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(54) **FLEXIBLE FILM CONTAINER**

FLEXIBLER FOLIENBEHÄLTER

RÉCEPTACLE À FILM FLEXIBLE

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Description

[0001] This application is directed to containers and more particularly to containers constructed of flexible film.

BACKGROUND

[0002] Candy and other small or bite-size products like nuts and mints are typically sold in multi-piece packages. In many cases, the package is designed for bulk sale of the product to the consumer rather than as a single serving size, although in some cases the individual product may still be separately wrapped prior to being placed in the package.

[0003] Historically, the packaging of multi-piece units, particularly for candy, was primarily accomplished through the use of paper bags or metal tins. More recently, plastic bags, and more particularly the plastic bag often referred to as a pillow pack or a lay-down bag has become the industry standard. While pillow packs are advantageous because they are relatively easy and inexpensive to manufacture, they have numerous drawbacks for both the retailer and the consumer.

[0004] Among the drawbacks faced by the retailer with pillow packs is that they are difficult to stack in a way that does not easily fall over in a retail setting where consumers are reaching in and out of shelves. As a result, it can be difficult for the retailer to present the product in a way that does not look disheveled and/or which does not require frequent attention by the retailer's staff.

[0005] Furthermore, the portion of the pillow pack most easily seen by the consumer is its narrow sides; the major surfaces of the package that provide the greatest area for graphics face toward the top of the shelf. The reduced space for advertisements and branding can mean a lost opportunity to achieve a sale through brand recognition or a promotion advertised on the package. Likewise, the consumer must look more carefully to find his or her brand of choice on the store shelf, and may give up if the product cannot be found quickly.

[0006] US 2010/0140129 discloses a flexible, stackable container comprising a central container body made of a flexible film and having fitments for closing the top and base sides of the container. The end fitments are rigid elements made by injection moulding of a hard plastic material.

[0007] DE 1454953 discloses a bag-like container comprising a tube made of plastic foil or paper. The bottom of the container is made of aluminum foil or plastic-coated cardboard. The bottom is drawn into and attached to the tube to form a rim projecting from the bottom.

[0008] US 1,955,851 discloses a food package which comprising end caps of heavy paper or cardboard which are held together in spaced relation by the contents of the package and are secured together by a tube of a very light sheet of flexible material. Rims of the end caps extend toward the interior of the package.

[0009] Among drawbacks faced by consumers with current pillow packs is that the consumer faces many of the same problems regarding stackability and storage of the product on the pantry shelf that the retailer encounters with the store shelf. Other disadvantages faced by the consumer with the pillow packs currently used for candy packaging include difficulty in opening the package and additional storage problems after the package is opened.

[0010] These and other drawbacks are found in current product packaging.

SUMMARY OF THE INVENTION

[0011] According to the present invention, a flexible film container is provided as defined in claim 1. The flexible film containers are self-supporting despite being formed of flexible film. That is, they do not require a rigid support placed within the container or in forming the side walls of the container to maintain its shape.

[0012] The flexible film container comprises a container top, a container base, and a container body that connects the container top to the container base. The container body has at least three discrete sidewalls and is formed of a continuous web of a flexible film. In some embodiments, the container body includes one or more pleats formed in the side walls of the container to provide stanchions that help support the container. The container is a three piece construction.

[0013] A process for manufacturing a flexible film container is described for illustration purposes, but is not part of the invention. The process comprises providing a web of flexible film, sealing a first end of the flexible film to an opposing end of the flexible film to create a continuous container body, forming at least three discrete side walls in the continuous container body, attaching a container top to the container body, attaching a container base to container body, and filling the container body with container contents.

[0014] An advantage is that the flexible film container has a semi-rigid structure that is self-supporting and does not rely on or require the use of a tray, carton, or other support positioned within the container, nor does it need to be used in combination with cardboard or other rigid supporting structure to form the sides of the container.

[0015] Another advantage is that the compact size and shape provides for improved shelf efficiency, both in retail and in pantry storage.

[0016] Yet another advantage is that the upright configuration of the container improves shelf appeal and the ability of consumers to easily find the product by increasing the space for graphics.

[0017] Still another advantage of certain embodiments which use a resealable lid is that the container may better prevent spilling, maintain product freshness, and provide for an easily portable package that can also serve as a casual serving dish.

[0018] Other advantages of the present invention will be apparent from the following more detailed description

of exemplary embodiments, taken in conjunction with the accompanying drawings which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWING

[0019]

Figure 1 is a perspective view of a flexible film container in accordance with an exemplary embodiment.

Figure 2a is a schematic cross-sectional view of the flexible film container of Figure 1, while Fig, 2a-2 is an exploded view. Figures 2a-1 and 2a-3 are views of alternative configurations, which are not part of the invention.

Figure 2b is an exploded view of the flexible film container of Figure 1.

Figure 3 is a schematic pictorial and textual illustration of a process for manufacturing the flexible film container of Figure 1.

Figure 4 is a perspective view of a flexible film container in accordance with an exemplary embodiment.

Figure 5a is a view of a container configuration, which is not part of the invention.

Figure 5b is an exploded view of the flexible film container of Figure 4, including an enlarged view of a pleat formed in the container body.

Figure 6 is a schematic pictorial and textual illustration of a process for manufacturing the flexible film container of Figure 4.

Figure 7a is a schematic illustration of a process for manufacturing a flexible film container using a vertical arrangement.

Figure 7b is a schematic illustration of another process for manufacturing a flexible film container.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0020] Provided is a flexible film container and method of making such a container. The container has the ability to be self-supporting and does not suffer from the drawbacks frequently experienced with known packaging designs.

[0021] Figure 1 illustrates a perspective view of a flexible film container 100 in accordance with an exemplary embodiment. As better seen in the schematic cross-sectional illustration of Figure 2a and the exploded view of Figure 2b, the flexible film container 100 includes a top 110, a base 130 and a body 120 that is intermediate to, and connects, the top 110 to the base 130. The top 110 and base 130 are formed as individual, discrete elements that are subsequently joined to the body 120 to form the container 100.

[0022] Still referring to Figures 1, 2a and 2b, the body 120 of the container 100 is multi-sided, so that the container 100 has at least three discrete sidewalls 121. In a typical embodiment, the body 120 has four discrete sidewalls 121, such that the container 100 is a rectangular solid. The body 120 is constructed from a continuous web of film material connected at opposing ends using, for example, a heat seal or weld lap joint.

[0023] The flexible film used for the container body 120 is any suitable thin film for use in packaging. In accordance with exemplary embodiments, very thin films may be used to form the container body 120 and/or other elements of the container 100, while still providing a container that is semi-rigid and self-supporting. The film may have a thickness in the range of between about 25 microns and about 250 microns, more typically between about 75 microns and about 150 microns.

[0024] The film may be a single layer of film material. In some embodiments, the film may instead be a composite or laminate film of multiple layers. One or more such layers may be provided as a barrier layer to preserve freshness of the container contents. Suitable materials for use in the film, either as a single layer or as a component of a multi-layer film include, for example, ethylene vinyl alcohol copolymer, polyamide, polyacrylonitrile, polyethylene terephthalate, polyalkene (polyolefin), polylactic acid (PLA), cellophane, and bioplastic-based film. It will be appreciated that in some cases, selection of particular film materials and/or the order in which those materials are arranged in a laminate film may depend on the particular contents to be stored in the container 100. For example, it may be desirable to achieve a permeability for a container used to store chocolate that is different than if the contents are to be nuts or dried fruit.

