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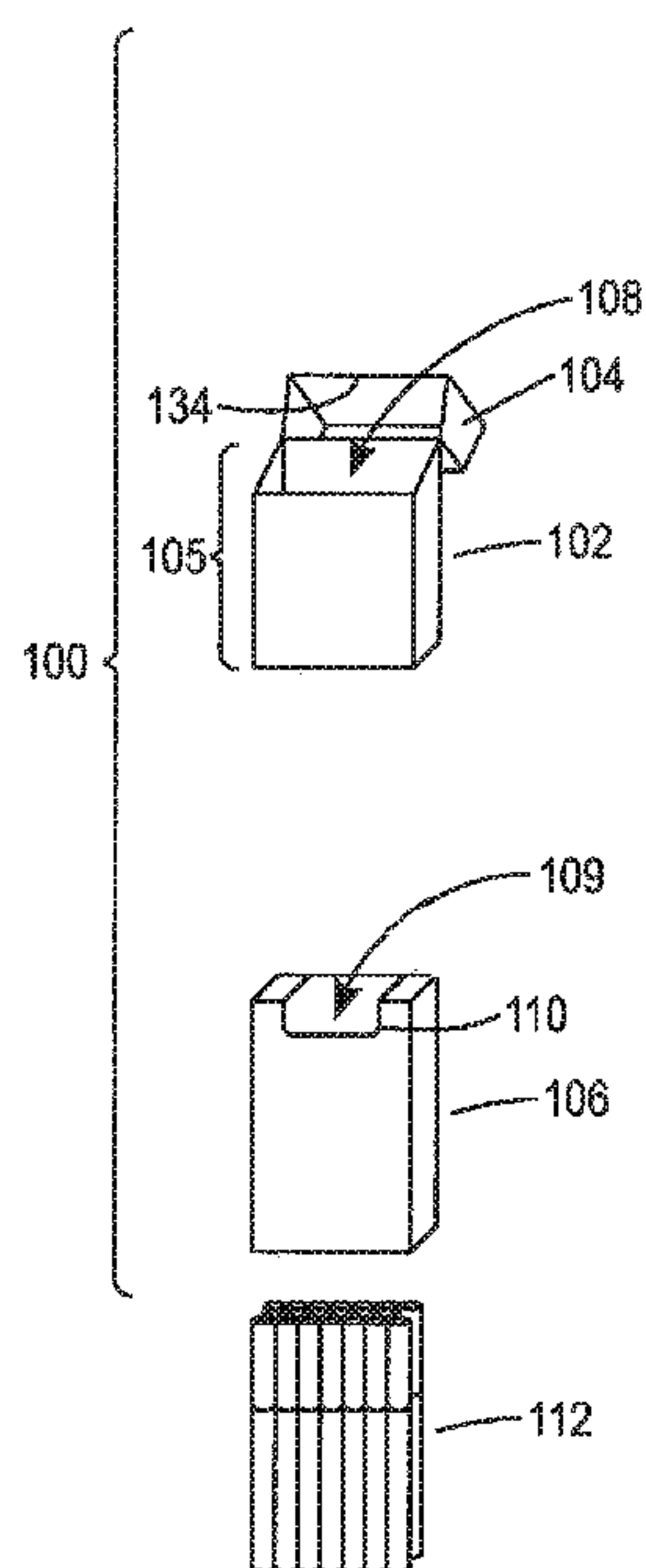


FIG. 1

(57) Abstract: A box-in-box package includes a rigid outer box made of a foil lined paperboard having a hinged lid configured to provide access to an inner volume of the outer box, a rigid inner box made of a foil lined paperboard having a front wall, a back wall, a top wall, a bottom wall and side walls, and a single opening extending across the top wall and part way down the front wall, the opening configured to provide access to consumer goods in an inner volume of the inner box. The opening in the inner box is a cut-out in the foil lined paperboard. The package can provide an improved barrier to loss of flavor characteristics, a simplified opening arrangement which eliminates a re-sealable pull tab over the opening, better physical protection of product contained in the package, a unique method of opening and closing the package, and a less expensive manufacturing process by eliminating package materials and processing steps to assemble the package with tobacco products such as cigarettes therein.

BOX-IN-BOX PACKAGE

FIELD

[0001] The present disclosure relates to a package for consumer goods and particularly to a package for smoking article.

BACKGROUND

[0002] Numerous approaches have been made for packaging consumer goods. In the case of cigarettes, for example, packages are designed to preserve the flavor and freshness of the consumer goods and also protect the goods from contamination. Known packages employ outer containers having a hinged lid providing access to an inner container with an opening for accessing the consumer goods. The outer containers are generally formed of a rigid paperboard, cardboard, or other suitable material. The inner container is generally formed of a material or combination of materials having substantially less rigidity than the outer container. For example, the inner container is known to be formed of paperboard, packing material, paper, and/or aluminium. In known designs, a label with a tacky substance for sealing and re-sealing can be used to cover the opening of the inner container.

SUMMARY

[0003] In one example, a box-in-box package comprises a rigid outer box made of a foil lined paperboard having a hinged lid configured to provide access to an inner volume of the outer box; a rigid inner box made of a foil lined paperboard having a front wall, a back wall, a top wall, a bottom wall and side walls, a single opening extending across the top wall and part way down the front wall, the opening configured to provide access to consumer goods in an inner volume of the inner box; the opening in the inner box comprising a die-cut opening in the foil lined paperboard.

[0004] Some example embodiments described herein are directed to a box-in-box package wherein the foil lined paperboard includes a foil layer between a paper layer and a paperboard layer, an outer surface of the paper layer adhered to an inner surface of the foil layer by a first adhesive layer and an inner surface of the paperboard layer adhered to an outer surface of the foil layer a second adhesive layer and further comprising a polypropylene layer on an outer surface the paperboard layer, wherein the polypropylene layer comprises a polypropylene film and further comprising a polyester layer on an outer surface of the paperboard layer,

wherein the polyester layer comprises a metallized polyester material, wherein the paperboard layer comprises solid bleached sulfate (SBS) board stock, wherein the first adhesive layer comprises sodium silicate, wherein consumer goods are contained in the inner box and the paper layer of the inner box is in direct contact with consumer goods within the inner box.

[0005] In some example embodiments, the inner box comprises a front panel, a top panel, a back panel, and a bottom panel, wherein the inner box further comprises side panels, wherein the front panel includes a top front panel and a bottom front panel, wherein the inner box contains cigarettes in direct contact with the paper layer of the inner box and the paper layer of the outer box, wherein the inner box includes a top front panel separated from a top panel by a first transverse fold line, a back panel separated from the top panel by a second transverse fold line, a bottom panel separated from the back panel by a third transverse fold line, and a bottom front panel separated from the bottom panel by a fourth transverse fold line, wherein the inner box includes a first side panel and a second side panel, and wherein the first side panel is separated from the back panel by a first longitudinal fold line, and the second side panel is separated from the back panel by a second longitudinal fold line.

[0006] In some example embodiments, a box blank is configured to form an outer box of the box-in-box package, wherein the box blank is made of foil lined paperboard, the foil lined paperboard including a paper layer, a foil layer and a paperboard layer, an outer surface of the paper layer adhered to an inner surface of the foil layer and an inner surface of the paperboard layer adhered to an outer surface of the foil layer, the inner surface of the foil layer adhered to the outer surface of the paper layer by a first adhesive layer and the inner surface of the paperboard layer adhered to the outer surface of the foil layer by a second adhesive layer. The box blank can further include a polypropylene layer on an outer surface of the paperboard layer or a polyester layer on an outer surface of the paperboard layer. The paperboard layer can comprise solid bleached sulfate (SBS) board stock, wherein the second layer further comprises sodium silicate between the foil layer and the paper layer. The box blank can include fold lines forming panels of a body portion and a lid portion, the body portion including a front panel, a bottom panel, a

back panel, side panels and dust flaps, and the lid portion including a front panel, top panel, back panel, side panels and dust flaps.

