to any one of the five preceding aspects, the support panel (20), at least in the locking condition, is configured to limit a movement of the side wall of the storage (optionally of the front wall 4a and/or of the rear wall 4b) directly carrying the second coupling portion (13), optionally away from the side wall of the closure system directly facing at least one side wall of the storage directly supporting the second coupling portion (13) (optionally of the front wall 4a and/or the rear wall 4b).

[0041] In a 93rd aspect according to any one of the six preceding aspects, the support panel (20) is engaged at the free edge (6) of the storage. In a 94th aspect according to any one of the seven preceding aspects, the support panel (20) is hinged to a section of the free edge (6) of the storage (2).

[0042] In a 95th aspect, according to any one of the eight preceding aspects, at least one support panel (20) is engaged to the free edge section (6) of the storage, defined by at least one side wall of the storage immediately adjacent to the side wall directly supporting the second coupling portion (13). In a 96th aspect according to any one of the nine preceding aspects, at least one support panel (20) is directly carried from at least one of the first and second side walls (4c, 4d) of the storage (2). In a 97th aspect according to any one of the ten preceding aspects, at least one support panel (20) is directly engaged to a section of the free edge (6) of the storage (2) defined by at least one of the first and second side walls (4c, 4d), optionally immediately adjacent to the front wall (4a) and the rear wall (4b) of the storage. In a 98th aspect, according to any one of the eleven preceding aspects, at least one support panel (20) is carried by at least one side wall of the storage (2) not directly carrying the second coupling portion (13). In a 99th aspect according to any one of the twelve preceding aspects, the second coupling portion (13) is directly carried from the front wall (4a) and the rear wall (4b) of the storage, wherein at least one support panel (20) is directly carried from at least one of the said first and second side walls (4c, 4d) of the storage (2). In a 100th aspect according to any one of the thirteen preceding aspects, at least one support panel (20), in the locking condition, may be configured to contact at least one of said outer and inner panels (41, 42) of the front wall (4a) and of the rear wall (4b) of the storage (2). In a 101st aspect, according to any one of the fourteen preceding aspects, at least one support panel (20) may be delimited by:

an attachment edge (20a) directly engaged to the storage (2),
a distal edge (20b) opposite the attachment edge (20a),
a first and a second lateral edge (20c, 20d) opposite each other which connect said attachment edges (20a) and distal edges (20d).

[0043] In a 102nd aspect according to the preceding aspect, the distal edge (20d), at least in the locking condition, is placed in the compartment (3) of the storage (2). In a 103rd aspect according to any one of the two preceding aspects, at least one section of at least one of the first and second side edges (20c, 20d) of the support panel (20), optionally in the locking condition, is configured to contact at least the side wall of the storage directly carrying the second coupling portion (13). In a 104th aspect according to any one of the three preceding aspects, at least one section of at least one of the first and second side edges (20c, 20d) of the support panel (20), optionally in the locking condition, is configured to contact at least one of the front wall (4a) and the rear wall (4b) of the storage. In a 105th aspect according to any one of the four preceding aspects, at least one section of at least one of the first and second side edges (20c, 20d) of the support panel (20), optionally in the locking condition, may be configured to contact the outer panel (41) and/or inner panel (42) respectively of at least one of the front wall (4a) and the rear wall (4b) of the storage.

[0044] In a 106th aspect according to any one of the five preceding aspects, at least one section of the first side edge (20c) of the support panel (20), optionally in the locking condition, is configured to contact the front wall (4a) of the storage, optionally at least one of the outer panel (41) and the inner panel (42) of the front wall (4a), wherein at least one section of the second side edge (20d) of the support panel (20), in the locking condition, is configured to contact the rear wall (4b) of the storage, optionally at least one of the outer panel (41) and the inner panel (42) of the rear wall (4b).

[0045] In a 107th aspect according to any one of the preceding aspects, at least one support panel (20) includes a first and a second support panel. In a 108th aspect according to the preceding aspect, the first and second support panels are spaced and opposite to each other. In a 109th aspect, according to any one of the two preceding aspects, the first and second support panels are engaged in the free edge section (6) respectively defined by the first and second side walls (4c, 4d) of the storage (2). In a 110th aspect according to any one of the three preceding aspects, the first and second support panels, optionally in the locking condition, substantially face each other.

[0046] In a 111th aspect according to any one of the aspects from 87th to 110th, at least one support panel (20), optionally the first and second support panels, may include at least one protruding section configured to contact at least one side wall of the storage. In a 112th aspect according to the preceding aspect, the first side edge (20c) includes a protruding section (20c') configured to contact the front wall (4a) of the storage, optionally configured to rest against at least one of the outer panel (41) and the inner panel (42) of the front wall (4a). In a 113th aspect to either of the preceding two aspects, the second side edge (20d) comprises a protruding section (20d') configured to contact the rear wall (4b) of the storage, optionally configured to rest against at least one of the

outer panel (41) and the inner panel (42) of the rear wall (4b).

[0047] In a 114th aspect according to any one of the aspects from 87th to 113th, at least one support panel (20) has a width, defined by the maximum distance between the first and second side edge (20c, 20d), substantially identical to the distance between the front wall (4a) and the rear wall (4b) of the storage (2).

[0048] In a 115th aspect according to any one of the aspects from 87th to 114th at least one side wall of the storage, optionally the side wall of the storage directly carrying the second coupling portion (13), has at least one seat (30) configured to receive a portion of the support panel (20). In a 116th aspect according to the preceding aspect, at least one of the front wall (4a) and the rear wall (4b), optionally both, includes at least one seat (30). In a 117th aspect according to either of the two preceding aspects, at least one of the outer panel (41) and the inner panel (42) of the front wall (4a) and/or the rear wall (4b) includes said at least one seat (30).

[0049] In a 118th aspect according to any one of the three preceding aspects, at least one seat (30) is delimited by a gripping edge (30a) configured to contact, optionally at least in the locking condition, the support panel (20). In a 119th aspect according to the preceding aspect, said gripping edge (30a) is configured to engage at least one section of at least one of the first side edge (20c) and the second side edge (20d) of the support panel (20). In a 120th aspect according to any one of the two preceding aspects, the gripping edge (30a) of the seat (30) is configured to contact the support panel (20) and keep it, optionally at least partially, in the compartment of the storage (2). In a 121st aspect according to any one of the aspects from 87th to 120th the support panel (20) is movable by rotation around the free edge (6) of the storage (2) at least between:

a first operating position where the support panel is placed outside the compartment (3) of the storage, and
a second operating position where the support panel is folded into the compartment (3) of the storage.

[0050] In a 122nd aspect according to the preceding aspect, the gripping edge (30a) of the seat (30) is configured to lock the support panel, optionally following the movement of the support panel from the first to the second operating position, in said second operating position. In a 123rd aspect according to any one of the aspects from 115th to 122nd the seat (30)

is defined on the inner panel (42), and/or
is defined by the inner panel (42) itself, optionally by at least one section of the perimeter edge of the inner panel (42).

[0051] In a 124th aspect according to the preceding aspect, the gripping edge (30a) of the seat (30) is defined by at least one section of a perimeter edge of the inner panel (42). In a 125th aspect, according to any one of the two preceding aspects, the inner panel (42) of the side wall of the storage directly supporting the second coupling portion (13) defines two opposing seats (30) respectively configured to contact the first and second support panel.

[0052] In a 126th aspect, according to any one of the aspects from 115th to 125th, the front wall (4a) includes two seats (30). In a 127th aspect, according to the preceding aspect, the two seats (30) of the front wall (4a) are substantially opposite to the second coupling portion (13) carried by the said front wall itself. In a 128th aspect according to any one of the two preceding aspects, each seat of the front wall (4a) is defined on or by the inner panel (42), optionally only on the or by the inner panel (42). In a 129th aspect, according to any one of the three preceding aspects, each seat (30) of the front wall (4a) is delimited by an open profile. In a 130th aspect, according to any one of the aspects from 118th to 129th, the gripping edge (30a) of each seat of the front wall (4a) is placed in proximity of the free edge (6) defined by said front wall (4a). In a 131st aspect according to any one of the aspects from 115th to 130th (optionally excluding the two preceding aspects), each seat (30) defined on the front wall (4a) is delimited by a closed perimeter edge. In a 132nd aspect according to the preceding aspect, the closed perimeter edge of each seat (optionally defined on the front wall 4a) is spaced from the free edge of the storage (2).

[0053] In a 133rd aspect according to any one of the aspects from 115th to 132nd, the rear wall (4b) includes two seats (30). In a 134th aspect, according to the preceding aspect, the two seats of the rear wall (4b) are substantially opposite with respect to the second coupling portion (13) carried by the said rear wall itself. In a 135th aspect according to either of the two preceding aspects, each seat of the rear wall (4b) is defined on or by the inner panel (42), optionally only on the or by the inner panel (42). In a 136th aspect, according to any one of the three preceding aspects, each seat (30) of the rear wall (4b) is delimited by an open profile. In a 137th aspect, according to the preceding aspect, the gripping edge (30a) of each seat of the rear wall (4b) is placed near the free edge (6) defined by said rear wall (4b). In a 138th aspect according to any one of the aspects 115th to 137th (optionally excluding the two preceding aspects), each seat (30) defined on the rear wall (4b) is delimited by a closed perimeter edge. In a 139th aspect according to the preceding aspect, the closed perimeter edge of each seat (optionally defined on the rear wall 4b) is distanced from the free edge of the storage (2).

[0054] In a 140th aspect according to any one of the aspects from 87th to 139th the support panel (20), optionally made of sheet material, extends in thickness between an upper surface (20") and a lower surface (20"). In a 141st aspect according to the preceding aspect, the gripping edge (30a) of the seat (30) is configured to di-

rectly contact the top surface of the support panel (20). In a 142nd aspect according to any one of the two preceding aspects, at least one support panel (20) has a first and second side portion, wherein at least one of said first and second side portions is configured to contact the side wall of the storage, optionally directly carrying the second coupling portion (13).

[0055] In a 143rd aspect according to any one of the aspects 87th to 142nd, at least one support panel (20) is hinged to the free edge of the storage (2) at the attachment edge (20a). In a 144th aspect, according to any aspect from 101 st to 143rd, at least one support panel (20) extends in length between the attachment edge (20a) and the distal edge (20b). In a 145th aspect according to the preceding aspect, the length of the support panel (20) is more than 5 mm, optionally between 10 mm and 50 mm.

[0056] In a 146th aspect according to any one of the aspects from 101 st to 145th the at least one support panel (20) extends in width between the first and second side edges (20c, 20d). In a 147th aspect according to the preceding aspect, the width of the support panel (20) is greater than the length of the support panel. In a 148th aspect according to any one of the two preceding aspects the ratio between the width and the length of the support panel is greater than 1.2, optionally between 1.5 and 4.

[0057] In a 149th aspect, according to any one of the aspects from 87th to 148th, at least one panel (20) is joined only to the free edge (6) of the storage (2). In a 150th aspect according to any one of the aspects from 87th to 149th, at least one support panel (20) is not attached to the side wall of the storage by glue. In a 151st aspect according to any one of the aspects from 101st to 150th the distal edge (20d) is spaced from the side wall of the storage directly carrying said panel, optionally in both the first and second operating positions of said panel.

[0058] In a 152nd aspect according to any one of the aspects from 87th to 151st, the free edge (6) of the storage (2) lies on a plane, wherein said support panel (20) lies on a plane tilted to the plane of position of the free edge. In a 153rd aspect according to the preceding aspect, the position plane of the support panel is tilted with respect to the free edge position plane (6) by an angle greater than 5°, optionally between 10° and 50°. In a 154th aspect, according to any one of the aspects from 87th to 153rd, the support panel (20) defines a descent entering the compartment of the storage (2). In a 155th aspect according to any one of the aspects from 87th to 154th the at least one support panel (20) is spaced from the bottom wall (4f) of the storage.

[0059] In a 156th aspect according to any one of the preceding aspects, the first coupling portion (12) includes at least one tab (12a) carried by at least one side wall of the closure system (7). In a 157th aspect according to the preceding aspect, the tab (12a) of the first coupling portion (12) is configured to engage, in the closing condition of the closure system and storage, the second coupling portion (13) to define the locking condition.

[0060] In a 158th aspect according to any one of the aspects preceding the first coupling portion (12), optionally the tab (12a) of the first coupling portion (12), lies on a plane. In a 159th aspect according to the preceding aspect, the laying plane of the first coupling portion (12), optionally of the tab (12a) of the first coupling portion (12), is substantially parallel to a position plane of the side wall of the closure system (7) directly carrying said first coupling portion. In a 160th aspect according to any one of the aspects from 156th to 158th, the tab (12a) of the first coupling portion is tilted with respect to the side wall of the closure system (7) directly carrying said tab (12a) by an internal angle between 3° and 50°, optionally between 8° and 20°. In a 161st aspect according to any one of the aspects from 156th to 160th the tab (12a) of the first coupling portion (12) extends in length between a first and second ends (12c, 12d). In a 162nd aspect according to the preceding aspect, the first end (12c) of said tab (12a) faces the top wall (7a) of the closure system, while the second end (12d) faces the access of the closure system (7). In a 163rd aspect according to any one of the aspects from 156th to 162nd the tab (12a) of the first coupling portion (12) extends away from the free edge (7b) of the closure system (7), optionally according to an inward direction the internal volume (7f) of the closure system (7).

[0061] In a 164th aspect according to any one of the aspects from 156th to 163rd the tab (12a) of the first coupling portion (12) is made of sheet material, optionally paper. In a 165th aspect, according to any one of the aspects from 156th to 164th, the tab (12a) of the first coupling portion (12) has a rectangular or square or trapezoidal shape. In a 166th aspect according to any one of the aspects from 156th to 165th, the tab (12a) of the first coupling portion (12) is delimited by a perimeter edge (12b), spaced from the free edge (7b) of the closure system (7). In a 167th aspect according to any one of the aspects from 156th to 166th, the perimeter edge (12b) of the tab (12a) has at least one section tilted with respect to a section of the free edge (7b) of the closure system (7), optionally by an angle between 20° and 80°, even more optionally by an angle between 30° and 70°. In a 168th aspect, according to either of the two preceding aspects, the perimeter edge (12b) of the tab (12a) of the first coupling portion (12) has a substantially "C" or "V" shape whose concavity faces the free edge (7b) of the closure system (7).

[0062] In a 169th aspect, according to any one of the preceding aspects, the closure system (7) is distinct and completely separable from the storage (2). In a 170th aspect according to any one of the preceding aspects, the closure system (7) and storage (2), in the open condition, are completely separated.

[0063] In a 171st aspect, according to any one of the aspects from 73rd to 170th, the closure system (7) includes the top wall (7a) and a predetermined number of side walls emerging from the top wall (7a) to define the

internal volume (7f) suitable for housing, in the closure condition, at least part of the storage (2). In a 172nd aspect, according to any one of the preceding aspects, the closure system (7) is at least partially countershaped to the storage (2). In a 173rd aspect according to any one of the preceding aspects, the closure system, in the locking condition, covers at least 50% of the surface of the side wall of the storage (2).