[0025] The base 130 provides a bottom to the container 100 (see, for example, Figure 2b). The base 130 is formed as a discrete element from the container body 120 and is also formed from flexible film. The characteristics of the types of flexible films that may be used to form the base 130 are those as described above with respect to the container body 120.

[0026] The base 130 includes a rim 132 that extends about the periphery of the base 130 and provides a surface coextensive with the lower edge of the body 120. The base rim 132 can thus aid in the manufacture of the container 100 by providing an overlapping surface by which the base 130 can be joined to the body 120 to form a seam. The increased thickness of the subsequently formed seam where the base rim 132 meets the body 120 aids in rendering the container 100 self-supporting.

[0027] The base 130 may be attached to the body 120

by a heat seal, weld lap joint, or some other method of heat sealing the base rim 132 to the body 120. As best seen in Figure 2a, the base is sized such that the base rim 132 is positioned on the inner surface of the body 120.

[0028] As also seen in Figure 2a, the base rim 132 is shown extending toward the space defined by the container 100. This provides a flat bottom to the container 100, resulting in better stacking and increased headspace.

[0029] The container 100 also includes a top 110. Like the base 130, the top is formed as a discrete element from the container body 120 and is typically also formed of flexible film.

[0030] The top 110 includes an aperture for consumers to access the contents of the container 100. The aperture may be formed in the top 110 during manufacture. Alternatively, the aperture to access the container contents may be accomplished by the consumer by virtue of removing a perforated portion 112 formed in the top 110. The use of a perforated portion 112 can be used to provide evidence of tampering or other access to the container contents prior to that of the consumer that purchased the product.

[0031] In some embodiments, the top 110 may include a lid 115, also typically formed of a flexible film. The lid 115 may include a tab 117 and can be attached to the top 110 by an adhesive so that it can be peeled or otherwise removed from the top 110 to expose the aperture formed in the top 110 (or to expose the perforated portion 112 to be removed to form the aperture) of the container 100 for access to the container contents. The lid 115 may be attached and configured to be permanently removed from the container 100. Alternatively, the lid 115 may be resealable. The use of a resealable lid can maintain better freshness of the container contents and prevent spills. In embodiments using a resealable lid 115, one or more edges or corners of the lid 115 are permanently attached to the top 110, while one or more other edges or corners of the lid 115 are removably attached to the top 110 by an adhesive or other element that permits repeated opening and re-sealing of the lid 115 to the top 110. It will further be appreciated that in some embodiments, the lid 115 may be formed integral with the top 110 to accomplish the permanent attachment of the lid 115 to the top 110 (See Figure 4).

[0032] As further shown in Figure 2b, the top 110 includes a top rim 114 to provide a surface coextensive with the upper edge of the container body 120 to join the top 110 to the container body 120 by heat sealing or forming a weld lap joint, or other suitable method of joining the two elements 110, 120 of the container 100. As seen in Figure 2a, the top rim 114 is positioned vertically and extends away from the container 100, with the upper edge 124 of the container body 120 folded over the top rim 114, such that the seam thickness is that of the thickness of the film used for the top 110 plus twice the thickness of the film used for the body 120. Additional folds may be introduced into the top rim 114, base rim 132 or container body 120 to increase the thickness of the seams. As shown in the alternative construction illustrated in Figure 2a-2, the upper edge 124 of the container body 120 is joined to the top rim 114 by a seam without doubling over the upper edge 124 of the body 120.

[0033] The adjacent surfaces of the container elements 110, 120, 130 that form the upper and lower container seams 117, 137 are shown in the schematic of Figure 2a-2 and 2a-3 with spaces between them for the purpose of exaggerated illustration of the discrete nature of the elements. However, it will be appreciated that sealing those adjacent surfaces results in intimate contact and an integration of the elements at the point of sealing to form the seam. The seam typically extends about the entire perimeter of the packaging to ensure a complete seal. The seams provide additional structure to the container 100 such that the container top 110 and bottom 130 work together when attached to the container body 120 to render the container self-supporting despite being constructed of a flexible film.

[0034] Turning to Figures 4, 5a and 5b, the flexible film container 100 illustrated here includes pleats 125, which are overlapping folds formed in the container body 120. The pleats 125 are arranged as stanchions, positioned in a substantially vertical manner and which add strength to the container 100. The pleats 125 thus aid in making the container 100 self-supporting, particularly in embodiments in which the container 100 has a height that approaches or exceeds that of the length or width dimension of the container 100. As shown, the pleats 125 are formed in the sidewalls 121 of the body 120, positioned adjacent and on each side of the corners 126 of the body 120. However, the pleats 125 may be formed directly in the corners 126 or near the middle of the side wall 121, away from the corners 126. In some cases, it may be desirable to introduce some combination of pleats 125 at various locations of the body 120.

[0035] The embodiment illustrated in Figures 4, 5a and 5b is also a rectangular solid, in this embodiment being substantially cubic, having a slight taper from top to bottom, such that the area of the base 130 is less than the area of the top 110. However, the container may also taper from bottom to top. The use of a taper may further enhance the container's self supporting characteristics and its stackability. Depending on the angle of the taper, the flexible film used to form the container body 120 may be adjusted by cutting, folding or other manipulation to account for less material being needed at the end of the container having the smaller area.

[0036] Alternatively, in some embodiments the container has no taper in either direction, having sidewalls 121 that are fully vertically oriented, such that the body 120 is perpendicular to each of the top 110 and base 130. Although the embodiment shown in Figures 4-5b illustrates both pleats and a tapered body, it will be appreciated that these features are not required to be used in combination.

[0037] In addition to the illustrated rectangular solid ge-

ometries, the container 100 can have any multi-sided geometry and in one embodiment is a prism. That is, the top 110 and base 130 can be polygons that form two congruent parallel or substantially parallel bases that are joined by the container body 120. The multiple sides of the body 120 can be formed, for example, by creasing the film when making the container body 120 and/or when forming the seams that attach the body 120 to the top 110 and base 130, which further serve to hold the body 120 in the particular geometric configuration desired.

[0038] Exemplary embodiments thus result in a flexible film container 100 that, despite being formed of a flexible film, is retained in an orientation by the interconnection of the top and bottom members 110, 130 with the body 120 that renders it semi-rigid and self-supporting. The container 100 so constructed is stackable and retains its shape, even when empty. As a result, containers 100 in accordance with exemplary embodiments do not require the use of trays, cartons or other rigid support, either within the container or in the formation of the container body 120. Such containers 100 are stackable and provide a better shelf presence, including more space for graphics and other branding elements. The shape and construction of the container 100 also allows it to conveniently be used as a casual serving dish from which its contents may be consumed directly.

[0039] As shown in Figures 1 and 4, the container 100 may bear graphics or other indicia printed thereon to identify and market the product being sold. In one embodiment, at least a portion of the container 100 is transparent to permit a consumer to view the contents within the container 100. In certain embodiments, the container body 120 and/or the top 110 and/or the base 130 may be constructed entirely of a transparent flexible film, such that the full contents of the container 100 can be viewed except for portions obscured by graphics or labeling information. Alternatively, some or all of the container 100 may be formed of a translucent or opaque film.

