



US 20160368677A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2016/0368677 A1**
Parsons et al. (43) **Pub. Date: Dec. 22, 2016**

(54) **CONTAINER HAVING A BASE AND A LID**

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(21) Appl. No.: **15/185,460**

(22) Filed: **Jun. 17, 2016**

(30) **Foreign Application Priority Data**

Jun. 19, 2015 (EP) 15173001.7

Publication Classification

(51) **Int. Cl.**

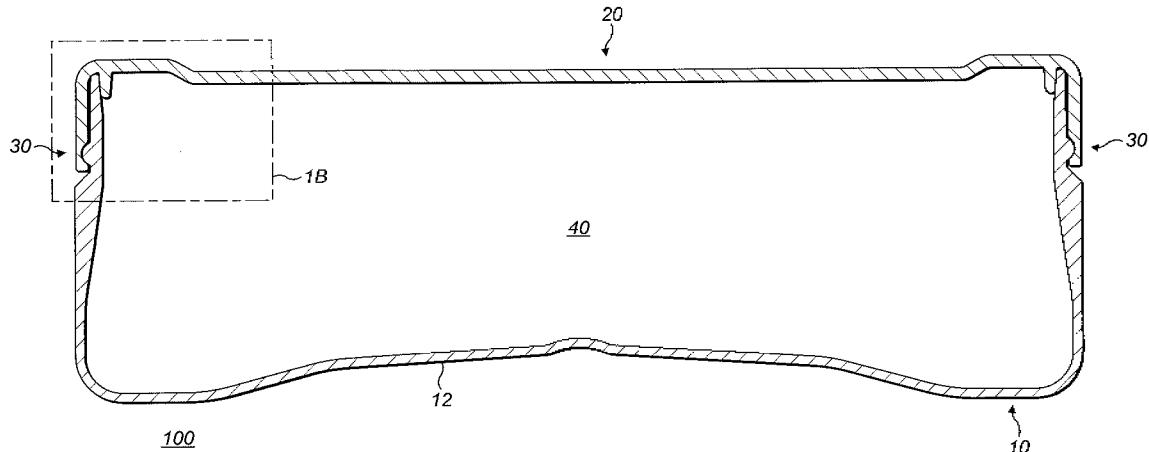
B65D 53/02 (2006.01)
A24F 23/02 (2006.01)
B65D 85/00 (2006.01)

