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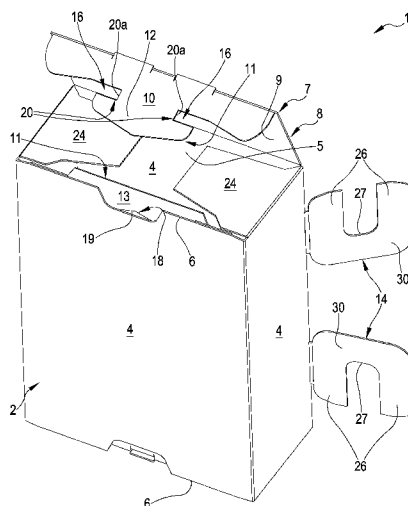


FIG.3

(57) Abstract: The present invention refers to a child-proof container (1) comprising: a housing (2) made of sheet material defining an inner volume (3) and exhibiting a passage opening (5) delimited by a free edge (6), a closing system (7) made of sheet material configured for defining a closed and opened conditions of the housing (2), the closing system (7) comprises a tab (8) having a closing portion (9) movable with respect to the housing free edge. The container (1) comprises a safety device (11) made of sheet material exhibiting: a first hooking portion (12) carried by the tab (8), a second hooking portion (13) engaged with the housing (2). The first and second hooking portions (12, 13) are configured for stably engaging with each other in the closed condition of the closing system (7) and for defining a safety condition: the first and second hooking portions (12, 13), in the safety condition, are configured for preventing the closing system (7) from switching from the closed to the opened condition. The container comprises a slit (15) configured for enabling, in the safety condition, to insert an opening device (14) adapted to enable the disengagement between the first and second hooking portions for enabling the closing system (7) to switch from the closed to the opened condition.

**TITLE: "CHILD-PROOF CONTAINER AND PROCESS FOR MAKING
THE SAME"**

D E S C R I P T I O N

FIELD OF THE INVENTION

The object of the present invention is a child-proof container and a process for making the same. The container, object of the present invention, can find an application in all the fields which have the necessity, for safety reasons, of prohibiting a child to open a container; for example, the container, object of the present invention, can find an advantageous application in the pharmaceuticals and cosmetics fields.

STATE OF THE ART

As it is known, containers of the child-proof type are available on the market, in other words designed for not being opened by a child. These types of containers are so defined because are hardly openable by the majority of children under the age of 5 years. This type of containers finds, for example, an advantageous application in the pharmaceuticals field in which it is important to prevent very young children from ingesting potentially toxic drugs and consequently prevent an accidental poisoning. Containers and packages exhibiting a child-proof safety system are further widely used for household chemicals (for example detergents, degreasers

and sanitizers) and cosmetics.

A first known type of such child-proof containers provides a paper material housing having a box-type shape adapted to internally receive a plastic material blister pack destined to contain a plurality of products. The housing exhibits, at the longitudinal opposite lateral walls, two slits which are in addition arranged along a diagonal of the container itself. The blister pack has a substantially rectangular shape and comprises two projections adapted to enter respective slits in the housing: under the condition wherein the blister pack is received in the housing, engaging the projections with the slits prevents the blister packs from being extracted by only pulling the same. When somebody wants to extract the blister pack from the housing, it is necessary to apply a pressure on the projections in order to push them towards the inside of the housing itself causing in this way the disengagement of the slits; at this point, it is possible to extract the blister pack from the housing.

A second type of child-proof container comprises again a housing of paperboard having a box-shape adapted to receive a plastic material blister pack. Also in this second type of container, the housing is configured for cooperating with the blister pack for enabling to block

this latter inside the container. The housing is also provided with a portion shaped as a pushbutton acting on the blister pack for enabling the disengagement from the housing and therefore for extracting the container. Particularly, it is possible to extract the blister pack by pressing the pushbutton-shaped portion and simultaneously by pulling the blister pack towards the outside of the housing.

The above-described known containers exhibit an opening mechanism requiring to properly grasp and handle the same making hardly difficult for a child under the age of 5 years to do it.

While such containers exhibit a particular opening system adapted to prevent the access to the blister pack, defining in this way a child-proof containers, the Applicant has realized that these containers are not devoid of limitations and drawbacks.

De facto, the currently available containers do not define a safe closure by a cooperation between the housing and the blister pack; this feature makes such containers scarcely flexible with reference to their use. De facto, in order to define a child-proof safety system, a housing can only receive a suitably designed blister pack and accordingly made for this particular housing. Therefore, the blister packs must be made by

specific manufacturing methods which prevent them from being manufactured by standard manufacturing apparatuses: the apparatuses must be suitably designed and tooled for making child-proof containers so that there is a consequent increase in the production cost and therefore of the products themselves.

It is also noted that both the housing and blister pack of the known above-described containers, exhibit a somewhat complex structure which further negatively affects the manufacturing and product costs.

OBJECT OF THE INVENTION

Therefore, it is an object of the present invention to substantially solve at least one of the inconveniences and/or limitations of the preceding solutions.

A first object of the present invention consists of providing a container which can effectively prevent children from gaining access by keeping at a same time a simple and compact structure. A further object of the present invention consists of providing a child-proof container exhibiting a stable structure capable of maintaining its integrity despite many openings and closings of the container itself.

Further, it is an object of the present invention to provide a child-proof container exhibiting a highly flexible structure. An additional object of the present

invention consists of providing a container exhibiting a simple and cost-effective structure. A further object of the invention consists of making a container which does not require to use different materials for the manufacturing thereof; for example, the container can be made of paper material, optionally, a biodegradable material.

Then, it is an object of the present invention to provide a fast and highly flexible process for making a container, which can therefore minimize the manufacturing costs. Particularly, it is an object of invention to make a container which does not require to modify the already existing plants used for making standard-type containers for adapting them to make a container object of the present invention and which moreover does not require to modify the existing packaging plants for filling the package itself.

These and other objects, which will better appear in the following description, are substantially achieved by a container and a process for making the same according to what is disclosed in one or more of the accompanying claims and/or of the following aspects, considered alone or in any combinations of them or in a combination with anyone of the attached claims and/or in combination with anyone of the further aspects or features described in

the following.

SUMMARY

Aspects of the invention will be described in the following.

In a 1st aspect it is provided a child-proof container (1) comprising:

- a housing (2) made of sheet material defining an inner volume (3) configured for housing at least one product, the housing (2) exhibiting a predetermined number of lateral walls (4) defining at least one passage opening (5) delimited by a free edge (6), said passage opening (5) being configured for communicating the inner volume (3) of the housing (2) with the outer environment,
- a closing system (7) also made of sheet material engaged at the free edge (6) and movable, particularly by rotation, with respect to the housing (2), the closing system (7) being configured for defining at least one closed condition wherein the system (7) itself prevents the communication between the inner volume (3) of the housing (2) and the outer environment, the closing system (7) being further configured for defining an opened condition wherein the system (7) itself enables the communication between the inner volume (3) and the outer

environment, the closing system (7) comprising at least one tab (8) having a closing portion (9) engaged with the free edge (6) of the housing (2) and movable, particularly by rotation, with respect to this latter, the tab (8) further exhibiting at least one inserting portion (10) configured for being inserted, in the closed condition of the closing system (7), inside the inner volume (3) of the housing (2),

➤ at least one safety device (11) made of sheet material comprising:

- at least one hooking portion (12) carried by the tab (8) of the closing system (7),

- at least one second hooking portion (13) engaged with the housing (2) and configured for cooperating with said first hooking portion (12),

the first and second hooking portions (12, 13) being configured for stably engaging with each other in the closed condition of the closing system (7), in order to define a safety condition, said first and second hooking portions (12, 13), in the safety condition, being configured for preventing the closing system (7) from switching from the closed condition to the opened one,

wherein the container (1) comprises at least one slit (15) configured for enabling, at least in the safety

condition, to insert at least one opening device (14) adapted to enable to disengage the first and second hooking portions (12, 13) from each other and therefore to enable the closing system (7) to switch from the closed condition to the opened one, the safety device (11) being further configured for enabling the first and second hooking portions (12, 13) to reversibly switch, following the opened condition of the closing system, to the safety condition.

In a 2nd aspect according to the aspect 1, the housing (2) is made of paper sheet material.

In a 3rd aspect according to the aspect 1 or 2, the closing system (7) is made of paper sheet material.

In a 4th aspect according to the aspect 1 or 2 or 3, the safety device (11) is made of paper sheet material.

In a 5th aspect according to anyone of the aspects from 1 to 4, the container (1) comprises an opening device (14) configured for being inserted, at least in the safety condition, at least partially through the slit (15) of the container (1) for enabling to disengage the first and second hooking portions (12, 13) from each other and for enabling the closing system (7) to switch from the closed condition to the opened one.

In a 6th aspect according to anyone of the aspects from

1 to 5, the opening device (14) is configured for being inserted, at least in the safety condition, inside the housing (2) between the first and second hooking portions (12, 13) in order to enable the disengagement.

In a 7th aspect according to anyone of the preceding aspects, the closing system (7) is configured for switching from the closed condition to the opened one only when the closing device (14) is interposed between said first and second hooking portions (12, 13).

In an 8th aspect according to anyone of the preceding aspects, the closing system (7), when switching from the closed condition to the opened one, is configured for being moved integrally with the opening device (14).

In a 9th aspect according to anyone of the preceding aspect, the first hooking portion (12) exhibits at least one undercut (16) configured for abutting, in the safety condition, against at least one respective undercut (17) of the second hooking portion (13).

In a 10th aspect according to the 9th aspect, the undercut (17) of the second hooking portion (13) comprises at least one hook (18) defining a seat (19) the concavity thereof faces a lateral wall (4) of the housing (2), particularly faces a lateral wall of the housing (2) immediately adjacent the lateral wall directly carrying said second hooking portion (13).

In an 11th aspect according to the aspect 10, the first hooking portion (12) of the safety device (11) is configured for being stably engaged inside the seat (19) of the hook (18) of the second hooking portion (13) in the system (7) closed condition.

In a 12th aspect according to the aspect 10 or 11, the undercut (16) of the first hooking portion (12) comprises at least one respective hook (20) defining a seat (20a), the concavity thereof, in the safety condition, faces a concavity of the seat (19) of the hook (18) of the second hooking portion (13).

In a 13th aspect according to anyone of the aspects from 9 to 12, the undercut (17) of the second hooking portion (13) carried by the housing (2) comprises a gripping edge (17a) distinct and spaced from the free edge (6) of the housing (2).

In a 14th aspect according to the aspect 12 or 13, the first hooking portion (12) comprises two hooks (20) placed oppositely to each other with respect to the hooking portion (12) itself, particularly said hooks (20) exhibit respective seats (20a), the concavities thereof facing away from each other.

In a 15th aspect according to anyone of the preceding aspects, the slit (15) is placed at the free edge (6) of the housing (2).

In a 16th aspect according to anyone of the preceding aspects, the slit (15) of the container (1) is defined by:

- at least one cutout (15a) carried by the closing system (7), particularly placed at the free edge (6) and inserting portion (10) of the closing system (7) itself; and/or
- an aperture present between the inserting portion (10) of the closing system (7) and a lateral wall of the housing (2) carrying said second hooking portion (13).

In a 17th aspect according to anyone of the preceding aspects, the slit (15) comprises at least one cutout (15a), particularly a plurality of cutouts (15a), defined at least on the inserting portion (1) of the closing system (7) at the closing portion (9) of this latter and at the free edge (6) of the housing (2).

In an 18th aspect according to the aspect 17, the slit (15) comprises two cutouts (15a) spaced from each other and defined at least partially on the inserting portion (10), said inserting portion (10) comprising an abutment edge (21) interposed between the two cutouts of the slit (15) which is configured for preventing the opening device (14) from completely entering the volume (3) of the housing (2).

In a 19th aspect according to anyone of the preceding

aspects, the second hooking portion (13) develops substantially parallelly to a lateral wall (4) of the container (1), particularly develops parallelly to the lateral wall of the housing (2) directly facing, in the closed condition of the closing system (7), the inserting portion (10).

In a 20th aspect according to anyone of the preceding aspects, the first hooking portion (12) is directly carried by the inserting portion (10), particularly the first hooking portion (12) is placed oppositely to the closing portion (9) of the tab (8) with respect to the inserting portion (10).

In a 21st aspect according to the aspect 20, the first hooking portion (12) is joined in one piece to the inserting portion (10).

In a 22nd aspect according to anyone of the preceding aspects, the second hooking portion (13) is engaged to a lateral wall (4) of the housing (2), particularly is directly engaged to the housing (2) lateral wall directly facing, in the closed condition of the closing system (7), the inserting portion (10).

In a 23rd aspect according to anyone of the preceding aspects, the housing (2) comprises, at and in continuity with the free edge (6), a recess (23) exhibiting an open outline and defining a depression of the free edge (6)

itself, the recess (23) being configured for enabling to see and grip at least part of the inserting portion (10) under the closed condition of the closing system (7).

In a 24th aspect according to the aspect 23, the recess (23) exhibits a substantially "C" open shape, the concavity thereof faces away from the inner volume (3) of the ware housing (2).

In a 25th aspect according to anyone of the preceding aspects, the closing system (7) comprises one or more abutment portions (24) engaged to the free edge (6) of the housing (2), and configured for being brought in contact, in the system (7) closed condition, with said closing portion (9).

In a 26th aspect according to anyone of the preceding aspects, the inserting portion (10) comprises a sheet element extending between a first and second surfaces (10a, 10b) respectively facing a lateral wall (4) of the housing (2) and the inner volume (3) of the housing (2).

In a 27th aspect according to the aspect 26, the first hooking portion (12) of the safety device (11) comprises a sheet element emerging in continuity with the inserting portion (10) and extending between a respective first and second surfaces (12a, 12b), the first surface (10a) of the inserting portion (10) extending without interruptions from the first surface

(12a) of the first hooking portion (12), the second surface (10b) of the inserting portion (10) extending without interruptions from the second surface (12b) of the first hooking portion (12).

In a 28th aspect according to anyone of the preceding aspects, the second hooking portion (13) of the safety device (11) comprises a sheet element extending between a first and second surfaces (13a, 13b), said first surface (13a) of said hooking portion (13) being directly connected to an inner surface of the housing (2).

In a 29th aspect according to the aspect 28, the second surface (10b) of the inserting portion (10), under the closed condition of the closing system (7), directly faces the first surface (13a) of the second hooking portion (13).

In a 30th aspect according to anyone of the preceding aspects, the container (1) comprises two passage openings (5) delimited by a respective free edge (6) and opposite to each other with respect to the housing (2) itself.

In a 31st aspect according to the aspect 30, the container (1) comprises, at each of said passage openings (5), a closing system (7) and a safety device (11).

In a 32nd aspect according to the aspect 31, the container (1) comprises a first and second opening devices (14) separated from each other and configured for disengaging the first and second hooking portions (12, 13) of respective closing systems (7) respectively placed at each of said passage openings (5).

In a 33rd aspect according to anyone of the preceding aspects, the container (1) comprises at least one case (25) externally engaged to the housing (2) and configured for housing receiving the opening device (14).

In a 34th aspect according to the aspect 33, the case (25) comprises at least one sheet made of paper material externally engaged to the housing (2) and configured for defining a receiving seat adapted to receive and support the opening device (14).

In a 35th aspect according to anyone of the preceding aspects, the opening device (14) comprises a sheet element exhibiting a gripping portion (30) from which at least one appendage (26) exhibiting a polygonal shape projects, particularly substantially a square or rectangular or trapezoidal shape, configured for being inserted at least partially inside the slit (15).

In a 36th aspect according to the aspect 35, the opening device (14) exhibits a substantially "C" or "H" or "A"

or "V" shape.

In a 37th aspect according to the aspect 35 or 36, the opening device (14) comprises two appendages (26) and an abutment edge (27) defined between said two appendages (26) in order to define a substantially "C" shaped sheet element, said appendages (26) being configured for being inserted inside respective cutouts of the slit (15) for disengaging the first and second hooking portions (12, 13), the abutment edge (27) being configured for abutting against the abutment edge (27) of the closing system (7) for preventing the opening device (14) from completely entering the volume (3) of the housing (2).

In a 38th aspect according to anyone of the preceding aspects, the opening device (14) is made of sheet material.

In a 39th aspect according to the aspect 38, the opening device (14) is made of paper sheet material, particularly completely of paper sheet material.

In a 40th aspect according to the aspect 39, the paper sheet material of the opening device (14) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 200 and 300 g/m².

In a 41st aspect according to anyone of the aspects from 2 to 40, the paper sheet material of the housing (2) exhibits a grammage comprised between 100 and 500 g/m²,

particularly comprised between 200 and 300 g/m².

In a 42nd aspect according to anyone of the aspects from 3 to 41, the paper sheet material of the closing system (7) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 200 and 300 g/m².