[0040] Containers in accordance with exemplary embodiments can be made in any suitable manner to carry out the cutting, folding and seam forming steps described herein. Turning to Figures 3 and 6, exemplary processes for making the containers of Figures 1 and 4, respectively, are schematically illustrated, which may be carried out in an automated and/or continuous manner. A length of film is cut from a reel, which is used to form the container body 120 as step s301/s601. The film is generally first formed into a circular shape by wrapping a first end of the film around to meet the opposing second end, followed by shaping the circular film body into the multi-sided body having the desired number of sidewalls 121. As shown in Figure 6, in embodiments in which the body 120 contains pleats 125, the pleats 125 are formed at step s603. Pleat formation involves various steps of folding and overlapping the film as the film is formed into the body 120 having the desired shape. In either case (with or without pleats), the body 120 is sealed to hold it in its enclosed formation at step s305/s605, which may be accomplished after the desired shape of the body 120 is realized, particularly in embodiments in which pleats 125 are formed in the sidewalls 121 of the body 120.

[0041] The top 110 or base 130 is thereafter attached to the container body 120, which may occur by heat sealing the top 110 or base 130 to the container body 120 at step s307/s607 to form the seam as previously described. This creates a container 100 having one unopened side for filling with the container contents at step s309/s609. The contents may be filled by jumble packing from a hopper; alternatively, the contents may be filled by placement of the contents in a predetermined, specific arrangement. In some embodiments, it may be desirable to fill the container to about 95% of its volume for better stacking of full containers.

[0042] In the process illustrated in Figures 3 and 6, the top 110, cut and formed from a separate film reel, is sealed to the container body 120 first (s307/s607), followed by filling the container 100 with its contents through the still-open bottom of the container (s309/s609). The base 130, cut and formed from another separate film reel, is then placed and sealed to create the finished product (s311/s611), which is ready for packing, delivery and sale.

[0043] Prior to attaching the base 130 and sealing the contents within the container 100 (until subsequently opened by the consumer), it may be desirable to introduce a gas into the container 100. In some cases, the gas may be used to pressurize the container 100 to give it further rigidity and protect the contents during shipping and handling. It may be desirable to introduce a gas to the container 100, such as nitrogen, that does not contain oxygen. This reduces or eliminates the amount of oxygen within the container 100 and maintains the freshness of its contents.

[0044] Figures 7a and 7b illustrate alternative continuous processes for manufacturing flexible film containers 100 using a vertical fill. The processes are not part of the present invention. Referring to Figure 7a, the flexible film forming the container body 120 is formed around and pulled along a square mandrel 710, with the film secured to itself by a heat seal or other method of forming a seam. At the mandrel base 715, which also serves as the fill outlet for the container contents, the base 130 (or alternatively the top 110) is applied, followed by filling the container 100 with its contents. The top 110 (or alternatively the base 130) is then attached to complete the container construction. In some embodiments, the mandrel may be heated, which can further assist in imparting shape to the container body 120 and may also provide better sealing when the seams are formed to secure ends of the container body 120 and to secure the container body 120 to the top 110 and base 130.

[0045] Figure 7b illustrates a process similar to that shown and described in Figure 7a, but using a two piece construction. Here, the base 130 is illustrated as being formed and sealed using a gusseted arrangement such that the flexible film used to form the base 130 is contig-

uous with the flexible film used to form the container body 120, which is still formed by pulling the film along the square mandrel 710. After the base 130 is formed, the container 100 is filled and the top 110 is applied.

Claims

1. A flexible film container comprising:

a container top (110);
a container base (130);
a container body (120) connecting the container top (110) to the container base (130), the container body (120) having at least three discrete sidewalls (121) and formed of a continuous length of a flexible film, the container top (110) and container base (130) being attached to the container body (120) in a manner to render the flexible film container self-supporting,
wherein the container top (110), the container base (130) and the container body (120) are discrete elements each formed of a flexible film,
wherein the container top (110) includes a top rim (114) positioned vertically and extending away from the container (100), with the upper edge (124) of the container body (120) being joined to the top rim (114) by a seam,
wherein the container base (130) comprises a base rim (132) extending about the periphery of the base and into a space defined by the container, the base rim (132) forming a seam with the container body (120) and an increased thickness of the seam aiding in rendering the container self-supporting and wherein the container base (130) is formed to provide a flat bottom of the container.

2. The flexible film container of claim 1, wherein the container top (110) includes a resealable lid (115) attached thereto.

3. The flexible film container of claim 1, wherein the container body (120) includes a pleat (125) formed in a sidewall, preferably in a sidewall adjacent a corner (126) of the container body (120).

4. The flexible film container of claim 1, wherein the container body (120) includes a pleat (125) formed in a corner (126) of the container body (120).

5. The flexible film container of claim 1, wherein the container body (120) tapers from the container top (110) to the container base (130) or from the container base (130) to the container top (110).

6. The flexible film container of claim 1, wherein the container body (120) has four discrete sidewalls (121).

7. The flexible film container of claim 6, wherein the flexible film container is a rectangular solid, preferably cubic.

8. The flexible film container of claim 1, wherein the flexible film container is a prism.

9. The flexible film container of claim 1, wherein the container top (110) has a resealable lid (115) and the container body (120) has four discrete sidewalls (121) and connects the container top (110) to the container base (130),
an upper portion of the container body (120) being sealed to the container top rim (114) and a lower portion of the container body (120) being sealed to the container base rim (132).

10. The flexible film container of claim 1, wherein the flexible film has a thickness of between 25 and 250 microns.

11. The flexible film container of claim 10, wherein the flexible film has a thickness of between 75 and 150 microns.

12. The flexible film container of claim 1, wherein the upper edge (124) of the container body (120) is folded over the top rim (114), such that the seam thickness is that of the thickness of the film used for the container top (110) plus twice the thickness of the film used for the body (120).

13. The flexible film container of claim 1, wherein the top rim (114) provides a surface coextensive with an upper edge of the container body.

Patentansprüche

1. Flexibler Folienbehälter, umfassend:

ein Behälteroberteil (110);
ein Behälterunterteil (130);
einen Behälterkörper (120), der das Behälteroberteil (110) mit dem Behälterunterteil (130) verbindet, wobei der Behälterkörper (120) mindestens drei einzelne Seitenwände (121) aufweist und aus einem durchgängigen Stück einer flexiblen Folie gebildet ist, wobei das Behälteroberteil (110) und das Behälterunterteil (130) an dem Behälterkörper (120) so befestigt sind, dass der flexible Folienbehälter selbsttragend wird,
wobei das Behälteroberteil (110), das Behälterunterteil (130) und der Behälterkörper (120) einzelne Elemente sind, die jeweils aus einer

flexiblen Folie geformt sind,
wobei das Behälteroberteil (110) einen Oberteilrand (114) aufweist, der senkrecht und vom Behälter (100) weg verlaufend platziert ist, wobei die Oberkante (124) des Behälterkörpers (120) über einen Falz mit dem Oberteilrand (114) verbunden ist,
wobei das Behälterunterteil (130) einen Unterteilrand (132) umfasst, der um den Umfang des Unterteils herum und in einen von dem Behälter definierten Raum hinein verläuft, wobei der Unterteilrand (132) einen Falz mit dem Behälterkörper (120) bildet und eine stärkere Dicke des Falzes dazu beiträgt, den Behälter selbsttragend zu machen, und wobei das Behälterunterteil (130) so geformt ist, dass es einen flachen Boden des Behälters bildet.

2. Flexibler Folienbehälter nach Anspruch 1, wobei das Behälteroberteil (110) einen daran angebrachten wiederverschließbaren Deckel (115) aufweist.

3. Flexibler Folienbehälter nach Anspruch 1, wobei der Behälterkörper (120) eine in einer Seitenwand, vorzugsweise in einer Seitenwand angrenzend an eine Ecke (126) des Behälterkörpers (120) ausgebildete Falte (125) aufweist.