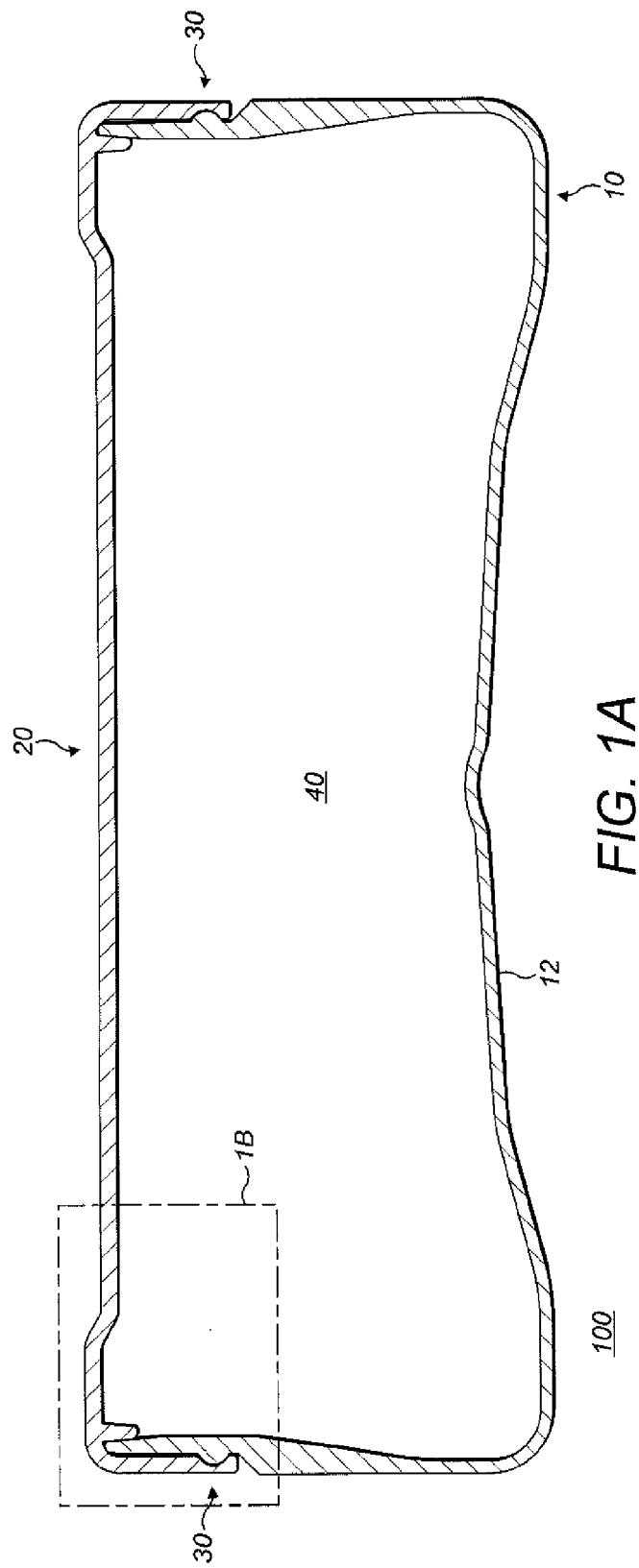
(52) **U.S. Cl.**

CPC *B65D 53/02* (2013.01); *B65D 85/70* (2013.01); *A24F 23/02* (2013.01)

(57) **ABSTRACT**

A container for a tobacco product having a base and a lid, the lid comprises an outer skirt and a first abutment projection. The abutment projection runs circumferentially on an inside surface of the lid, adjacent to the outer skirt. The base comprises a side wall configured to contact an outward-facing surface of the first abutment projection during closure of the lid, such that the side wall is outwardly deflected and contacts an inside surface of the outer skirt of the lid, sealing the container when the lid is closed.