[0007] In a further example embodiment, the foil lined paperboard of the outer box and inner box comprises a first layer comprising paperboard, a second layer comprising a paper layer and a foil layer, and an adhesive layer adhering the first layer to the second layer, wherein the foil layer is between the paperboard and the paper layer.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0008] The scope of the present disclosure is best understood from the following detailed description of embodiments when read in conjunction with the accompanying drawings.

[0009] Fig. 1 illustrates a box-in-box package wherein the hinged lid of an outer rigid box is open and access to consumer products in an inner rigid box can be obtained through a cut-out in the upper portion of the inner box.

[0010] Fig. 2 illustrates a planar view of an outer box blank of the container in accordance with an embodiment of the present disclosure.

[0011] Fig. 3 illustrates a planar view of an inner box blank of the container in accordance with an embodiment of the present disclosure.

[0012] Figs. 4a and 4b is a flow chart of a process for assembling the container in accordance with an embodiment of the present disclosure.

[0013] Fig. 5 illustrates a sequence of assembly states of the container according to the assembly process of Figs. 4a and 4b.

[0014] Fig. 6 shows a percentage of the inner box within the outer box.

DETAILED DESCRIPTION

[0015] Reference will now be made in detail to the various embodiments, one or more examples of which are illustrated in each figure. Each example is provided by way of explanation and is not meant as a limitation. For example, features and/or method steps illustrated or described as part of one embodiment and/or method can be used on or in conjunction with other embodiments and/or method steps to yield yet further embodiments or methods. It is intended that the present disclosure includes such modifications and variations.

[0016] Embodiments of the present disclosure are directed to a box blank useful for forming a container for consumer goods having rigid inner and outer boxes. The

outer box has a hinged lid that opens and closes to allow access the inner box. The inner box has a die-cut opening for accessing the consumer goods. The package of the present disclosure can provide a more durable package by protecting the product from physical damage while the product is in use and a less expensive packaging solution as fewer pieces of equipment are needed to make the package. Moreover, the package assembly can be performed faster and with fewer material components compare to known re-sealable packaging designs.

[0017] A box-in-box package includes a rigid outer box made of a foil lined paperboard having a hinged lid configured to provide access to an inner volume of the outer box, a rigid inner box made of a foil lined paperboard having a front wall, a back wall, a top wall, a bottom wall and side walls, and a die-cut opening extending across the top wall and part way down the front wall, the opening configured to provide access to consumer goods in an inner volume of the inner box. The package can provide an improved barrier to loss of flavor characteristics, a simplified opening arrangement which eliminates a re-sealable pull tab over the opening, better physical protection of product contained in the package, a unique method of opening and closing the package, and a less expensive manufacturing process by eliminating package materials and processing steps to assemble the package with tobacco products such as cigarettes therein.

[0018] Fig. 1 illustrates a layout of a container for consumer goods in accordance with an embodiment of the present disclosure. As shown in Fig. 1, the container 100 includes a rigid outer box 102 having a hinged top 104 configured to provide access to a rigid inner box 106 and having a body 105 within which the inner box 106 is deposited. The inner box 106 has a die-cut opening 110 configured to provide access to consumer goods 112 stored or contained within an inner volume 109. The inner box 106 is of sufficient size to slidably and snugly fit within an inner volume 108 of the outer box 102. The inner box 106 can be securely held within the outer box 102 via contact friction between the surfaces of the inner box 106 and outer box 102. The opening 110 in the inner box 106 is a cut-out forming a through hole in one or more panels of the blank which forms the inner box 106. The inner box 106 does not include a re-sealable label (pull tab or cover) over the opening 110. The inner box 106 can contain unwrapped consumer products such as a group of smoking articles and thus provide ready access to consumer items therein. In the case of smoking

articles, since the smoking articles are not enclosed in bundle wrap, the consumer can have access to the items upon opening the outer box without the need to remove any bundle wrap of re-sealable pull-tab over the opening. The inner box can provide other advantages such as an improved barrier for the product's flavour characteristics, simplified consumer opening process by eliminating a re-sealable label, more durable package, and/or packaging which can be assembled with fewer pieces of equipment.

[0019] The inner box 106 and the outer box 102 are made of foil lined paperboard including a paper layer, a foil layer and a paperboard layer. To provide rigidity to the inner and out boxes, the paperboard layer preferably has a thickness of at least 0.010 inch, e.g., 10 or 12 point paperboard. The paperboard layer can be formed of solid bleached sulfate (SBS) paperboard such as Promina SBS C1S Paperboard. The paperboard can be embossed with a design, lettering, pattern, and/or symbol as desired. The paperboard can include an ink, varnish, metallization, or other suitable material for product identification. When the container 100 is fully assembled, the outer box 102 can be wrapped with a covering layer such as a polypropylene film with or without a tear tape that allows for tearing open the polypropylene film.

[0020] The paper layer of the foil lined paperboard can be thin paper of the type suitable for wrapping a bundle of cigarettes for example, the paper layer can be 10 pound or 32 pound paper. The foil layer can be a thin sheet of metal foil such as aluminium having a thickness of at least 0.003 inch. For example, the foil layer can be 0.0035 inch thick aluminium foil. Because the paper layer of the foil lined paperboard is an inner layer in direct contact with the consumer goods inside the inner box, it is not necessary to wrap the consumer goods in bundle wrap. The paperboard layer and the foil layer can be adhered to each other via an adhesive, such as a polyvinyl alcohol (PVA) based adhesive, cold glue, hot melt glue, or other suitable material.

[0021] In accordance with another embodiment, the foil lined paperboard can include a further layer formed on an outer surface of the paperboard layer. For example, the further layer can include a polypropylene film or a metallized polyester (MET) material such that the layer structure of the inner box 106 includes bundle wrap/board/film or bundle wrap/board/MET, and more particularly the layer structure includes paper/foil/board/film or paper/foil/board/MET.

[0022] The box-in-box package does not include a re-sealable pull tab attached to the outer box or to the inner box. Instead, the opening in the inner box is a cut-out in the foil lined paperboard which allows ready access to consumer products in the inner box when the hinged lid is opened. The cut-out thus eliminates any need for a pull tab and simplifies the manufacturing process by eliminating the material of the pull tab along with the specialized equipment and manufacturing steps needed to construct a package with re-sealable pull tab.

[0023] Fig. 2 illustrates a planar view of an outer box blank of the container in accordance with an embodiment of the present disclosure. As shown in Fig. 2, the blank 500 for forming outer box 102 includes a top panel 502, a bottom panel 504, a top front panel 506, a bottom front panel 508, a bottom back panel 510, and a top back panel 512. The top panel 502 includes a front flap 513. The outer box blank is made of foil lined paperboard wherein a layer of paperboard is adhered to a foil layer which is adhered to a paper layer. The top panel 502 and the bottom panel 504 include left and right dust flaps. The top panel 502 includes a left dust flap 514 and a right dust flap 516, and the bottom panel 504 includes a left dust flap 518 and a right dust flap 520. An upper section 562 of the outer box blank 500 includes the top panel 502, the top back panel 512, and the top front panel 508 and their associated side and dust flaps are configured to form the hinged top 104 of the assembled outer box 102 when folded. A lower section 564 of the outer box blank 500 includes the bottom panel 504, the bottom front panel 506, the bottom back panel 510 and their associated side and dust flaps discussed below are configured to form the body 105 of the assembled outer box 102 when folded.