4. Flexibler Folienbehälter nach Anspruch 1, wobei der Behälterkörper (120) eine in einer Ecke (126) des Behälterkörpers (120) ausgebildete Falte (125) aufweist.

5. Flexibler Folienbehälter nach Anspruch 1, wobei der Behälterkörper (120) vom Behälteroberteil (110) zum Behälterunterteil (130) oder vom Behälterunterteil (130) zum Behälteroberteil (110) hin schmaler wird.

6. Flexibler Folienbehälter nach Anspruch 1, wobei der Behälterkörper (120) vier einzelne Seitenwände (121) aufweist.

7. Flexibler Folienbehälter nach Anspruch 6, wobei der flexible Folienbehälter ein rechteckiger, vorzugsweise kubischer, Körper ist.

8. Flexibler Folienbehälter nach Anspruch 1, wobei der flexible Folienbehälter ein Prisma ist.

9. Flexibler Folienbehälter nach Anspruch 1, wobei das Behälteroberteil (110) einen wiederverschließbaren Deckel (115) aufweist und der Behälterkörper (120) vier einzelne Seitenwände (121) aufweist und das Behälteroberteil (110) mit dem Behälterunterteil (130) verbindet,
wobei ein oberer Abschnitt des Behälterkörpers (120) dicht am Behälter-Oberteilrand (114) angebracht ist und ein unterer Abschnitt des Behälterkörpers (120) dicht am Behälter-Unterteilrand (132) angebracht ist.

10. Flexibler Folienbehälter nach Anspruch 1, wobei die flexible Folie eine Dicke zwischen 25 und 250 Mikrometern aufweist.

11. Flexibler Folienbehälter nach Anspruch 10, wobei die flexible Folie eine Dicke zwischen 75 und 150 Mikrometern aufweist.

12. Flexibler Folienbehälter nach Anspruch 1, wobei die Oberkante (124) des Behälterkörpers (120) derart über den Oberteilrand (114) gelegt ist, dass die Falzdicke die Dicke der für das Behälteroberteil (110) verwendeten Folie plus zweimal die Dicke der für den Körper (120) verwendeten Folie ist.

13. Flexibler Folienbehälter nach Anspruch 1, wobei der Oberteilrand (114) eine Fläche bereitstellt, die mit einer Oberkante des Behälterkörpers flächengleich ist.

Revendications

1. Boîte en film flexible, comprenant :

une partie supérieure de boîte (110) ;
une base de boîte (130) ;
un corps de boîte (120) reliant la partie supérieure de boîte (110) à la base de boîte (130), le corps de boîte (120) présentant au moins trois parois latérales (121) individuelles et étant réalisé à partir d'un tronçon ininterrompu d'un film flexible, la partie supérieure de boîte (110) et la base de boîte (130) étant fixées au corps de boîte (120) de manière à rendre la boîte en film flexible autoporteuse,
la partie supérieure de boîte (110), la base de boîte (130) et le corps de boîte (120) étant des éléments individuels qui sont chacun réalisés en un film flexible, la partie supérieure de boîte (110) présentant un bord de partie supérieure (114) agencé verticalement et s'étendant en éloignement de la boîte (100), l'arête supérieure (124) du corps de boîte (120) étant raccordée au bord de partie supérieure (114) par une jonction,
la base de boîte (130) présentant un bord de base (132) qui s'étend autour de la périphérie de la base et dans un espace défini par la boîte, le bord de base (132) formant une jonction avec le corps de boîte (120), et une épaisseur augmentée de la jonction aidant à rendre la boîte autoporteuse, et la base de boîte (130) étant réalisée de manière à fournir un fond plat de la

boîte.

2. Boîte en film flexible selon la revendication 1, la partie supérieure de boîte (110) comportant un couvercle refermable (115) fixé sur celle-ci.

3. Boîte en film flexible selon la revendication 1, le corps de boîte (120) présentant un pli (125) réalisé dans une paroi latérale, de préférence dans une paroi latérale adjacente à un coin (126) du corps de boîte (120).

4. Boîte en film flexible selon la revendication 1, le corps de boîte (120) présentant un pli (125) réalisé dans un coin (126) du corps de boîte (120).

5. Boîte en film flexible selon la revendication 1, le corps de boîte (120) se rétrécissant de la partie supérieure de boîte (110) à la base de boîte (130) ou de la base de boîte (130) à la partie supérieure de boîte (110).

6. Boîte en film flexible selon la revendication 1, le corps de boîte (120) présentant quatre parois latérales individuelles (121).

7. Boîte en film flexible selon la revendication 6, la boîte en film flexible étant un corps solide rectangulaire, de préférence cubique.

8. Boîte en film flexible selon la revendication 1, la boîte en film flexible étant un prisme.

9. Boîte en film flexible selon la revendication 1, la partie supérieure de boîte (110) présentant un couvercle refermable (115), et le corps de boîte (120) présentant quatre parois latérales individuelles (121) et connectant la partie supérieure de boîte (110) à la base de boîte (130),
un tronçon supérieur du corps de boîte (120) étant fermé de manière étanche sur le bord de partie supérieure de boîte (114), et un tronçon inférieur du corps de boîte (120) étant fermé de manière étanche sur le bord de base de boîte (132).

10. Boîte en film flexible selon la revendication 1, le film flexible présentant une épaisseur entre 25 et 250 micromètres.

11. Boîte en film flexible selon la revendication 10, le film flexible présentant une épaisseur entre 75 et 150 micromètres.

12. Boîte en film flexible selon la revendication 1, l'arête supérieure (124) du corps de boîte (120) étant repliée sur le bord de partie supérieure (114) de sorte que l'épaisseur de la jonction correspond à l'épaisseur du film utilisé pour la partie supérieure de boîte (110) plus le double de l'épaisseur du film utilisé pour le corps (120).

13. Boîte en film flexible selon la revendication 1, le bord de partie supérieure (114) fournissant une surface présentant la même extension qu'une arête supérieure du corps de boîte.