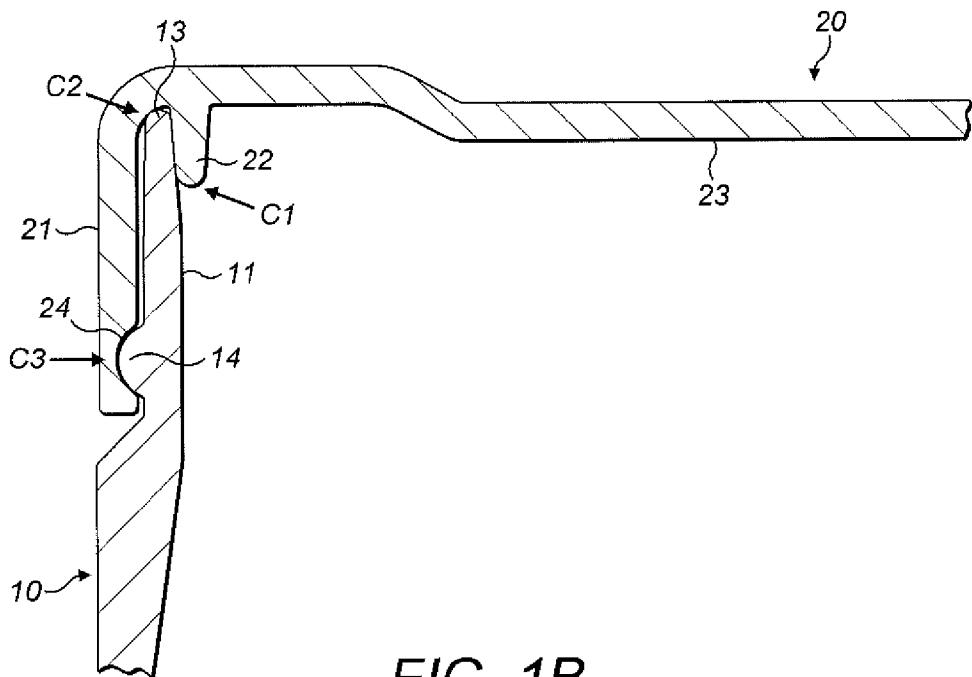


FIG. 1B

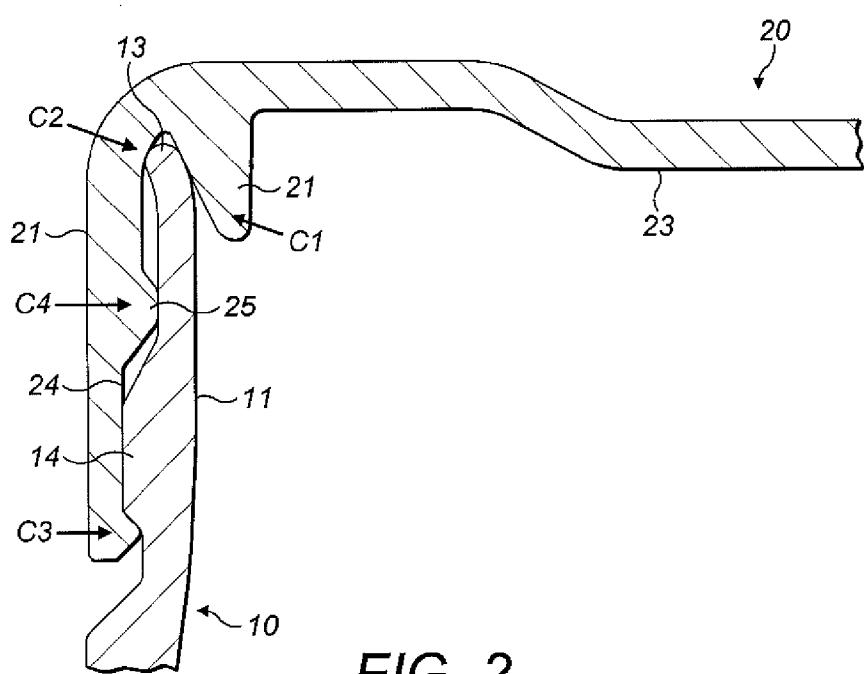
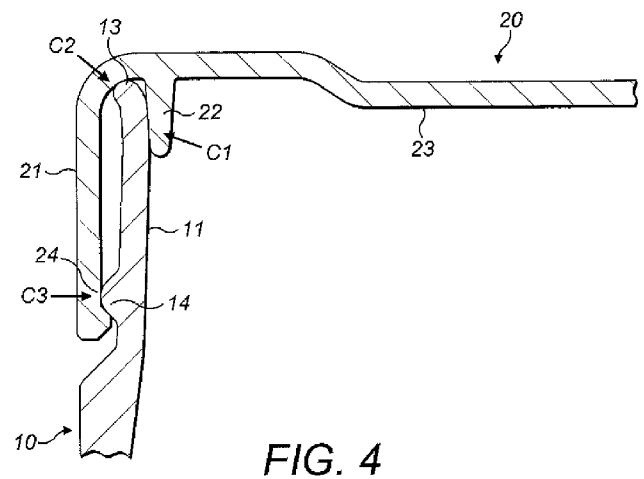
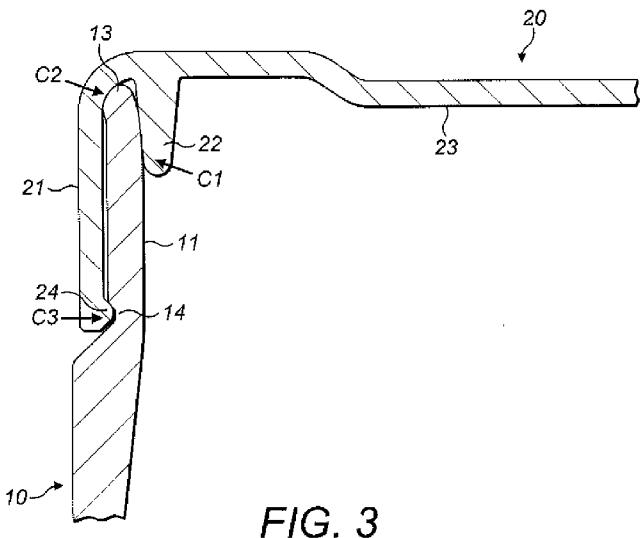