[0064] In a 174th aspect, according to any one of the preceding aspects, the closure system (7) includes a front wall (8a) and a rear wall (8b) opposite the front wall (8a), the closure system (7) also including a first and a second side wall (8c, 8d) also opposite to each other and connecting the front wall (8a) and the rear wall (8b). In a 175th aspect according to the preceding aspect, the front wall (8a), the rear wall (8b), the first side wall (8c) and the second side wall (8d) of the closure system (7) delimit, in cooperation with the top wall (7a), the internal volume (7f) of the closure system (7) suitable for housing, in the closure condition, at least part of the storage (2).

[0065] In a 176th aspect according to any one of the two preceding aspects, the front wall (8a), the rear wall (8b), the first side wall (8c) and the second side wall (8d) of the closure system (7) define an access delimited by a respective free edge (7b) and configured to allow the passage of the storage during switching from the open to the closure condition of the container (1).

[0066] In a 177th aspect according to any one of the three preceding aspects, in the closure condition:

the front walls (4a, 8a) of the storage and the closure system respectively directly face each other,
the rear walls (4b, 8b) of the storage and the closure system respectively directly face each other,
The first side walls (4c, 8c) respectively of the storage and the closure system directly face each other,
the second side walls (4d, 8d) of the storage and the closure system respectively directly face each other.

[0067] In a 178th aspect, according to any one of the preceding aspects, the predetermined number of side walls of the closure system (7) is at least partially countershaped to the predetermined number of side walls of the storage (2).

[0068] In a 179th aspect, according to any one of the aspects from 174th to 178th, the first coupling portion (12) is carried at least by the front wall (8a) of the closure system (7). In a 180th aspect according to any one of the aspects from 174th to 179th the first coupling portion (12) is carried by the front wall (8a) and the rear wall (8b) of the closure system (7). In a 181st aspect, according to any one of the aspects from 68th to 180th, the first coupling portion (12) is entirely arranged in the internal volume (7f) of the closure system (7). In a 182nd aspect according to any one of the aspects from 75th to 181st the first coupling portion (12) is spaced from the free edge (7b) of the closure system (7). In a 183rd aspect, according to any one of the aspects from 75th to 182nd, the first coupling portion (12) is interposed between the top wall (7a) and the free edge (7b) of the closure system (7).

[0069] In a 184th aspect, according to any one of the aspects from 174th to 183rd, the closure system (7) has a first coupling portion (12) carried by the front wall (8a) of the closure system (7) and a first coupling portion (12) carried by the rear wall (8b) of the closure system (7). In a 185th aspect, according to any one of the aspects from 166th to 184th, the perimeter edge (12b) of each first coupling portion (12) is arranged between the top wall (7a) and the free edge (7b) of the closure system (7).

[0070] In a 186th aspect, a process of making a container (1) according to any one of the preceding aspects is provided. In a 187th aspect second with the preceding aspect, the storage is made by folding a first blank (50) in flat sheet material. In a 188th aspect, according to the preceding aspect, the first blank (50) is made of paper material. In a 189th aspect, according to any one of the two preceding aspects, the first blank (50) is made by die-cutting a flat semi-finished sheet. In a 190th aspect according to any one of the three preceding aspects, the closure system (7) is made by folding a second blank in flat sheet material. In a 191st aspect, according to the preceding aspect, the second blank is made of paper material. In a 192nd aspect, according to any one of the two preceding aspects, the second blank is made by die-cutting a flat semi-finished sheet.

[0071] In a 193rd aspect, according to any one of the three preceding aspects of the process, the first blank (50) for making the storage (2) is separated and distinct from the second blank used for making the closure system.

[0072] In a 194th aspect, a use of the container (1) according to any one of the preceding aspects for housing of at least one of the following products: medicines, cosmetics, cleaning products (e.g., laundry and dishwashing detergents), food and tobacco products (e.g., cigars and cigarettes), is provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0073] Some embodiments and some aspects of the invention will be described below with reference to the drawings, provided for indicative purposes only and therefore not limited wherein:

Figure 1 is a perspective view of a container according to the present invention;
Figure 2 is a cross- section view of a detail of a wall of a storage a the container;
Figure 3 is a cross-section view of the container placed in a closure condition;
Figure 4 shows a container closure system;
Figures 5 and 6 are perspective views showing a first embodiment of a storage carrying a support panel;
Figures 7 and 8 are perspective views showing a second embodiment of a storage carrying a support

panel;

Figures 9 and 10 are perspective views showing a third embodiment of a storage carrying a support panel;

Figures 11 and 12 are perspective views showing a fourth embodiment of a storage carrying a support panel;

Figure 13 is a blank for making the storage shown in figures 5 and 6;

Figure 14 is a blank for making the storage illustrated in figures 7 and 8;

Figure 15 is a blank for making the storage shown in figures 9 and 10;

Figure 16 is a blank for making the storage shown in Figures 11 and 12.

DEFINITIONS AND CONVENTIONS

[0074] Note that in this detailed description the corresponding parts shown in the various figures are indicated with the same numerical references. The figures could illustrate the object of the invention by non-scale representations; Therefore, the parts and components illustrated in the figures relating to the object of the invention could only relate to schematic representations.

[0075] The term "*product*" means an article or a composite of articles of any nature. For example, the product may be in a solid, liquid or gel form. The product may also be understood as a package, e.g., a blister pack, carrying a plurality of items. The product may include: medicines, cosmetic products, capsules for dishwashers and washing machines, household cleaning and laundry products (e.g. detergents), food and cigarettes.

[0076] The term "*paper material*" means paper or cardboard, e.g., containing at least 50% by weight, optionally at least 70% by weight, of organic material including one or more cellulose, hemicellulose, lignin, lignin derivatives. The paper material may be made of sheet material with a weight between 100 g/m^2 and 500 g/m^2. The paper material in question extends between a first and a second development surface. The paper sheet material used to make the container can, in one of its variants, be covered for at least part of the first and/or second development surface with a plastic coating, for example biodegradable. If the coating is arranged in such a way as to cover at least part of the first development surface, the same coating will define an internal surface of the container. Conversely, if the coating is placed on the second development surface, the same coating will define an external surface of the container. The coating may also be used to define a sort of barrier to water and/or humidity useful to avoid the weakening and loss of structurality of the support with consequent uncontrolled deformation of the paper material constituting the latter component. The coating may be applied to the paper material (as specified above on the inner and/or outer side of the substrate) in the form of a so-called "*coating*" or lacquer deposited from solution or spray, the thickness of which is generally between 0.2 μm and 10 μm. Alternatively, the coating may include a plastic film, e.g. polythene, which may be applied by a lamination process on one or both sides (inner and/or outer side) of the paper material defining the container. If the coating is applied by lamination, the values of the plastic film (coating) may for example vary between 10 μm and 400 μm, in particular between 10 μm and 200 μm, and even more specifically between 10 μm and 80 μm, of coating material (i.e. polythene). The plastic coating material may be chosen, by way of example, from the following materials: PP, PE (HDPE, LDPE, MDPE, LLDPE), EVA, polyesters (including PET and PETg), PVdC.

[0077] The term "*blank*" refers to a flat semi-finished product made of sheet material, for example in paper sheet material, which may be folded on itself to make the container. The blank may be in a single piece and may be obtained by die-cutting a single sheet.

[0078] The term "*folded blank configuration*" refers to a configuration in which the blank has been bent to form the container. The term "*sheet material*" refers to a material that has two dimensions, such as length and width, which are significantly greater than a third dimension such as thickness.

[0079] The term "*panel*" refers to a monolithic laminar body with a substantially constant thickness, which may be in single or multilayer form. The panel can, but is not limited to, develop flat or follow a course that is at least partly undulating. The term "*opening device*" refers to any tool that may be used by a user to open the container. For example, the opening device may include at least one selected in the group of: a sheet body (e.g. a payment card, a loyalty card or a special key), an elongated body (e.g. a pen or a special key).

[0080] The term "*manual intervention*" or "*manual intervention*" refers to the user as a manual action carried out by the user without the aid of tools that may be used to open the package, such as credit cards, shaped paper cards.

DETAILED DESCRIPTION

Container 1

[0081] The reference 1 indicates a container suitable for housing various products, such as medicines, cosmetics, cleaning products (laundry and dishwashing detergents), food and tobacco products.

[0082] As may be seen in figure 1, container 1 includes a storage 2 made of sheet material, e.g., paper material, defining a compartment 3 for housing products. The storage 2 has at least one side wall defining at least one passage opening 5 delimited by a free edge 6. The storage 2 may have a substantially prismatic shape, e.g., rectangular prismatic as illustrated for example in the attached figures, although the possibility of making a storage 2 with a different shape, e.g., having a square, trapezium shape or cylindrical shape, is not excluded. The

free edge 6 substantially defines an upper section of the storage 2, which lies substantially on one plane.

[0083] The storage 2 may include a front wall 4a and a rear wall 4b facing and parallel to each other: the front wall 4a and the rear wall 4b are connected by a first and a second side wall 4c, 4d, also facing and parallel to each other. The front wall 4a is spaced and opposite to the rear wall 4b; The first and second side walls 4c, 4d are also spaced and opposed to each other. The front, rear and side walls (4a, 4b, 4c, 4d) define the passage opening 5, delimited by the free edge 6.

[0084] The storage 2 also includes a bottom wall 4f from which the front wall 4a, the rear wall 4b and the first and second side parts 4c, 4d emerge, starting from a perimeter edge. The storage 2 may therefore include a single passage opening 5 opposite to the bottom wall 4f. In detail, the front wall 4a, the rear wall 4b, the first side wall 4c and the second side wall 4d, in cooperation with the bottom wall 4f, delimit the compartment 3.

[0085] The storage 2 may be obtained by means of a process of folding and gluing a flat blank made of sheet material, e.g., paper material; said process involves providing of a side wall where a glued overlapping area is defined that allows the storage to maintain a three-dimensional shape, wherein the side wall (e.g., walls 4a-4d) emerges from the bottom wall 4f.

[0086] The distance between the free edge and the bottom wall determines the extension of the side walls of the storage: this extension basically defines the height of the storage 2 which may be, in a non-limiting way, more than 50 mm, optionally more than 70 mm, even more optionally between 80 mm and 150 mm. The compartment 3 may have a volume of more than 40 cm^3, optionally more than 100 cm^3 depending on the products to be housed. For example, if container 1 is used to house medium-sized products, the compartment 3 may have a volume between 800 and 1,400 cm^3. For large products, the volume of the compartment 3 may reach 10,000 cm^3.

[0087] One or more side walls of the storage 2 may comprise at least one flat sheet emerging from the bottom wall 4f and delimiting at least part of the compartment 3. In particular, each side wall may consist of a single sheet of paper material. In detail, the storage 2 may be substantially identical to the container of the package as described in the PCT patent application No. WO 2021/044266 A1 as published, from page 14, line 26, to page 15, line 7. Alternatively, at least one side wall of the storage 2 may include at least one outer panel 41 and at least one inner panel 42 facing and stably engaged to each other. In detail, the storage 2 may be substantially identical to the storage of the container as described in the Italian Patent Application No. 102021000025892, from page 16, line 13, to page 17, line 24.

[0088] In detail, at least one side wall of the storage 2 may include an outer panel 41 and an inner panel 42 facing and engaged each other, or at least partially overlapping each other. The outer panel 41 and the inner panel 42 may be joined together at a folding edge to define a folded portion; for example, the folding edge may define at least one section of the free edge 6 of the storage 2. In fact, the outer panel 41 and the inner panel 42 lie on their respective planes substantially parallel and are fixed to each other, for example by means of glue: the outer panel 41 defines at least part of an external surface of the storage 2, optionally delimiting a part of the compartment 3, whereas the inner panel 42 defines at least a part of an internal surface of the storage 2, optionally delimiting at least part of the compartment 3. As may be seen in figures 5-8, the inner panel 42 may have a smaller surface extension than the surface extension of the outer panel 41; for example, the inner panel 42 may be overlapped only on a portion of the top of the outer panel 41 and may, in a non-limiting way, cover only 5% to 40%, optionally 7% to 30%, of the surface extension of the outer panel 41.

[0089] For example, at least one of the front wall 4a and the rear wall 4b of the storage 2 may be defined by said outer and inner panel 41, 42. The following figures illustrate, in a non-limiting way, a configuration of the storage 2 wherein both the front wall 4a and the rear wall 4b are defined by the said outer panel 41 and inner panel 42; the first and second side walls 4c, 4d may be defined by a single panel (single sheet) that delimits at least part of the external and internal surface of the storage 2.

[0090] The container 1 includes a closure system 7 made of sheet material, optionally paper material, configured to define a lid. In detail, the closure system 7 is movable with respect to the storage 2 at least between:

- a closure condition where the closure system 7 prevents communication between the compartment 3 of the storage 2 and the external environment (figure 3),
- an open condition where the closure system 7 allows communication between the compartment 3 and the external environment.

[0091] The closure system 7 and the storage 2 may be distinct and completely separable elements and therefore mobile with respect to each other at least between:

- the closure condition where the closure system 7 occludes the passage opening 5 of the storage 2, and
- the open condition where the closure system 7 is separated from the storage 2 and allows the communication between the compartment 3 and the external environment.

[0092] The closure system 7 comprises a predetermined number of side walls defining at least one access delimited by a free edge 7b configured to allow the passage of the storage 2. The predetermined number of side walls of the closure system 7 emerges from a top wall 7a which delimits, in cooperation with said side walls, an internal volume 7f configured to receive at least part of the storage 2 (e.g., at least 50% of the side wall of the

storage); in fact, the access is configured to connect the internal volume 7f with the external environment, as well as to allow the insertion and removal of the storage 2 in/from the internal volume 7f.

[0093] The storage 2, in the closure condition (figure 3), is arranged in the internal volume 7f: the closure system 7, in said condition, prevents the insertion and removal of products from the storage 2. During switching from the closure condition to the open condition, and vice versa, the storage 2 and the closure system 7 slide relatively close to each other in approach or away from each other: during said relative movement, the storage 2 is placed at least in part in the closure system 7 and moves relatively (due to the movement of at least one of these storages and the closure system) in such a way that the bottom wall 4f of the storage 2 and the top walls 7a of the closure system 7 move closer or farther away from each other.

[0094] The closure system 7 has a structure that is at least partially countershaped to the storage 2 in such a way that, in the closure condition, the closure system 7 is fitted on the outside of the storage 2. In detail, the closure system 7 includes a front wall 8a and a rear wall 8b opposite to each other and connected by a first and a second side wall 8c and 8d, also spaced and opposite to each other. In detail, the closure system 7 also has a rectangular prismatic shape: the front wall 8a and the rear wall 8b (square or rectangular) are facing and parallel to each other and connected to each other by means of the first and second side walls 8c,8d (square or rectangular) which are also facing and parallel to each other. In the closure condition:

- the front walls 4a and 8a of the storage 2 and the closure system 7 respectively directly face each other,
- the rear walls 4b, 8b, respectively of the storage 2 and the closure system 7 respectively directly face each other,
- the first side walls 4c, 8c, respectively of the storage 2 and the closure system 7, respectively directly face each other,
- the second side walls 4d, 8d, respectively of the storage 2 and the closure system 7, respectively directly face each other.

[0095] However, the possibility of creating a closure system 7 with a different shape, for example with a trapezoidal section, is not excluded.