[0024] The top back panel 512, the bottom front panel 508, and the bottom back panel 510 include left and right flaps. For example, the top front panel 506 includes a left side flap 522 and a right side flap 524; the top back panel 512 includes a left side flap 526 and a right side flap 528; the bottom front panel 508 includes a left side flap 530 and a right side flap 532; and the bottom back panel 510 includes a left side flap 534 and a right side flap 536.

[0025] Each panel of the outer box 102 and the associated left and right flaps are separated from an adjacent panel and its associated left and right flaps by a transverse fold line. The front flap 513 and the top front panel 506 are separated by transverse fold line 539. The top front panel 506, the left side flap 522, and the right

side flap 524 are separated from the top panel 502, the left dust flap 514, and the right dust flap 516, respectively, by transverse fold line 538. The top panel 502, the left dust flap 514, and the right dust flap 516 are separated from the top back panel 512, the left side flap 526, and the right side flap 528, respectively, by transverse fold line 540. The top back panel 512, the left side flap 526, and the right side flap 528 are separated from the bottom back panel 510, the left side flap 534, and the right side flap 536, respectively, by transverse fold line 542. The bottom back panel 510, the left side flap 534, and the right side flap 536 are separated from the bottom panel 504, the left dust flap 518 and the right dust flap 520, respectively, by transverse fold line 544. The bottom panel 504, the left dust flap 518, and the right dust flap 520 are separated from the bottom front panel 508, the left side flap 530, and the right side flap 532, respectively, by transverse fold line 546.

[0026] Each side flap and dust flap of the outer box 102 is separated from the associated and adjacent panel by a longitudinal fold line. The top front panel 506 is separated from the left and right side flaps 522, 524 by longitudinal fold lines 548. The right side flap 524 has a pre-cut edge 525 that extends at an angle of approximately -45° from the transverse fold line 539. The left side flap 522 has a pre-cut edge 523 that extends at an angle of approximately -135° from the transverse fold line 539. The top panel 502 is separated from the left and right dust flaps 514, 516 by longitudinal fold lines 550. The top back panel 512 is separated from the left and right side flaps 526, 528 by longitudinal fold lines 552. The left side flap 526 has a pre-cut edge 527 that extends at an angle of approximately -50° from the transverse fold line 542. The right side flap 528 of top back panel 512 has a pre-cut edge 529 that extends at an angle approximately -140° from the transverse fold line 542. The bottom back panel 510 is separated from the left and right side flaps 534, 536 by longitudinal fold lines 554. The left side flap 534 has a pre-cut edge 535 that extends at an angle of approximately -45° from the transverse fold line 542. The right side flap 536 of the bottom back panel 510 has a pre-cut edge 537 that extends at an angle of approximately -135° from the transverse fold line 542. The bottom panel 504 is separated from the left and right dust flaps 518, 520 by longitudinal fold lines 556. The bottom front panel 508 is separated from the left and right side flaps 530, 532 by longitudinal fold lines 558. The left side flap 530 and the right side flap 532 extend past an edge 560 of the bottom front panel 508. The left side flap 530

has a pre-cut edge 531 that extends at approximately -45° , and in an embodiment -39° , from the bottom edge 560 of the bottom front panel 508. The right side flap 532 a pre-cut an edge 533 that extends at approximately -135° , and in an embodiment -129° , from the edge 560 of the front panel 508.

[0027] The pre-cut angle of the flaps associated with the bottom front panel 508 and bottom back panel 510 are complementary to the pre-cut angle of the flaps associated with the top front panel 506 and the top back panel 512 so that a side surface of the hinged top of the outer box mates with a side surface of a body of the outer box when the outer box is in a closed state.

[0028] The outer box 102 has dimensions suitable for providing a snug fit for the inner box 106 when disposed within the outer box 102. The outer box 102 has a width W_{OB} that is common to each of the top panel 502, bottom panel 504, top front panel 506, bottom front panel 508, bottom back panel 510, and top back panel 512. The bottom back panel 510 has a length L_{OB-BBP} that is substantially longer than the length of the top back panel (L_{OB-TBP}) 512. The sum of L_{OB-BBP} and L_{OB-TBP} is approximately equal to the length of a cigarette pack, e.g., the length of the inner box 106. The length of the bottom front panel (L_{OB-BFP}) 508 is substantially longer than the length of the top front panel (L_{OB-TFP}) 506. The sum of L_{OB-BFP} and L_{OB-TFP} is substantially equal to the sum of L_{OB-BBP} and L_{OB-TBP} . According to an embodiment $L_{OB-BBP}=75.10\text{mm}$, $L_{OB-TBP}=11.40\text{mm}$, $L_{OB-BFP}=55.5\text{mm}$, and $L_{OB-TFP}=31.0\text{mm}$. The depth or thickness of the outer box 102 is equal to the width (W_{OB-FLP}) of the side and dust flaps and the length (e.g., shortest edge) of the top panel (L_{OB-TP}) 502 and bottom panel (L_{OB-BP}) 504. According to an embodiment $L_{OB-TP}=L_{OB-BP}=W_{OB-FLP}=21.9\text{mm}$

[0029] Fig. 3 illustrates a planar view of a blank for forming an inner box 106 of the container in accordance with an embodiment of the present disclosure. As shown in Fig. 3, the blank 600 for inner box 106 includes a top panel 602, a bottom panel 604, a top front panel 606, a bottom front panel 608, and a back panel 610. The opening 110 of the inner box extends across the top front panel 606 and the top panel 602. The inner box blank is made of foil lined paperboard wherein a layer of paperboard is adhered to a foil layer and the foil layer is adhered to a paper layer which establishes the product side surface of the assembled inner box 106.

[0030] Each panel is separated from an adjacent panel by a transverse fold line. The top front panel 606 is separated from the top panel 602 by a transverse fold line 612. The top panel 602 is separated from the back panel 610 by a transverse fold line 614. The back panel 610 is separated from the bottom panel 604 by a transverse fold line 616. The bottom panel 604 and the bottom front panel 608 are separated by transverse fold line 618.

[0031] Each panel includes associated side flaps. The top front panel 606 includes a left side flap 620 and a right side flap 622. The left side flap 620 has a pre-cut edge 621 that extends at an angle of approximately 45° from the transverse fold line 612. The right side flap 622 has a pre-cut edge 623 that extends at an angle of approximately 135° from the transverse fold line 612. The top panel 602 includes a left side flap 624 and a right side flap 626. The left side flap 624 has a pre-cut edge 625 that extends at an angle of approximately 45° from the transverse fold line 614. The right side flap 626 has a pre-cut edge 627 that extends at an angle of approximately 135° from the transverse fold line 614. The back panel 610 includes left side flap 628 and a right side flap 630. The front panel 608 includes a left side flap 632 and a right side flap 634.

[0032] The bottom panel 604 includes a left dust flap 636 and a right dust flap 638.

[0033] The inner box 106 has dimensions suitable for storing a desired number (e.g., count) of consumer goods, which according to an embodiment are cigarette articles. The inner box 106 has a width W_B that equals the width of each of the top panel 602, bottom panel 604, top front panel 606, bottom front panel 608 and back panel 610. The back panel 610 has a height or length (L_{IB-BKP}) sufficient for enclosing the consumer goods. The sum of the lengths of the top front panel 606 (L_{IB-TFP}) and the bottom front panel (L_{IB-BFP}) 608 is equivalent to L_{IB-BKP} . According to an embodiment of the present disclosure, $L_{IB-BKP}=83.6$ mm, $L_{IB-TFP}=27.2$ mm, and $L_{IB-BFP}=43.39$ mm. The depth or thickness of the inner box 106 is established by the width W_{IB-FLP} shared by each of the side and dust flaps and the length (e.g., shortest edge) of the top panel (L_{IB-TP}) 602 and bottom panel (L_{IB-BP}) 604. According to an embodiment, $L_{IB-TP}=L_{IB-BP}=W_{IB-FLP}=20.55$ mm.