FIG. 2

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CONTAINER HAVING A BASE AND A LID

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority from European Patent Application No. 15173001.7 filed on Jun. 19, 2015, the disclosure of which is hereby incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to a container having a base and lid which may be used for storing tobacco products such as tobacco pouches.

BACKGROUND OF THE INVENTION

[0003] Consumable products, for example tobacco products such as tobacco pouches, are often stored in containers which offer portability to the consumer and are configured to be repeatedly opened and closed to allow portions of the product to be removed when required. A desirable feature of such containers is that the product is protected from environmental effects that might degrade the product stored within the container. For example, excessive humidity or dryness caused by excessive air transport into or out of the storage space is likely to damage the product or degrade its characteristics.

[0004] Commonly, prior art containers comprise a base and lid which may be resealably attached to the base in order to maintain freshness of the product between use. The resealable attachment is often provided by a clip mechanism which provides a single contact between the lid and base of the container around the periphery forming a seal. Such an arrangement, using a single contact point, provides a poor barrier to air flow and consequently the useable lifetime of the stored product within the container is limited. Furthermore the contact point is likely to be worn after repeated opening and closing of the container resulting in wear and a reduction in quality of the seal. Similarly any irregularity in the shape of the container is also likely to result in gaps in the seal, resulting in an increased rate of degradation of the stored product. More complex sealing mechanisms which use multiple components are often complex and costly to manufacture.

[0005] The present invention seeks to provide a low cost container for a consumable product such as tobacco which provides a high quality seal to improve the overall barrier properties of the pack and improve flavour and moisture retention of the product in order to overcome the problems of the prior art.

BRIEF SUMMARY OF THE INVENTION

[0006] According to the present invention there is provided a container having a base and a lid. The lid comprises an outer skirt and a first abutment projection, the abutment projection running circumferentially on an inside surface of the lid, adjacent to the outer skirt. The base comprises a side wall configured to contact an outward-facing surface of the first abutment projection during closure of the lid, such that the side wall is outwardly deflected and contacts an inside surface of the outer skirt of the lid, sealing the container when the lid is closed.

[0007] With the container according to the present invention it is possible to provide a seal comprising multiple

contact points between the base and lid thereby providing an enhanced barrier to the passage of air and moisture through the seal. The provision of multiple contact points also reduces the likelihood of a break in the seal resulting from wear due to repeated use or irregularities in the shape of the base or lid. The enhanced barrier properties are achieved without the use of complex components and therefore the container is straightforward and low-cost to manufacture.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] One example of the present invention will be described with reference to the accompanying drawings in which:

[0009] FIG. 1A shows a cross section view of a container according to the present invention.

[0010] FIG. 1B shows an enlarged view of the portion marked in FIG. 1A showing a sealing mechanism for the container according to the present invention.

[0011] FIG. 2 shows a further example of a sealing mechanism for the container according to the present invention.

[0012] FIG. 3 shows a further example of a sealing mechanism for the container according to the present invention.

[0013] FIG. 4 shows a further example of a sealing mechanism for the container according to the present invention.

DETAILED DESCRIPTION

[0014] Referring to FIG. 1A, a container 100 according to the present invention comprises a base 10 and lid 20 which are releasably sealed together with a sealing mechanism 30 around an outer periphery to form a sealed space 40 for storing a consumable product, for example a tobacco product such as snus.