[0096] The closure system 7 comprises the top wall 7a from which the front wall 8a, the rear wall 8b and the first and second side parts 8c, 8d emerge from a perimeter edge of the top wall 7a. The closure system 7 therefore comprises a single access defined in opposition to the top wall 7a and delimited by the free edge 7b.

[0097] The counter-shaped configuration of the storage 2 and the closure system 7 allows the side walls of the closure system 7 to slide (relatively) externally side by side with the side walls of the storage 2 during switching from the closure to the open condition, and vice versa. To allow said relative movement, the closure system 7 has a slightly larger size than the storage 2, sufficient to allow the latter to be inserted into the internal volume 7f.

[0098] Alternatively, in an alternative embodiment not shown in the following figures, the closure system 7 may be engaged at the free edge 6 of the storage and may be rotated relative to the latter between the open and closure conditions, and vice versa. Also in the latter embodiment, the closure system 7 includes a predetermined number of side walls defining at least one access delimited by a free edge 7b configured to allow the insertion of the storage 2. The predetermined number of side walls of the closure system 7 may be defined by a front wall 8a that connects a first and a second side wall 8c, 8d facing each other; the predetermined number of side walls emerges from a top wall 7a which, in cooperation with said side walls, delimit the internal volume of the closure system 7 configured to receive at least part of the storage 2. The closure system may then be hinged to a section of the free edge 6 of storage 2 by means of the top wall 7a; relative movement by rotation between closure system 7 and storage 2 may be obtained by moving (in particular rotating) both parts, i.e., both closure system 7 and storage 2, or it may be achieved by moving only one of the parts.

[0099] At least one side wall of the closure system 7 - optionally the front wall 8a, the rear wall 8b, the first side wall 8c and the second side wall 8d - emerge from the top wall 7a, optionally from an outer perimeter edge of the top wall, for a predetermined extension: this extension essentially defines the height of the closure system 7 which may be, in a non-limiting way, greater than 30 mm, optionally between 35 mm and 70 mm. In detail, the height of the closure system 7 may be equal to or lower than the height of the storage 2. As shown in figure 3, in the closure condition, the free edge 6 of the storage 2 may be placed in proximity, optionally in contact, with the top wall 7a of the closure system 7 while the free edge 7b of the closure system 7 is placed in proximity, optionally in contact, with the bottom wall 4f of the storage 2. The internal volume 7f of the closure system may be greater than 40 cm^3, optionally higher than 100 cm^3 depending on the size of the storage to be closed.

[0100] One or more side walls of the closure system 7 may comprise a single panel or flat sheet emerging from the top wall 7a, or it may comprise two or more panels at least partially overlapping. In detail, the closure system 7 may be substantially identical to the case of the package as described in the PCT patent application No. WO 2021/044266 A1 as published, from page 15, line 8, to page 16, line 17. Alternatively, at least one side wall of the closure system 7 may be substantially of the type described in the Italian patent application No. 102022000014821 from page 23, line 14, to page 27, line 17.

[0101] The closure system 7 may also be made by fold-

ing and gluing processes of a blank in flat sheet material, optionally paper, or it may take advantage of a slot/graft portion system as described above for the storage.

[0102] As mentioned above, the closure system may be hinged to the free edge of the storage 2. In addition, the closure system 7 may only comprise the top wall 7a hinged to the free edge of the storage 2 and a single side wall that emerges from the opposite side to the free edge 6, with respect to the top wall. The closure system 7, in the closure condition, may be configured to place the side wall outside the compartment 3 of the storage. Alternatively, the closure system 7, in the closure condition, may be configured to place at least part of the side wall (e.g., at least part of the side wall) in the compartment 3 of the storage (condition not shown).

[0103] The container 1 may include at least a first portion of coupling 12 carried by the closure system 7 and at least a second portion of coupling 13 carried by the storage 2 and configured to cooperate with the first portion of coupling 12; the first and second portion of coupling 12, 13 are configured to engage each other in the closure condition of the storage 2 and the closure system 7 to define a locking condition where the first and second coupling portions 12, 13 prevent the closure system 7 and the storage from switching from the closure to the open condition.

[0104] The first coupling portion 12 is carried by at least one side wall of the closure system 7.

[0105] In one embodiment, the first portion of coupling 12 is carried by the front wall 8a and the rear wall 8b of the closure system 7. Obviously, the possibility of providing one or more first coupling portions 12 on the same side wall and/or at least a first portion of hooking 12 for each side wall of the closure system 7 is not excluded.

[0106] The first coupling portion 12 is placed at least in part in the internal volume 7f of the closure system 7; the first coupling portion 12 is spaced from the free edge 7b of the closure system 7, optionally interposed to the top wall 7a and the free edge 7b. In detail, the first coupling portion 12 includes at least one tab 12a in sheet material, optionally paper material, configured to engage, in the closure condition of the closure system and the storage, the second coupling portion 13 to define said locking condition; tab 12a is delimited by a perimeter edge 12b placed entirely at the internal volume 7f, distinct and spaced from the free edge 7b, which is interposed to the top wall 7a and the free edge 7b of the closure system 7.

[0107] The tab 12 may be rectangular, square or trapezoidal in shape. The possibility of making a 12a tab with a different shape, e.g., semicircular, is not excluded. For example, the perimeter edge 12b of tab 12a may be, at least for one section, tilted to the free edge 7b of the access, optionally by an angle between 20° and 80°, even more optionally by an angle between 30° and 70°. For example, the perimeter edge 12b of the tab 12a of the first coupling portion 12 may have a "C" or "V" shape whose concavity faces the free edge 7b of the closure system 7.

[0108] In more detail, the first coupling portion 12 may be of the type described in the PCT patent application No. WO 2021/044266 A1 as published, from page 16, line 18, to page 17, line 35. Alternatively, the first coupling portion 12 may be substantially of the type described in the Italian patent application No. 102022000014821 from page 27, line 18, to page 29, line 16. The closure system 7 may further comprise a spacer as described in the Italian patent application No. 102022000014821 from page 29, line 17, to page 31, line 2.

[0109] As mentioned above, the container 1 includes at least a second coupling portion 13 configured to cooperate with one or more of the first coupling portions 12 to define the locking condition. In detail, the container 1 may include a second coupling portion 13 for each first coupling portion 12. The second coupling portion 13 is carried by at least one side wall of the storage 2 and emerges outside the compartment 3 of the storage 2, distinct and distanced from the free edge 6 of the latter. In fact, the first and second coupling portions, in the locking condition, are engaged externally the compartment 3 of the storage 2 and internally the internal volume 7f of the closure system 7.

[0110] The second coupling portion 13 may comprise at least one tab 13a protruding from the side wall of the storage, e.g., located outside the compartment 3. The tab 13a is delimited by a separate perimeter edge 13b spaced from the free edge 6 of the passage opening 5. The tab 13a may have a substantially rectangular or triangular or substantially trapezium shape or substantially "V" or "C" shape: wherein the perimeter edge 13b has at least one section, optionally two straight sections, tilted with respect to the free edge 6 of the passage opening of the storage, optionally by an angle between 20° and 80°, even more optionally by an angle between 30° and 70°. In more detail, the perimeter edge 13b of tab 13a may have a substantially "V" or "C" shape whose concavity faces the free edge 6 of the storage 2.

[0111] The tab 13a extends substantially along a plane and directly faces the side wall of storage 2 directly supporting tab 13a; the tab 13a may be tilted with respect to the side wall of the storage 2 directly carrying said tab 13a by an angle of less than 40°, optionally by an angle between 1° and 30°; the angle is measured between the surface of the tab 13a directly facing the side wall of the storage and the same side wall directly carrying (directly joined in a single piece to) said tab 13a. The second coupling portion 13 may be directly joined to at least one of the side walls of the storage 2 by means of a folding edge to define a folded portion. In this configuration, the tab 13a is in one piece with a side wall and folded with respect to the latter in such a way that the tab 13a at least partially overlapping and facing the side wall to which said tab 13a is directly connected (piece unit). Only a part of the tab 13a cooperates with the first coupling portion 12.

[0112] In fact, the second coupling portion 13 of the

container 1 may be similar or identical to the second coupling portion carried by the container of the package as described in the PCT patent application No. WO 2021/044266 A1 as published from page 18, line 1, to page 20, line 15. Alternatively, the second coupling portion 13 may be identical to the second coupling portion carried by the storage as described in the Italian patent application No. 102021000025892, from page 21, line 23, to page 24, line 8, which is suitable for cooperating with a spacer also described in the Italian patent application No. 102021000025892 from page 24, line 9, on page 26, Line 5.

[0113] In detail, as described above, at least one side wall of the storage 2 on which the second coupling portion 13 is defined (e.g., on the front wall 4a and on the rear wall 4b) may be of the type including the outer panel 41. In this configuration, the second coupling portion 13, optionally tab 13a, is defined on the outer panel 41; the second coupling portion 13 protrudes from the outer panel 41 outside the compartment 3: the tab 13a emerges from panel 41 of the storage 2 and away from the free edge 6 of storage 2.

[0114] In even more detail, the tab 13a of the second coupling portion 13 protrudes from the outer panel 41 of the storage starting from an attachment portion 13c: the attachment portion 13c of the second coupling portion 13 is connected in a single piece to the storage 2. As may be seen, for example, in figure 1, the tab 13a of the second coupling portion extends from the attachment portion 13c to an opposite end portion 13d; the end portion 13d of tab 13a, at least in the locking condition, is spaced from the outer panel 41 of the storage 2.

[0115] The tab 13a of the second portion of coupling 13, in the locking condition of the container, is movable at least between:

a first operating position where the end portion 13d is distanced from the outer panel 41 of the side wall of the storage 2 to allow the engagement of the tab 13a of the second coupling portion with the first coupling portion 12 to define said locking condition,
a second operating position where the end portion 13d is placed at a distance from the outer panel 41 of the storage 2 that is less than the distance between said outer panel 41 and said end portion 13d when tab 13a is placed in the first operating position. The tab 13, in the second operating position, is configured to disengage the first coupling portion 12 and allow the closure system and the storage to switch from the closure to the open condition.

[0116] The tab 13a of the second coupling portion 13 is normally placed in the first operating position; the tab 13a of the second coupling portion 13 is configured to reach the second operating position only after the user has intervened by pushing the tab 13a closer to the outer panel 41 of the storage 2.

[0117] As may be seen from the attached figures, the tab 13a may be obtained by carving the outer panel 41; the notch is through the thickness of the panel 41 and distance from the free edge 6 in such a way as to define said second portion of the hook 13 distanced from the free edge 6 and emerging outside the compartment 3. The notch essentially defines a pocket 43 where the tab 13a is at least partially housed. The pocket 43 defines a recess for the tab 13a configured to prevent the tab itself, in the second operating position or when it is folded towards the compartment 3, from interfering with the outer panel 41; in fact, an undesirable interaction with the outer panel could block the tab 13a of the second coupling portion 13 in the second operating position, thus preventing it from returning to the first operating position, thus preventing its subsequent engagement with the first coupling portion 12.

[0118] In the following figures, a storage 2 has been shown, in a non-limiting way, where the front wall 4a and the rear wall 4b are defined by the outer panel 41 and the internal panel 42: on both the outer panels 41 of the front wall 4a and the rear wall 4b there is the second coupling portion 13, defined by cut-out of the outer panel 41.

[0119] The first and second coupling portions 12, 13 may be disengaged, for example, by means of a release portion 60 configured to define at least one through access 61 on at least one side wall of the closure system, at the first and second coupling portions 12, 13. The release portion 60 is configured to allow, at least in the locking condition, direct access from the outside of the container 1 to at least one of the said first and second coupling portions 12, 13 to allow its disengagement.

[0120] In detail, the release portion 60 is configured to allow a user, at least in the locking condition, to intervene from the outside of the container directly on at least one of the first and second coupling portions 12, 13 manually and/or by an opening device that may be inserted through the through access 61. In even more detail, the release portion 60 is configured to allow, at least in the locking condition, to intervene from the outside of the container in thrust directly on the tab 13a of the second coupling portion 13.

[0121] The release portion 60 may include, in a non-limiting way, a through access 61 defined on at least one side wall of the closure system 7. Alternatively, the release portion 60 may include a deformable portion (not shown in the attached figures) placed, in the locking condition, in front of the first and second coupling portions 12, 13: in this configuration, the release portion 60 essentially includes a thrust portion configured to be moved (manually by the user or by means of an opening device) between a push condition and a rest condition. In the rest condition, the thrust portion is distanced from the second coupling portion 13, while in the thrust condition the thrust portion operates on the second coupling portion 13 to allow it to be disengaged with the first coupling portion 12; in this latter configuration described, the thrust portion of the release portion 60 may functionally act as a button.

The thrust of a user's finger on the thrust portion in a direction entering the container allows the thrust portion to come in contact with the second coupling portion 13, disengaging it from the first coupling portion 12. The thrust portion may be reversibly moveable between the thrust condition and the rest condition. For this purpose, the thrust portion may be elastically deformable between the thrust condition and the rest condition.

[0122] In other words, the release portion 60 allows the user to push on the tab 13a of the second coupling portion 13 to push the latter from the first to the second operating position, or to push said tab 13a towards the compartment 3 of the storage 2 in such a way as to disengage it from the tab 12a of the first coupling portion 12.

[0123] The container 1 may additionally comprise a support panel 20 carried by the storage 2. In detail, at least one support panel 20 is placed, at least in the locking condition, at least in part in the compartment 3 of the storage 2 and is configured to contact at least the side wall of the storage 2 directly supporting the second portion of coupling 13. In fact, the function of the support panel 20 is to contact the side wall of the storage carrying the second coupling portion to limit its deformation towards the central area of the container; as may be understood, in fact, during the pushing action on the tab 13a exerted by the user, the side wall directly supporting the second coupling portion 13 tends to deform towards an internal area of the storage 2. This deformation may also be unwanted triggered in the event that a child attempts to open the container by squeezing the side walls of the storage 2; in this condition, an excessive deformation of the side wall of the storage 2 directly carrying the second coupling portion 13 could lead to an undesirable disengagement of the tab 13a of the second portion of coupling 13 with the tab 12a of the first coupling portion 12.

[0124] The support panel 20 is configured to avoid such undesirable deformation that would lead to an undesirable opening of the container; in other words, the support panel 20, in the locking condition, is configured to limit the movement of the side wall of the storage (optionally of the front wall 4a and/or the rear wall 4b) directly carrying the second coupling portion 13, away from the closure system, optionally facing at least one side wall of the storage directly carrying the second portion of coupling 13 (optionally of the front wall 4a and/or the rear wall 4b).

[0125] The support panel 20 is engaged, optionally hinged, to the free edge 6 of the storage; in detail, at least one support panel 20 is engaged to the section of the free edge section 6 of the storage 2 defined by at least one side wall of the storage immediately adjacent to the side wall directly supporting the second coupling portion13. In the attached figures, the second coupling portion 13 is carried directly from the front wall 4a and from the rear wall 4b; In this configuration, at least one support panel 20 may be carried directly from at least one of the first and second side walls 4c, 4d of the storage 2; in particular, the support panel 20 is directly engaged to a section of the free edge 6 of the storage 2 defined by at least one of the first and second side walls 4c, 4d

[0126] As may be seen from the attached figures, at least one support panel 20 may include a first and a second support panel respectively engaged to the free edge section 6 respectively defined by the first and second side walls 4c, 4d of the storage 2; the first and second support panels, in the locking condition, substantially face each other.