In a 43rd according to anyone of the aspects from 4 to 42, the paper sheet material of the safety device (11) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 200 and 300 g/m².

In a 44th aspect according to anyone of the preceding aspects, the container (1) is made by folding a single sheet of paper material.

In a 45th aspect according to the aspect 44, said single sheet of paper material exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 200 and 300 g/m².

In a 46th aspect according to anyone of the preceding aspects, the paper sheet material comprises an inner and/or outer coating of plastic material.

In a 47th aspect according to anyone of the preceding aspects, the second hooking portion (13) develops completely inside the volume (3) of the housing (2), particularly the second hooking portion (13) is completely received inside the volume (3) of the housing (2).

In a 48th aspect according to anyone of the preceding aspects, the inserting portion (10) of the closing system (7), under the closed condition, is placed inside the inner volume (3) of the housing (2).

In a 49th aspect according to anyone of the preceding aspects, the first hooking portion (12), under the closed condition of the closing system (7), is completely received inside the volume (3) of the housing (2).

In a 50th aspect according to the aspect 49, the first hooking portion (12), under the closed condition of the closing system (7), is spaced from the free edge (6) of the housing (2).

In a 51st aspect according to anyone of the preceding aspects, the engagement between the second hooking portion (13) and first hooking portion (12) is completely defined inside the volume (3) of the housing (2).

In a 52nd aspect according to anyone of the preceding aspects, the first and second hooking portions (12, 13) of the closing system (7) are configured for engaging with each other only inside the inner volume (3) of the housing (2).

In a 53rd aspect according to anyone of the preceding aspects, the first and second hooking portions (12, 13)

are configured for stably engaging with each other in order to define the safety condition following an opened condition of the closing system.

In a 54th aspect according to anyone of the preceding aspects, the first and second hooking portions (12, 13) are configured for reversibly switching from a disengagement condition to a safety condition following each opened condition of the closing system (7).

In a 55th aspect according to anyone of the preceding aspects, the safety device (11) does not exhibit removable portions, the system is stably joined in one piece to the closing system (7).

In a 56th aspect, a process for making a container (1) according to anyone of the preceding aspects, is provided.

In a 57th aspect, a process for making a container according to anyone of the preceding aspects is provided, said process comprising at least the following steps:

- providing the housing (2) made of sheet material,
- providing the closing system (7) made of sheet material, which is engaged at the free edge (6) of the housing (2), the closing system (7) being configured for defining the closed and opened conditions of the container (1),

- providing the safety device (11) made of sheet material in which the first and second hooking portions (12, 13) are formed, the step of providing the safety device (11) forming the second hooking portion (13) placed inside the housing (2), the first and second hooking portions (12, 13) being configured for being stably engaged with each other under the closed condition of the closing system (7) in order to define a safety condition, said first and second hooking portions (12, 13), under the safety condition, are configured for preventing the closing system (7) from switching from the closed condition to the opened one,
- making at least one slit (15) configured for enabling, at least in the safety condition, to insert at least one opening device (14) adapted to enable to disengage the first and second hooking portions (12, 13) from each other and for therefore enabling the closing system (7) to switch from the closed condition to the opened one, the safety device (11) being configured for enabling the first and second hooking portions (12, 13) to reversibly switch, following the opened condition of the closing system (7), to the safety condition.

In a 58th aspect according to the aspect 56 or 57, the

housing (2) is made of paper sheet material.

In a 59th aspect according to the aspect 56 or 57 or 58, the closing system (7) is made of paper sheet material.

In a 60th aspect according to anyone of the aspects from 56 to 59, the safety device (11) is made of paper sheet material.

In a 61st aspect according to anyone of the aspects from 56 to 60, the process comprises a step of providing an opening device (14) made of sheet material configured for being inserted, at least under the safety condition, at least partially through the slit (15) of the container (1) for enabling to disengage the first and second hooking portions (12, 13) from each other and for enabling the closing system (7) to switch from the closed condition to the opened one.

In a 62nd aspect according to anyone of the aspects from 56 to 61, the step of providing the housing (2) comprises at least the following sub-steps:

- providing a first sheet (51) comprising at least one first and one second portions (52, 54) interconnected by a central connecting portion (53), the first sheet (51) further comprising at least one first and one second lateral connecting portions (55, 56), the first portion (52) being interposed between the first lateral connecting portion (55) and central connecting

portion (53), the second portion (54) being interposed between the central connecting portion (53) and second lateral connecting portion (56), each of said portions (52, 53, 54, 55, 56) comprising at least two opposite longitudinal edges and two opposite end edges, said portions (52, 54), central connecting portions (53) and said lateral connecting portions (55, 56) being joined along the longitudinal edges and being aligned along a single connecting direction,

- folding the first sheet (51) along said longitudinal edges,
- joining the lateral connecting portions (55, 56) in order to form the inner volume (3) of the housing (2).

In a 63rd aspect according to the aspect 62, the step of providing the closing system (7) comprises the following sub-steps:

- providing at least one second sheet (57) connected to an end edge of the first portion (52), the second sheet (57) comprising a first and second portions (58, 59) joined in one piece to each other, the first portion (58) of the second sheet (57) being interposed between the first portion (52) of the first sheet (51), and the second portion (59) of the second sheet (57),
- folding said first and second portions (58, 59) of the

second sheet (57) in order to respectively form the closing portion (9) and the inserting portion (10) of the closing system (7).

In a 64th aspect according to the aspect 63, the step of providing the safety device (11) comprises at least the following sub-steps:

- providing a third sheet (60) connected to an end edge of the second portion (54), the third sheet (60) comprising a first portion and a second portion (61, 62),
- folding said third sheet (60),
- joining said third sheet (60) to said second portion (54) of the first sheet (51),
- folding said first portion (61) of the third sheet (60) with respect to said second portion (62) so that said first portion forms the second hooking portion (13) of the safety device (11).

In a 65th aspect according to the aspect 63 or 64, the step of providing the safety device (11) further comprises the following sub-step:

- providing a fourth sheet (63) comprising at least one portion (64) joined in one piece to the second portion (59) of the second sheet (57) and configured for forming the first hooking portion (12) of the safety device (11).

In a 66th aspect according to anyone of the aspects from 62 to 65, the process further comprises at least the following steps:

- providing at least one fifth sheet (65) comprising a portion (66) connected to at least one of the central connecting portion (53) and second lateral connecting portions (56),
- folding the portion (66) of the fifth sheet (65) in order to form an abutment portion (24).

In a 67th aspect according to anyone of the aspects from 56 to 66, the step of providing the opening device (14) comprises at least the following sub-steps:

- providing at least one sixth sheet (67),
- shaping said sixth sheet (67) in order to define a single portion (68) comprising at least one gripping portion (30) from which at least one appendage (26) projects.

In a 68th aspect according to the aspect 67, the sixth sheet (67) is joined in one piece to the first lateral connecting portion (55) and/or to the second lateral connecting portion (56) of the first sheet.

In a 69th aspect according to anyone of the aspects from 64, to 68, joining the third sheet (60) to the second portion (54) of the first sheet (51), for forming the second hooking portion (13), comprises a sub-step of

pasting the second portion (62) of the third sheet (60) to the second portion (54) of the first sheet (51).

In a 70th aspect according to anyone of the aspects from 62 to 69, joining said lateral connecting portions (55, 56) comprises a sub-step of pasting these latter.

In a 71st aspect according to anyone of the aspects from 62 to 70, the first sheet (51) is at least partially, particularly completely, made of paper material.

In a 72nd aspect according to the aspect 66, the first sheet (51) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 300 and 400 g/m².

In a 73rd aspect according to anyone of the aspects from 63 to 72, the second sheet (57) is at least partially, particularly completely, made of paper material.

In a 74th aspect according to the aspect 73, the second sheet (57) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 300 and 400 g/m².

In a 75th aspect according to anyone of the aspects from 64 to 74, the third sheet (60) is at least partially, particularly completely, made of paper material.

In a 76th aspect according to the aspect 75, the third sheet (60) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 300 and 400

g/m².

In a 77th aspect according to anyone of the aspects from 65 to 76, the fourth sheet (63) is at least partially, particularly completely, made of paper material.

In a 78th aspect according to the aspect 77, the fourth sheet (63) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 300 and 400 g/m².

In a 79th aspect according to anyone of the aspects from 66 to 78, the fifth sheet (65) is at least partially, particularly completely, made of paper material.

In an 80th aspect according to the aspect 79, the fifth sheet (65) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 300 and 400 g/m².

In an 81st aspect according to anyone of the aspects from 67 to 80, the sixth sheet (67) is at least partially, particularly completely, made of paper material.

In an 82nd aspect according to the aspect 81, the sixth sheet (67) exhibits a grammage comprised between 100 and 500 g/m², particularly comprised between 300 and 400 g/m².

In an 83rd aspect according to anyone of the aspects from 66 to 82, the first, second, third, fourth, fifth

sheets (51, 57, 60, 63, 65) are joined in one piece in order to form a single preformed sheet (50).

In an 84th aspect according to anyone of the aspects from 66 to 83, the first, second, third, fourth, fifth and sixth sheets (51, 57, 60, 63, 65, 67) are joined in one piece in order to form a single preformed sheet (50).

In an 85th aspect according to the aspect 83 or 84, the preformed sheet (50) is at least partially, particularly completely, made of paper sheet.

In an 86th aspect according to the aspect 85, the preformed sheet (50) exhibits a grammage comprised 100 and 500 g/m², particularly comprised between 300 and 400 g/m².

In an 87th aspect according to anyone of the aspects from 56 to 86, the process comprises at least one sub-step of providing a film of plastic material on at least part of an inner and/or outer surfaces of the container (1) in order to define a coating.

In an 88th aspect according to the aspect 87, the preformed sheet (50) extends between a first and second prevalent development surfaces adapted to respectively define an inner and outer surfaces of the container (1), the process comprises a step of engaging the film of plastic material on at least part of the first and/or

second prevalent development surfaces of the preformed sheet (50).

In an 89th aspect according to anyone of the aspects from 62 to 88, further comprising at least the following steps:

- providing a seventh and eighth sheets (71, 72) comprising respective portions (73, 74) joined to each other along a respective longitudinal edge, the seventh sheet (71) being engaged to the second lateral connecting portion (56) of the first sheet (51), the eighth sheet (72) being engaged to the portion (73) of the seventh sheet (71),
- folding the portions (73, 74) of the seventh and eighth sheets (71, 72) along the respective longitudinal edge,
- stably joining along a transversal perimetral edge the portions (73, 74) of the seventh and eighth sheets (71, 72) in order to define the case (25).

In a 90th aspect according to the aspect 89, the seventh sheet (71) is joined in one piece to the second lateral connecting portion (56) of the first sheet (51).

In a 91st aspect according to the aspect 89 or 90, the sixth sheet (67) is defined between a seventh and eighth sheets (71, 72).

In a 92nd aspect according to anyone of the aspects from

63 to 91, the step of providing the second sheet (57) comprises making at least one cutout (15a) in order to define said slit (15).

In a 93rd aspect according to the aspect 92, the cutout (15a) is made on the first and/or second portions (58, 59) of the second sheet (57).

In a 94th aspect according to the aspect 92 or 93, the cutout (15a) is made at a delimiting transversal edge between the first and second portions (58, 59) of the second sheet (57), the slit (15) being configured so that said opening device (14) at least partially enters through it.

BRIEF DESCRIPTION OF THE DRAWINGS

Some embodiments and some aspects of the invention will be described in the following with reference to the attached drawings, given only in an indicative and therefore non limiting way, wherein:

- Figure 1 schematically shows a first blank for making a container according to the present invention;
- Figure 2 schematically shows a step of folding the blank of Figure 1 for making a container according to the present invention;
- Figure 3 illustrates a container according to the present invention in an opened condition;
- Figure 4 illustrates a container according to the

present invention during a closed condition of the same;

- Figure 5 is a cross-section view of the container of Figure 4;
- Figure 6 is a detailed perspective view of a cut-away of the container according to the present invention arranged in a closed condition;
- Figure 7 is a perspective view of a container according to the present invention, arranged in the closed condition;
- Figure 8 is a detailed view of a cut-away of the container object of the present invention during an opened condition of the same;
- Figures 9 and 10 are further schematic views of a container according to the present invention during an opened condition of the same;
- Figure 11 is a perspective view of a container according to the present invention arranged in an opened condition;
- Figure 12 is a top detailed view of the container object of the present invention;
- Figure 13 is a perspective view of an embodiment variant of a container according to the present invention;
- Figures from 14 to 16 are schematic views of the

container of Figure 13 during the opened conditions of the same;

- Figure 17 is a top detailed view of the container 1 of Figure 13;
- Figure 18 schematically illustrates a second blank for making a container according to the present invention;
- Figure 19 schematically illustrates a third blank for making a container according to the present invention;
- Figure 20 represents a container made from the blank of Figure 19 and placed in a stored crushed condition;
- Figure 21 schematically illustrates a fourth blank for making a container according to the present invention;
- Figure 22 represents a container made from the blank of Figure 21 and arranged in a stored crushed condition.

MATERIALS AND DEFINITIONS

The figures could illustrate the object of the invention by not-to-scale views; therefore, parts and components illustrated in the figures in relation to the object of the invention, could only indicate schematic views.

Instead, the term "product" means an article or a compound of articles of any type. For example, the product can be a drug or medicament in the solid, liquid

or gel state, in other words in a state of two or more of the cited aggregation states. Further, the product can mean a package, for example a blister pack, receiving a plurality of articles.

The container 1 can be at least partially made of a paper sheet material. The term paper material means paper or paperboard: specifically, the sheet material useable for making the container can exhibit a grammage comprised between 100 and 500 g/m², particularly comprised between 200 and 400 g/m². The relevant paper material extends between a first and second prevalent development surfaces. The sheet paper material used for making the container can, in an embodiment variant thereof, be covered, for at least part of the first and/or second prevalent development surfaces, by a coating of plastic material, for example a film, whose aim consists of reinforcing the container. When the coating is placed in order to cover an outer surface of the container, this can be further used for defining a water and/or moisture barrier useful for avoiding the weakening and the structurality loss of the container with the consequent deformation of the paper material making this latter component. Advantageously but not in a limiting way, the coating could comprise an extrusion

coating on one or both sides (inner side and/or outer side) of the paper material defining the container, with values which can for example range between 10 and 50 μm of the coating material (in other words of polyethylene). The coating plastic material can be for example selected among the following materials: LDPE, HDPE, PP, PE.

DETAILED DESCRIPTION

Container

1 generally indicates a child-proof container. Particularly, the container 1 comprises a type of closure which will be specifically described in the following, enabling to open the container 1 itself only under determined conditions. Such closure is designed and devised by keeping mind children for preventing them from being capable of opening the container itself.

The container 1, object of the present invention, can find application in different fields which, based on the nature of the product to be received, require, for example for safety reasons, to prevent the opening by the children. For example, the container 1 can find an advantageous application in the pharmaceuticals and cosmetics fields.

The container 1 comprises at least one housing 2 made of

sheet material defining an inner volume 3 configured for housing products such for example a blister pack. The housing 2 represents substantially a compartment adapted to house the products. More particularly, the housing 2 comprises a predetermined number of lateral walls 4 defining at least one passage opening 5 delimited by a free edge 6: the passage opening 5 is configured for communicating the inner volume 3 of the housing 2 with the outer environment. The attached figures illustrate, in a not limiting way, an arrangement of the housing 2 exhibiting two passage openings 5 opposite to each other with respect to the housing 2 itself, so that this latter can define substantially a conduit or tube laterally delimited by said walls 4 and opened at longitudinal ends. However, it is not excluded the possibility of making, for example, a housing 2 exhibiting a single passage opening 5 or a number of openings 5 greater than 2 (these conditions are not illustrated in the attached figures).

The attached figures illustrate a preferred but non limiting arrangement of the housing 2, which exhibits a rectangular prismatic shape (flat lateral walls 4 having a rectangular shape). However, it is not excluded the possibility of making a housing 2 having a different shape, for example a square, trapezoidal or cylindrical

shape. As it is visible, the housing 2 extends, in a non limiting way, substantially along a prevalent development direction and exhibits a thickness less than the length and width of the same. The housing 2 is configured for exhibiting a minimum size, in this case the thickness, greater than a transversal maximum size of each product; the minimum size of the housing 2 is, in a non limiting way, greater than 10 mm (the thickness could vary and be suitably sized based on the product and quantity to be received/supported). The invention provides a small-sized container, the housing 2 thereof defines an inner volume 3 substantially greater than 20,000 mm³, particularly comprised between 40,000 and 200,000 mm³. However, the container 1, object of the present invention, can be used for packaging products of medium size; under such condition, the housing 2 can exhibit an inner volume 3 greater than 500,000 mm³, particularly comprised between 800,000 and 1,400,000 mm³. However, it is not excluded the possibility of using the container 1 object of the present invention, for packaging products of large size; under such condition, the housing 2 exhibits an inner volume 3 greater than the above cited volumes, for example greater than 10,000 cm³ and anyway in a non limiting way.