[0034] According to embodiments of the present disclosure, a sum of lengths of the top back panel 512 and bottom back panel 510 of the outer box 102 is at least equal to a length of the back panel 610 of the inner box 106, where ($L_{OB-TBP}+L_{OB-}$

$BBP = L_{IB-BKP}$), and in an embodiment the sum of lengths is greater, where $(L_{OB-TBP} + L_{OB-BBP} > L_{IB-BKP})$, so that the proper fit of the inner box 106 within the outer box 102 and closure of the hinged top 104 can be realized.

[0035] Each side and dust flap of the inner box 106 is separated from the associated and/or adjacent panel by a longitudinal fold line. The top front panel 606 is separated from the left and right side flaps 620, 622 by longitudinal fold lines 640. The top panel 602 is separated from left and right side flaps 624, 626 by longitudinal fold lines 642. The back panel 610 is separated from left and right side flaps 628, 630 by longitudinal fold lines 644. The bottom panel 604 is separated from left and right dust flaps 636, 638 by longitudinal fold lines 646. The bottom front panel 608 is separated from left and right side flaps 632, 634 by longitudinal fold lines 648.

[0036] Figs. 4a and 4b are flow charts of a process for making the container in accordance with an embodiment of the present disclosure; and Fig. 5 illustrates a sequence of assembly states of the container according to the assembly process of Figs. 4a and 4b. As shown in Figs. 4a and 4b, the process includes a first step (S700) in which the inner box 106 is assembled from the inner box blank 600 by folding the left and right side flaps 628, 630 about the longitudinal fold lines so that they are substantially orthogonal to the back panel 610. In step S702, the dust flaps 636, 638 of the bottom panel 604 are folded over the longitudinal fold lines 646 so that they are substantially planar with the bottom panel 604. According to an embodiment, an adhesive can be applied to the dust flaps 636, 638 so that they adhere to the bottom panel 604 when folded. As shown in State 1 of Fig. 5, a lower section 650 including the bottom panel 604 and the bottom front panel 608 is folded about transverse fold line 616 so that it is substantially orthogonal to the bottom panel 604 (S704). The consumer goods or product is then placed into the area bounded by the left and right side flaps 628, 630 and the bottom panel 604 (S706). An upper section 652 including the top panel 602 and the top front panel 606 is folded about transverse fold line 614 so that the upper section 652 is substantially orthogonal to the back panel 610 (S708, State 2). The bottom front panel 608 is folded over transverse fold line 618 so that it is parallel with the back panel 610 (S710, State 3). The top front panel 606 is folded over transverse fold line 612 so that it is parallel with the back panel 610 and planar with the bottom front panel 608 (S712, State 4).

[0037] An adhesive can be applied to the left and right side flaps 624, 626 of the top panel 602. The left and right side flaps 624, 626 of the top panel 602 are folded over longitudinal fold lines 642 and adhere to the side flaps 628, 630 of the back panel 610 (S714, State 5). An adhesive can be applied to the side flaps 632, 634 of the bottom front panel 608 and to the left and right side flaps 620, 622 of the top front panel 606. The side flaps 632, 634 of the bottom front panel 608 are folded about longitudinal fold lines 648 and adhere to the left and right side flaps 628, 630, respectively, of the back panel 610 (S716, State 6). The left and right side flaps 620, 622 of the top front panel 606 are folded about longitudinal fold lines 640 and adhere to the left and right side flaps 628, 630, respectively, of the back panel 610 (S718, State 6). It is noted that the left and right side flaps 620, 622 of the top front panel 606 are planar with and do not overlap the side flaps 624, 626, respectively of the top panel 602 because of the pre-cut angles of their respective edges.

[0038] The outer box 102 is assembled from the outer box blank 500 by folding the left and right side flaps 534, 536 of the bottom back panel 510 about longitudinal fold lines 554 so that the left and right side flaps 534, 536 are substantially orthogonal to the bottom back panel 510 (S720). The left and right dust flaps 518, 520 of bottom panel 504 are folded over longitudinal fold lines 556 so that they are substantially planar with each other and parallel with the bottom panel 504 (S722, State 7).

According to an embodiment, adhesive can be applied to the left and right dust flaps 518, 520 so that they adhere to the bottom back panel 510 when folded. A lower section 505 of the outer box 102 including the bottom panel 504 and the bottom front panel 508 is folded about transverse fold line 544 so that the lower section 505 is substantially orthogonal to the bottom back panel 510 (S724, State 7). The assembled inner box 106 is placed within the area of the outer box 102 bounded by the left and right side flaps 534, 536 and the bottom panel 504 (S726, State 8). The bottom front panel 508 is folded over transverse fold line 546 so that the panel is substantially parallel with the bottom back panel 510 (S728, State 9). An adhesive can be applied to the left and right side flaps 530, 532 of the bottom front panel 508. The side flaps 530, 532 are then folded about longitudinal fold lines 558 and adhere to the left and right side flaps 534, 536, respectively, of the bottom back panel 510 (S730).

[0039] An upper section 503 of the outer box 102 including the top panel 502 and the top front panel 506 is folded about transverse fold line 540 so that the upper section 503 is substantially orthogonal to the bottom back panel 510 (S732, State 9). The left and right side flaps 526, 528 of the top back panel 512 are folded about longitudinal fold lines 552 so that they are planar with the left and right side flaps 534, 536, respectively, of the bottom back panel 510 (S734). It is noted that the angled edges of the left and right side flaps 534, 536 of the bottom back panel 510 and the angled edges of the left and right side flaps 526, 528, respectively, of the top back panel 512 are pre-cut so that they do not overlap and allow for opening of the hinged top 104 of the outer box 102. The top front panel 506 is folded about transverse fold line 538 so that the top front panel 506 is parallel with the bottom back panel 510 and planar with the bottom front panel 508 (S736, State 16). An adhesive is applied to the left and right side flaps 522, 524 of the top front panel 506. The left and right side flaps 522, 524 of the top front panel 506 are then folded about longitudinal fold lines 548 and adhere to the folded left and right side flaps 526, 528, respectively of the top back panel 512 (S738, State 10). According to another embodiment, the front flap 513 can be adhered to a back surface 147 of the top front panel 506 after being folded about the transverse fold line 539.

[0040] Fig. 6 shows an assembled packing 900 with an opening 908 in an inner box 904 located within an outer box 902. The outer box has a hinged lid 906 which when opened allows access to consumer items in the inner box 904.

[0041] Thus, it will be appreciated by those skilled in the art that the present invention can be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The presently disclosed embodiments are therefore considered in all respects to be illustrative and not restricted. The scope of the invention is indicated by the appended claims rather than the foregoing description and all changes that come within the meaning and range and equivalence thereof are intended to be embraced therein.

WHAT IS CLAIMED IS:

1. A box-in-box package comprising: a rigid outer box made of a foil lined paperboard having a hinged lid configured to provide access to an inner volume of the outer box; a rigid inner box made of a foil lined paperboard having a front wall, a back wall, a top wall, a bottom wall and side walls, a single opening extending across the top wall and part way down the front wall, the opening configured to provide access to consumer goods in an inner volume of the inner box; the opening in the inner box comprising a cut-out in the foil lined paperboard.
2. The box-in-box package of claim 1, wherein the foil lined paperboard includes a foil layer between a paper layer and a paperboard layer, an outer surface of the paper layer adhered to an inner surface of the foil layer by a first adhesive layer and an inner surface of the paperboard layer adhered to an outer surface of the foil layer a second adhesive layer.
3. The box-in-box package of claim 2, further comprising a polypropylene layer on an outer surface the paperboard layer.
4. The box-in-box package of claim 3, wherein the polypropylene layer comprises a polypropylene film.
5. The box-in-box package of claim 2, further comprising a polyester layer on an outer surface of the paperboard layer.
6. The box-in-box package of claim 5, wherein the polyester layer comprises a metallized polyester material.
7. The box-in-box package of claim 2, wherein the paperboard layer comprises solid bleached sulfate (SBS) board stock.
8. The box-in-box package of claim 2, wherein the first adhesive layer comprises sodium silicate.