[0015] As shown in FIG. 1B, the lid 20 comprises an outer skirt 21 and a first abutment projection 22. The outer skirt 21 runs around a peripheral edge of the lid 20, extending approximately perpendicular to an inner closure surface 23 and configured to fit over the base 10.

[0016] In this example, the first abutment projection 22 extends from an inner closure surface 23 of the lid, approximately parallel with the outer skirt 21 but extending a lesser distance. The first abutment projection 22 runs circumferentially around the inner surface of the lid 20, a constant distance towards the centre of the lid from the outer skirt 21.

[0017] The base comprises a base surface 12, identified in FIG. 1A and a side wall 11, running around a peripheral edge of the base surface 12 and extending approximately perpendicularly. The container 100 is configured such that the lid 20 may fit onto the base 10, with the outer skirt 21 of the lid fitting closely around an upper portion of the base side walls 11 such that the sealed space is enclosed by the base surface 12, side wall 11 and inner closure surface of the lid 23.

[0018] The sealing mechanism is formed by the configuration of the base side wall 11 and lid outer skirt 21 and first abutment projection 22 and will now be described in detail.

[0019] The radial distance of the upper portion of the side wall 11 from the centre of the base 10 is in between that of the radial distance of the first abutment projection 22 from the centre of the lid and the radial distance of the outer skirt 21 from the centre of the lid. Therefore during closure, when the lid 20 is brought over and aligned with the base 10 and brought downwards to meet the base, the upper portion of the base side wall 11 is accepted into the gap between the outer skirt 21 and first abutment projection 22 of the lid

forming a seal. Furthermore, the radial distance of the upper portion of the base side wall 11 may be close to, but just greater than, the radial distance of the first abutment projection 22 from the centre of the container 100. In this way, when the lid 20 is aligned with and brought downwards towards the base 10 to close the container 100, the tip of the side wall 11 meets an outer facing surface of the first abutment projection 22 such that a force with a component in the radial direction is applied to the tip 13 of the base side wall. The continued action of bringing the lid downwards upon the base results in a continued radial force on the upper portion of the base side wall as it slides past an outer surface of the abutment projection. This force is sufficient to outwardly deflect the tip 13 and upper portion of the side wall 11, such that the continued movement of bringing the lid 20 and base 10 together results in an increasing deflection of an upper portion of the side wall 11 and, at the point of closure, the upper portion of the side wall 11 has deflected sufficiently to make contact with an inner surface of the outer skirt 21 of the lid.

[0020] The closed container is therefore sealed by two contact points between the base and lid: C1 between an outer surface of the first abutment projection 22 and an inner surface of the side wall 21, and C2 between the tip 13 of the side wall and inner surface of the outer skirt 21. This seal configuration therefore provides a greatly improved barrier against the passage of air and accordingly a consumable product stored within the container will have an increased lifetime.

[0021] A number of additional features may be included to further improve the sealing mechanism. Firstly, as shown in FIG. 2, an outward facing surface of the first abutment projection 22 may not be parallel to the base side wall 11 and outer skirt 21 but angled slightly downwards, away from the closure surface 23 of lid so as to be angled towards the side wall 11 of the base 10 during closure. In this arrangement the tip 13 of the side wall has a larger, angled surface of the abutment projection to meet during closure and a radial force is more effectively transmitted to the upper portion of the base side wall such that an improved deflection of the side wall 11 is obtained, ensuring a strong contact is made between the tip 13 of the side wall and outer skirt upon full closure.

[0022] As shown in FIG. 1B, the sealing mechanism may further comprise a releasable retention mechanism, provided by a lid coupling portion 24 positioned on an inward-facing surface of the outer skirt 21 of the lid 20 and a corresponding base coupling portion 14 positioned on an outward-facing surface of the side wall 11 of the base 10. The corresponding coupling portions may be configured to engage upon the lid reaching a fully closed position such that the lid is retained in place until a sufficient force is applied by a user to disengage the coupling portions such that the lid may be removed. One example of the coupling portions may be a coupling protrusion 14 on an outward facing surface of the base side wall 11 and a corresponding recess 24 in the inward facing surface of the outer skirt 21 so that, as the outer skirt 21 slides over the outer surface of the side wall 11 during closure, the coupling protrusion 14 is accepted into the recess 24 holding the lid 20 in the closed position. A user-applied force on the lid 20 in a direction away from the base would then be sufficient, given an appropriate degree of flex in the outer skirt 21, to remove the recess 24 from around the coupling protrusion 14 such that the lid 20

may be removed. Alternatively a button (not shown) may be provided on an outer surface of the container which is mechanically connected to the coupling portion such that it may be pressed by a user to disengage the coupling portions and release the lid from the base.