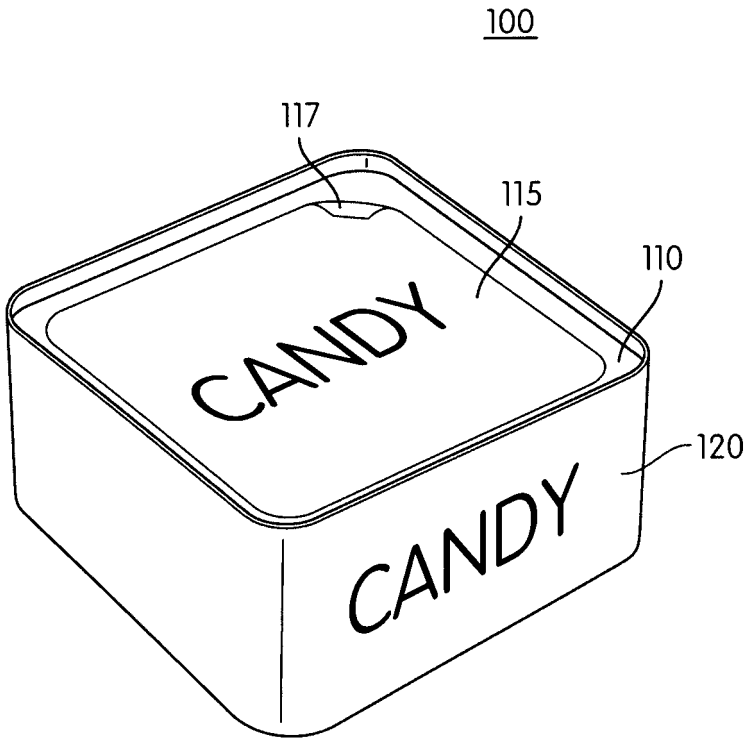


FIG. 1

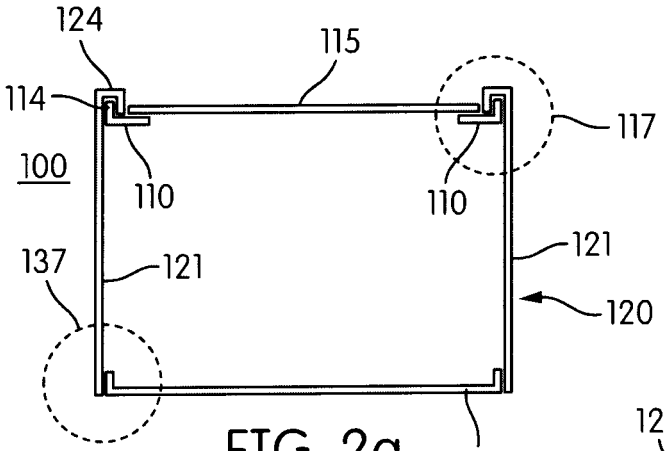


FIG. 2a

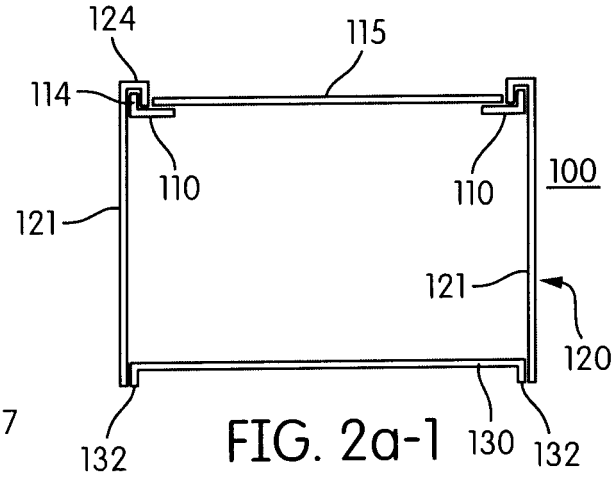


FIG. 2a-1

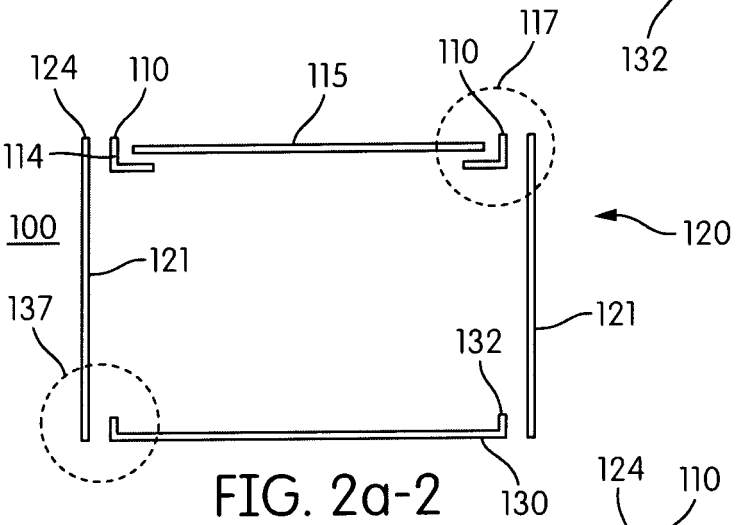


FIG. 2a-2

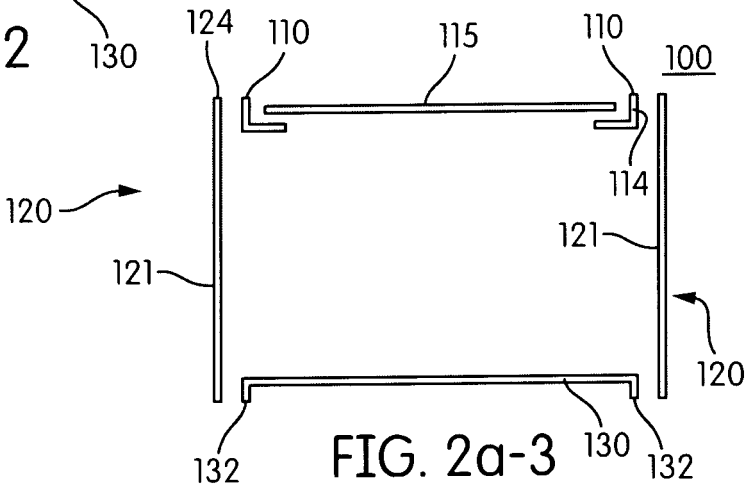


FIG. 2a-3

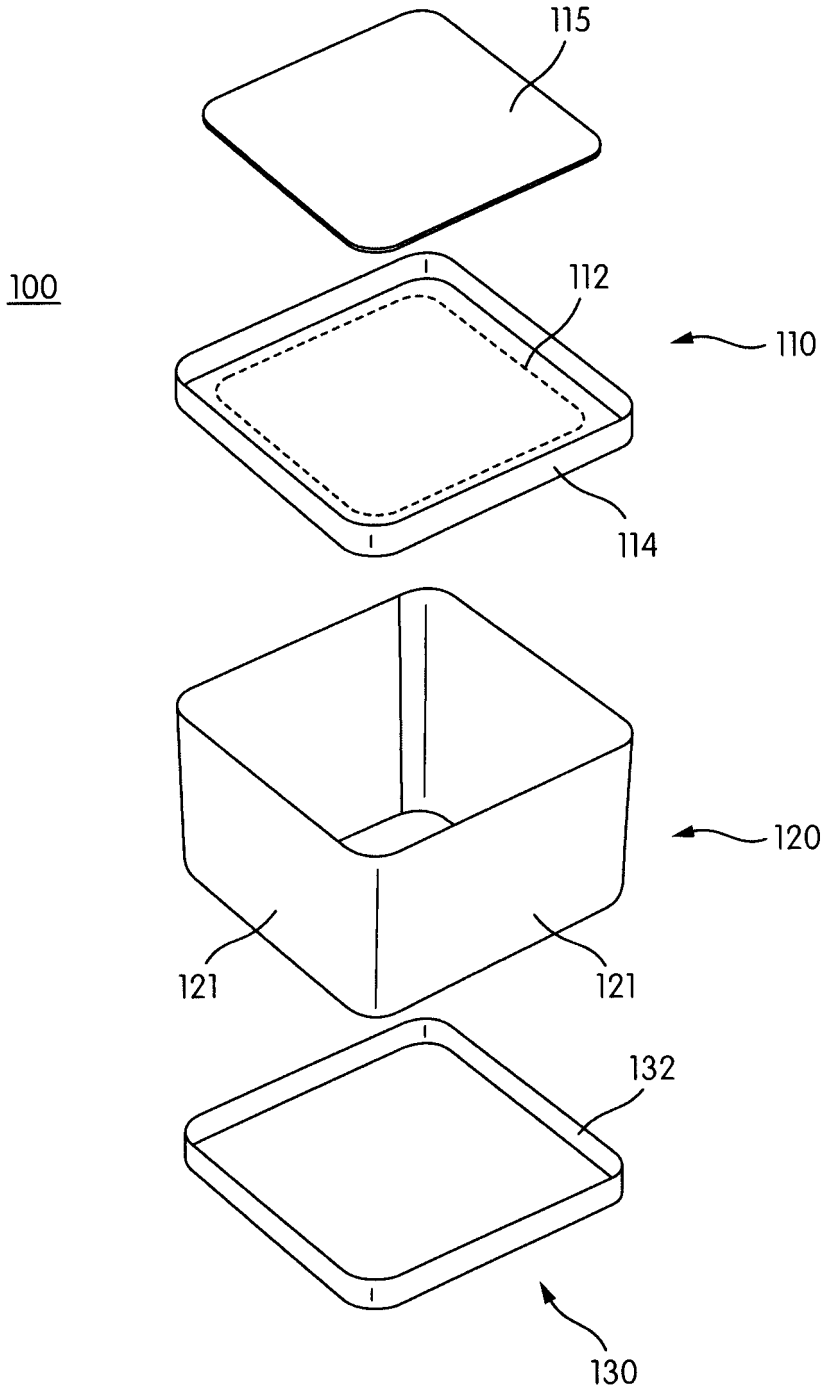