9. The box-in-box package of claim 2, wherein consumer goods are contained in the inner box and the paper layer of the inner box is in direct contact with consumer goods within the inner box.
10. The box-in-box package of claim 2, wherein the inner box comprises a front panel, a top panel, a back panel, and a bottom panel.
11. The box-in-box package of claim 10, wherein the inner box further comprises side panels.
12. The box-in-box package of claim 10, wherein the front panel includes a top front panel and a bottom front panel.
13. The box-in-box package of claim 2, wherein the inner box contains cigarettes in direct contact with the paper layer of the inner box and the paper layer of the outer box.
14. The box-in-box package of claim 1, wherein the inner box includes a top front panel separated from a top panel by a first transverse fold line, a back panel separated from the top panel by a second transverse fold line, a bottom panel separated from the back panel by a third transverse fold line, and a bottom front panel separated from the bottom panel by a fourth transverse fold line.
15. The box-in-box package of claim 14, wherein the inner box includes a first side panel and a second side panel, and wherein the first side panel is separated from the back panel by a first longitudinal fold line, and the second side panel is separated from the back panel by a second longitudinal fold line.
16. A box blank configured to form the outer box of the box-in-box package of claim 1, wherein the box blank is made of foil lined paperboard, the foil lined paperboard including a paper layer, a foil layer and a paperboard layer, an outer surface of the paper layer adhered to an inner surface of the foil layer and an inner surface of the paperboard layer adhered to an outer surface of the foil layer, the

inner surface of the foil layer adhered to the outer surface of the paper layer by a first adhesive layer and the inner surface of the paperboard layer adhered to the outer surface of the foil layer by a second adhesive layer.

17. The box blank of claim 16, further comprising a polypropylene layer on an outer surface of the paperboard layer.

18. The box blank of claim 17, wherein the polypropylene layer comprises a polypropylene film.

19. The box blank of claim 16, further comprising a polyester layer on an outer surface of the paperboard layer.

20. The box blank of claim 16, wherein the paperboard layer comprises solid bleached sulfate (SBS) board stock.

21. The box blank of claim 16, wherein the second layer further comprises sodium silicate between the foil layer and the paper layer.

22. The box blank of claim 16, comprising fold lines forming panels of a body portion and a lid portion, the body portion including a front panel, a bottom panel, a back panel, side panels and dust flaps, and the lid portion including a front panel, top panel, back panel, side panels and dust flaps.