With reference to the materials, the housing 2 can be

made, preferably but not in a limiting way, in a paper sheet material and can be for example obtained by folding. However, it is not excluded the possibility of making the housing 2 and particularly the whole container 1 at least partially of a plastic sheet material or a metal sheet.

As it is visible in the attached figures, the container 1 further comprises at least one closing system 7, also made of sheet material, engaged at the free edge 6 and movable, particularly by rotation, with respect to the housing 2. Specifically, the closing system 7 is configured for defining at least one closed condition (see Figure 7, for example) in which the system 7 itself prevents the communication between the inner volume 3 of the housing 2 and the outer environment; the closing system 7 is further configured for defining at least one opened condition (see Figure 11, for example) in which the system 7 itself enables the communication between the inner volume 3 and outer environment. The closed condition of the closing system 7 substantially defines a safety condition of the container 1. Under the safety condition, the container 1 is configured for not switching from the closed condition to the opened condition. De facto, the system 7 is substantially a lid adapted to cooperate with the housing 2 in order to

control the access to the inner volume 3. Advantageously, the container 1 comprise a closing system 7 for each passage opening of the housing 2. The attached figures illustrate, in a non limiting way, an arrangement of the container 1 exhibiting two passage openings 5; under such condition, the container 1 exhibits two closing systems 7 engaged to the respective free edges 6 of the housing 2: the systems 7 are arranged oppositely to each other with respect to the housing itself. Advantageously, but in a non limiting way, the closing system 7 is joined in one piece to the housing 2, particularly to the free edge 6, and is rotatively movable around this latter between at least the closed and opened conditions.

More specifically, the closing system 7 comprises at least one tab 8 exhibiting a closing portion 9 directly engaged and joined in one piece to the free edge 6 of the housing 2: the closing portion 9 represents the component of the tab 8 configured for preventing the passage through the opening 5 under the closed condition of the system 7 itself. As it is visible in the attached figures, the closing portion 9 substantially comprises a flat body made of sheet material countershaped to the free edge 6 of the opening 5. The attached figures schematically show a preferred arrangement of the

closing portion 9 exhibiting a rectangular shape completely countershaped to the free edge 6.

Further, the tab 8 exhibits at least one inserting portion 10 configured for being inserted, under the closed condition of the system 7, inside the volume 3 of the housing 2. The inserting portion 10 is joined in one piece to the closing portion 9 and projects from this latter oppositely to the housing 2: the inserting portion 10 substantially represents an extension of the closing portion 9 adapted to be inserted, under the closed condition of the system 7, inside the housing 2. Particularly, under the closed condition of the closing system 7, the inserting portion 10 is completely positioned inside the volume 3 of the housing 2. As it is visible in the attached figures, also the inserting portion 10 substantially comprises a flat body made of sheet material having, in a non limiting way, a rectangular shape. As it is for example visible in the cross-section view of Figure 5, the inserting portion 10 extends between the first and second prevalent development surfaces 10a, 10b respectively facing the outside (directly facing a lateral wall 4 of the housing 2) and facing the inner volume 3 of the housing 2. Under the closed condition of the system 7, at least one portion of the first development surface 10a of the

inserting portion 10 faces, particularly contacts, directly a part of a lateral wall 4 of the housing 2: the surface 10a extends at least partially parallelly to a wall 4 of the housing 2, particularly a front wall of the housing 2 opposite to the wall directly connected to the system 7 (also definable as a rear lateral wall of the housing 2).

Further, the inserting portion 10 comprises an actuating portion 22 destined to be actuated for enabling to open the container 1, as it will be more specifically described in the following.

As illustrated in the attached figures, the free edge 6 exhibits a recess 23 substantially defining a depression of the free edge 6 itself. The recess 23 exhibits an open outline exhibiting a concavity having a substantially "C" shape in a non limiting way. The recess 23 is configured for enabling to see and grip at least part of the inserting portion 10 under the closed condition of the system. Particularly, under the closed condition of the closing system 7, the concavity of the recess 23 of the free edge 6 enables the actuating portion 22 of the inserting portion 10 to be exposed, so that it is therefore accessible from the outside of the container 1 and it is suitably movable.

The closing portion 9 and the inserting portion 10

exhibit an interconnection edge opposite to the free edge 6 of the housing 2 with respect to the closing portion 9 itself: the inserting portion 10 is rotatively movable with respect to the closing portion 9 around said interconnecting edge. The inserting portion 10, under the closed condition of the system 7, is configured for defining, according to a cross-section and cooperatively with the closing portion 9, a substantially "L" shape: under such condition, the inserting portion 10 substantially extends parallelly to a lateral wall 4 of the housing 2.

Further, the closing system 7 comprises at least one slit 15 enabling the communication between the inner volume 3 of the housing 2 and the outer environment. The slit 15 can be defined at the inserting portion 10; alternatively, the slit 15 can be defined at the closing portion 9 or can develop at both the inserting 10 and closing portions 9. As illustrated in the attached figures, the slit 15 can be defined at a folding line substantially interposed between the inserting portion 10 and closing portion 9. Under the closed condition of the closing system 7, the slit 15 is placed at the free edge 6 of the housing 2.

According to the embodiment illustrated in Figures from 3 to 12 (particularly see Figure 12), the closing system

7 can exhibit two slits 15, between which an abutment edge 21 is interposed. The abutment edge 21, as it will be more particularly described in the following, is destined to cooperate with an opening device 14.

The slits 15 can have the same dimensions or, alternatively, different dimensions. In the embodiment wherein two passage openings 5 opposite to each other with respect to the housing 2 and respective closing systems 7 are provided, the slits 15 can be provided at the inserting portions 10 or closing portions 9 of both closing systems 7.

According to the embodiment illustrated in Figure 20, at the inserting portion 10 or closing portion 9, two slits 15, defined adjacent a passage opening 5, are provided, while adjacent the opposite passage opening 5, at the respective inserting portion 10 or closing portion 9, only one slit 15 is provided.

From the dimensional point of view, each slit 15 can exhibit a width L15 comprised between 1 and 200 mm, particularly comprised between 5 and 50 mm.

The attached figures illustrate a preferred but non limiting embodiment of the present invention, wherein the slit 15 substantially consists of a cutout 15a carried by the closing system 7. The cutout 15a is carried by the closing system 7 and particularly is

defined at the inserting portion 10 of the closing system 7 and, under the closed condition, is placed at the free edge 6. By folding the inserting portion 10 with respect to the closing portion 9, the cutout 15a enables to rotatively move a flap of the closing portion 9 defined by the cutout 15a itself and open the space or aperture forming indeed the slit 15. The cutout 15a exhibits a substantially "U" shape (see Figures 1 and from 18 to 21) and the obtained slit 15 exhibits a substantially rectangular shape (see Figures 12 and 17). Alternatively, the cutout 15a can be formed by an aperture defined between the inserting portion 10 or the closing system 7 and a lateral wall 4 of the housing 2. As it is visible in the attached figures, the closing system 7 can further comprise at least one abutment portion 24 engaged to the free edge 6 of the housing 2 adjacent the tab 8: the abutment portion 24, in the closed condition, is configured for being interposed between the inner volume 3 and the tab 8 in order to cooperate with this latter to stably hold it in said closed condition. The abutment portion 24 substantially comprises a flat tab made of sheet material joined in one piece to the free edge 6 of the housing 2 adjacent the closing portion 9. The abutment portion 24 exhibits, in a non limiting way, a rectangular or trapezoidal

shape. The abutment portion 24 is also configured for rotating around the free edge 6 for facing, at least under the closed condition of the container 1, the interior of the housing 2.

More particularly, the abutment portion 24 is constrained to the free edge 6 so that it can engage, under the closed condition of the container 1, at least part of the inserting portion 10 and/or of the closing portion 9 for stably holding the tab 8 in said condition.

Advantageously, the container 1 comprises two abutment portions 24 opposite to each other with respect to the tab 8: this latter is interposed between the two abutment portions 24 (see Figures 11, 20 and 22). Under such arrangement, the two abutment portions 24 symmetrically act on the tab 8 for stably holding it in the closed condition.

Advantageously, also the closing system 7 is made of a paper sheet material and is obtained by folding it; particularly, the closing system 7 is integrally made with the housing 2 and with the same paper material sheet.

As it is visible for example in Figures from 3 to 5, the container 1 further comprises at least one safety device 11, made of sheet material, which exhibits at least one

first hooking portion 12 carried by the tab 8 and at least one second hooking portion 13 engaged to the housing 2. The first and second hooking portions 12, 13 are configured for stably engaging with each other in a closed condition of the closing system 7. In the closed condition of the closing system 7, the container 1 is substantially in a safety condition in which the container 1 is prevented from being opened by the engagement between the first and second hooking portions 12, 13. As it is visible in the attached figures, the second hooking portion 13 is placed inside the housing 2 and substantially lies in a plane parallel to one of the lateral walls 4. The second hooking portion 13 develops completely inside the volume 3 (is placed inside the inner volume of the housing 2) of the housing 2 both under the closed condition and under the opened condition of the closing system 7. With reference to the first hooking portion 2, under the closed condition of the system 7, it is configured for being partially inserted, particularly completely, in the inner volume 3 of the housing 2 in order to stably engage the second hooking portion 13. Under the closed condition of the closing system 7, the first hooking portion 12 is completely received inside the volume 3 of the housing 2 and is spaced from the free edge 6 of the housing 2.

Moreover, under the closed condition of the closing system 7, the engagement between the second hooking portion 13 and first hooking portion 12 is completely defined inside the volume 3 of the housing 2. The engagement between the first and second hooking portions 12, 13 is of a reversible type; in other words, after coming to the opened condition of the closing system 7, the first and second hooking portions 12, 13 can be again (reversibly) engaged in order to again define the closed condition of the closing system 7 and therefore a new safety condition of the safety device 11. This is possible because, after switching between the closed condition and opened condition, the first hooking portion 12 is simply disengaged from the second hooking portion 13. Specifically, after switching between the closed condition and opened condition, the second hooking portion 13 is not removed or separated from the housing 2 but remains engaged to a lateral wall 4 of the housing 2 itself inside the volume 3 thereof. In this way, following each opened condition of the closing system, the first and second hooking portions 12, 13 are configured for defining a safety condition wherein such portions are stably engaged with each other.

The attached figures illustrate, in a non limiting way, an arrangement of the container 1 wherein the first

hooking portion 12 is engaged with, particularly is directly carried by, the tab 8 of the closing system 7. Advantageously, the first hooking portion 12 is carried only, but in a non limiting way, by the inserting portion 10 of the tab 8: the two portions 12 and 10 are advantageously joined in one piece in order to form a unitary body. De facto, the first hooking portion 12 comprises a flat sheet body projecting, particularly without interruptions, from the inserting portion 10 opposite to the closing portion 9: the inserting portion 10 therefore is interposed between the closing portion 9 and first hooking portion 12. The first hooking portion 12, under the closed condition of the system 7, and therefore during the insertion of the inserting portion 10 into the housing 2, is configured for being also inserted into the inner volume 3.

The body made of sheet material of the first hooking portion 12 extends between a first and a second prevalent development surfaces 12a, 12b (Figure 5) respectively facing in the same direction of the first and second surfaces 10a, 10b of the inserting portion 10: the first surfaces 10a, 12a extend without interruption between them and directly face a same lateral wall 4 of the housing 2, opposite to the lateral wall 4 directly connected to the system 7. The second

surfaces 10b, 12b also extend without interruption between them and face the inner volume 3 of the housing 2.

More particularly, the first hooking portion 12 exhibits at least one undercut 16 configured for stably engaging the second hooking portion 13 placed inside the housing 2 under the closed condition of the closing system 7. As illustrated in the attached figures, the undercut 16 is distinct and spaced from the free edge 6 of the housing 2. As illustrated in Figure 3, the undercut 16 comprises at least one hook 20 having a seat 20a provided with a concavity. Preferably, the first hooking portion 12 comprises two hooks 20 having respective seats 20a, the concavities thereof facing away from each other. The undercut 16 is configured for engaging the second hooking portion 13 as it will be more specifically described in the following.

The attached figures illustrate, in a non limiting way, an arrangement of the container 1 wherein the second hooking portion 13 engages a lateral wall 4 of the housing 2 directly facing, under the closed condition of the closing system 7, the inserting portion 10.

The body of sheet material of the second hooking portion 13 extends between a first and a second prevalent development surfaces 13a, 13b (Figure 5). The first

surface 13a is directly connected to an inner surface of the housing 2 and faces, under the closed condition of the closing system 7, the second surface 10b of the inserting portion 10.

The second hooking portion 13 exhibits in turn at least one undercut 17, which is placed inside the housing 2 and is configured for engaging the undercut 17 of the first hooking portion 12 at least under the closed condition of the closing system 7. As illustrated in the attached figures, the undercut 17 exhibits a gripping edge 17a distinct and spaced from the free edge 6 of the housing 2. The undercut 17 exhibits at least one hook 18, which defines a seat 19 (see Figures 4 and 8, for example). As illustrated in the attached figures, the seat 19 exhibits a substantially "C" shape. Further, the seat 19 exhibits a concavity facing a lateral wall 4 of the housing 2 and is configured for receiving and engagingly retaining the first hooking portion 12. In other words, under the closed condition of the closing system 7, the first hooking portion 12 is engaged inside the seat 19 and the undercuts 16, 17 are engaged with each other (see Figure 6, for example). Under the safety condition (in other words under the closed condition), the concavity of the seat 19 of the hook 18 in the second hooking portion 13 faces the concavity 20a of the

hook 20.

In order to open the container 1 itself, the container 1 is provided with an opening device (or key) 14. The opening device 14, as it will be better described in the following, is configured for enabling the closing system 7 to switch from the closed condition (safety condition of the container 1) to the opened condition, enabling in this way to open the container 1.

The opening device 14 exhibits a gripping portion 30 from which one or more appendages 26 project. The appendages 26 can exhibit a polygonal shape, for example a substantially square or rectangular or trapezoidal shape. The appendages 26 are configured and sized for being inserted inside the slit 15 in order to contact, under the closed condition of the system 7, the first and second hooking portions 12, 13 and for disengaging them.

Moreover, the opening device 14 could comprise a plurality of appendages 26 or further projections or valleys which can be destined to functions different from a function of disengaging one of the first and second hooking portions 12, 13. For example, such appendages or projections or valleys can help determine the control of the position of the opening device 14 as it enters the slit 15. Moreover, the opening device 14

can be configured (due to its shape) for preventing other devices having a different shape from being used as substitute for it for determining the opening of the container 1.

According to an embodiment (see Figures from 13 to 17, for example), the opening device 14 can exhibit a single appendage 26. The opening device 14 exhibiting such shape can be for example used for opening a container 1 whose closing system 7 is provided with a single slit 15. The embodiment wherein the closing system 7 of the container 1 is provided with a single slit 15, is for example shown in Figures from 13 to 17.

Alternatively, the opening device 14 can be provided with at least two appendages 26 projecting from the gripping portion 30 (see Figures 3, 4, 7, for example). The appendages 26 develop away from an abutment edge 27 defined between them. According to this embodiment, the opening device 14 has a substantially "C" or "H" or "A" shape.

When the opening device 14 is inserted inside the slits 15, the abutment edge 27 of the opening device 14 abuts on an abutment edge 21 of the closing system 7 in order to limit the advancement of the opening device 14 inside the slits 15 themselves and therefore preventing it from completely entering the volume 3 of the housing 2. If

the opening device 14 were completely inside the volume 3 of the housing 2, opening the container 1 would be difficult, because it would be impossible for the user to act on the opening device 14 itself for opening the container 1. Preferably, the abutment edge 21 is defined on the closing portion 9 between the slits 15.

The opening device 14 is made of sheet material. In a preferred but non limiting embodiment of the invention, the opening device 14 is made of paper sheet material (paper or paperboard). Preferably, the provided sheet material is the same used for making the housing 2 and closing system 7.

The opening device 14 can be made of the same material as the housing 2 or container 1. According to the embodiments illustrated in Figures 1, 18, 19 and 21, the opening device 14 can be integrally made with the container 1 and can consist in a portion of the container 1 destined to be torn or separated from the container 1 itself when the container 1 is opened for the first time.

In the embodiment wherein the container 1 is provided with two passage openings 5 at which respective closing systems 7 and safety devices 11 are provided, further the container 1 can comprise a first and second opening devices 14 distinct from each other. Such opening

devices 14 are configured for disengaging the first and second hooking portions 12, 13 of the respective closing system 7 placed respectively at each passage opening 5. A container 1 provided with two distinct opening devices 14 is illustrated in Figure 20 for example.