[0127] From a structural point of view, each support panel is delimited by the following edges:

- an attachment edge 20a directly engaged to the storage 2, optionally hinged to free edge 6 of the storage 2,
- a distal edge 20b opposite to the attachment edge 20a,
- a first and a second lateral edge 20c, 20c opposite to each other which connect the attachment edge 20a and the distal edge 20d.

[0128] The distal edge 20d, in the locking condition, is placed in the compartment 3 of the storage 2; at least one section of at least one of the first and second lateral edge 20c, 20d of the support panel 20, in the locking condition, may be configured to contact at least one wall of the storage 2 directly supporting the second coupling portion 13, optionally respectively at least one of the front wall 4a and the rear wall 4b of the storage. In the configuration in which the second coupling portion 13 is defined on the outer panel 41 of the front wall 4a and on the outer panel 41 of the rear wall 4a, at least one section of at least one of the first and second lateral edges 20c, 20d of the support panel 20, in the locking condition, may be configured to contact the outer panel 41 and/or the inner panel 42 respectively of at least one of the front wall 4a and the rear wall 4b of the storage. In a non-limiting embodiment, at least one section of the first lateral edge 20c of the support panel 20, in the locking condition, is configured to contact at least one of the outer panel 41 and the inner panel 42 of the front wall 4a while at least one section of the second lateral edge 20d of the support panel 20, in the locking condition, it is configured to contact at least one of the outer panel 41 and the inner panel 42 of the rear wall 4b.

[0129] In fact, in the event that the side wall of the storage directly carrying the second coupling portion 13 is defined by the outer panel 41 and the internal panel 42, the support panel 20, in the condition of locking, may contact on one or both panels 41, 42 to limit, in the event of unwanted crushing of the wall, an undesirable deformation of the same.

[0130] As shown in the figures below, at least one support panel 20, optionally the first and second support panels, may include at least one protruding section configured to contact at least one side wall of the storage directly supporting the second portion of coupling 13; in

detail, the first lateral edge 20c of each support panel 20 may comprise a protruding section 20c' configured to contact the front wall 4a of the storage, optionally configured to rest against at least one of the outer panel 41 and the inner panel 42 of the front wall 4a, while the opposite second side edge 20d may comprise a respective protruding section 20d' configured to contact the rear wall 4b of the storage, optionally configured to rest against at least one of the outer panel 41 and the inner panel 42 of the rear wall 4b.

[0131] From a dimensional point of view, at least one support panel 20 may have a width, defined by the maximum distance between the first and second lateral edge 20c, 20d, substantially identical to the distance between the front wall 4a and the rear wall 4b of the storage 2. This configuration may be used in the event that both the front part 4a and the rear wall 4b carry at least a second coupling portion; in this configuration, the width of the support panel allows it to come in contact with both walls (front and rear wall) to prevent/limit unwanted deformation during a storage crushing action. In other words, support panel 20, in such a configuration, would essentially define a cutsheet that contacts the front wall 4a and the rear wall 4b.

[0132] In fact, the support panel 20 is movable by rotation around the free edge 6 of storage 2 at least between:

a first operating position where the support panel is placed outside the compartment 3 of the storage, and

a second operating position where the support panel is folded in the compartment 3 of the storage.

[0133] In the locking condition of the container, the support panel is configured to remain in the compartment 3.

[0134] As may be seen from the combined figures, at least one side wall directly supporting the second coupling portion 13 may have at least one seat 30 configured to receive a portion of the support panel 20. For example, at least one of the frontal wall 4a and the rear wall 4b includes at least one seat 30. At least one seat 30 is delimited by a gripping edge 30a configured to engage, at least in the locking condition, the support panel 20; in fact, the gripping edge 30a is configured to engage, after the support panel 20 is folded in the compartment 3, said support panel 20, thus keeping it in the compartment 3.

[0135] The seat 30 may be defined on at least one of the outer panel 41 and the inner panel 42 of the front wall 4a and/or the rear wall 4b; on the other hand, the gripping edge 30a is configured to engage at least one section of at least one between the first lateral edge 20c and the second lateral edge 20d of the support panel 20.

[0136] Figures 5 and 6 show a storage 2 having a second coupling portion on the front wall 4a and the rear wall 4b which are defined by the outer panel 41 and the internal panel: the storage 2 also carries a first and a second support panel, respectively engaged at the free edge 6 of the storage defined by the first and second side wall 4c, 4d. In this configuration, both the outer panel 41 and the inner panel 42 of the front wall 4a and the rear wall 4b have two opposing seats 30; these seats 30 are defined on the free edge 6 of the storage (on the front wall 4a and on the rear wall 4b): the seats are substantially opposite to each other with respect to the second coupling portion 13. These seats 30 essentially define a recess of the free edge 6, capable of accommodating the protruding section of the support panel in support. In detail, the seats 30 defined on the front wall 4a are configured to support the protruding section 20c' of the first lateral edge of the first and second panels; similarly, the seats 30 defined on the rear wall 4b are configured to support the protruding section 20d' of the second lateral edge 20d of the first and second panels. In this configuration, during a crushing phase of the front wall 4a and/or rear wall 4b, the crushed side wall (optionally directly the internal panel 42) rests on the first and/or second section 20c, 20d of at least one of the support panels to prevent an unwanted deformation of the side wall capable of causing the unwanted disengagement of the first and second coupling portion 12, 13. It should be noted that, in this configuration, the protruding sections 20c', 20d' do not prevent/limit the deformation of the side walls of the storage but essentially act as support portions that prevent the first and second panels from bending completely inside the compartment 3.

[0137] Figures 7 and 8 show a storage 2 having a second coupling portion13 on the front wall 4a and the rear wall 4b which are defined by the outer panel 41 and the internal one: the storage 2 also carries a first and a second support panel, respectively engaged at the free edge 6 of the storage defined by the first and second side wall 4c, 4d. In this configuration, the seats 30 are defined only on the internal panel 42 and extend from the free edge 6 of the storage (on the front wall 4a and on the rear wall 4b): the seats 30 are substantially opposite to each other with respect to the second coupling portion 13. Said seats 30 essentially define a cut-out with an arched shape on the inner panel 42, capable of allowing the protruding section of the first and second support panels to pass through to allow that protruding section to contact the outer panel 41. In detail, the seats 30 defined on the front wall 4a are configured to allow the protruding section 20c' of the first lateral edge 20c of the first and second panels to contact the outer panel 41 of the front wall 4a; Similarly, seats 30 defined on rear wall 4b are configured to enable the projecting section 20d' of the second lateral edge 20d of the first and second panels to contact the outer panel 41 of the rear wall 4b. In this configuration, during a crushing phase of the front wall 4a and/or rear wall 4b, the outer panel 41 of the crushed side wall rests directly on the protruding section 20c', 20d' of the first and/or second section 20c, 20d of at least one of the support panels to prevent an unwanted deformation of the side wall capable of causing the unwanted disengagement of the first and second coupling portions 12, 13. It should be noted

that, in this configuration, it is directly the protruding sections 20c', 20d' that contact the outer panel 41 and thus prevent/limit the deformation of the side walls of the storage. Figures 9 and 10 show a storage 2 having a second portion of coupling 13 on the front wall 4a and the rear wall 4b which are defined by the outer panel 41 and the internal one: the storage 2 also carries a first and a second support panel, respectively engaged at the free edge 6 of the storage defined by the first and second side wall 4c, 4d. In this configuration, the seats 30 are defined only on the inner panel 42: in fact, a section of the perimeter edge of the inner panel 42 defines the gripping edge 30a of the seat: the gripping edges 30a defined on the inner panel 42 are substantially opposite each other with respect to the second coupling portion 13. In fact, in this configuration it is precisely the inner panel 42 that receives at least one support panel 20 to keep it in the second operating position. In detail, the support panel 20 extends in thickness between an upper surface 20" and a lower surface 20"; The gripping edge 30a of the seat 30 defined by a section of the perimeter edge of the inner panel 42 is configured to directly contact the upper surface of the support panel 20, in particular a first and second side portion, to keep said panel 20 in the compartment 3 of the storage.

[0138] Additionally, the gripping edges 30a defined on the inner panel 42 of the front wall 4a are configured to allow the protruding section 20c' of the first lateral edge 20c of the first and second panels to contact the outer panel 41 of the front wall 4a; Similarly, the gripping edges 30a defined on the inner panel 42 of the rear wall 4b are configured to allow the protruding section 20d' of the second lateral edge 20d of the first and second panels to contact the outer panel 41 of the rear wall 4b. In this configuration, during a crushing phase of the front wall 4a and/or rear wall 4b, the outer panel 41 of the crushed side wall rests directly on the protruding section 20c', 20d' of the first and/or second section 20c, 20d of at least one of the support panels to prevent an unwanted deformation of the side wall capable of causing the unwanted disengagement of the first and second coupling portions 12, 13. It should be noted that, in this configuration, it is directly the protruding sections 20c', 20d' that contact the outer panel 41 and thus prevent/limit the deformation of the side walls of the storage.

[0139] Figures 11 and 12 show a storage 2 having a second coupling portion13 on the front wall 4a and rear 4b which are defined by the outer panel 41 and inner panel 42: the storage 2 also carries a first and a second support panel, respectively engaged at the free edge 6 of the storage defined by the first and second side wall 4c, 4d. In this configuration, both the outer panel 41 and the inner panel 42 of the front wall 4a and the rear wall 4b have two opposing seats 30; these seats 30 are defined only on inner panel 42, at a distance from the free edge 6 of the storage (on the front wall 4a and rear 4b): the seats 30 are substantially opposite to each other with respect to the second coupling portion 13 and are delimited by a closed perimeter edge, optionally rectangular in shape. Said seats 30 essentially define a through-recess on the inner panel 42, capable of allowing the protruding section of the first and second support panels to pass through to allow that protruding section to contact the outer panel 41. In detail, the seats 30 defined on the front wall 4a are configured to allow the protruding section 20c' of the first lateral edge 20c of the first and second panels to contact the outer panel 41 of the front wall 4a; similarly, seats 30 defined on rear wall 4b are configured to enable the projecting section 20d' of the second lateral edge 20d of the first and second panels to contact the outer panel 41 of the rear wall 4b. In this configuration, during a crushing phase of the front wall 4a and/or rear wall 4b, the outer panel 41 of the crushed side wall rests directly on the protruding section 20c', 20d' of the first and/or second section 20c, 20d of at least one of the support panels to prevent an unwanted deformation of the side wall capable of causing the unwanted disengagement of the first and second coupling portions 12, 13. It should be noted that, in this configuration, it is directly the protruding sections 20c', 20d' that contact the outer panel 41 and thus prevent/limit the deformation of the side walls of the storage.

[0140] As may be seen, the support panel 20 also lies substantially on a plane, which may be tilted with respect to the plane of the free edge. As may be seen in Figures 7, 9 and 11, the position plane of the support panel 20 is tilted with respect to the position plane of the free edge 6 by an angle greater than 5°, optionally between 10° and 50°. In fact, in figures 7, 9 and 11, the support panel 20 defines a descent entering the compartment of storage 2 which is in any case distanced from the bottom wall 4f of the storage. The support panel 20 in cooperation with storage free edge 6 defines the passage for products; in fact, the support panel reduces the cross-section of the products defined by the free edge 6. The presence of a support panel 20, for example tilted, makes it possible to stiffen the structure of storage 2 and at the same time guides the products inserted in compartment 3, a condition that may facilitate a filling phase of storage 2 with one or more products.

Process

[0141] In addition, the present invention related to a process of making a container 1. The process includes a phase of providing a storage 2; this phase may involve the die-cutting of a flat sheet of paper material to define a blank 50 which, thanks to successive folding and gluing phases, defines said storage 2. The blank 50 for making the storage 2 includes:

at least one central sheet 51,
at least one first and second side sheet 52, 520 opposite to the central sheet 51, said the first and second side sheets 52, 520 being aligned with the central sheet 51 along a first direction, wherein at least

one of the said first and second side sheets 52, 520 includes at least one portion suitable for defining said second coupling portion 13 of the container,

at least one first and second peripheral sheet 53, 530 opposite to the central sheet 51 and opposite to the said first and second side sheet 52, 520, said first and a second peripheral sheet 53, 530 being also aligned with the central sheet 51 along the first direction,

at least four closing sheets 55a, 55b, 55c, 55d respectively emerging from the same side, from the central sheet 51, from the first side sheet 52, from the second side sheet 520 and from the second peripheral sheet 530, said closing sheets being aligned with each other with respect to a second direction parallel to that first direction,

at least one additional sheet 56a, 560a joined in a single piece to at least one of the central sheet 51 and the second peripheral sheet 530 on the opposite side with respect to the closing sheets 55a, 55b, 55c, 55d.

[0142] The process includes the following steps:

fold the first and a second side sheet 52, 520 in relation to the central sheet 51 in such a way as to arrange the first and second side sheets substantially facing each other,

fold the first and second peripheral sheets 53, 530 respectively with respect to the first and second side sheets 520 as they approach the central sheet 51,

overlap and join, optionally by gluing, at least part of the first and second peripheral sheets 53, 530 in such a way as to define said at least one side wall of the storage 2,

fold and at least partially overlap the closing sheets 55a, 55b, 55c, 55d,

join at least two of these closing sheets in such a way that they define the bottom wall of the storage 2.

[0143] In fact, the folding steps described above allow the closing sheets to define the bottom wall 4f of the storage and the central, lateral and peripheral sheets to define at least one side wall of the storage. In particular, the first and second side sheets 52, 520, at the end of the folding and constraining phase of the sheets described, are respectively configured to define the front wall 4a and rear 4b of the storage. In detail, these sheets are configured to define the outer panel 41 of the storage; the central sheet 51 and the two overlapping peripheral sheets 53, 530, at the end of the folding and constraining phase of the sheets described above, are instead configured to define respectively the first and second side walls 4c, 4d of the storage 2.

[0144] The process also includes a folding phase of that additional sheet in such a way that, at the end of the folding phase, it defines the support panel 20. As may be seen from figures 13-16, at least one additional sheet of the first blank sheet 50 may include a first additional sheet 56a joined in a single piece with the central sheet 51, directly emerging from said central sheet 51 on the opposite side with respect to the closing sheets, and a second additional sheet 560a joined in a single piece with the second peripheral sheet 530 also emerging directly from said second peripheral sheet 530 on the opposite side with respect to the closing sheets; at the end of the folding phase, the first and second sheets 56a and 560a define the first and second support panels respectively.

[0145] As may be seen from the attached figures, the first blank 50 may also include at least one overlapping sheet 57, 570 joined in a single piece with at least one of the first and second side sheets 52, 520 and emerging on the opposite side with respect to the closing sheets 55a, 55b, 55c, 55d; the process may therefore involve the folding and constraining, for example by gluing, of said at least one overlapping sheet to at least one of the said first and second side sheets 52, 520 to define the internal panel 42 of the storage. In detail, at least one overlapping sheet includes a first overlapping sheet 57 joined in a single piece with the first side sheet 52, said the first overlapping sheet 57, at the end of the folding phase, defining the inner panel of the front wall; at least one overlapping sheet, including a second overlapping sheet 570 joined in a single piece with the second side sheet 520, said the second overlapping sheet 570, at the end of the folding phase, defining the inner panel of the rear wall.