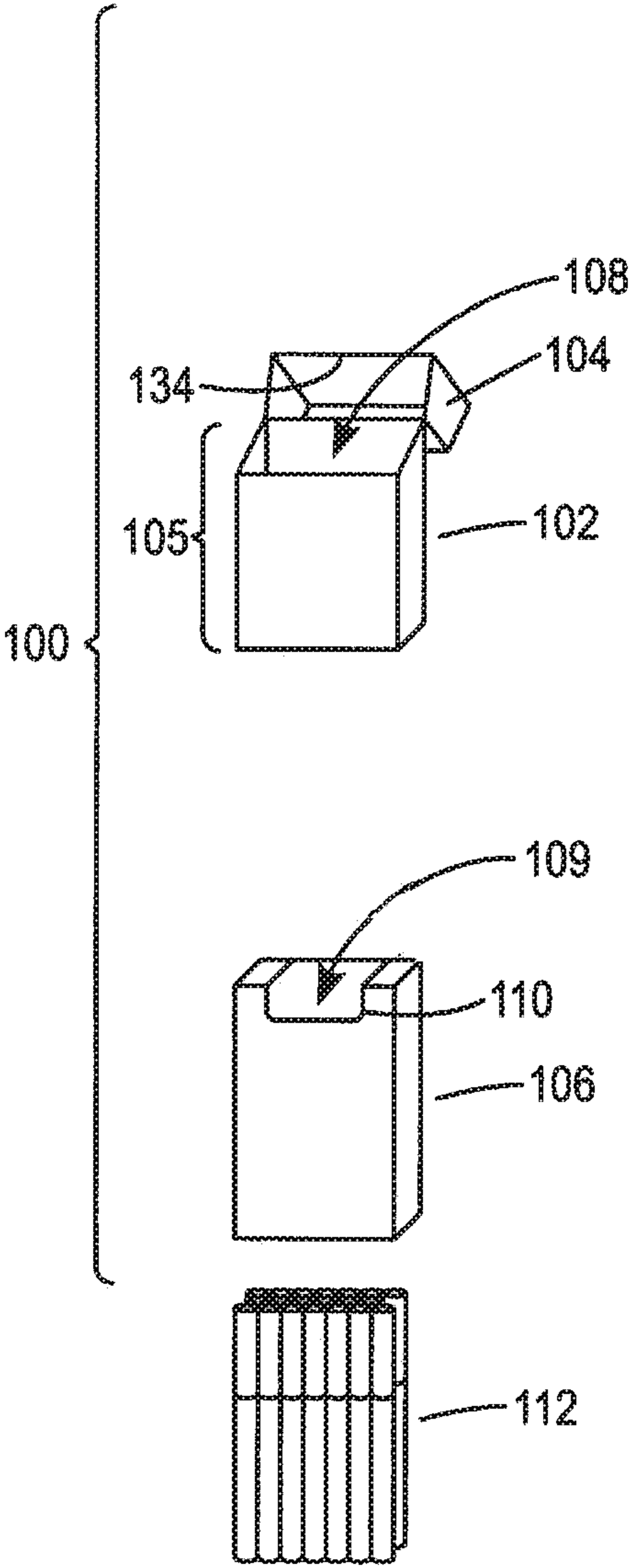


FIG. 1

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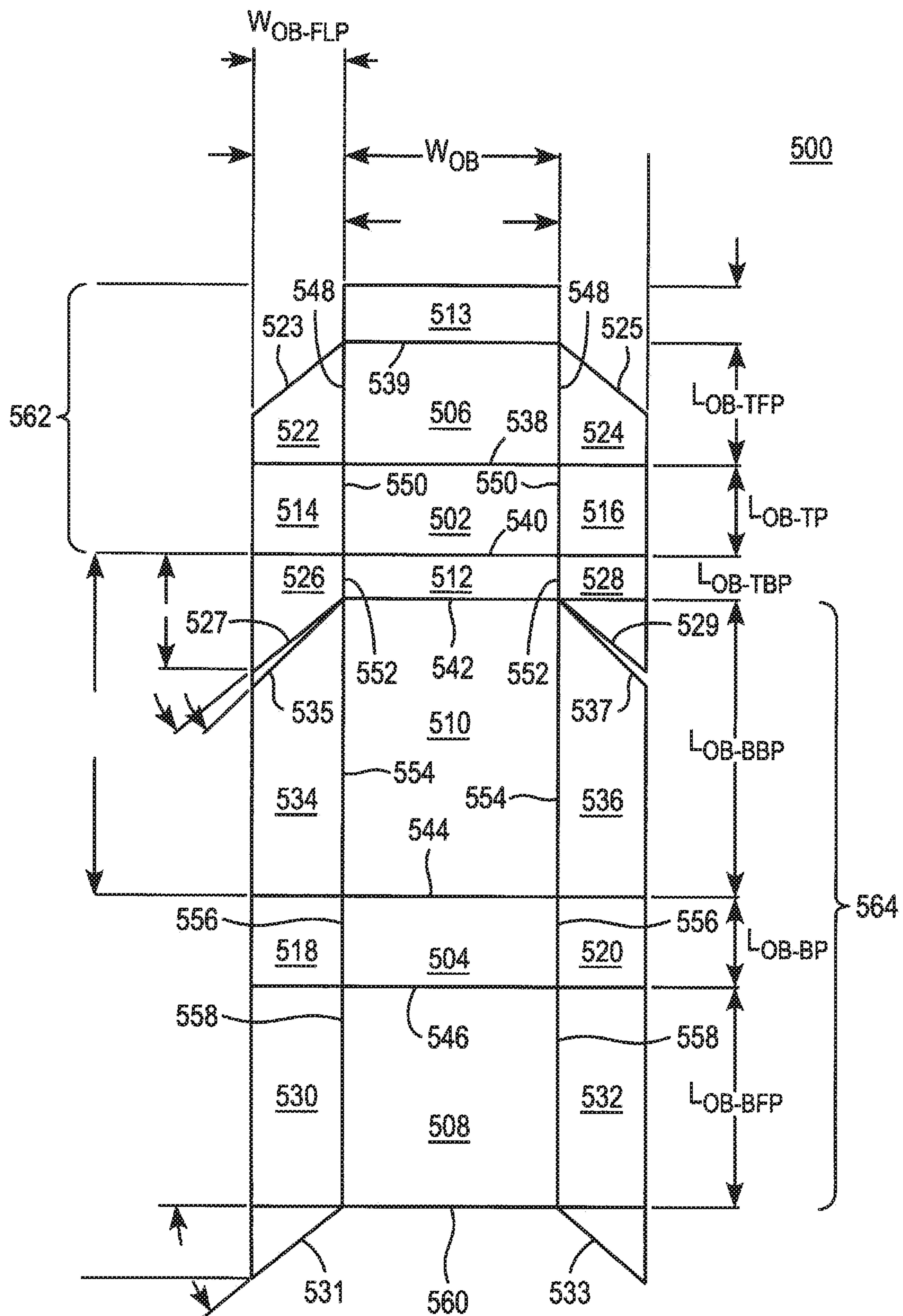