Moreover, the container 1 can comprise a case 25 provided with a housing seat adapted to receive and support the opening device 14 when this latter is not used. As illustrated in Figure 22, the case 25 is engaged outside the volume 3 of the housing 2. According to a preferred embodiment, the case 25 is made of a paper sheet material.

As illustrated in Figure 22, the container 1 can further comprise a covering portion 29. The covering portion 29 is engaged to an edge of the housing 2 and is placed outside the inner volume 3 of the housing 2. The covering portion 29 can rotate with respect to said edge of the housing 2 between a closing position (wherein it abuts on an outer surface of a wall 4 of the housing 2) and an opening position (illustrated in Figure 22, for example). The covering portion 29 substantially defines the case 25 for the opening device 14.

Process for making a container

Further, the present invention refers to a process for

making a container 1, particularly according to one or more of the attached claims. The container can be made from a single preformed sheet preferably of paper material. The preformed sheet 50 extends between a first and second prevalent development surfaces adapted to define an inner and outer surfaces of the container 1, respectively. The process can comprise a step of engaging a film of plastic material on at least part of the first and/or second prevalent development surfaces of the preformed sheet 50.

First of all, the process comprises providing the housing 2, which, as hereinbefore described, is made of sheet material, optionally a paper one.

The step of providing the housing 2 comprises providing at least one first sheet 51 comprising at least one first and one second portions 52, 54 interconnected by a central connecting portion 53. Moreover, the first sheet 51 comprises at least one first and one second lateral connecting portions 55, 56, as it is visible in Figures 1, 2, 18, 19 and 21 for example, the central connecting portion 53 is interposed between the first and second portions 52, 54, the first portion 52 is interposed between the first lateral connecting portion 55 and the central connecting portion 53 while the second portion 54 is interposed between the second lateral connecting

portion 56 and the central connecting portion 53. Each of said portions 52, 53, 54, 55, 56 comprises at least two opposite longitudinal edges and two opposite end edges: the portions 52, 54, the central connecting portion 53 and said lateral connecting portions 55, 56 are joined along the longitudinal edges and are aligned along a single connecting direction.

In a preferred but non limiting arrangement of the invention, the first portion 52 of the first sheet 51 exhibits a rectangular shape perimetally delimited by a lower edge 52a, a first and second lateral edges 52b, 52c and an upper edge 52d. In the same way, the second portion 54 of the first sheet 51 exhibits a rectangular shape perimetally delimited by a lower edge 54a, a first and second lateral edges 54b, 54c and an upper edge 54d. Advantageously, the first and second portions 52, 54 comprise a sheet having substantially the same shape and size.

The central portion 53 and lateral connecting portions 55, 56 exhibit also a rectangular shape; such portions substantially exhibit the same shape and/or size and are joined in one piece to the portions 52 and 54 of the first sheet 51 at the lateral edges.

The step of providing the housing 2 comprises a step of folding the first sheet 51 at the lateral edges of the

portions 52 and 54. Initially, the steps of forming the housing 2 comprise folding a lateral connecting portion, for example the portion 55, with respect to the first portion 52 and approaching it to the second portion 54 (Figure 2): for example, it is possible to fold the lateral connecting portion 55 so that this latter can define, cooperatively with the first portion 52, a substantially "L" shape. Then, the process provides, for example, folding the first central portion 53 with respect to the first portion 52 and approaching it to the already folded portion 55: for example, it is possible to provide folding the central portion 53 so that this latter can define, cooperatively with the first portion 52, a substantially "L" shape. Then, it is for example possible to provide folding the second portion 54 with respect to the central portion 53 and approaching it to the first portion 52: for example, it is possible to provide folding the second portion 54 so that this latter can define, cooperatively with the central portion 53, a substantially "L" shape. For completely forming the housing 2, the process provides folding the remaining lateral connecting portion, for example the portion 56, with respect to the second portion 54 so that it is possible to join said lateral connecting portions 55, 56. For holding the housing 2 in

the folded three-dimensional shape, the process can comprise, in a non limiting way, the application of a predetermined quantity of paste on the lateral connecting portions 55, 56 adapted to abut on each other: joining said portions 55, 56 enables to lock the housing 2 in the folded arrangement.

It is useful to note that the step of providing the first sheet 51 can comprise a crushing step which enables to define on the same sheet, some folding lines coincident with the longitudinal lateral edges of the portions of said first sheet 51. De facto, the steps of folding the portions of the first sheet 51 are executed just along the longitudinal lateral edges of said portions which are crushed in order to aid them to be moved (folded). Advantageously, the first sheet 51 is made of paper material.

Further, the process comprises providing the closing system 7. Such step comprises providing at least one second sheet 57, advantageously, joined in one piece to the first sheet 51, particularly at an end edge of the first portion 52 of the first sheet 51. The second sheet 57 comprises at least one first and one second portions 58, 59 joined in one piece teach other: the first portion 58 of the second sheet 57 is connected to the first sheet 51 so that said first portion 58 is

interposed between the second portion 59 of the second sheet 57 and first sheet 51. The attached figures illustrate a preferred but non limiting arrangement of the invention wherein two second sheets 57 engaged to the first sheet 51 and arranged oppositely to this latter are provided. The second sheet 57 is, for example, directly connected to the upper edge 52d and/or lower edge 52a of the first portion 52 of the first sheet 51. Figures 1, 2, 18, 19 and 21 illustrate, in a non limiting way, an embodiment wherein two second sheets 57 respectively on the lower edge 52a and upper edge 52b of the portion 52 are provided. Advantageously, the second sheet 57 is integral with the first sheet 51 in order to define a single sheet; preferably, also the second sheet 57 is made of paper material, particularly of a paper material sheet having substantially the same characteristics as the first sheet 51.

Further the process comprises the steps of folding the first and second portions 58, 59 of the second sheet 57 for forming the closing portion 9 and inserting portion 10 of the closing system 7, respectively.

The step of providing the second sheet 57 further comprises a step of forming one or more slits 15 made at the first and/or second portions 58, 59 and destined to enable to insert the opening device 14. According to an

embodiment of the invention, the step of forming one or more slits 15 comprises making one or more slits 15a at the first and/or second portions 58, 59. Particularly, a respective slit 15 corresponds to each formed slit 15a.

In addition, the process comprises providing the safety device 11. Such step comprises providing at least one third sheet 60 and one fourth sheet 63.

Advantageously, the third sheet 60 is joined in one piece to the first sheet 51, particularly at an end edge of the second portion 54 of the first sheet. The third sheet 60 comprises a first portion 61 and second portion 62; the first portion 61 is destined to form the second hooking portion 13. During the step of forming the housing 2, the third sheet 60 is folded against the second portion 54 of the first sheet 51 and is advantageously joined in one piece to it. The process can comprise, in a non limiting way, applying a predetermined quantity of paste on the second portion 62 of the third sheet 60 and on a part of the second portion 54 of the first sheet 51 adapted to abut on each other: joining said portions enables to define the second hooking portion 13 of the safety device 11. Particularly, the second hooking portion is defined by folding the first portion 61 of the third sheet 60 away from the second portion 54 of the first sheet 51. The

attached figures illustrate a preferred but non limiting arrangement of the invention wherein two third sheets 60 engaged to the first sheet 51 and placed oppositely to this latter are provided. The third sheet 60 is for example directly connected to the upper edge 54d and/or to the lower edge 54a of the second portion 54 of the first sheet 51. Figures 1, 2, 18, 19 and 21 illustrate, in a non limiting way, an embodiment wherein the formation of two sheets 60 respectively on the lower 54a and upper edges 54d of the portion 54 is provided. Advantageously, the third sheet 60 is joined in one piece to the first sheet 51 in order to define a single sheet; preferably, also the third sheet 60 is made of paper material, particularly of a paper material sheet having substantially the same characteristics of the first sheet 51 and second sheet 57.

Advantageously, the fourth sheet 63 is joined in one piece to the second sheet 57, particularly at an end edge of the second portion 59 of the second sheet 57. The fourth sheet 63 comprises a portion 64 joined in one piece to the second portion 59 of the second sheet 57. The portion 64 substantially consists in the first hooking portion 12 of the safety device 11. The attached figures illustrate a preferred but non limiting arrangement of the invention wherein two fourth sheets

63 engaged to respective second sheets 57 placed oppositely to the first sheet 51 are provided. Advantageously, the fourth sheet 63 is integral with the second sheet 57 for defining a single sheet; particularly, also the fourth sheet 63 is made of paper material, particularly of a paper material sheet having substantially the same characteristics as the first sheet 51, second sheet 57 and third sheet 60.

Further, the process comprises a step of providing a fifth sheet 65. Advantageously, the fifth sheet is joined in one piece to the central connecting portion 53 and/or to the second lateral connecting portion 56. The fifth sheet 65 comprises a portion 66, which is destined to form an abutment portion 24. The attached figures illustrate a preferred but non limiting arrangement of the invention, wherein four fifth sheets 65 are provided, two of them being engaged at the opposite edges of the central connecting portion 53, and two of them being engaged at the opposite edges of the second lateral connecting portion 56. Advantageously, the fifth sheet 65 is integral with the first sheet 51 in order to define a single sheet; particularly, also the fifth sheet 65 is made of paper material, particularly of a paper material sheet having substantially the same characteristics as the first sheet 51, second sheet 57,

third sheet 60 and fourth sheet 63.

Moreover, the process comprises a step of providing a sixth sheet 67. Advantageously, the sixth sheet 67 is joined in one piece to the first sheet 51, particularly at the first lateral connecting portion 55 of second lateral connecting portion 56. Between the sixth sheet 67 and first sheet 51 can be provided a weakening portion adapted to aid to separate the sixth sheet 67 from the first sheet 51. The sixth sheet 67 comprises a portion 68 destined to substantially form the opening device 14. The process comprises the step of shaping the sixth sheet 67 in order to define a single portion 68 comprising at least one gripping portion 30 from which at least one appendage 26 projects. In the embodiment illustrated in Figure 18, the sixth sheet 67 comprises lateral projections 75 adapted to define abutment edges 27 configured for preventing the opening device 14 to completely enter inside the slit 15. The abutment edges 27 are destined to contact respective abutment edges of the container 1 adjacent the slit 15, for enabling to insert only the appendage 26 of the opening device 14 into the slit 15.

According to an embodiment illustrated in Figures 1, 2, 18, 19 and 21, the opening device 14 can be formed in one piece with the container 1 and be separated from it

before a first opened condition of the container 1. Moreover, the attached Figures from 1 to 3 and from 18 to 19 illustrate a preferred but non limiting arrangement of the invention wherein two sixth sheets 67 joined to the first sheet 51 at the second connecting portion 56 are provided. Advantageously, the sixth sheet 67 is integral with the first sheet 51 in order to define a single sheet; particularly, also the sixth sheet 67 is made of paper material, particularly of a paper material sheet having substantially the same characteristics as the first sheet 51, second sheet 57, third sheet 60, fourth sheet 63 and fifth sheet 65.

The process provides that, during the steps of folding the first sheet 51 for making the container 1, the sixth sheet 67 remains outside the inner volume 3 of the housing 2 so that, once the container 1 is closed, the portion 68 could be anyway separated from the first sheet 51 for enabling to open the container 1.

According to the embodiment illustrated in Figure 21, the process comprises providing a seventh and eighth sheets 71, 72. The seventh and eighth sheets 71, 72 comprise respective portions 73, 74 destined to be joined to each other. The seventh sheet 71 is engaged to the second lateral connecting portion 56 of the first sheet 51, while the eighth sheet 72 is engaged to the

portion 73 of the seventh sheet 71. According to such embodiment, the sixth sheet 67 is directly engaged to the seventh and/or eighth sheets 71, 72.

Advantageously, the seventh sheet 71 is joined in one piece to the first sheet 51 in order to define a single sheet; particularly, also the seventh sheet 71 is made of paper material, particularly a paper sheet material having substantially the same characteristics as the first sheet 51, second sheet 57, third sheet 60, fourth sheet 63, fifth sheet 65, and sixth sheet 67.

Advantageously, the eighth sheet 72 is joined in one piece to the seventh sheet 71 in order to define a single sheet; particularly, also the eighth sheet 72 is made of paper material, particularly a paper sheet material having substantially the same characteristics as the first sheet 51, second sheet 57, third sheet 60, fourth sheet 63, fifth sheet 65, sixth sheet 67 and seventh sheet 71. According to the embodiment illustrated in Figure 19, the sixth sheet 67 can be integral with the seventh and eighth sheets 71, 72.

In the scope of the process for making the container 1, the portion 73 of the seventh sheet 71 and portion 74 of the eighth sheet 72 are taken in abutment and joined to each other. Such step can be executed in the scope of providing the housing 2 or, alternatively, before or

after forming the housing 2 itself. The process can comprise, in a non limiting way, applying a predetermined quantity of paste on the portions 73, 74 adapted to abut on each other. Joining said portions 73, 74 enables to reciprocally engage them in the folded arrangement. In this way, the portions 73, 74 will substantially form the covering portion 29 and/or case 25 as previously described.

Moreover, the process comprises providing the safety device 11, preferably made of paper sheet material. Such step comprises forming the first and second hooking portions 12, 13. The step of providing the safety device 11 comprises forming the undercuts 69, 70. The undercuts 69, 70 are substantially respectively adapted to define the undercuts 16, 17 of the container 1. The undercuts 16, 17 are respectively defined at the first and second hooking portions 12, 13 and are adapted to be engaged with each other for defining the closed condition of the container 1. According to a preferred but non limiting embodiment of the present invention, the first hooking portion 12 comprises two undercuts 16 symmetrically arranged with respect to a midline of the first hooking portion 12 itself, and the second hooking portion 13 comprises two respective undercuts 17 symmetrically placed with respect to a midline of the second hooking

portion 13.

The step of forming the undercuts 16, 17 comprises forming at least one hook 18, 20. Preferably, the hook 20 is formed on the undercut 16 and the hook 18 is formed on the undercut 17. Forming the hook 18 further comprises forming the seat 19 against which the first hooking portion 12 is destined to abut.

Process for opening and closing a container

The container 1 of the previously described type is configured for being closed by manually or automatically actuating the closing system 7 and safety device 11. Particularly, for closing the container 1, the closing portion 9 is rotatively moved around the free edge 6 of the housing 2. Such movement is performed in order to take the inserting portion 10 inside the housing 2. Therefore, the first hooking portion 12 is inserted between the second hooking portion 13 and the wall 4 of the housing 2 with which said second hooking portion 13 is engaged. Such insertion enables the undercuts 16 of the first hooking portion 12 to engage the undercuts 17 of the second hooking portion 13 in order to engage the undercuts 17 of the second hooking portion 13 for reaching the arrangement illustrated in Figure 6. The above described closing process refers to the closure of

a passage opening 5. If another passage opening 5 with respective closing system 7 and safety device 11 is provided in the container 1, the above described process can be performed in the same way for closing the further passage opening 5.

According to the present invention, the container 1 is configured for not being opened by only applying an opening force to the closing system 7.

For opening the container 1, it is necessary to use the opening device 14. For determining the opening of the container 1, the opening device 14 is at least partially inserted into one or more slits 15 of the container 1. Figure 8 shows, for example, an arrangement wherein the opening device 14 is partially inserted into the housing 2. When the opening device 14 is inserted, it comes in contact with the first and second hooking portions 12, 13, determining the disengagement. Particularly, the opening device 14 causes the disengagement of the undercuts 16, 17 of the first and second hooking portions 12, 13. The opening device 14 enables to disengage the first and second hooking portions 12, 13 by moving between said hooking portions 12, 13. Figure 10 illustrates, for example, an arrangement wherein the opening device 14 is inserted inside the slits 15 and develops inside the housing 2 between the first and

second hooking portions 12, 13. In such arrangement, the first and second hooking portions 12, 13 are disengaged and the container 1 can be opened. For completing the opening of the container 1, it is necessary to act on the closing system 7 by applying an opening force to the tab 8, for example at the actuating portion 22. The opening force must be applied in order to rotatively move the tab 8 with respect to the free edge 6 of the housing 2. The force for opening the actuating portion 22 must be applied when the opening device 14 is engaged at the slits 15, because it is possible to correctly open the container 1 only when the first and second hooking portions 12, 13 are disengaged. In order to open the container 1, the tab 8 is therefore integrally moved with the opening device 14. Moving the tab 8 determines the movement of the overall closing system 7 integrally with the opening device 14. Such movement enables to open the container 1.

In other words, the container 1 is configured for being opened exclusively by means of the opening device 14 which acts as a disengagement mechanism between the hooking portions 12, 13. The above described process for opening the container 1 has been devised for preventing children from opening the container 1, specifically the majority of the children younger than 5 years.

After opening the container 1, if somebody wants to close it, it is necessary to disengage the opening device 14 from the slits 15 so that the first hooking portion 12 can engage again the second hooking portion 13 after moving the tab 8 around the free edge 6 of the housing 2.