[0146] At least one of these first and second overlapping sheets 57, 570 may include at least one through notch 58a, 58b, 580a, 580b configured to define the seat 30. Figure 13 shows a first blank that may be used for making the storage shown in figures 5 and 6. As may be seen, this first blank 50 comprises:

a first and a second additional sheet 56a, 560a which, at the end of the folding phase, are configured to define the first and second panels,

a first and second overlapping sheets 57, 570 which, at the end of the folding phase and constraint to the respective first and second side sheets 52, 520, respectively define the inner panels 42 bound to the outer panels 41 of the front wall 4a and rear 4b of the storages,

a cut-out on the first side sheet 52 to define a portion 52a which, at the end of the various folding phases, is suitable for defining the tab 13a of the second coupling portion 13 defined on the outer panel 41 of the front wall 4a,

a cut-out on the second side sheet 520 to define a portion 520a which, at the end of the various folding phases, is suitable for defining the tab 13a of the second coupling portion 13 defined on the outer panel 41 of the rear wall 4b,

two through-notches 58a, 58b defined partly on the first side sheet 52 and partly defined on the first overlapping sheet 57 to define the seats 30 of the front

wall 4a,
two through-notches 580a, 580b defined partly on the second side sheet 520 and partly defined on the second overlapping sheet 570 to define the seats 30 of the rear wall 4b.

[0147] Figure 14 shows a first blank draft that may be used for making the storage shown in figures 7 and 8. Unlike the blank in figure 13, the blank 50 in figure 14 exhibits:

two through-notches 58a, 58b defined only on the first overlapping sheet 57 to define the seats 30 defined on the inner panel 42 of the front wall 4a,
two through-notches 580a, 580b defined only on the second overlapping sheet 570 to define the seats 30 defined on the inner panel 42 of the rear wall 4b.
Figure 15 shows a first blank that may be used for making the storage of figures 9 and 10. Unlike the blank of figure 14, the blank 50 of figure 15 has:
two through-notches 58a, 58b defined only on the first overlapping sheet 57 to define the seats 30 defined on the inner panel 42 of the front wall 4a, the two notches essentially delimit two opposite sections of the perimeter edge of the first overlapping sheet 57,
two through-notches 580a, 580b defined only on the second overlapping sheet 570 to define the seats 30 defined on the inner panel 42 of the rear wall 4b, the two notches essentially delimit two opposite sections of the perimeter edge of the second overlapping sheet 570.

[0148] Figure 16 shows a first blank that may be used for the construction of the storage shown in figures 11 and 12. Unlike the blank in figure 14, the blank 50 in figure 16 has through notches 58a, 58b, 580a, 580b spaced from the first and second lateral sheets, having a substantially rectangular shape.

[0149] The second blank for making the closure system 7 may be joined in a single piece or distinguished from the first blank 50. The closure system may be substantially realized by means of the process for making case described in the patent application PCT No. WO 2021/044266 A1 as published from page 22, line 16, to page 23, line 26. Alternatively, the closure system may be substantially implemented by means of the process described in the Italian patent application No. 102022000014821, from page 34, line 18, to page 36, line 24.

ADVANTAGES

[0150] Compared to the state of the art, the present invention has considerable advantages. In fact, the presence of at least one support panel prevents the side wall of the storage carrying the second coupling portion from undergoing an undesirable deformation, such as to cause the undesirable disengagement of the second coupling portion with the first coupling portion. Thanks to the presence of at least one support panel, it is possible to create an extremely safe container 1, designed to effectively prevent attempts to open it by children.

Claims

1. Child-resistant container (1) comprising:

a storage (2) defining a compartment (3) and having at least one side wall which defines a passage opening (5) delimited by a free edge (6), said passage opening (5) being configured to put in communication the compartment (3) with the external environment,
a closure system (7) movable with respect to the storage at least between:

a closure condition where the closure system prevents the communication between the compartment (3) of the storage (2) and the external environment,
an open condition where the closure system (7) allows the communication between the compartment (3) of the storage (2) and the external environment,

at least a first coupling portion (12) carried by the closure system (7),
at least a second coupling portion (13) carried by the at least one side wall of the storage (2),
wherein the first and second coupling portions (12, 13) are configured to engage each other in the closure condition to define a locking condition of the container (1) where said first and second coupling portions (12, 13) prevent the closure system (7) and the storage (2) to switch from the closure to the open condition,
wherein the closure system (7) also includes at least one release portion (60) configured to allow, at least in the locking condition, the disengagement between the first coupling portion (12) and the second coupling portion (13),
wherein the container (1) includes at least one support panel (20) carried by the storage (2), hinged to the free edge (6) of that storage (2),
characterized by the fact that the support panel (20) is at least partially arranged in the compartment of the storage (2) and configured to contact at least the side wall of the storage (2) directly supporting the second coupling portion (13).

2. Container according to claim 1, wherein the at least one support panel (20) is engaged to the free edge section (6) of the storage defined by the at least one

side wall of the storage immediately adjacent to the side wall directly supporting the second coupling portion (13).

3. Container according to any one of the preceding claims, wherein the at least one support panel (20) is perimetrically delimited by:

an attachment edge (20a) directly hinged to the free edge (6) of the storage (2),
a distal edge (20b) opposite to the attachment edge (20a),
a first and a second lateral edge (20c, 20d) opposite each other, which connect the attachment edge (20a) and the distal edge (20d),
wherein at least one section of at least one of the first and second lateral edges (20c, 20d) of the support panel (20) is configured to contact at least the side wall of the storage directly carrying the second coupling portion (13),
wherein the distal edge (20d), at least in the locking condition, is placed in the compartment (3) of the storage (2).

4. Container according to any one of the preceding claims, wherein the side wall of the storage directly supporting the second coupling portion (13) has at least one seat (30) configured to receive a portion of the support panel (20), wherein the seat (30) is delimited by a gripping edge (30a) configured to contact, optionally at least in the locking condition, the support panel (20) to keep it at least partially in the compartment of the storage.

5. Container according to any one of the preceding claims, wherein the support panel (20) is movable by rotation around the free edge (6) of the storage (2) at least between:

a first operating position where the support panel is placed outside the compartment (3) of the storage, and
a second operating position where the support panel is folded in the compartment (3) of the storage,

where the support panel, at least in the locking condition, is placed in the second operating position.

6. Container according to claims 4 and 5, wherein the gripping edge (30a) of the seat (30) is configured to lock the support panel, optionally following the movement of the support panel from the first to the second operating position, in said second operating position.

7. Container according to any one of the preceding claims, wherein at least one side wall of the storage (2) includes at least one front wall (4a) and one opposite rear wall (4b), wherein the front wall and the rear wall are connected to each other by a first and a second side wall (4c, 4d) which are also opposite each other,

wherein the at least one support panel (20) comprises a first and a second panel, spaced and opposite each other,
wherein the first and second support panels are engaged to the free edge (6) section respectively defined by the first and second side walls (4c, 4d) of the storage (2),
wherein the first support panel, optionally in the locking condition, faces the side wall directly supporting the second support panel while said second support panel, optionally in the locking condition, is directed toward the side wall directly supporting the first support panel.

8. Container according to the preceding claim comprising:

a second coupling portion (13) carried by the front wall (4a) of the storage,
a second coupling portion (13) carried from the rear wall (4b) of the storage.

9. Container according to any one of the preceding claims, wherein the side wall of the storage (2) carrying the second coupling portion (13) includes at least one outer panel (41), wherein the second coupling portion (13) protrudes from the outer panel (41) outside the compartment (3),

wherein at least one side wall of the storage (2) directly carrying said second coupling portion (13) comprises said outer panel (41) and one inner panel (42) facing and engaged each other,
wherein the outer panel (41) and the inner panel (42) are joined in a single piece at a folding edge and facing each other to define a folded portion,
wherein that folding edge defines at least one section of the free edge (6) of the storage (2),
wherein the at least one support panel (20), at least in the locking condition, is configured to contact at least one of the outer panel (41) and the inner panel (42) of the side wall of the storage.

10. Container according to claims 7 and 9, wherein each of said front walls and rear walls of the storage carries at least a second coupling portion (13) and also includes said outer panel (41) and inner panel (42),
wherein each of said first and second side walls (4c, 4d) of the storage carries the support panel (20),
wherein each support panel, in the condition of locking the container, is configured to contact the front wall and the rear wall.

11. Container according to claim 9 or 10, wherein

the seat (30) is defined on the inner panel (42), and/or
the seat (30) is defined by the inner panel (42), optionally by at least one section of the perimeter edge of the inner panel (42).

12. Container according to any one of claims from 9 to 11, wherein the inner panel (42) of the side wall of the storage directly carrying the second coupling portion (13) defines two opposing seats (30) respectively configured to contact the first and second support panel.

13. Container according to any one of claims from 4 to 12, where the support panel (20), optionally made of sheet material, extends in thickness between an upper surface (20') and a lower surface (20"), wherein the gripping edge (30a) of the seat (30) is configured to directly contact the upper surface of the panel (20).

14. Container according to any one of the preceding claims, wherein the free edge (6) of the storage (2) lies on a plane, wherein said support panel (20) lies on a plane tilted with respect to the lying plane of the free edge,
where the support panel (20) defines a descent entering the compartment of the storage (2).

15. Container according to any one of the preceding claims, wherein the lying plane of the support panel is tilted with respect to the lying plane of the free edge (6) by an angle greater than 5°, optionally between 10° and 50°.

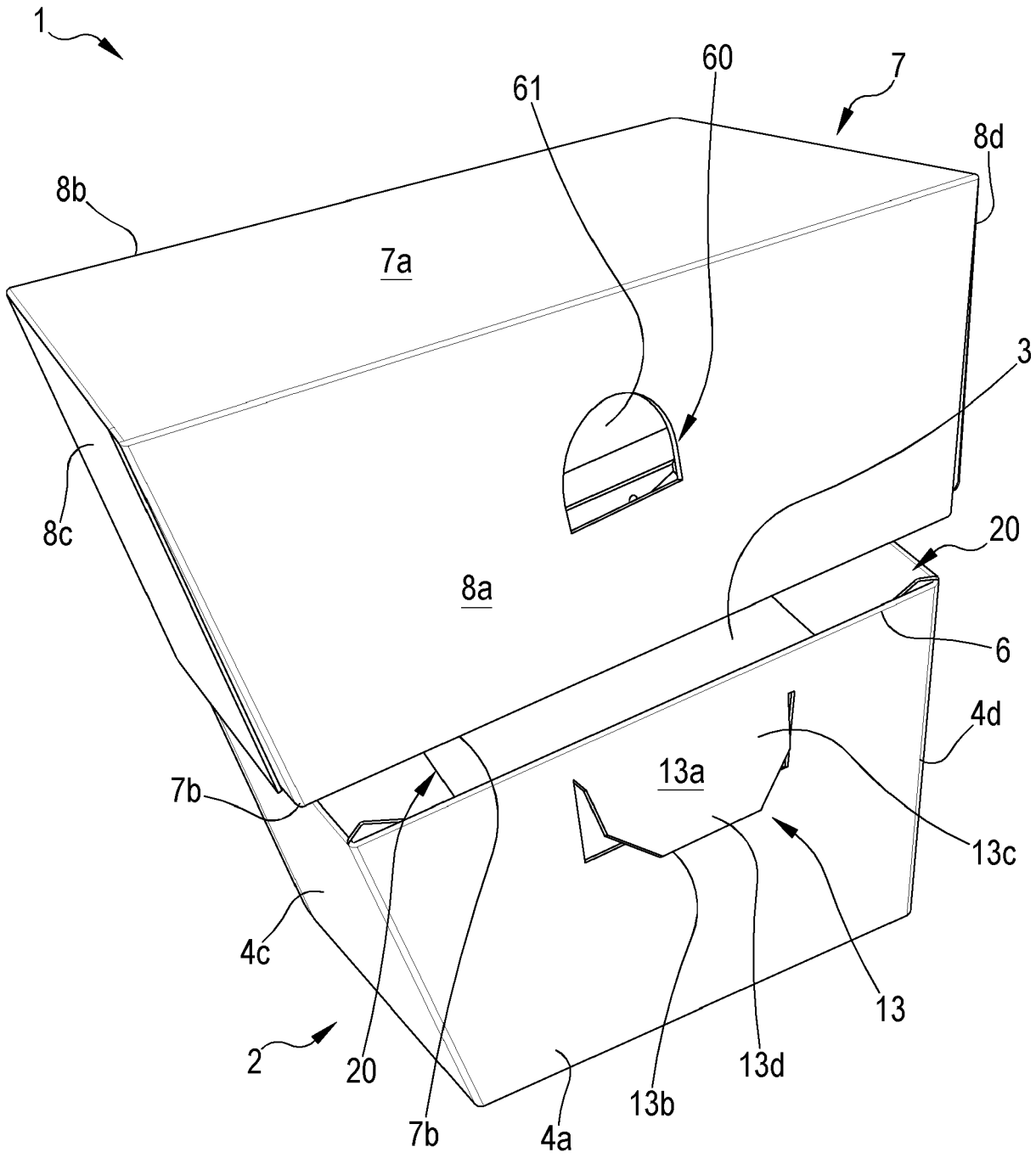
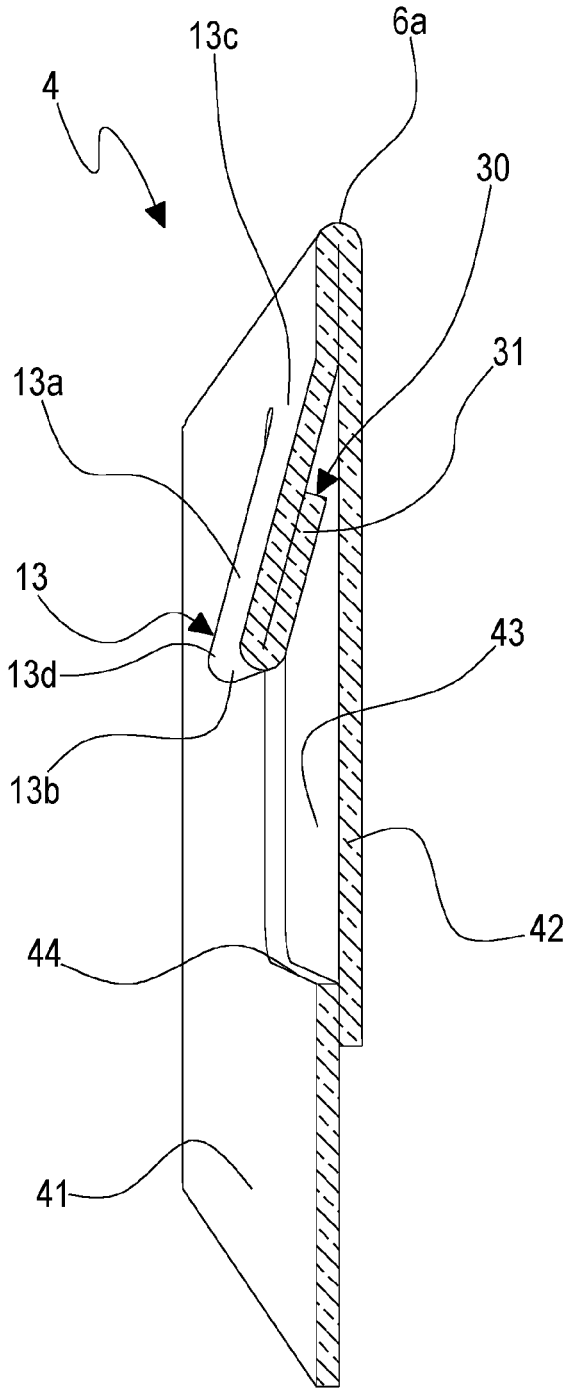