FIG. 2

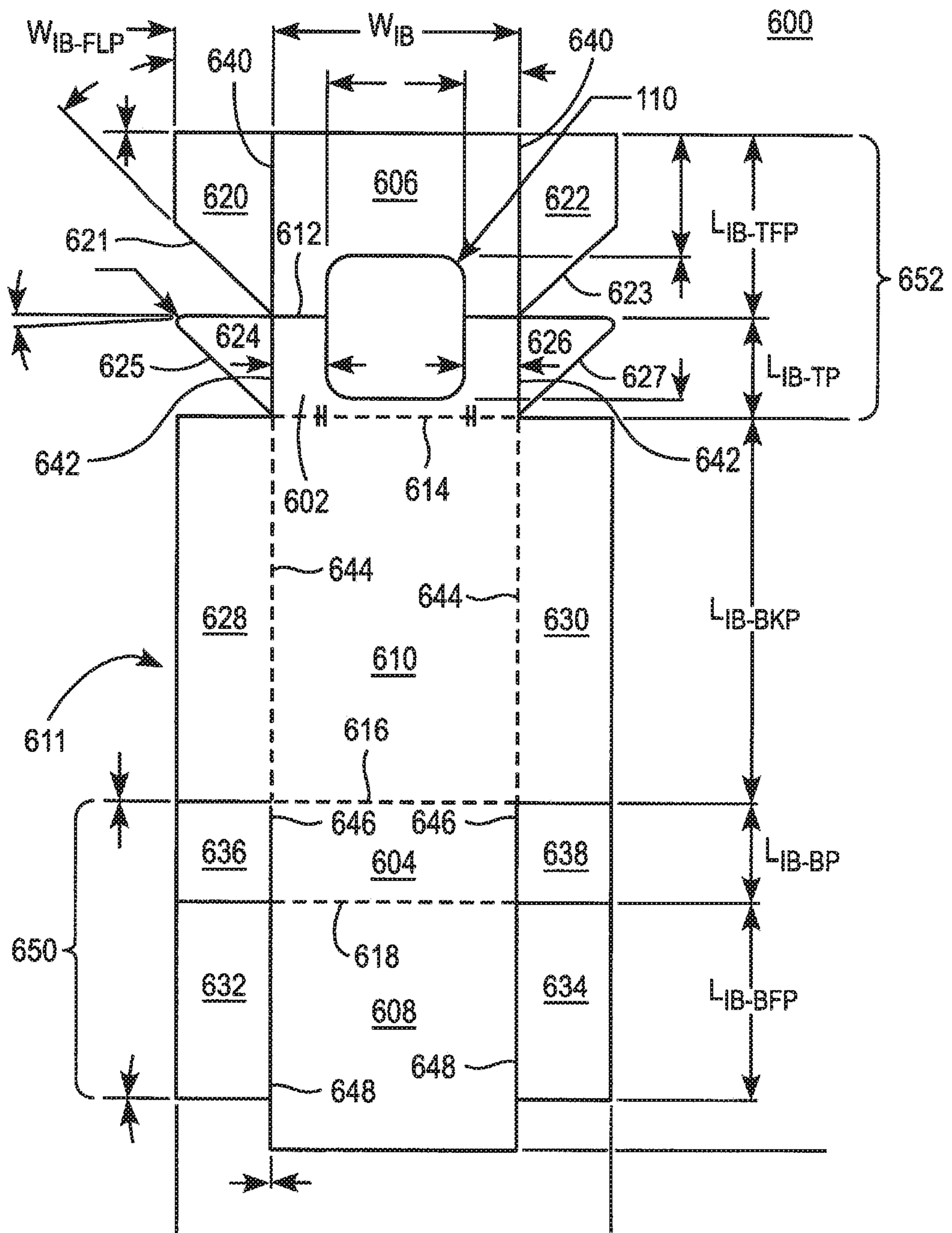


FIG. 3

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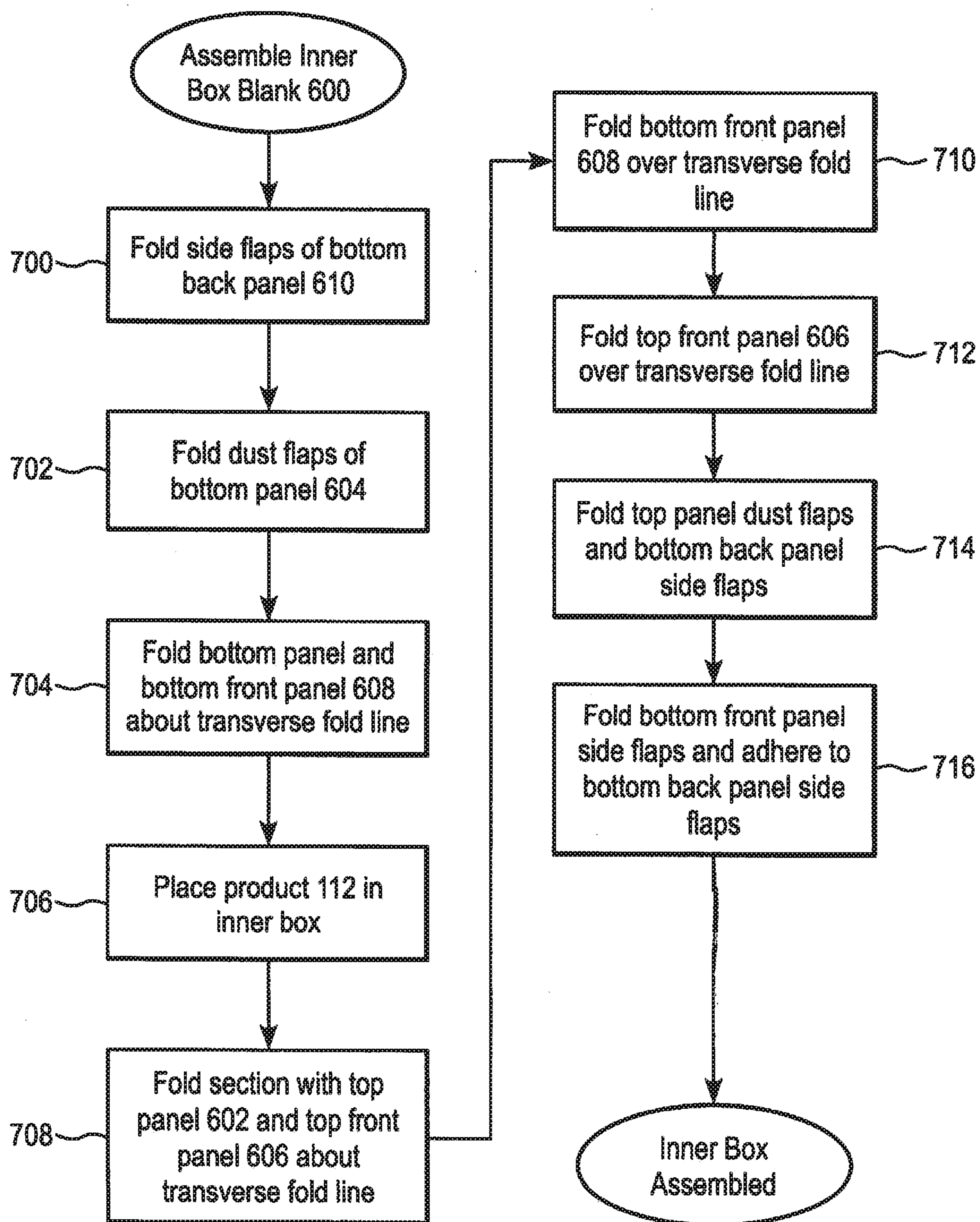


FIG. 4a

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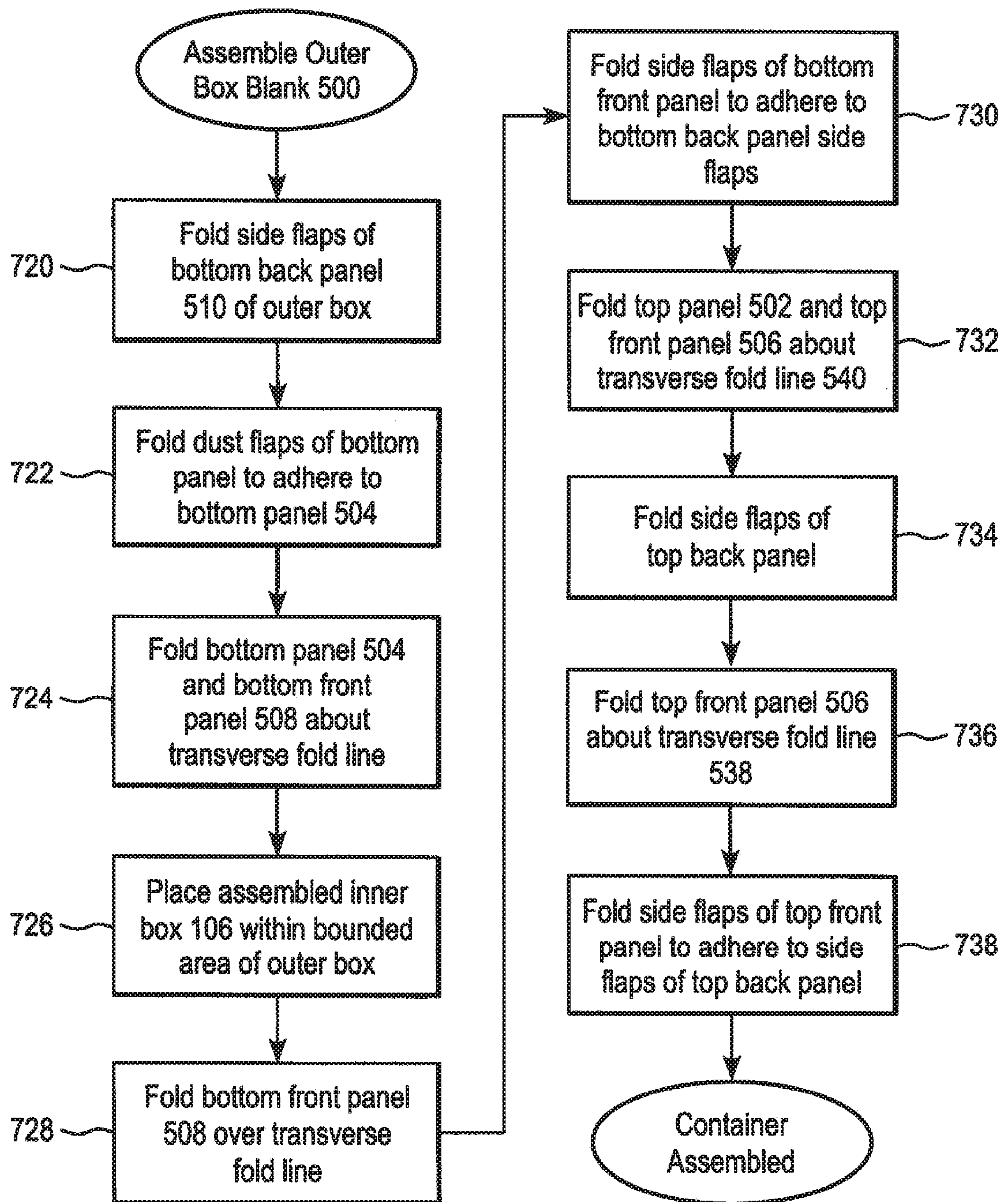
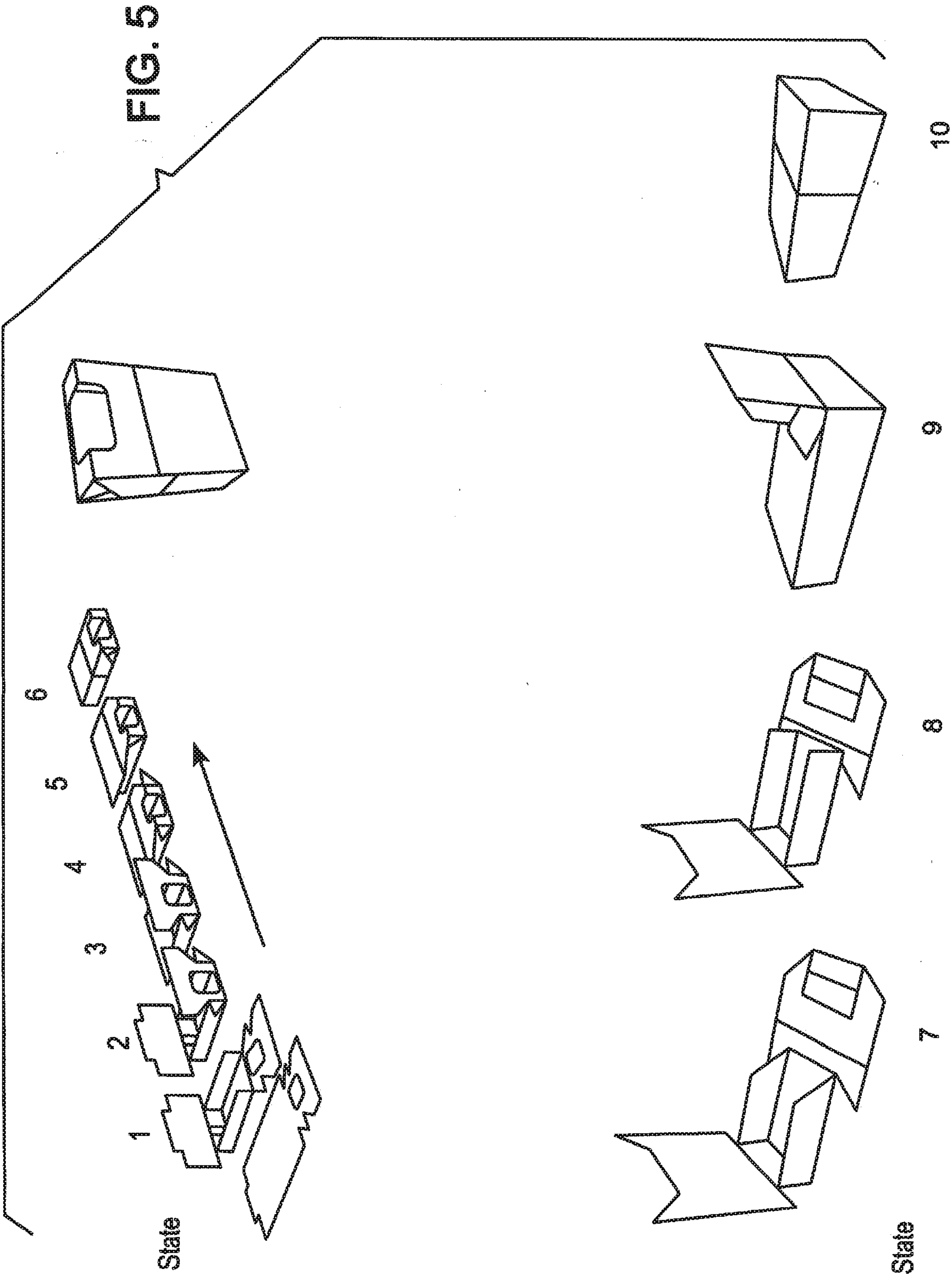