Advantages of the invention

The present invention enables to obtain one or more of the following advantages and to solve one or more of the problems found in the prior art. First of all, the invention provides a container which can effectively prevent the children from gaining access to it meanwhile keeping a simple and compact structure. Moreover, the invention enables to simplify the "child-proof" containers by providing a container having a simple and compact structure, capable of being opened only by an opening device. It is not possible to open the container without the opening device; however, by using the opening device, the container can be opened in a simple, fast and effective way.

The "child-proof" container according to the present invention is therefore advantageously configured for maintaining the closed and safety conditions despite attempts of opening the container, performed without the

opening device. This is particularly advantageous in order to prevent children from opening the container. Moreover, the "child-proof" container according to the present invention, is provided with a closing/opening mechanism (the safety device) made of paper material and therefore easily recyclable and/or biodegradable.

Moreover, the invention provides a light and compact container and capable of ensuring the integrity thereof after plural openings and closings of the container itself. In this way, it is possible to reset the container to the safety condition after opening it and therefore the following openings of the container are only enabled by using the opening device.

Moreover, the invention can be both manually and automatically closed by using the packaging machines available on the market.

C L A I M S

1. Child-proof container (1) comprising:

- a housing (2) made of sheet material defining an inner volume (3) configured for housing a product, the housing (2) exhibiting a predetermined number of lateral walls (4) defining at least one passage opening (5) delimited by a free edge (6), said passage opening (5) being configured to put in communication the inner volume (3) of the housing (2) with the outer environment,

- one closing system (7), also made of sheet material, engaged at the free edge (6) and movable, particularly by rotation, with respect to the housing (2), the closing system (7) being configured for defining at least one closed condition in which the system itself prevents the communication between the inner volume (3) of the housing (2) and the outer environment, the closing system (7) being further configured for defining an opened condition in which the system (7) itself enables the communication between the inner volume (3) and the outer environment, the closing system (7) comprising at least one tab (8) having a closing portion (9) engaged with the free edge (6) of the housing (2) and movable, particularly by rotation, with respect to this latter, the tab (8) further exhibiting at least one

inserting portion (10) configured for being inserted, in the closed condition of the closing system (7), inside the inner volume (3) of the housing (2),

- at least one safety device (11) made of sheet material comprising:

- o at least one first hooking portion (12) carried by the tab (8) of the closing system (7),

- o at least one second hooking portion (13) engaged with the housing (2) and configured for cooperating with said first hooking portion (12),

the first and second hooking portions (12, 13) being configured for stably engaging with each other in the closed condition of the closing system (7) in order to define a safety condition, said first and second hooking portions (12, 13), in the safety condition, are configured for preventing the closing system (7) from switching from the closed condition to the opened one, wherein the container (1) comprises at least one slit (15) configured for enabling, at least in the safety condition, to insert at least one opening device (14) adapted to enable to disengage the first and second hooking portions (12, 13) from each other and therefore to enable to switch the closing system (7) from the closed condition to the opened one, the safety device (11) being further configured for enabling the first and

second hooking portions (12, 13) to reversibly switch, following the opened condition of the closing system, to the safety condition.

2. Container according to claim 1, wherein the container (1) comprises an opening device (14) configured for being inserted, at least in the safety condition, at least partially through the slit (15) of the container (1) for enabling to disengage the first and second hooking portions (12, 13) from each other and for enabling to switch the closing system (7) from the closed condition to the opened one, particularly wherein the opening device (14) being configured for being inserted, at least in the safety condition, inside the housing (2) between the first and second hooking portions (12, 13) in order to enable to disengage them.

3. Container according to anyone of the preceding claims, wherein the closing system (7) is configured for switching from the closed condition to the opened one exclusively when the opening device (14) is interposed between said first and second hooking portions (12, 13).

4. Container according to anyone of the preceding claims, wherein the first hooking portion (12) exhibits

at least one undercut (16) configured for abutting, in the safety condition, against at least one respective undercut (17) of the second hooking portion (13), and wherein the undercut (17) of the second hooking portion (13) comprises at least one hook (18) defining a seat (19) the concavity thereof faces a lateral wall (4) of the housing (2), particularly a lateral wall of the housing (2) immediately adjacent to the lateral wall directly carrying said second hooking portion (13), and wherein the first hooking portion (12) of the safety device (11) is configured for stably engaging inside the seat (19) of the hook (18) of the second hooking portion (13) in the closed condition of the system (7), optionally wherein the undercut (16) of the first hooking portion (12) comprises at least one respective hook (20) defining a seat (20a) the concavity thereof, in the safety condition, faces the concavity of the seat (19) of the hook (18) of the second hooking portion (13).

5. Container according to anyone of the preceding claims, wherein the slit (15) of the container (1) is defined by:

- at least one cutout (15a) carried by the closing system (7), particularly placed at the free edge (6) and

the inserting portion (10) of the closing system (7) itself; and/or

- a port present between the inserting portion (10) of the closing system (7) and a lateral wall of the housing (2) carrying said second hooking portion (13).

6. Container according to anyone of the preceding claims, wherein the second hooking portion (13) develops substantially parallelly to a lateral wall (4) of the container (1), particularly develops parallelly to the lateral wall of the housing (2) directly facing, in the closed condition of the closing system (7), the inserting portion (10).

7. Container according to anyone of the preceding claims, wherein the first hooking portion (12) is directly carried and joined in a single piece to the inserting portion (10), particularly the first hooking portion (12) is placed oppositely to the closing portion (9) of the tab (8) with respect to the inserting portion (10).

8. Container according to anyone of the preceding claims, wherein the second hooking portion (13) is engaged with a lateral wall (4) of the housing (2),

particularly is directly engaged with the lateral wall of the housing (2) directly facing, in the closed condition of the closing system (7), the inserting portion (10).

9. Container according to anyone of the preceding claims, wherein the opening device (14) comprises a sheet element exhibiting a gripping portion (30) from which emerges at least one appendage (26) exhibiting a polygonal shape, particularly, substantially square or rectangular or trapezoidal, configured for being inserted at least partially inside the slit (15), optionally wherein said appendage (26) being configured for interposing, at least in the safety condition, between the first and second hooking portions (12, 13) of the safety device (11).

10. Container according to anyone of the preceding claims, wherein the second hooking portion (13) develops completely inside the volume (3) of the housing (2), particularly the second hooking portion (13) is completely contained inside the volume (3) of the housing (2),
and wherein the inserting portion (10), in the closed condition of the closing system (7), is placed

completely inside the volume (3) of the housing (2), particularly the first hooking portion (12), in the closed condition of the closing system (7), is completely contained inside the volume (3) of the housing (2), optionally said first hooking portion (12), in the closed condition of the closing system (7), being placed completely inside the inner volume (3) of the housing (2) and being spaced from the free edge (6) of the housing (2), particularly wherein the engagement between the second hooking portion (13) and the first hooking portion (12) is completely defined inside the volume (3) of the housing (2).

11. Process for making a container according to anyone of the preceding claims, said process comprising at least the following steps:

- providing the housing (2) made of sheet material,
- providing the closing system (7) made of sheet material which is engaged at the free edge (6) of the housing (2), the closing system (7) being configured for defining the closed and opened conditions of the container (1),
- providing the safety device (11) made of sheet material, in which the first and second hooking portions (12, 13) are formed, the step of providing the safety

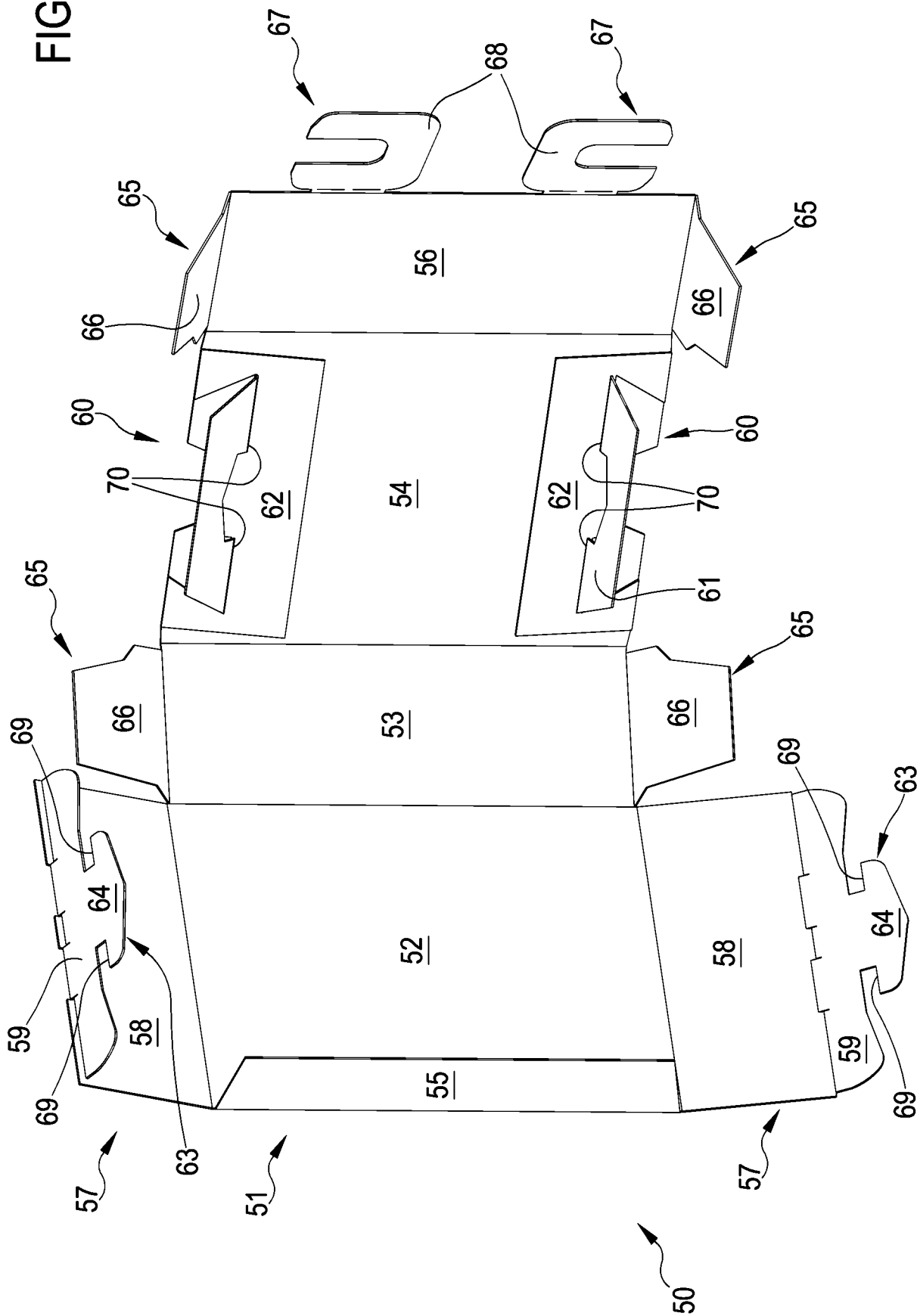
device (11) forming the second hooking portion (13) placed inside the housing (2), the first and second hooking portions (12, 13) being configured for stably engaging with each other in the closed condition of the closing system (7) to define a safety condition, said first and second hooking portions (12, 13), in the safety condition, are configured for preventing the closing system (7) from switching from the closed condition to the opened one,

- making at least one slit (15), the slit (15) being configured for enabling, at least in the safety condition, to insert at least one opening device (14) adapted to enable to disengage the first and second hooking portions (12, 13) from each other and therefore to enable to switch the closing system (7) from the closed condition to the opened one, the safety device (11) being further configured for enabling the first and second hooking portions (12, 13) to reversibly switching, following the opened condition, to the closed condition.

12. Process according to claim 11, comprising a step of providing an opening device (14) configured for being inserted, at least in the safety condition, at least partially through the slit (15) of the container (1) for

enabling to disengage the first and second hooking portions (12, 13) from each other and enabling to switch the closing system (7) from the closed condition to the opened one.