FIG.1

FIG.2


4
13c
6a
30
31
13a
13
13d
43
13b
42
44
41

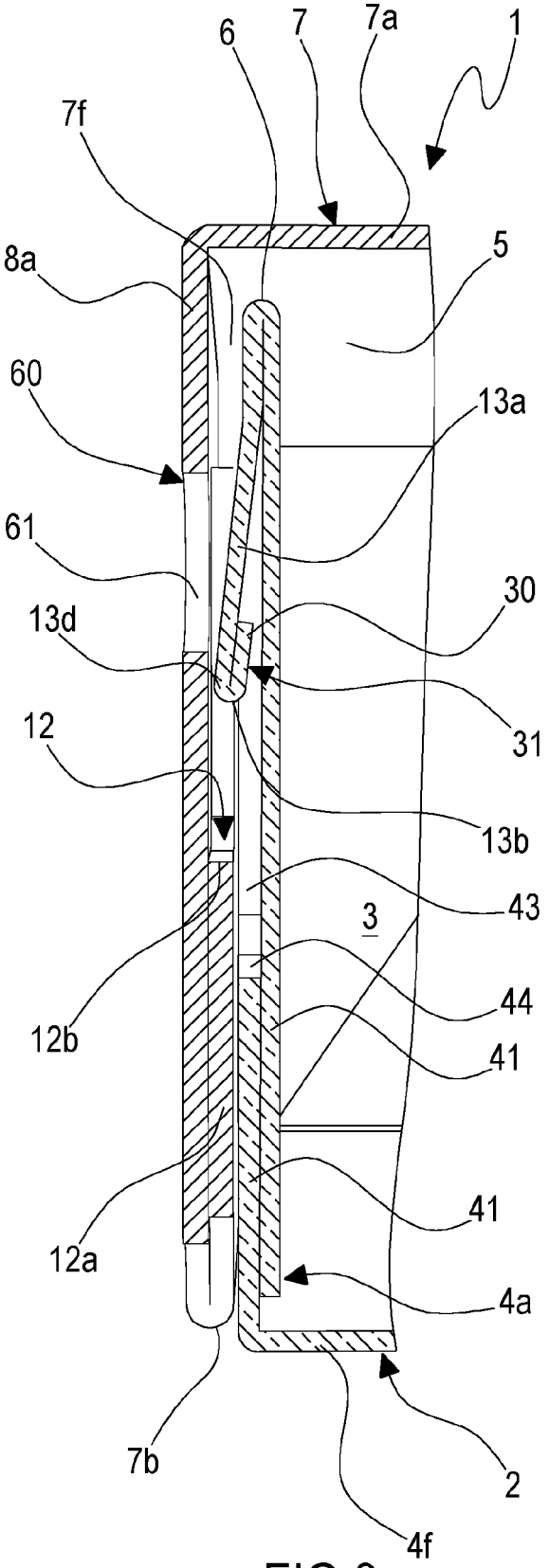

6
7
7a
1
7f
8a
5
60
13a
61
30
13d
31
12
13b
43
3
44
12b
41
41
12a
4a
7b
2
4f

FIG.3

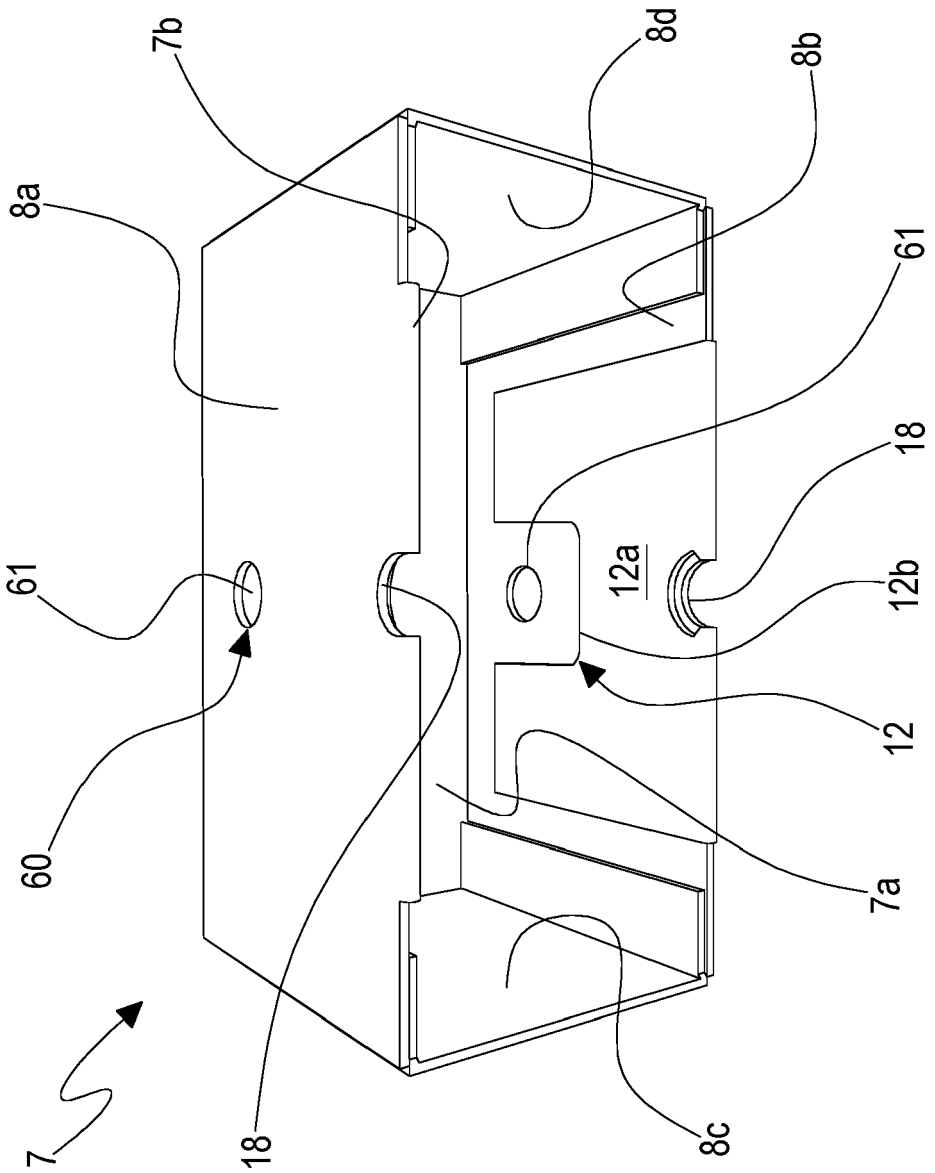


FIG.4

FIG.5

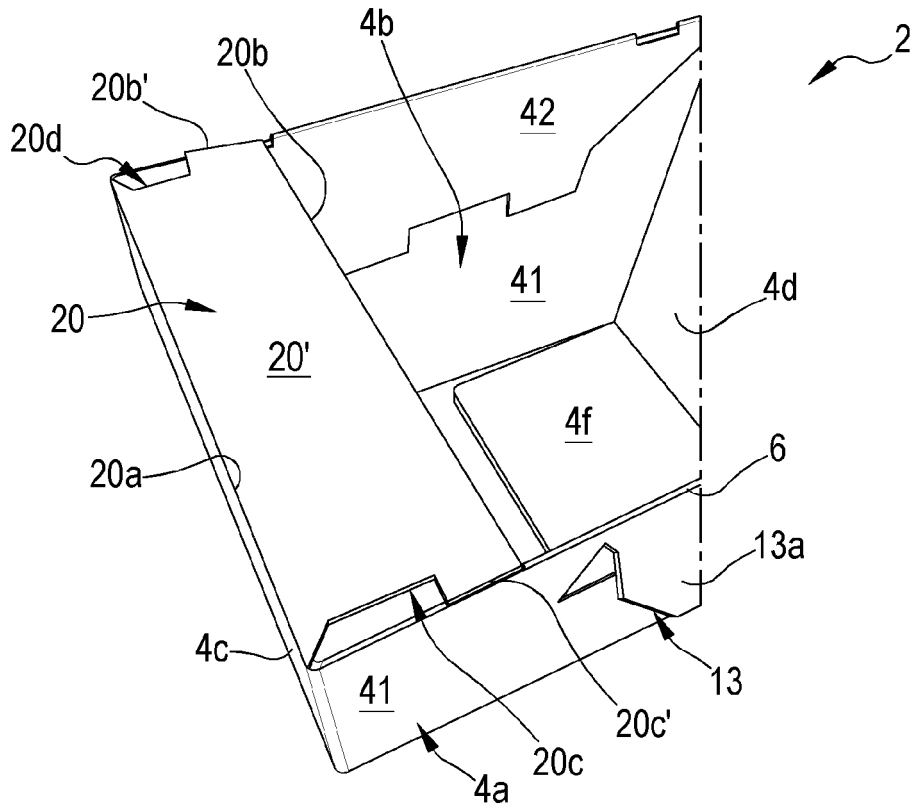

2
4b
20b
20b'
20d
42
41
4d
20
20'
4f
6
20a
13a
4c
41
13
20c'
20c
4a

FIG.6

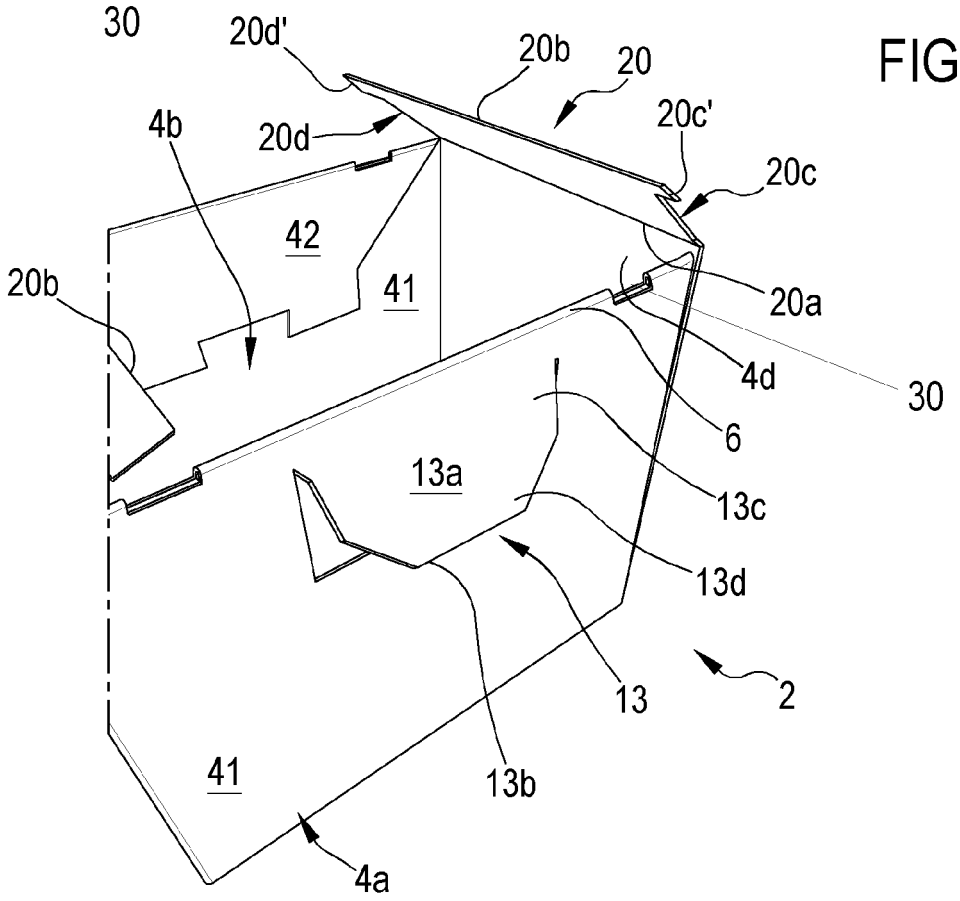

30
20d'
20b
20
20c'
4b
20d
20c
42
20b
41
20a
4d
30
6
13a
13c
13d
13
2
41
13b
4a

FIG.7

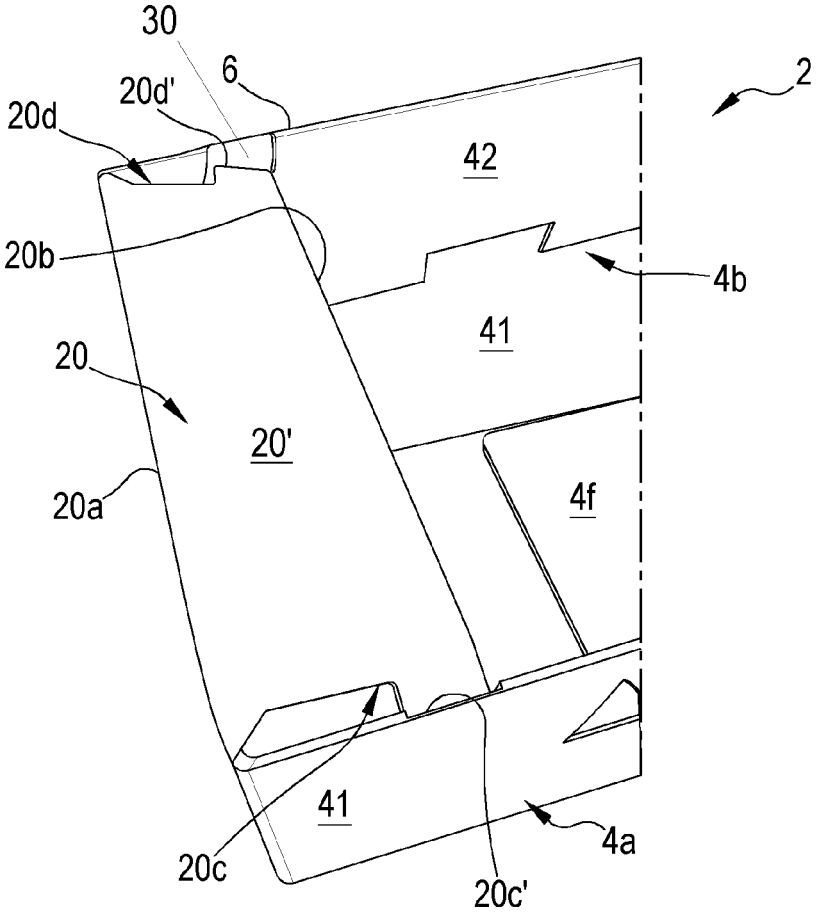

30
6
20d'
20d
2
42
20b
4b
41
20
20'
20a
4f
41
4a
20c
20c'