FIG. 2b

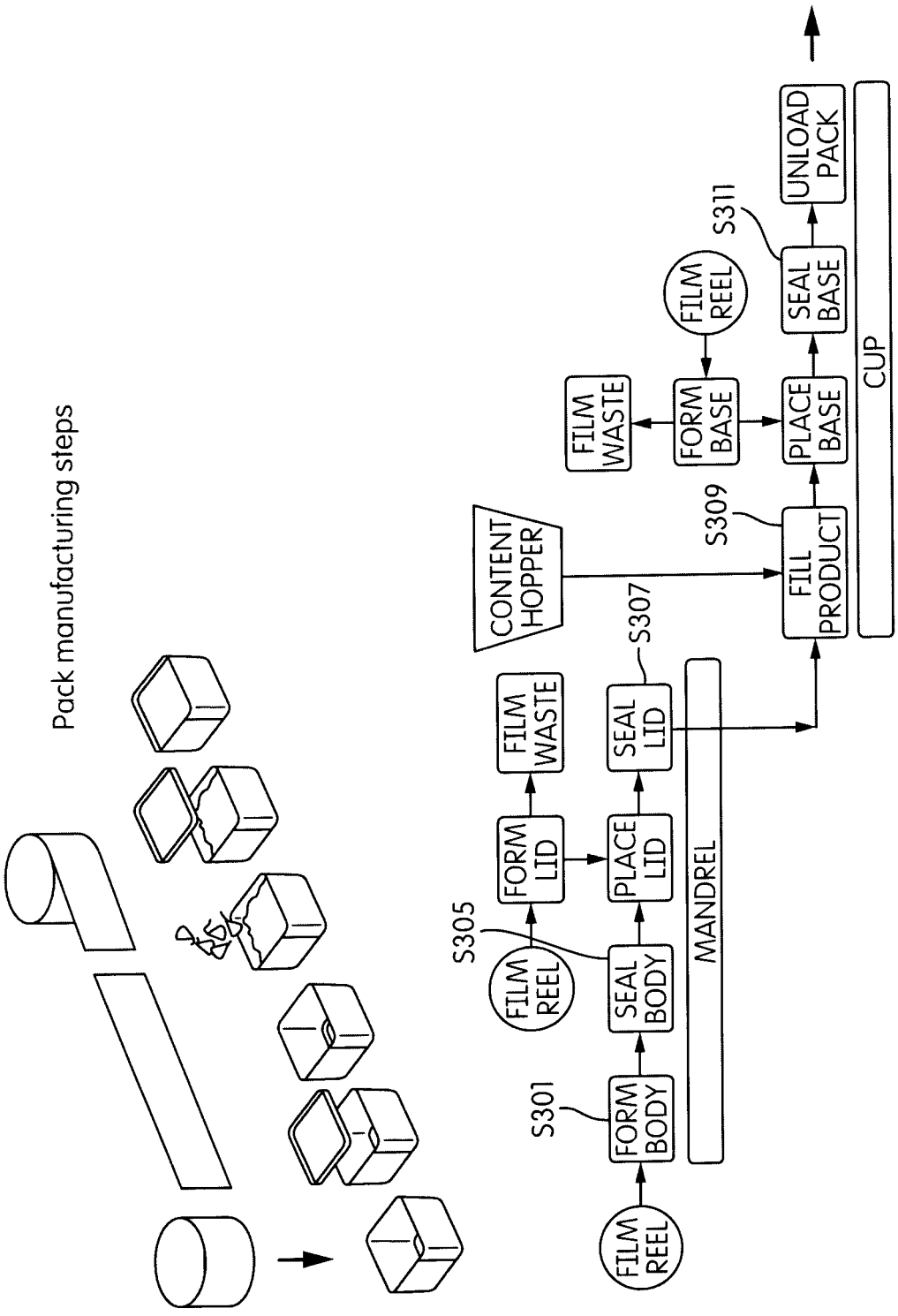

Pack manufacturing steps
FILM REEL
FORM BODY
S301
SEAL BODY
FILM REEL
FORM LID
S305
FILM WASTE
PLACE LID
SEAL LID
S307
MANDREL
CONTENT HOPPER
FILL PRODUCT
S309
FILM WASTE
FORM BASE
FILM REEL
S311
PLACE BASE
SEAL BASE
UNLOAD PACK
CUP