FIG.2



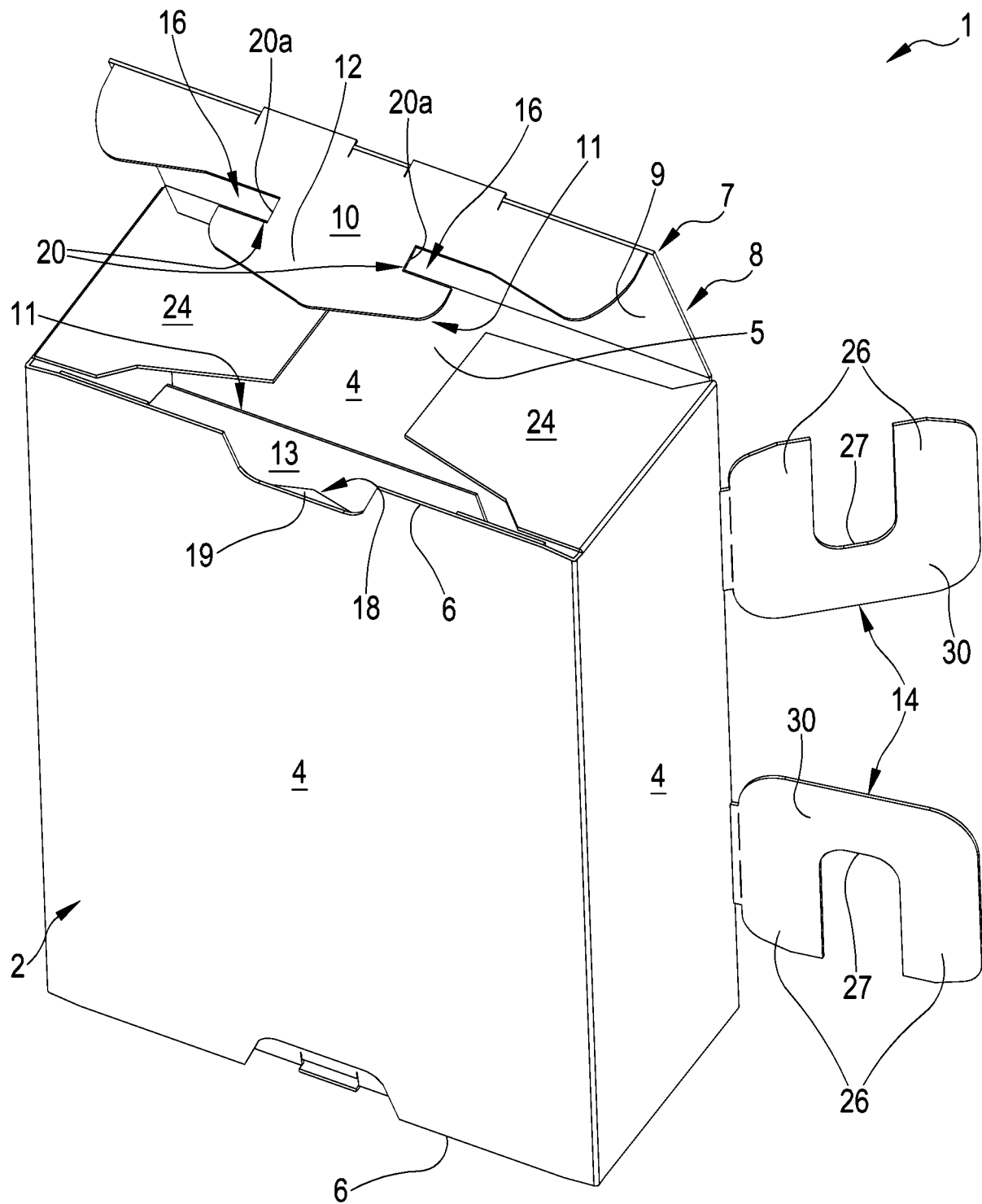


FIG.3

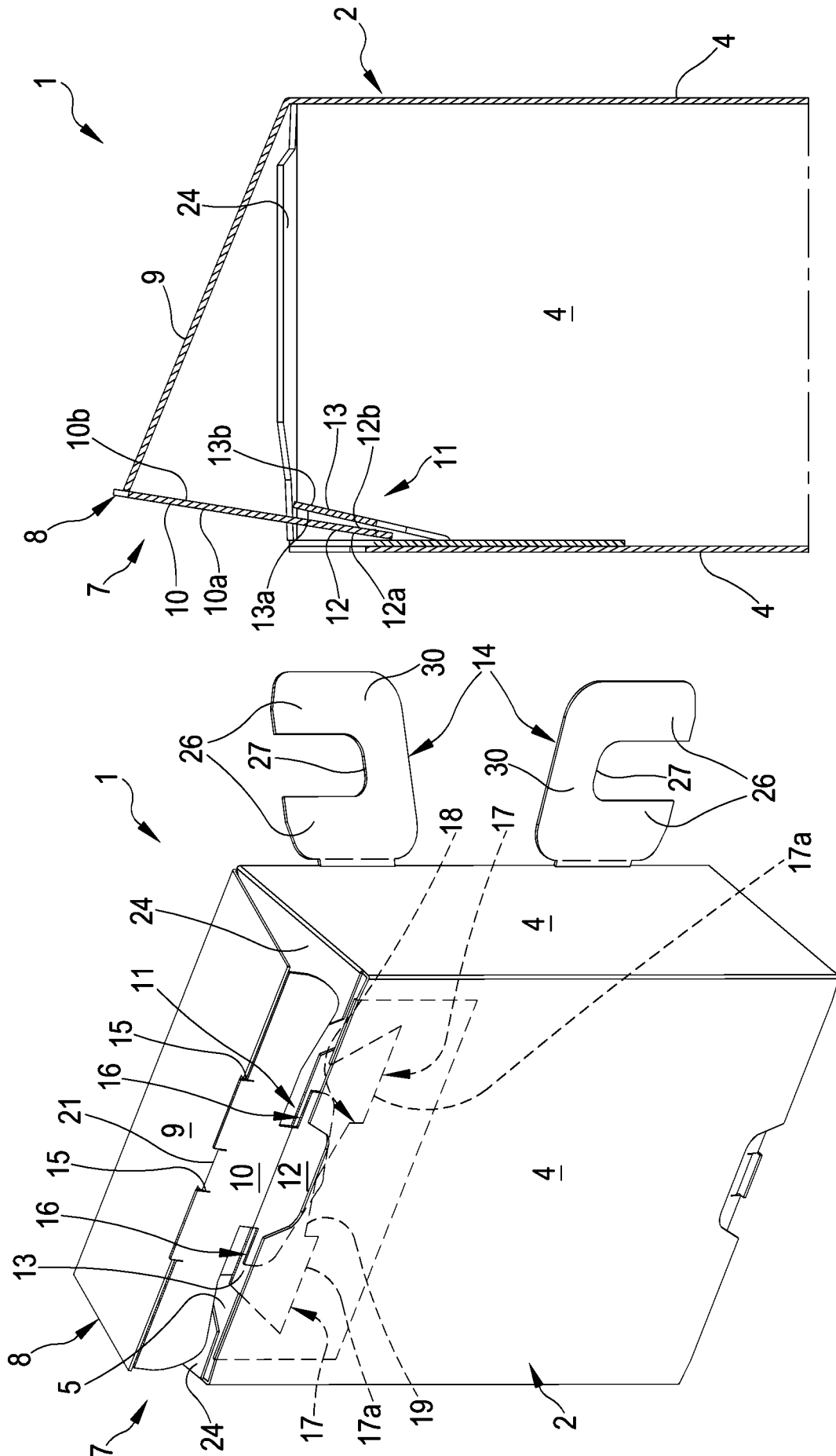


FIG.4

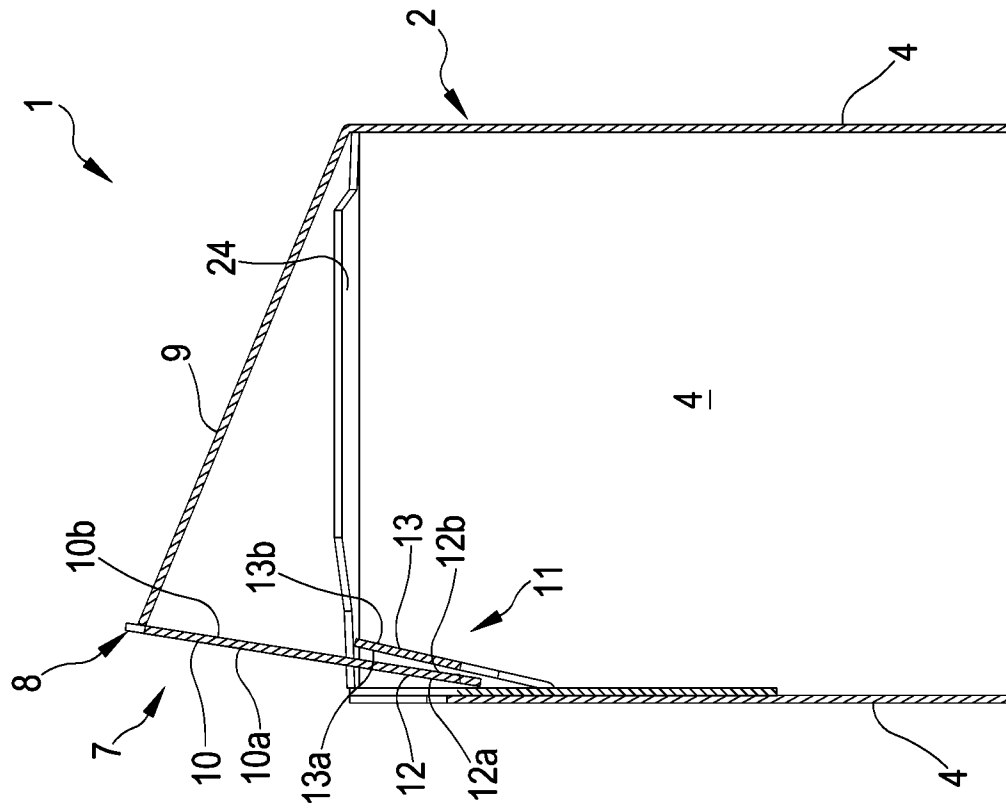


FIG. 5

FIG.6

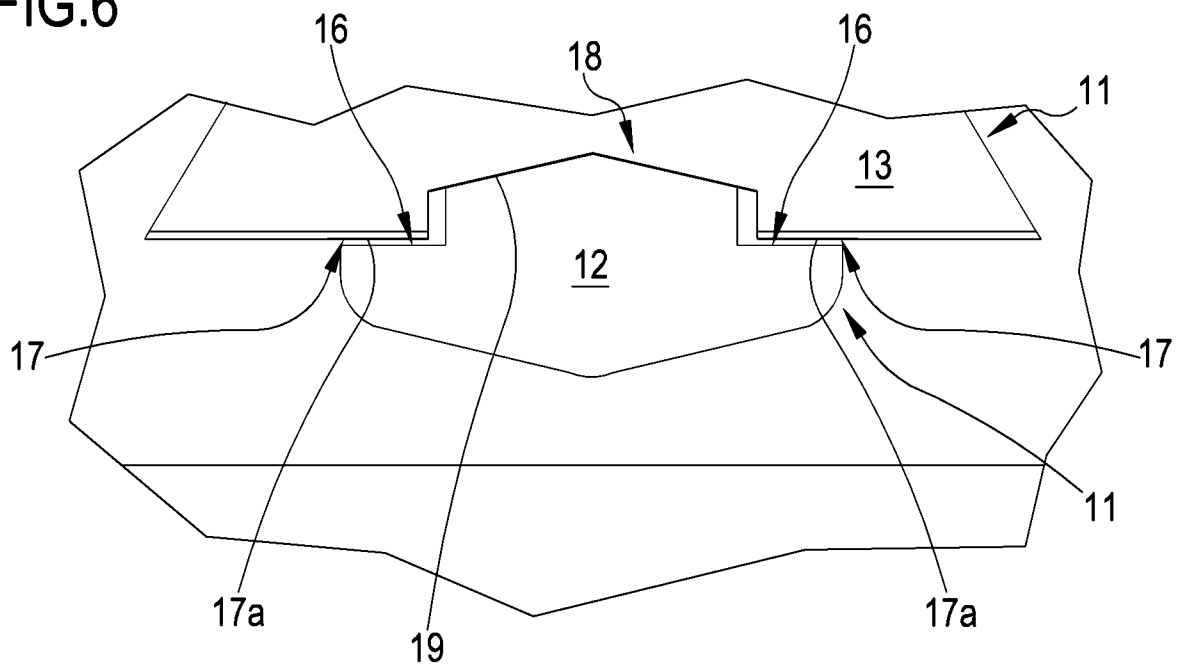
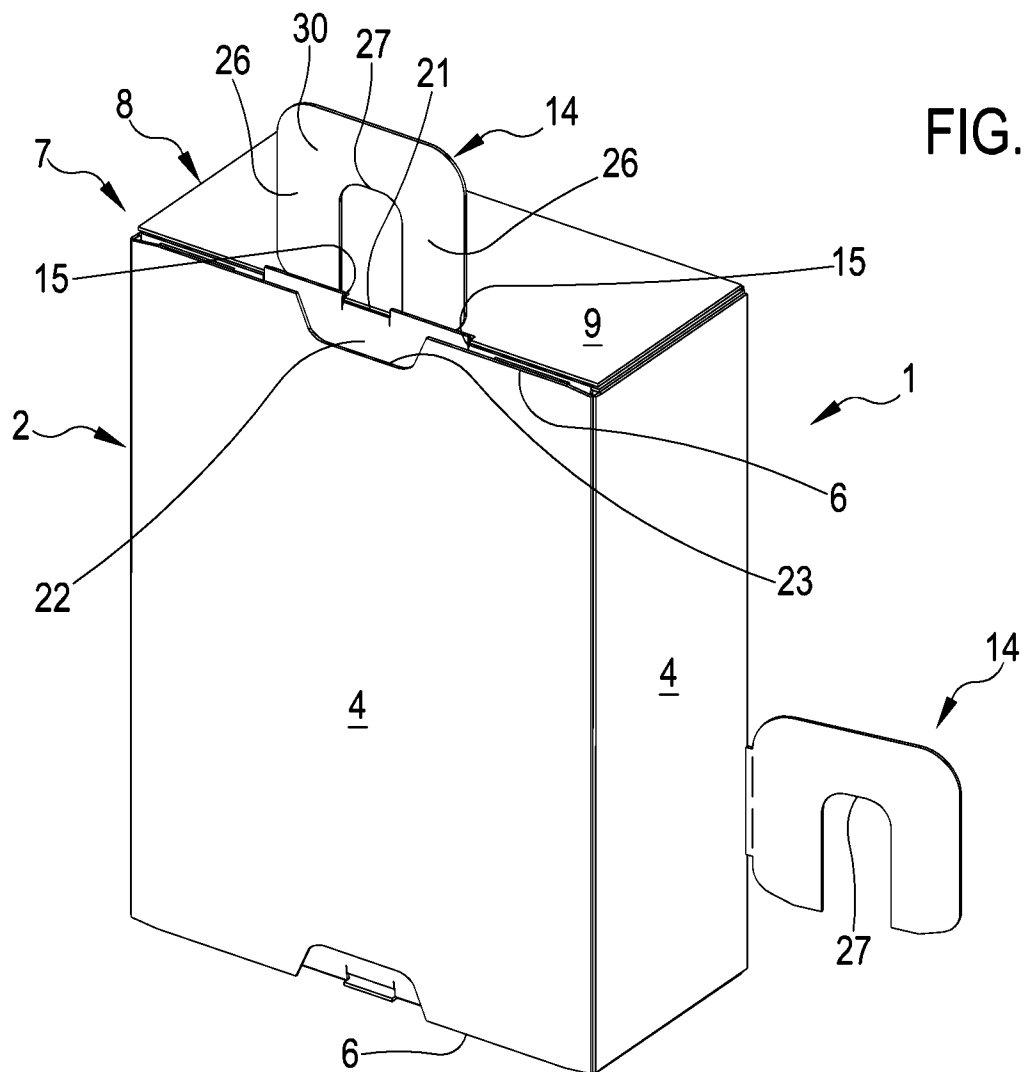
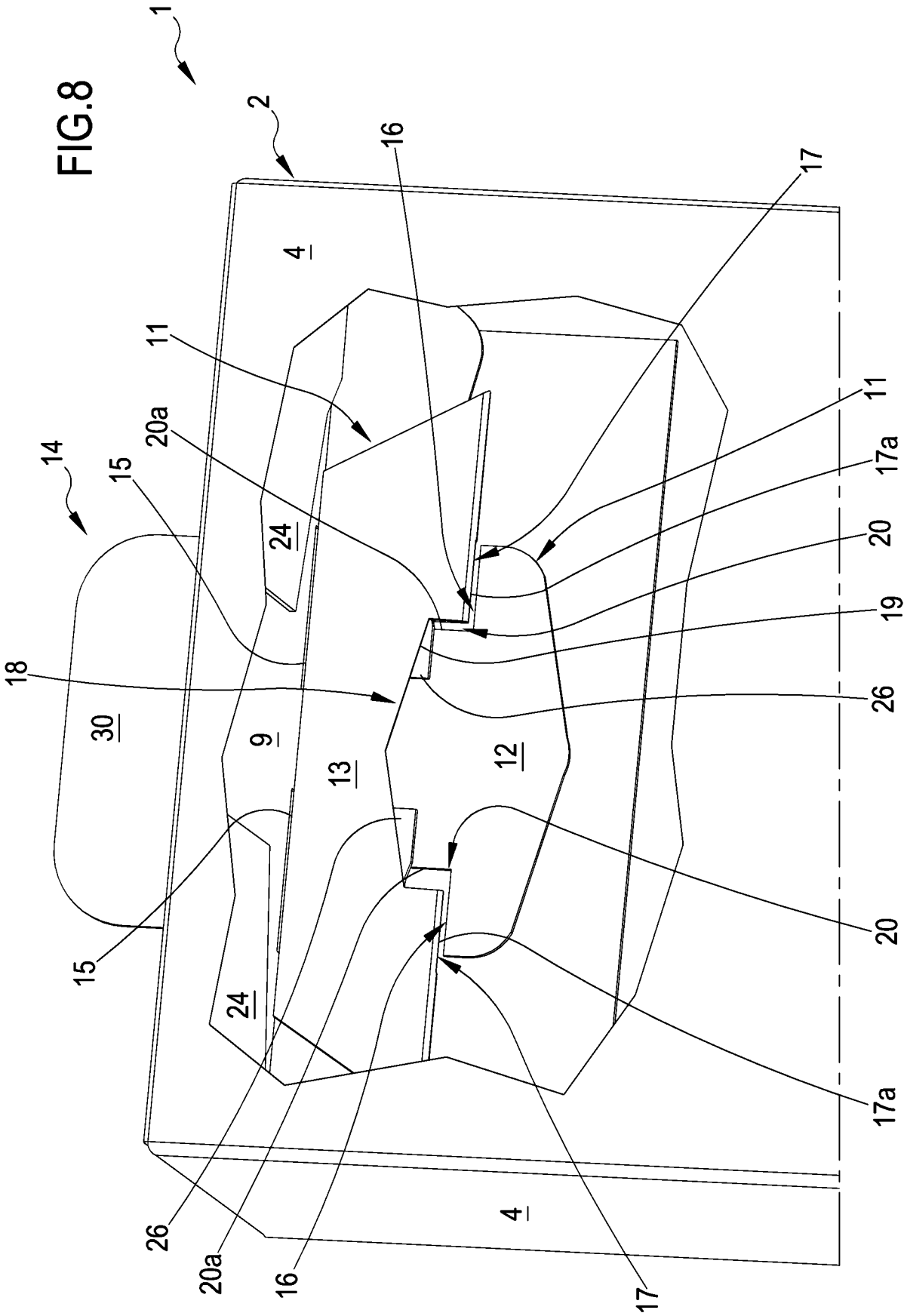