FIG.8

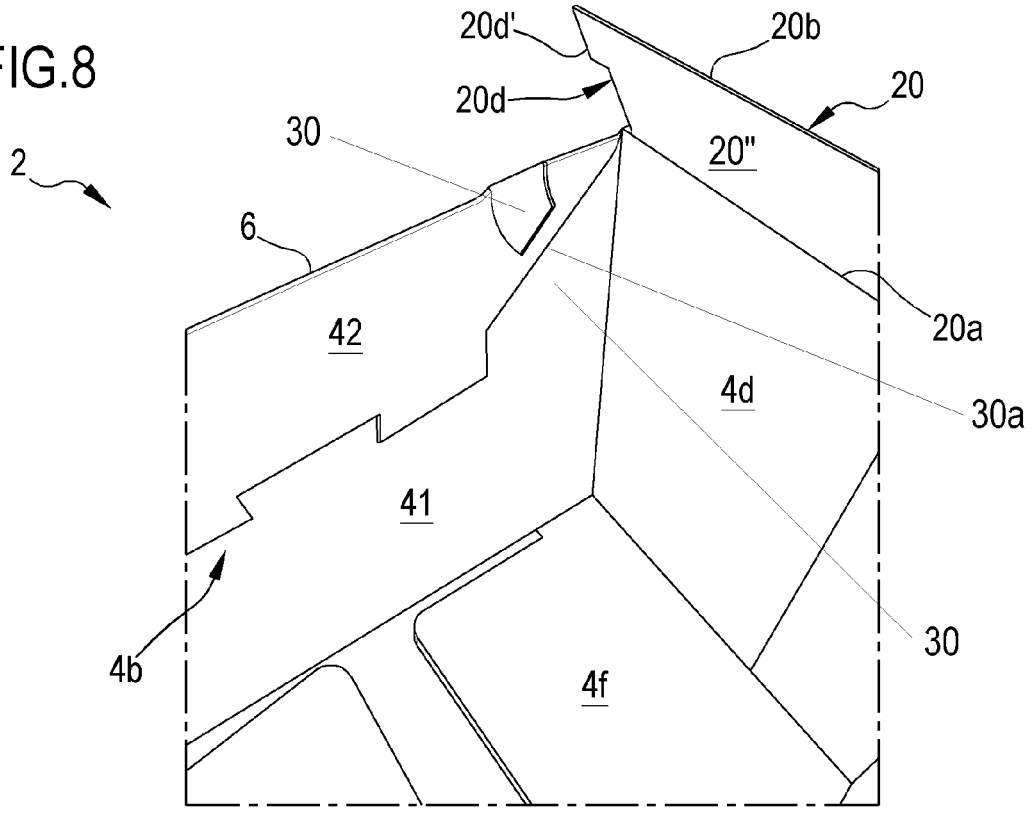

20d'
20b
20d
20
30
20"
2
6
20a
42
4d
30a
41
4b
30
4f

FIG.9

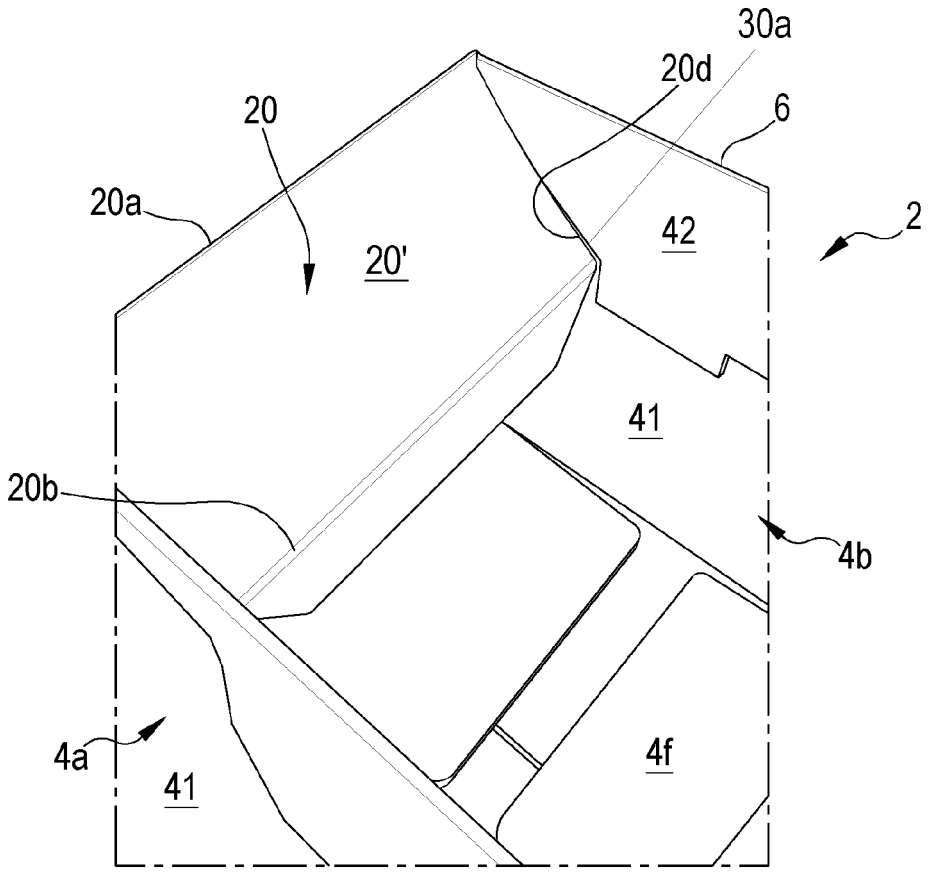

30a
20d
6
20
20a
42
2
20'
41
20b
4b
4a
41
4f

FIG.10

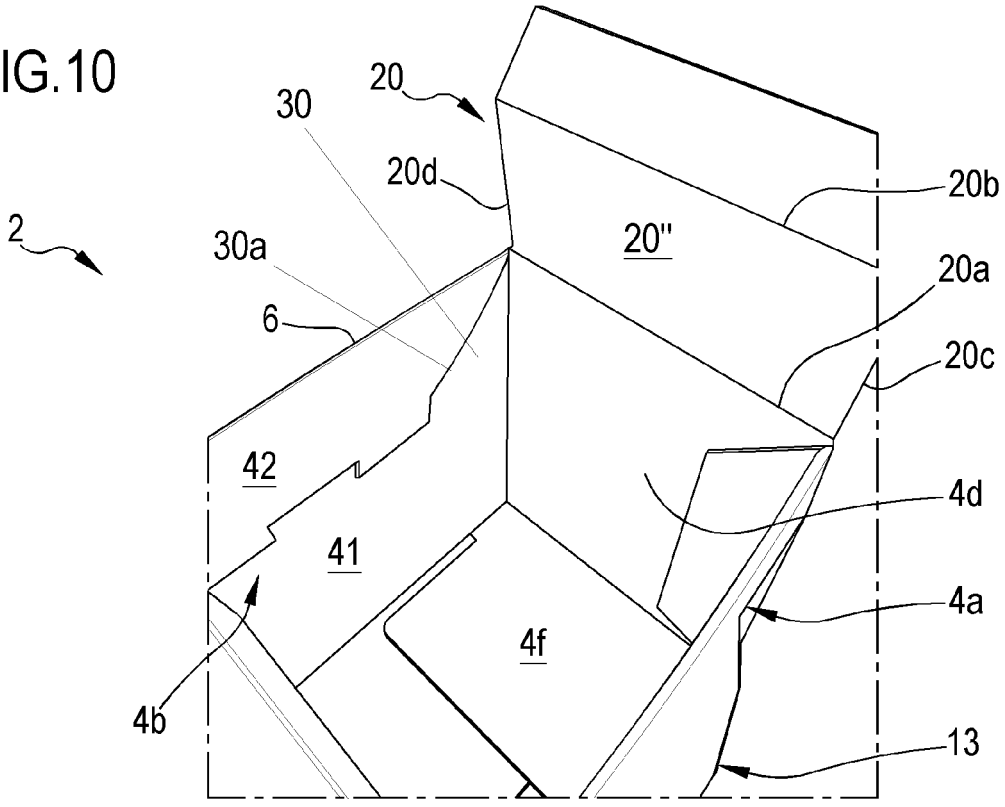
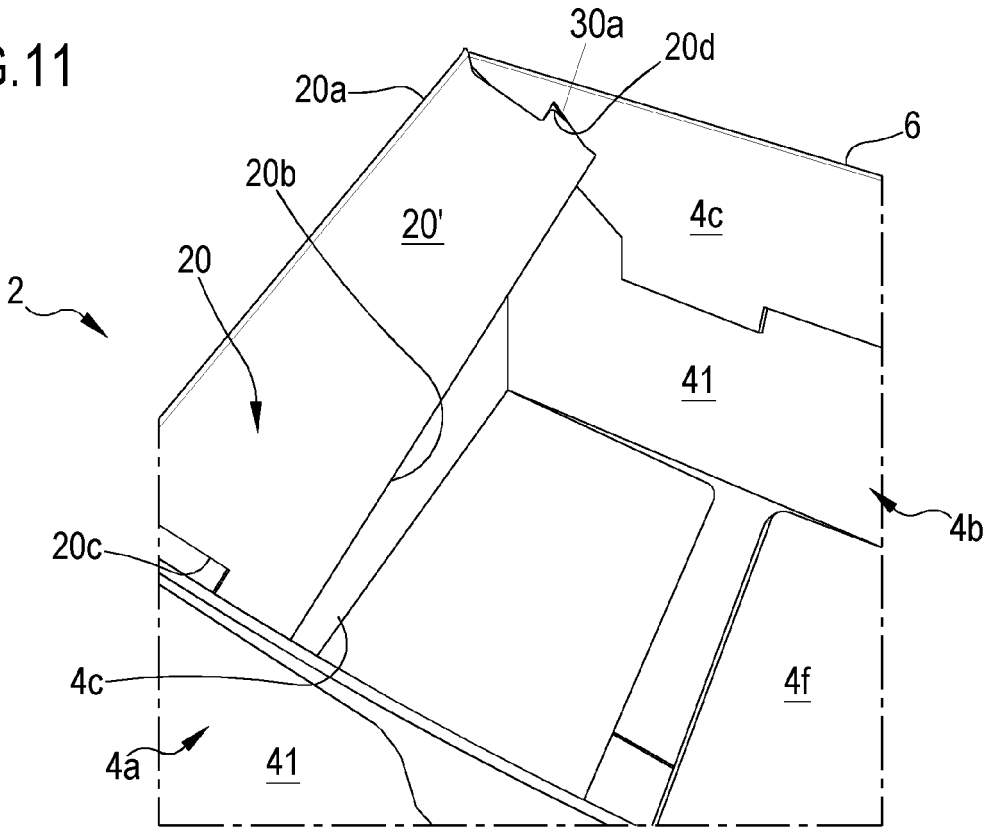
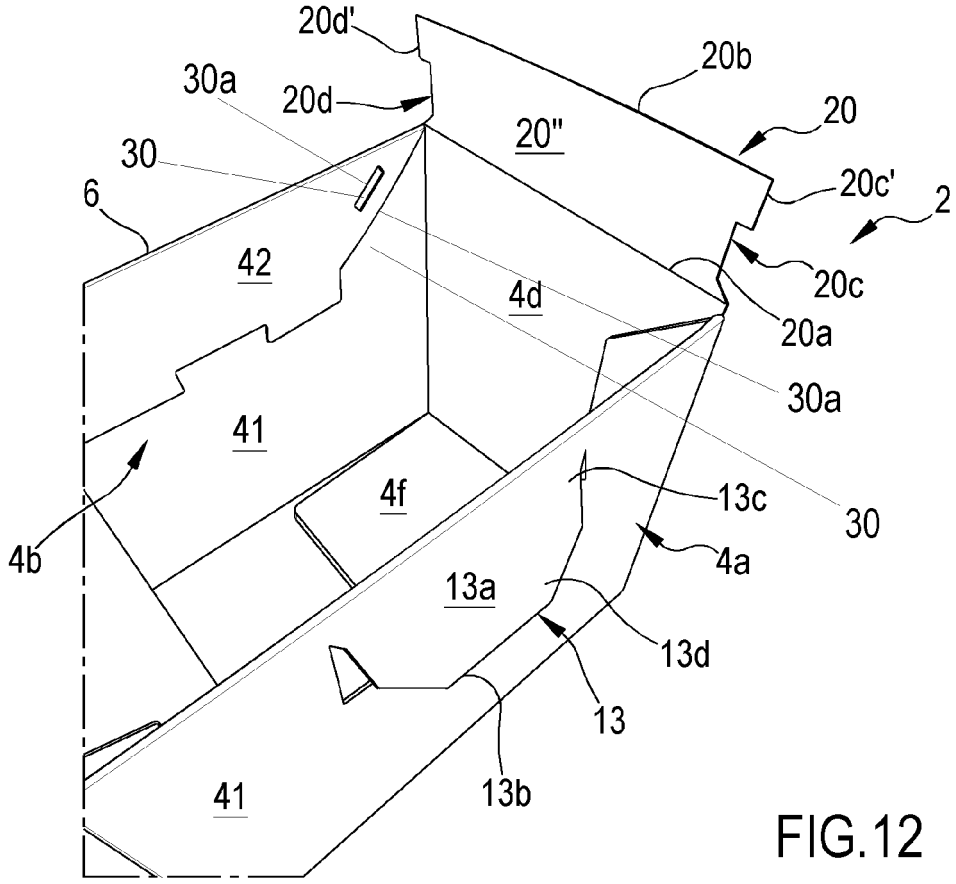

20
30
20d
20b
2
20''
30a
20a
6
20c
42
4d
41
4a
4f
4b
13

FIG.11


30a
20d
20a
6
20b
20'
4c
20
2
41
4b
20c
4c
4f
4a
41


20d'
20b
30a
20d
20"
20
30
20c'
2
6
42
4d
20c
20a
30a
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4f
13c
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4b
4a
13a
13d
13
41
13b