FIG. 3

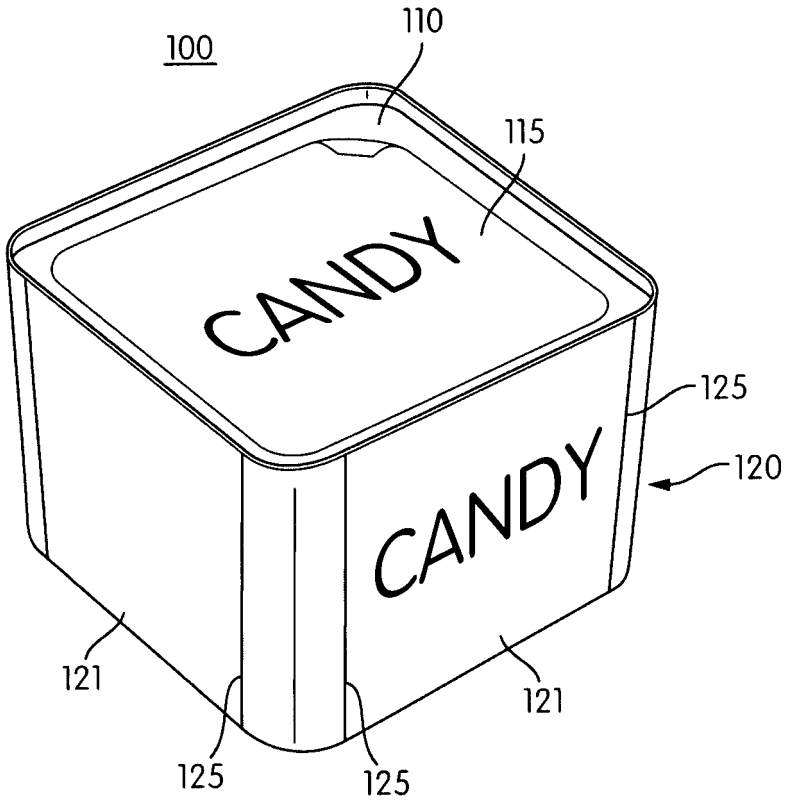


FIG. 4

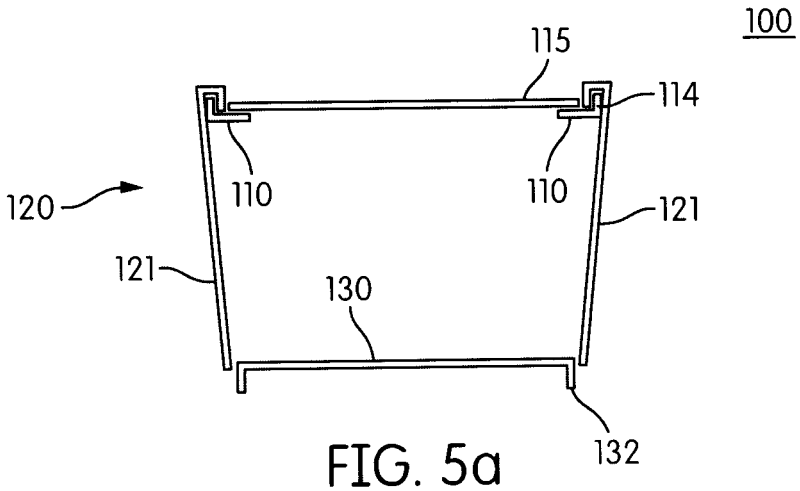

100
115
114
110
110
120
121
121
130
132

FIG. 5a

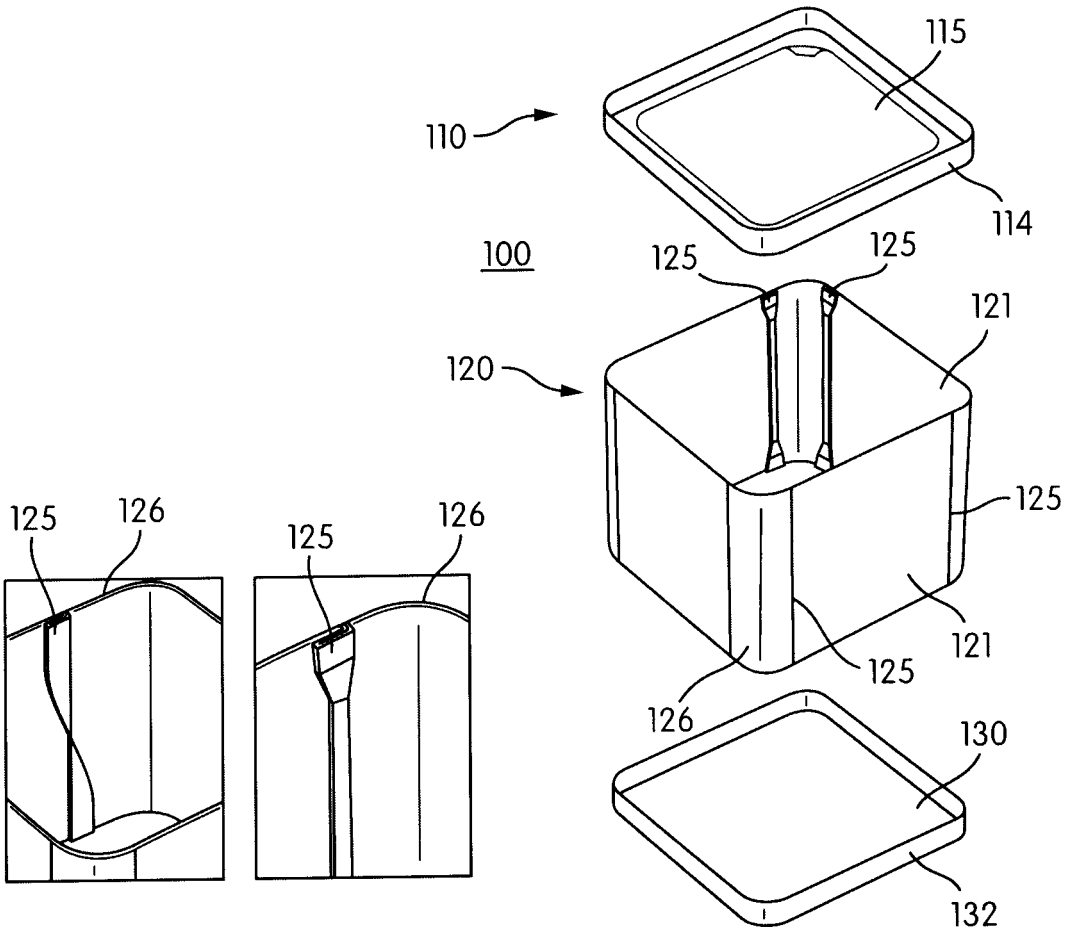

115
110
114
100
125
125
121
120
125
126
125
126
121
125
126
130
132

FIG. 5b

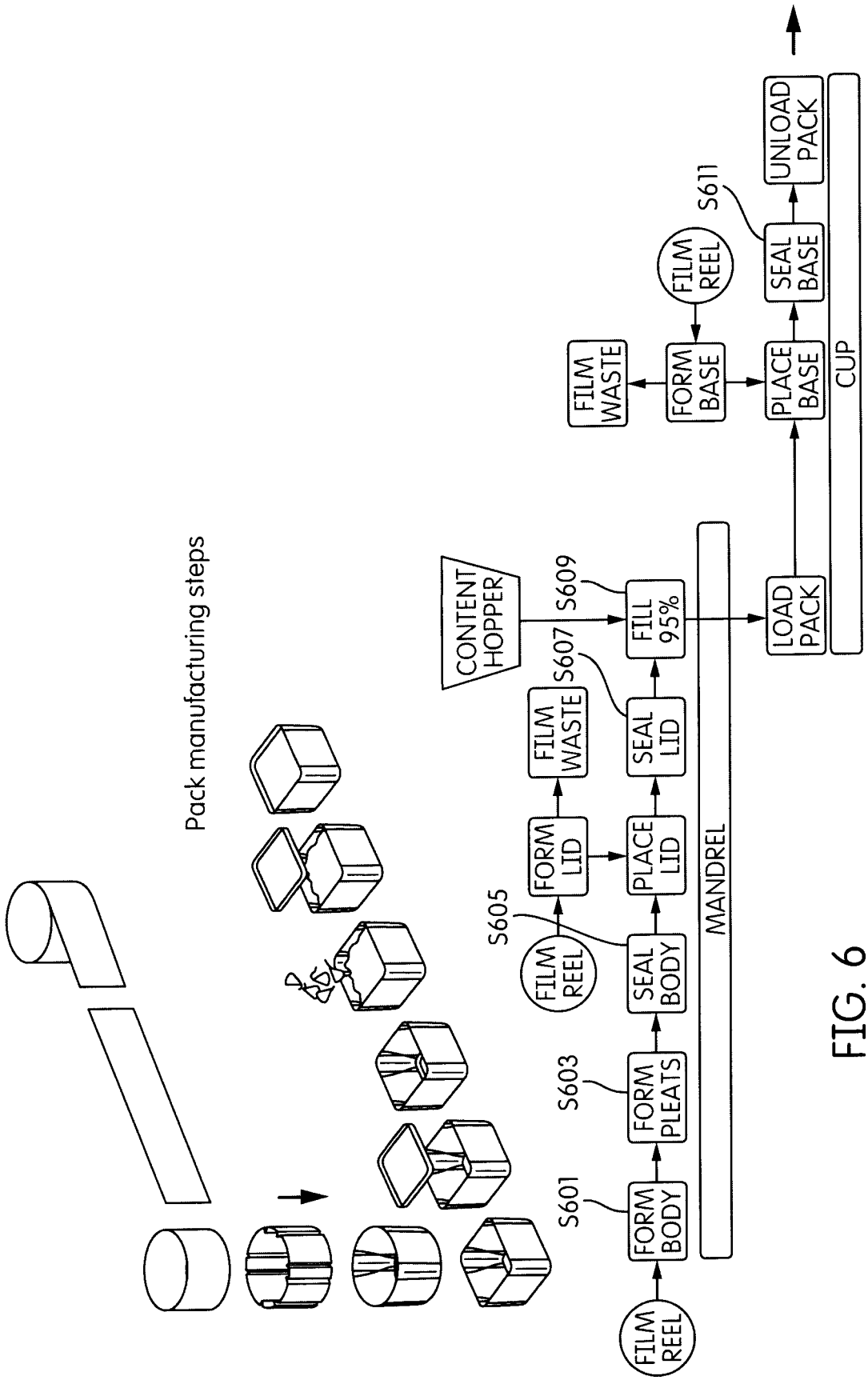

Pack manufacturing steps
FILM REEL
FORM BODY
S601
FORM PLEATS
S603
SEAL BODY
FILM REEL
S605