FIG.7





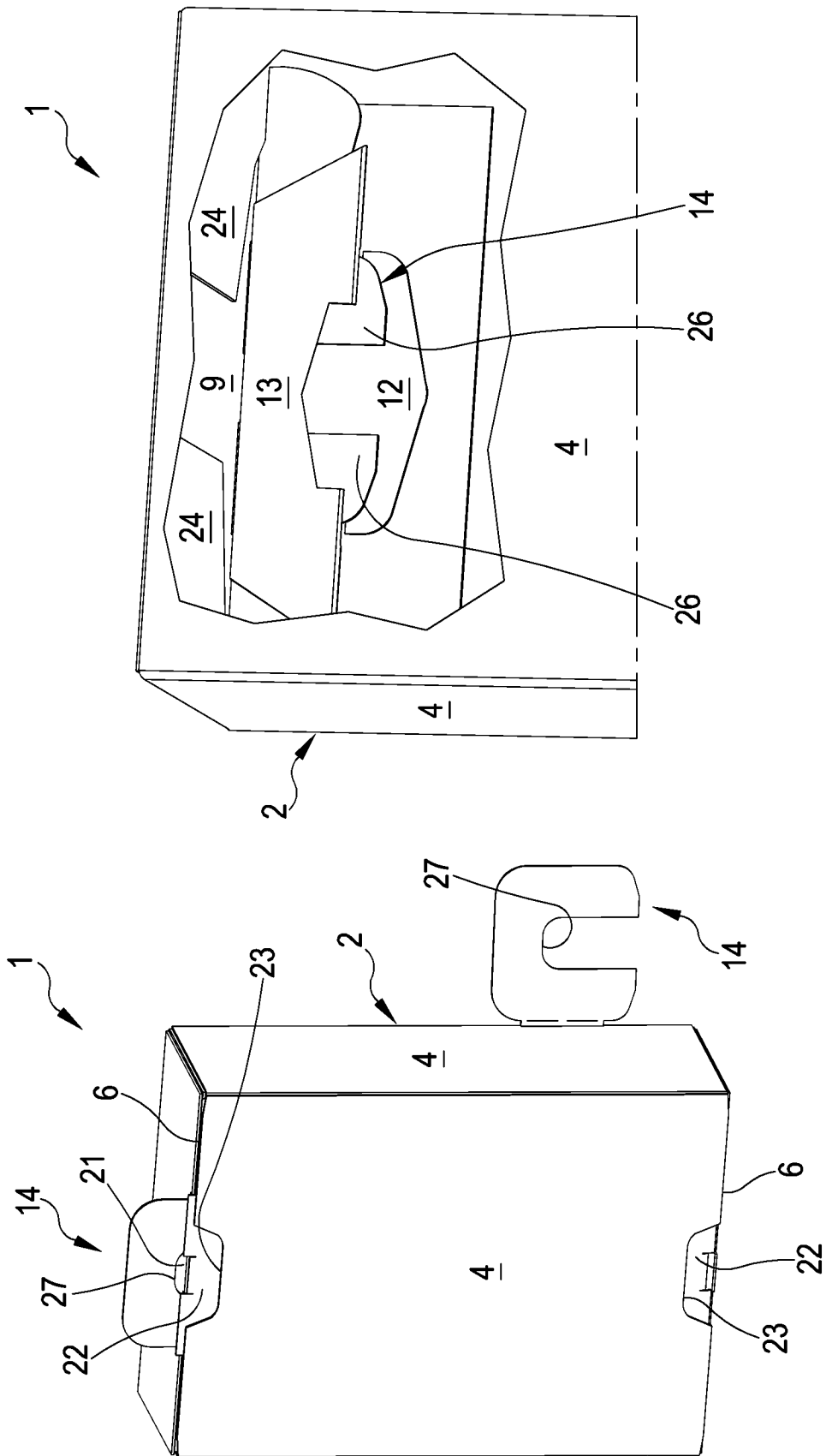


FIG.10

FIG. 9

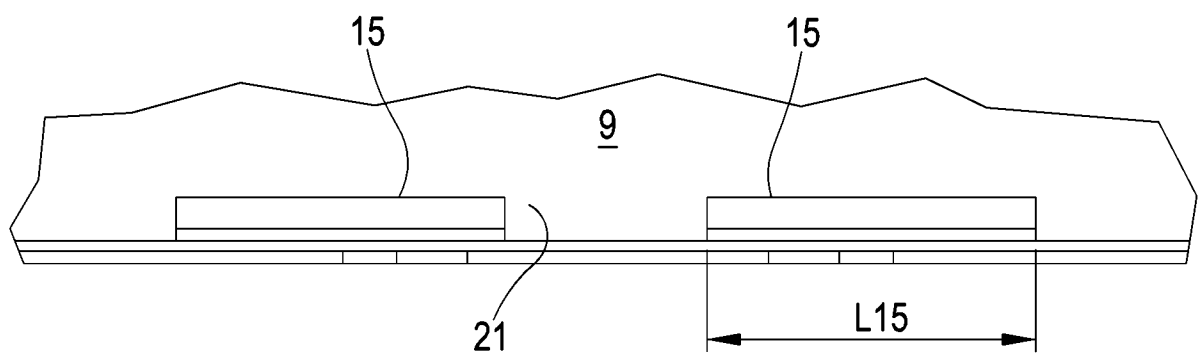
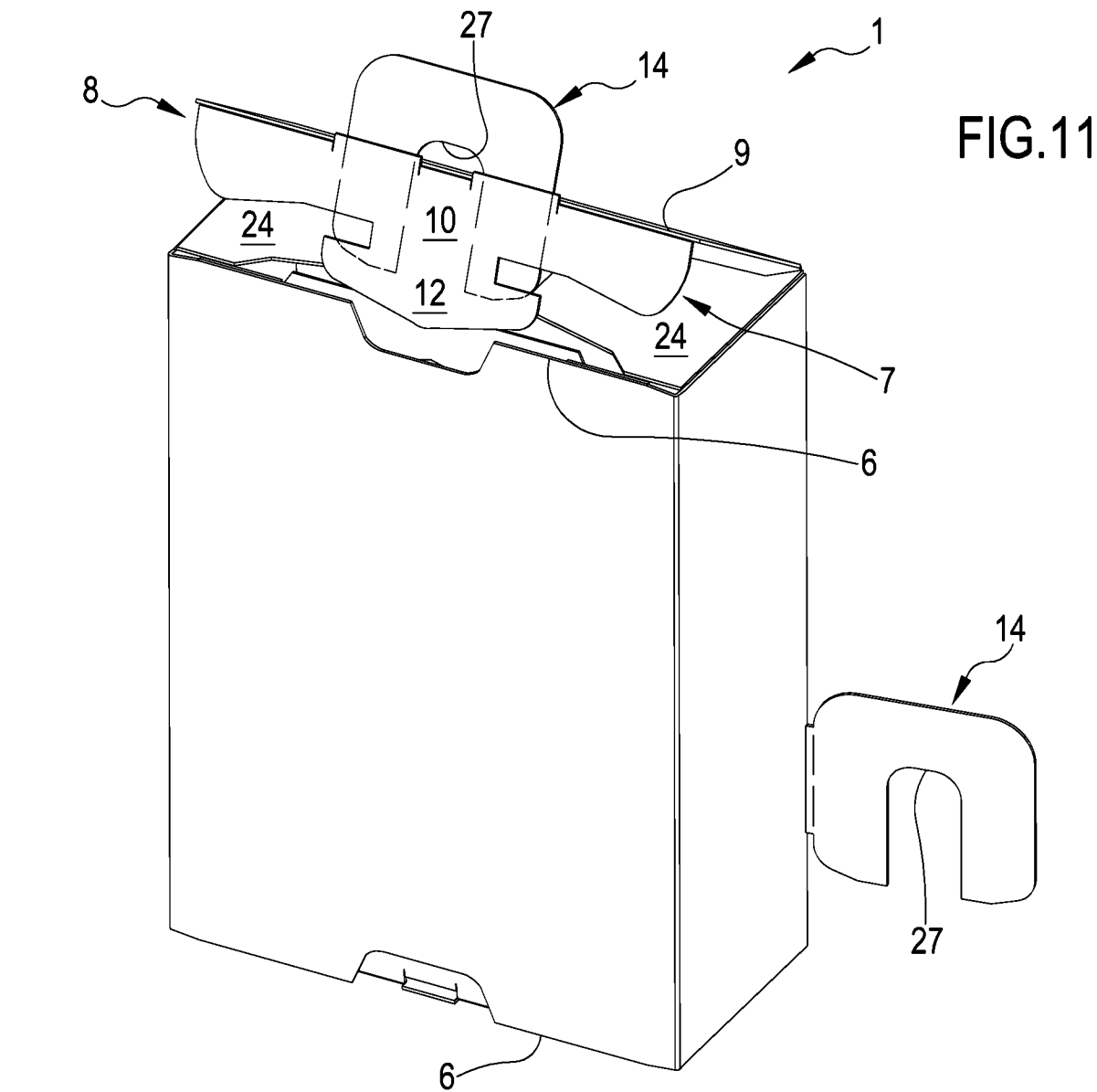


FIG.12

FIG.13

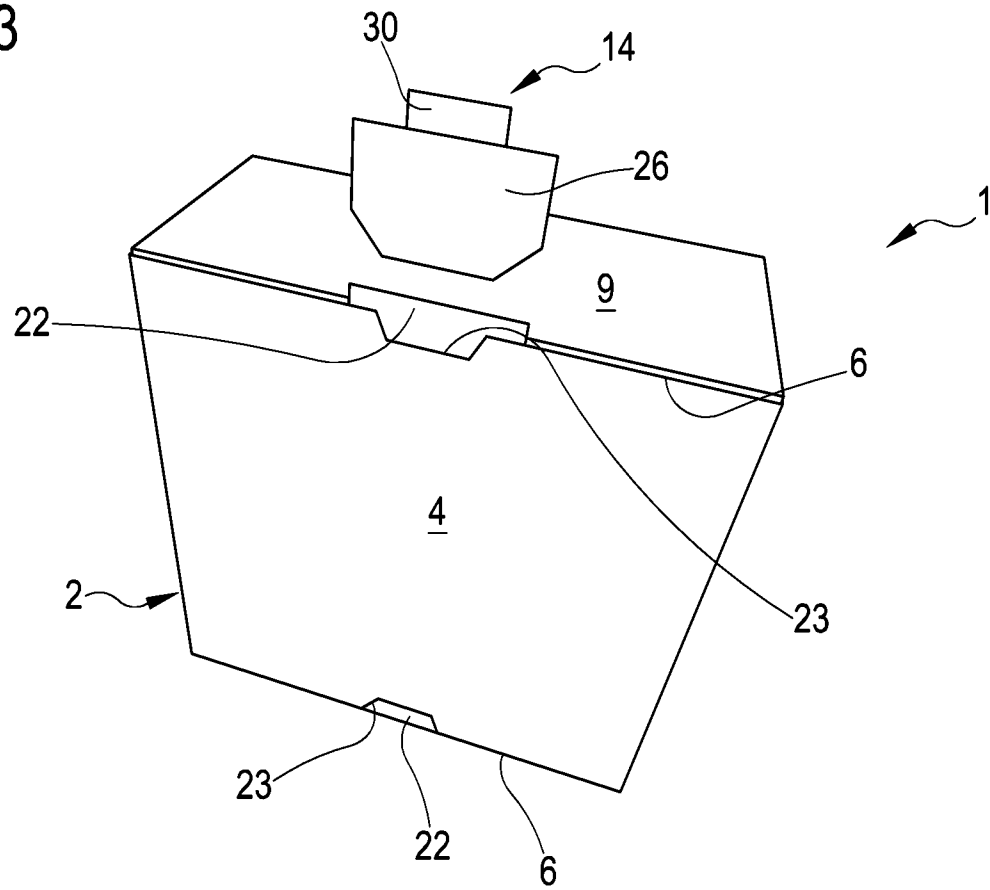
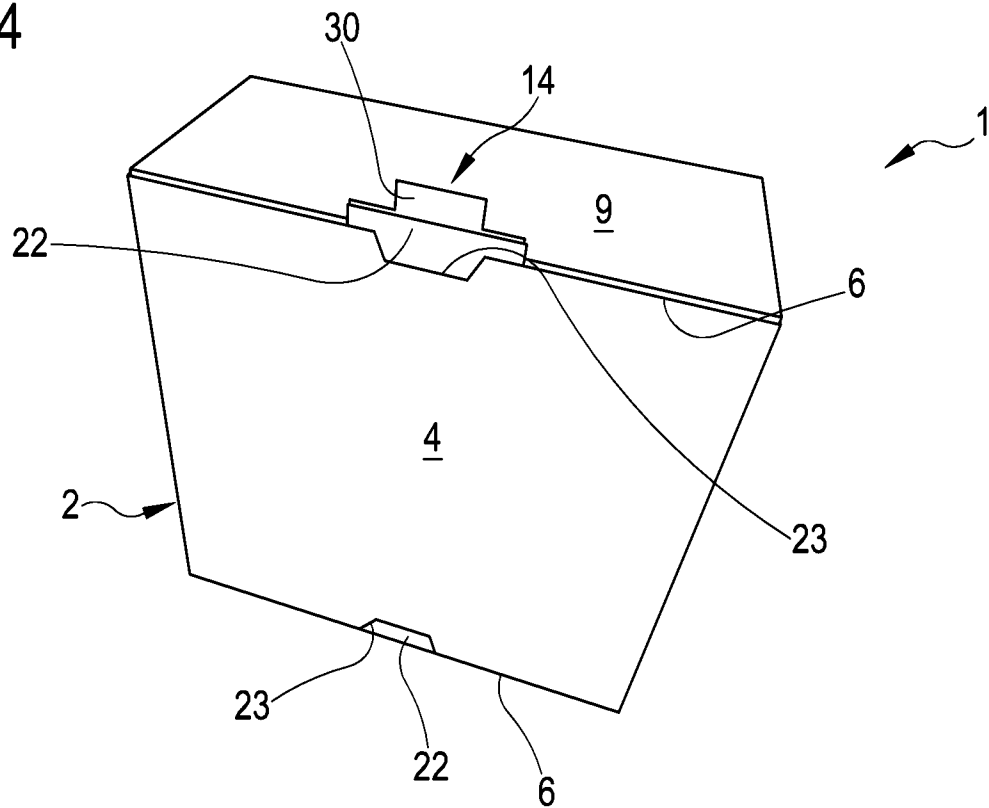