FIG. 4b



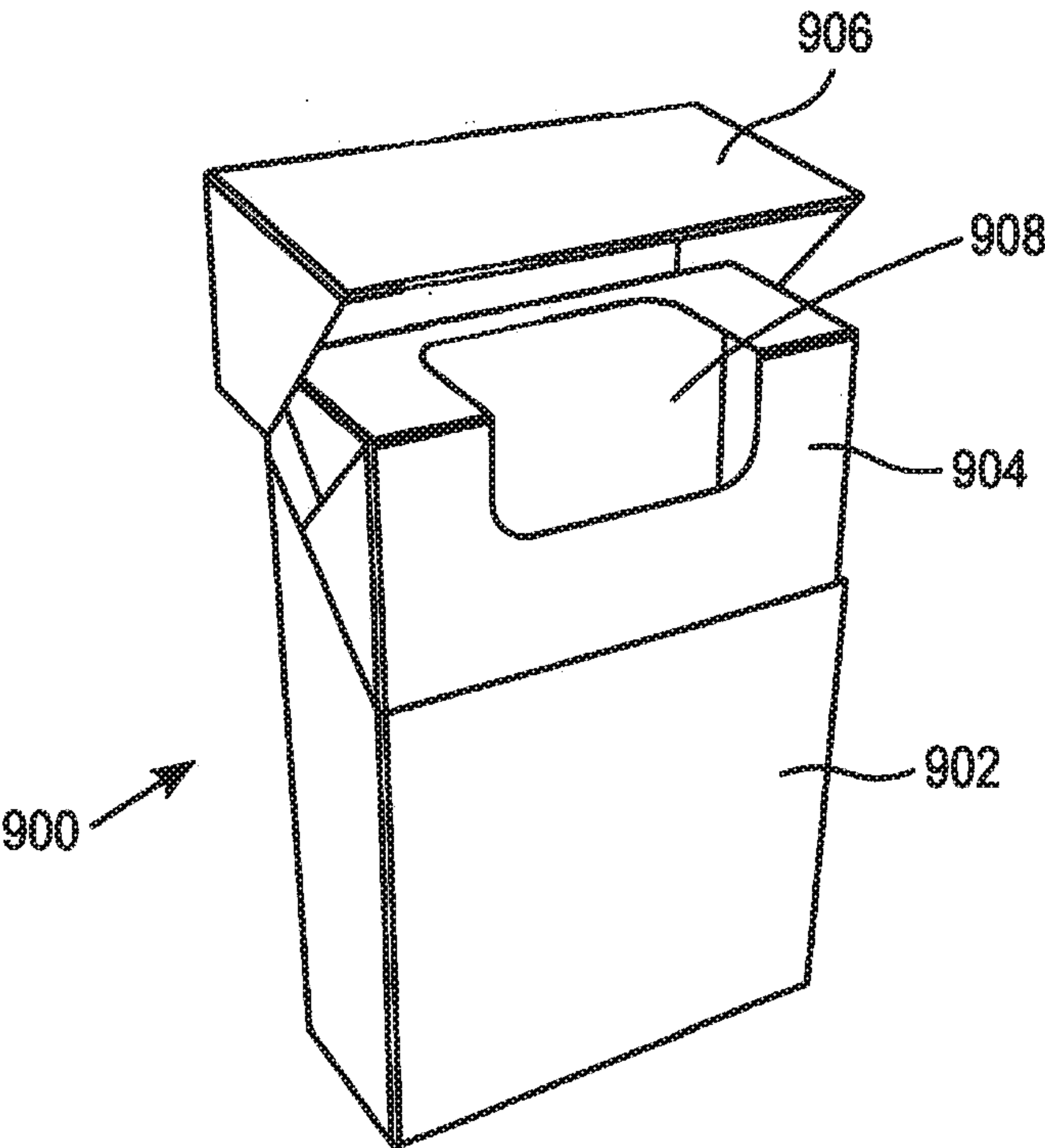


FIG. 6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2020/052188

A. CLASSIFICATION OF SUBJECT MATTER

IPC: B65D 85/10, 65/40

CPC: B65D 85/10, 65/40

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)

CPC: B65D 85/10, 65/40/IPC: B65D 85/10, 65/40

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)

US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT, IBM_TDB: foil, with, paper, with, same, cigarette, tobacco, pp, metalized, near, polyester, solid, bleached, sulfate, sodium, and, adhesive, paperboard, aluminum, laminate, box, inner, rigid, outer, receptacle, container, lined, cardboard

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 8,123,030 B2 (HEIN) 28 February 2012 (28.02.2012) , See entire documents.	1-20
Y	US 3,558,036 A (JOHN M. DEVOE) 26 January 1971 (26.01.1971) , See entire documents.	1-20
Y	US 2,329,908 A (C. E. JOHNSON) 21 September 1943 (21.09.1943) , See entire documents.	2-9, 10-13, 16-19, and 20-22
Y	US 2018/0265273 A1 (CAILLEAUX) 20 September 2018 (20.09.2018) , See entire documents.	3-6, and 17-19
Y	US 6,688,515 B1 (HUFFMAN ET AL.) 10 February 2004 (10.02.2004) , See entire documents.	7, and 20
Y	US 8,389,079 B2 (BABINSKY ET AL.) 05 March 2013 (05.03.2013) , See entire documents.	8, and 21

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"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

21 November 2020 (21.11.2020)

Date of mailing of the international search report

30 NOV 2020

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Telephone No. 571-272-4300

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2020/052188

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,444,308 A (MACEWEN) 24 April 1984 (24.04.1984) , See entire documents.	1-20
A	US 4,300,676 A (FOCKE ET AL.) 17 November 1981 (17.11.1981) , See entire documents.	1-20