FORM LID
PLACE LID
FILM WASTE
SEAL LID
S607
CONTENT HOPPER
S609
FILL 95%
MANDREL
LOAD PACK
CUP
FILM WASTE
FORM BASE
FILM REEL
S611
PLACE BASE
SEAL BASE
UNLOAD PACK

FIG. 6

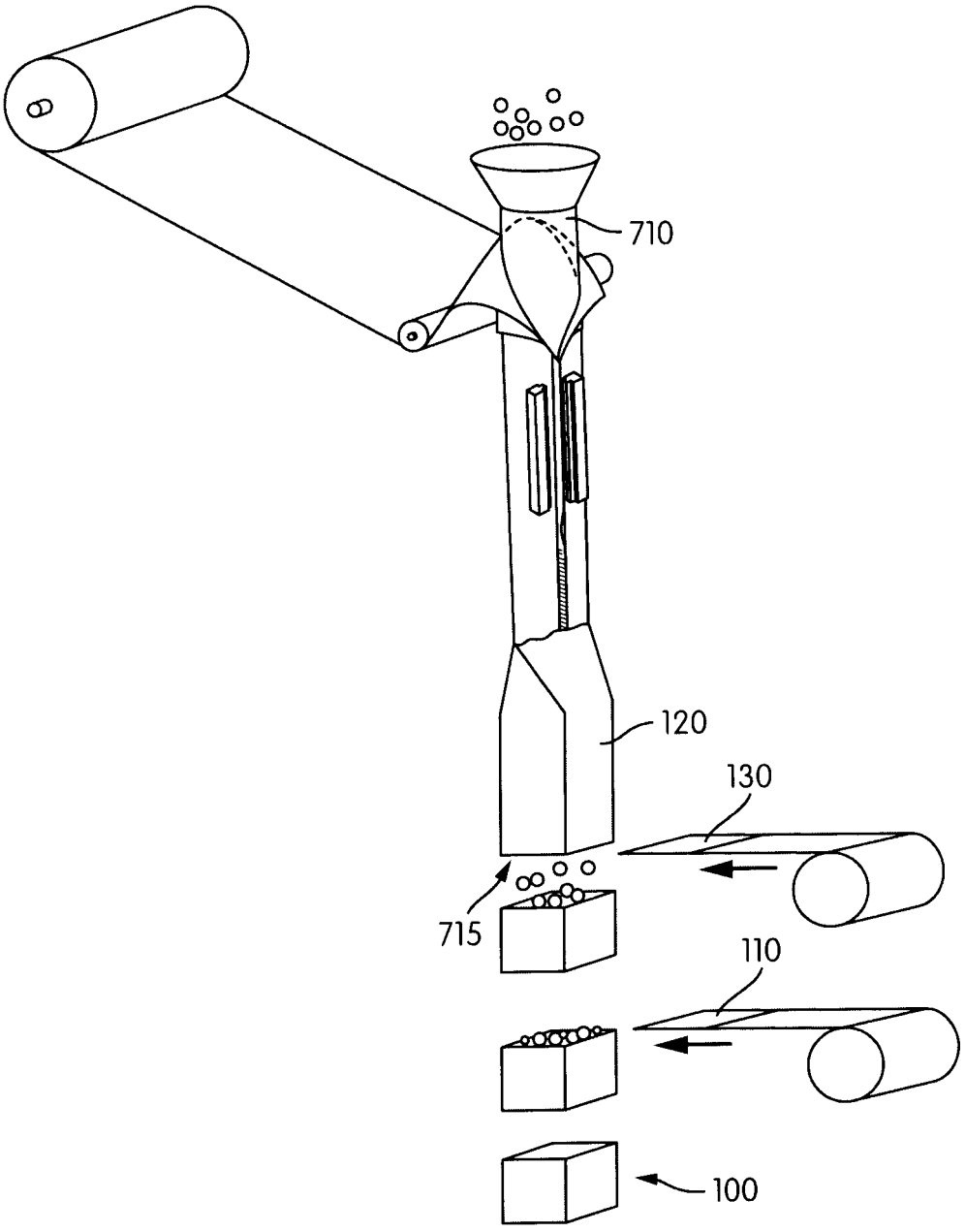


FIG. 7a

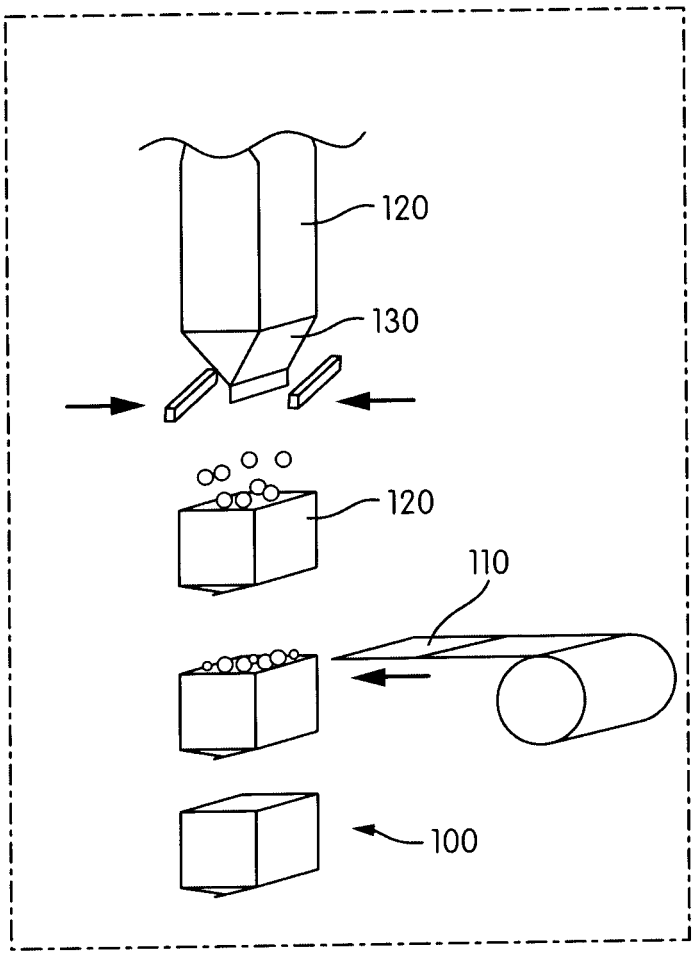


FIG. 7b

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 20100140129 A **[0006]**
- DE 1454953 **[0007]**
- US 1955851 A **[0008]**