FIG.12

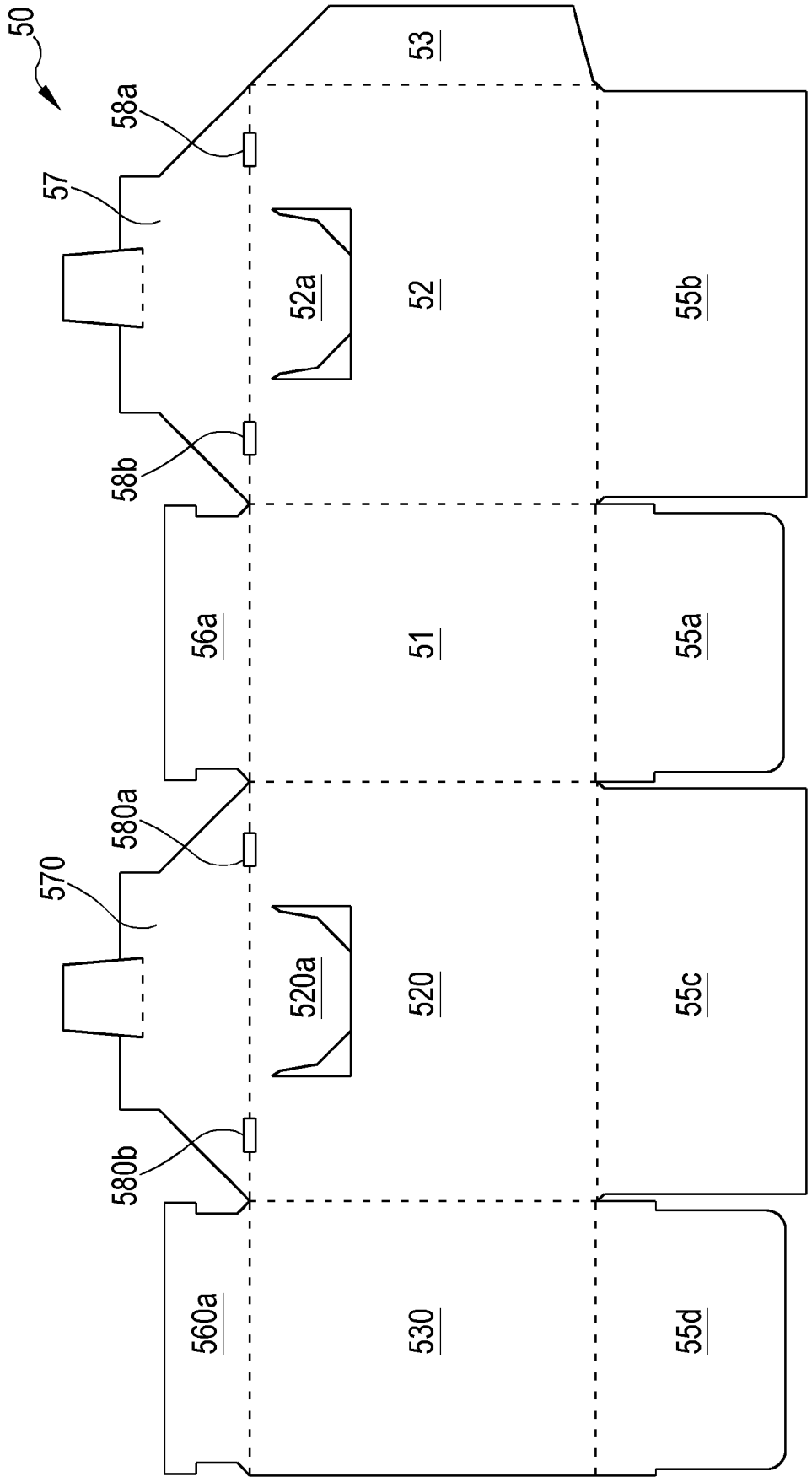
50
53
58a
57
52a
52
55b
58b
56a
51
55a
580a
570
520a
520
55c
580b
560a
530
55d

FIG.13

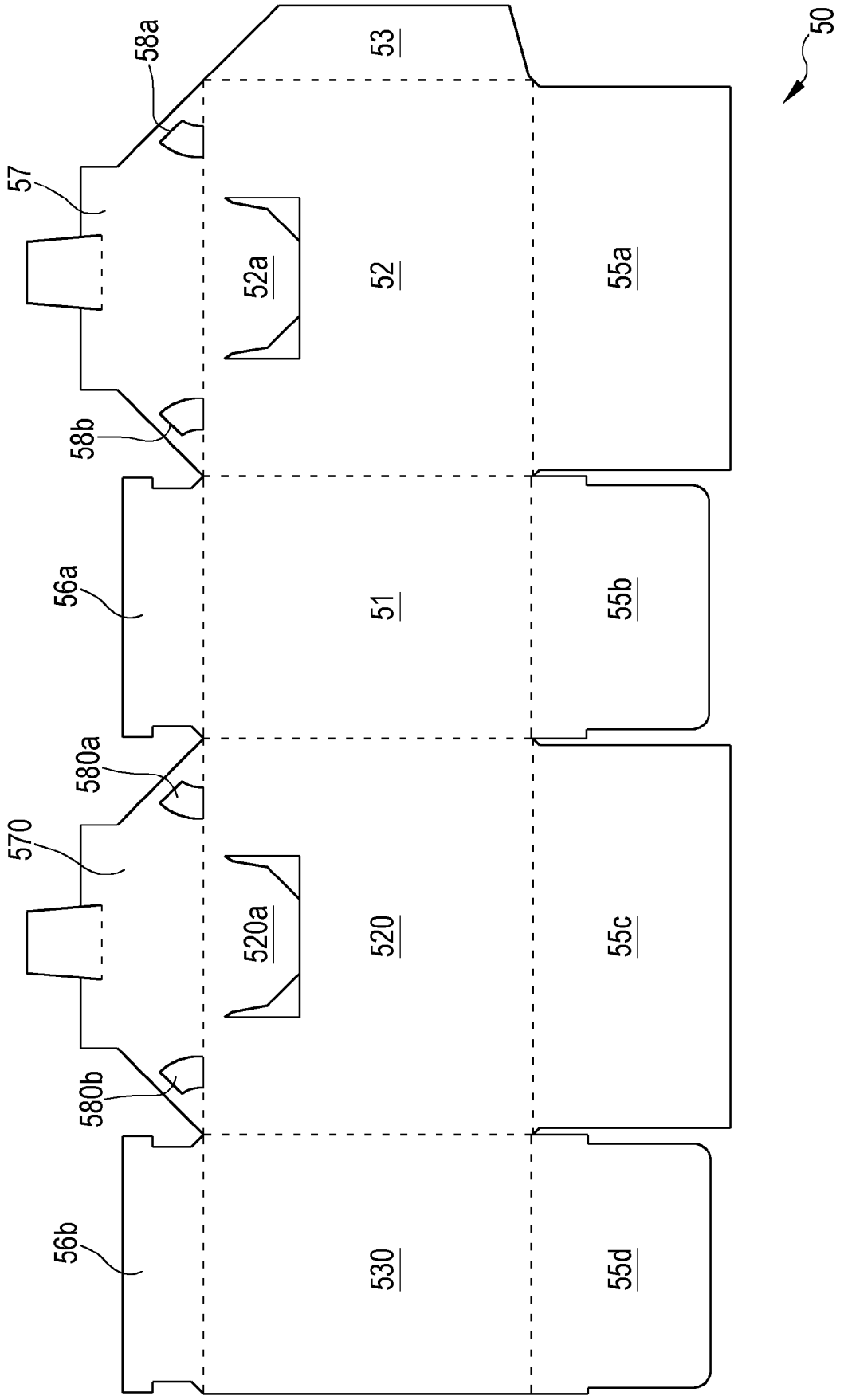
50
53
58a
57
52a
52
55a
58b
56a
51
55b
580a
570
520a
520
55c
580b
56b
530
55d

FIG.14

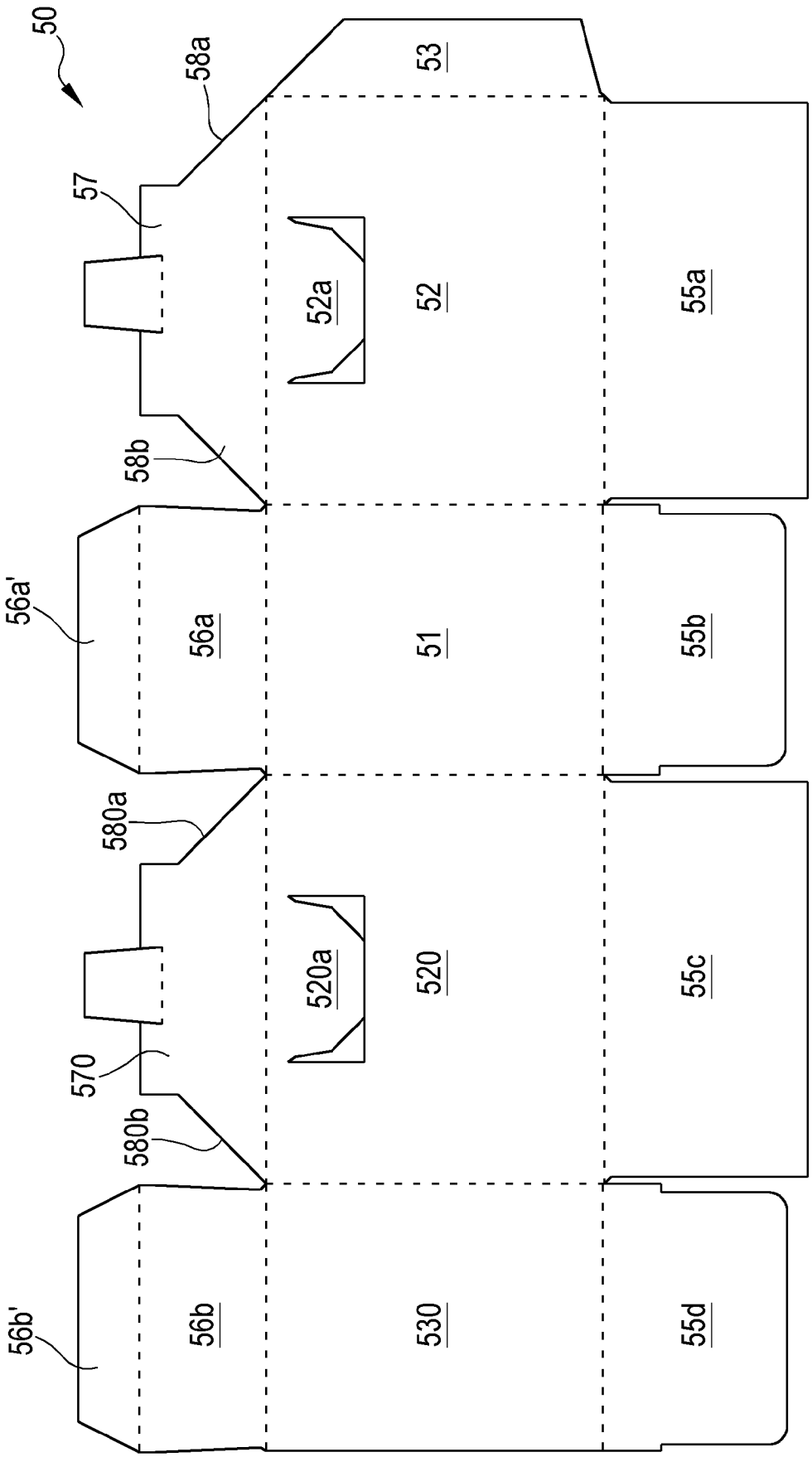
50
58a
53
57
52a
52
55a
58b
56a'
56a
51
55b
580a
520a
520
55c
570
580b
56b'
56b
530
55d

FIG.15

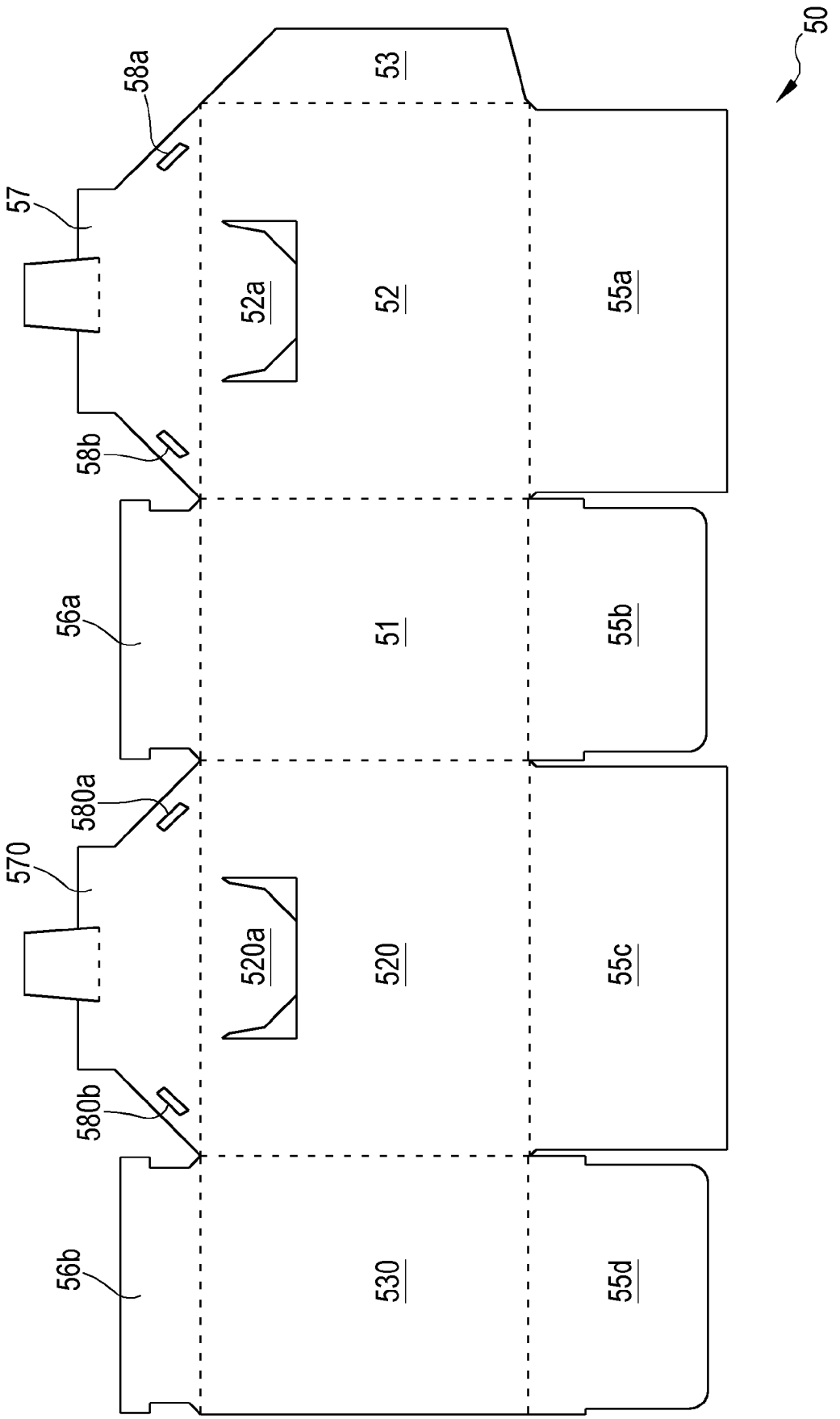
50
53
58a
57
52a
52
55a
58b
56a
51
55b
580a
570
520a
520
55c
580b
56b
530
55d

FIG.16

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EUROPEAN SEARCH REPORT

Application Number
EP 24 16 6156

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X Y	IT 2019 0001 5357 A1 (IGB SRL [IT]) 2 March 2021 (2021-03-02) * paragraphs [0264] - [0267], [0297] - [0298]; figures 1-11 *	1-3,5,7, 9,13-15 10	
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			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	1 August 2024	Grondin, David

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- IT 102022000014821 **[0100] [0108] [0149]**