FIG.14



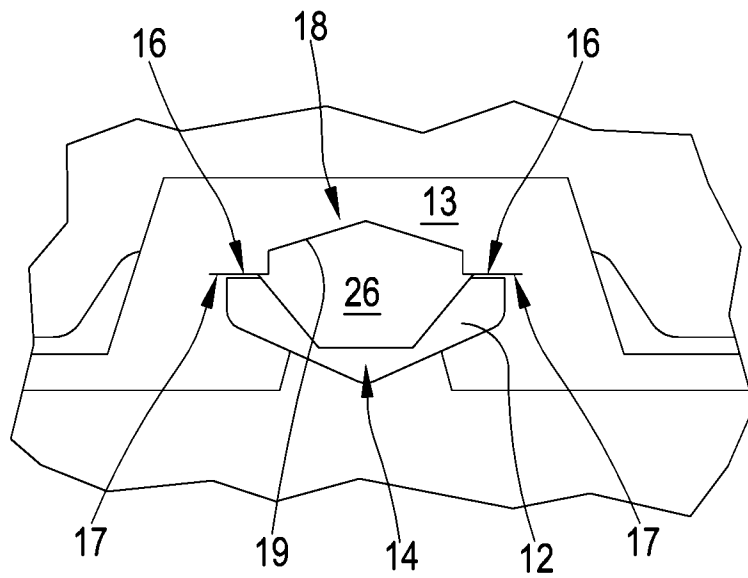


FIG. 15

FIG. 16

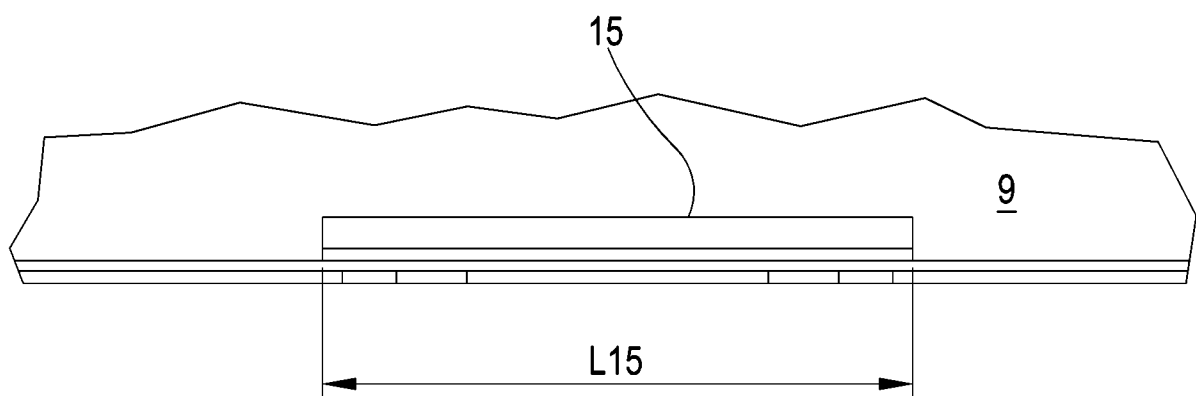
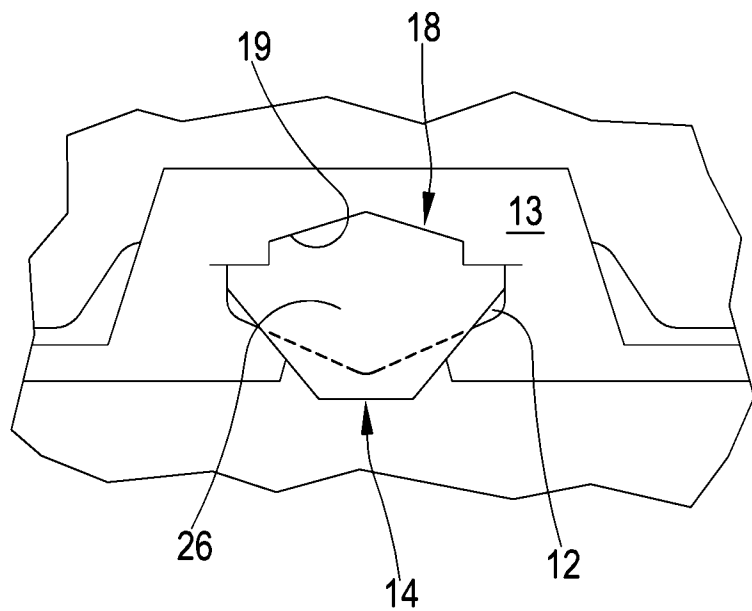
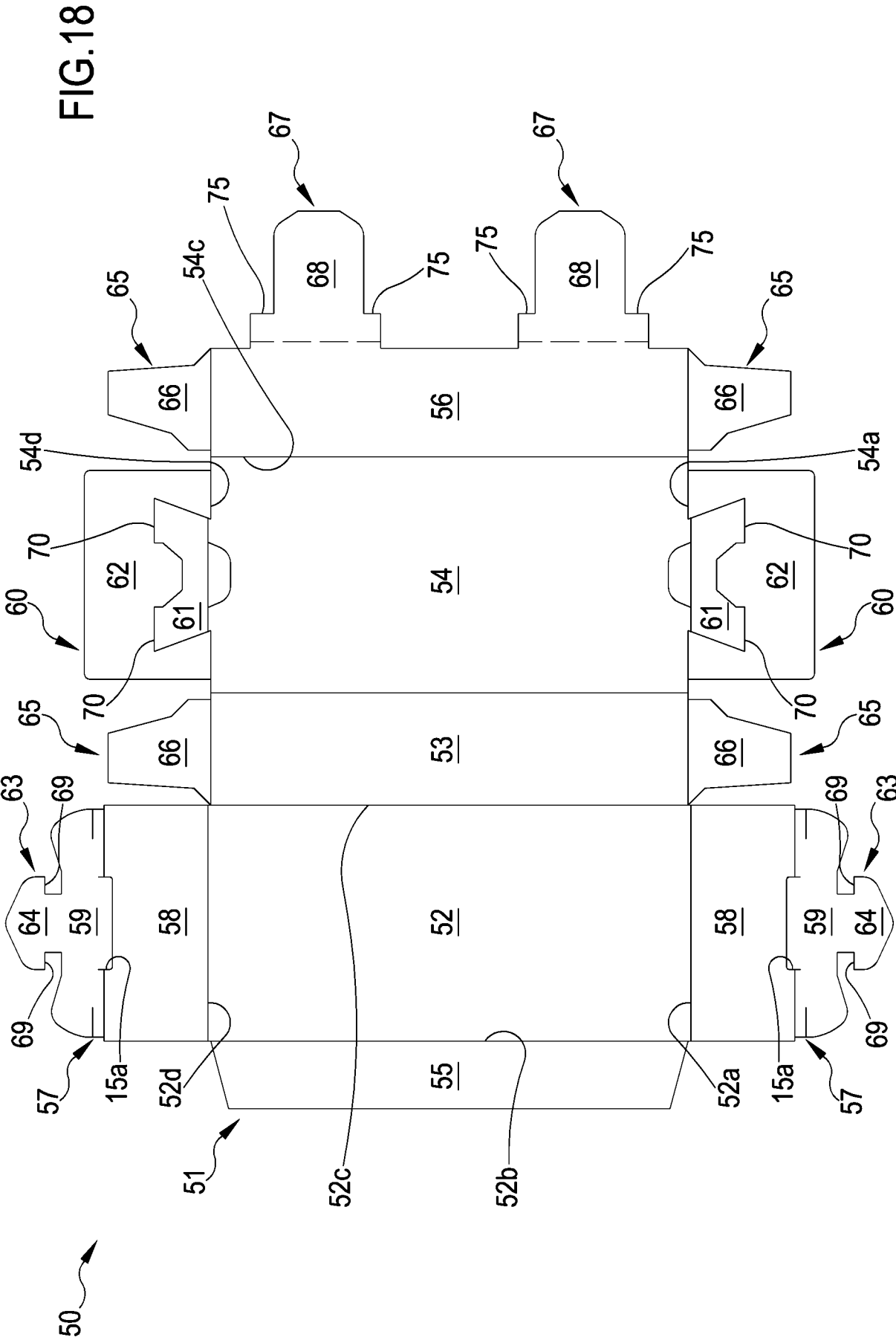


FIG. 17



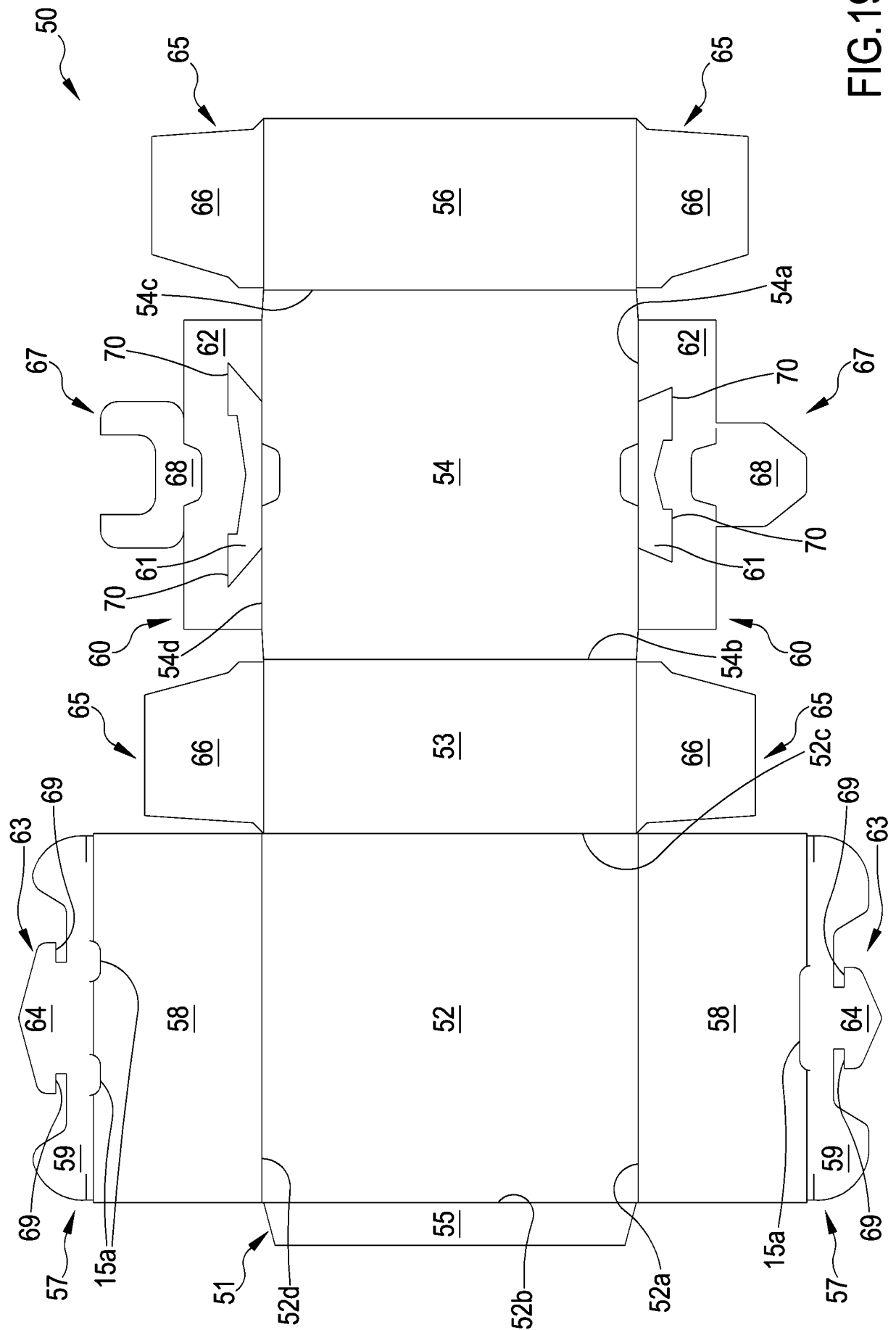


FIG.19

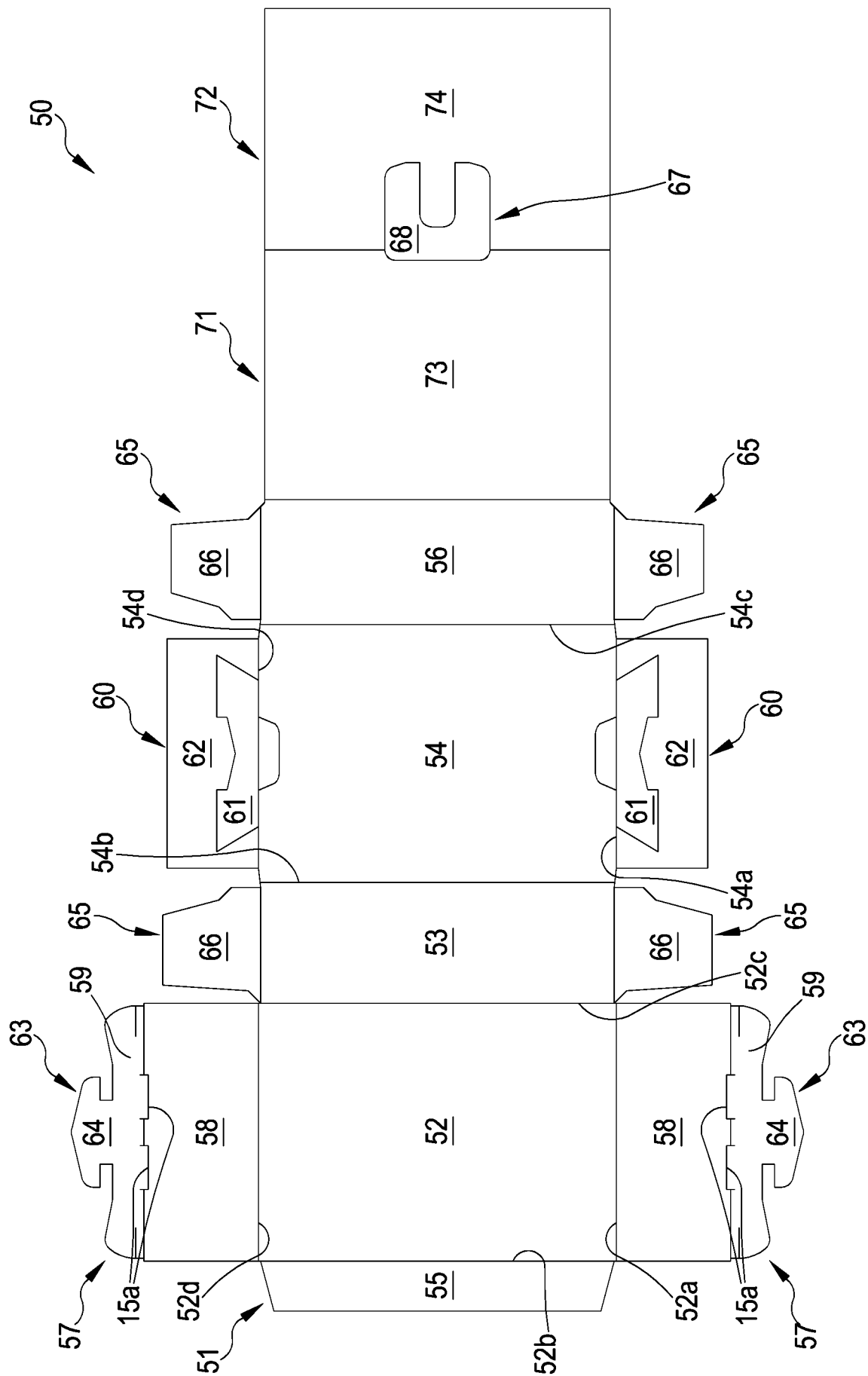
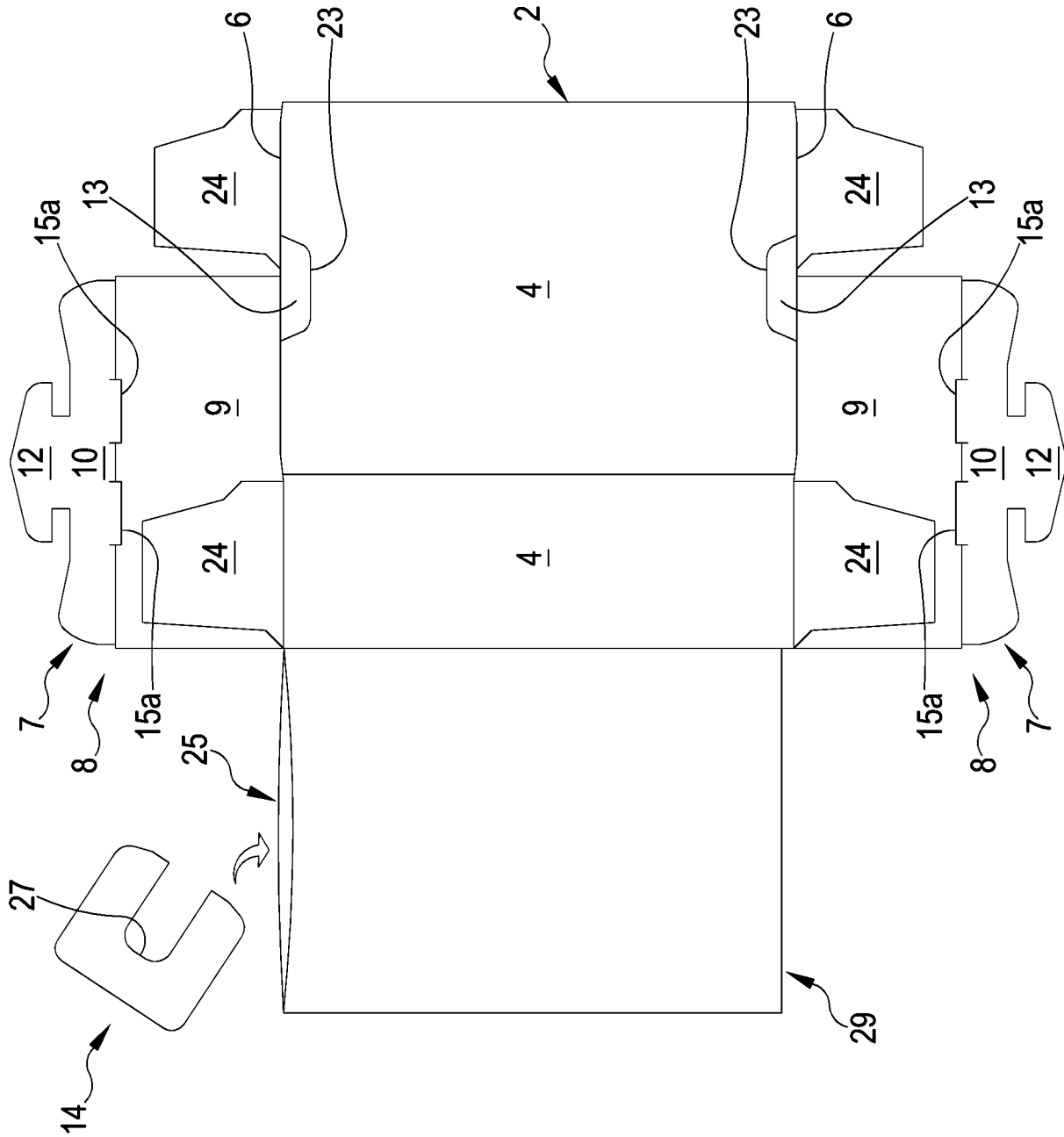


FIG. 21

FIG.22



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2016/052967

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D5/66
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2005/173291 A1 (SPECKER ERICH [CH] ET AL) 11 August 2005 (2005-08-11) abstract; figures 1-7 paragraph [0048] -----	1-12
A	EP 2 808 265 A1 (GENECHTEN PACKAGING N V VAN [BE]) 3 December 2014 (2014-12-03) abstract; figures paragraph [0026] -----	1-12
A	EP 0 519 389 A1 (ABAR SERVICE SRL [IT]) 23 December 1992 (1992-12-23) abstract; figures column 5, line 54 - column 6, line 34 -----	1,12
A	US 2014/346220 A1 (SAULAS ALAIN [FR]) 27 November 2014 (2014-11-27) abstract; figures -----	1,12

☐

Further documents are listed in the continuation of Box C.

☒

See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

27 June 2016

Date of mailing of the international search report

07/07/2016

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Authorized officer

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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