[0023] The above example of the coupling portions 24, 14 also provides a third contact point C3 between the lid and base, further improving the performance of the seal in reducing though air flow and aiding in maintaining the internal environment of the container.

[0024] FIG. 2 shows a further example of the sealing mechanism according to the present invention in which a second abutment projection 25 is provided on an inner surface of the outer skirt 21 of the lid 20. The second abutment projection 25 is positioned further towards the centre of the outer skirt 21 spaced apart from the first opposing abutment projection 22 in a direction parallel to the outer skirt 21. The second abutment projection 25 provides a fourth contact point C4 which acts as a fulcrum around which the side wall 11 of the base is bent, further improving the deflection of the upper portion of the base side wall 11. In this arrangement, during closure of the container 100, the upper portion of the base side wall is firstly deflected inwards as it contacts the second abutment projection 25, towards the angled surface of the first abutment projection 22. The continued movement of the base and lid together then brings the tip of the base side wall into contact with outward facing surface of the first projection portion 22 which, as described above, provides a force to deflect an upper portion of the base side wall 11 towards the inner surface of the outer skirt 21 to make contact C2. In the closed position, the base side wall 11 is in contact with and deflected around the second abutment projection 25 such that there are four contact points (C1-C4 in FIG. 2) provided in the seal 30 of the container 100, further improving the barrier properties of the seal 30.

[0025] In a further example of the container of the present invention, shown in FIG. 3, at least a portion of the side wall 11 may be angled inwards such that the first abutment projection 22 has a greater opposing surface area of the side wall 11 to meet during closure and a radial force is more effectively transmitted to the upper portion of the base side wall 11 such that a tighter contact between the first abutment projection 22 and side wall 11 is achieved and an improved deflection is obtained.

[0026] In a further example of the container of the present invention, shown in FIG. 4, the tip 13 of the side wall 11 is angled outwards so as to facilitate a stronger contact between the side wall 11 and inner surface of the outer skirt 21 at contact position C2. This feature may be combined with an inwardly angled lower portion of the side wall 11, as described above with reference to FIG. 3, such that a stronger contact is achieved at points C1 and C2 to further improved the barrier properties of the seal.

[0027] The maintenance of the inner container atmosphere may further be maintained by the use of tailored oxygen transmission polymers to construct the sealing mechanism components or other parts of the container. Such materials allow the overall container oxygen transmission to be tailored so as to prevent both volatile loss and reductive processes occurring over time. Examples of such materials include oriented polypropylene/polyethylene (OPP/PE) bilaminated plastic, nylon 11, high density polyethylene (HDPE), polystyrene (PS), polypropylene (PP), polycarbon-

ate (PC), low-density polyethylene (LDPE) and ethylene-vinyl acetate (EVA). A further possibility is using a combination of a foil seal lid and these more permeable materials, allowing a balance of properties suitable for this application. Alternatively, a foil seal may be used alone, without incorporating the above materials into the sealing components. A preferred wrapper is a composite of foil and OPP/PE bilaminate plastic.

[0028] The use of such materials with the specified oxygen and vapour transmission rates, applied to the container of the present invention, will control gaseous permeation in such a way as to maintain the correct internal pack atmosphere, thus preventing the loss of volatiles and reductive character formation. Accordingly shelf life will be extended and costs may be saved since a reduced rate of flavour degradation would mean flavour application rates may be reduced during processing.

[0029] The examples of the present invention described provides a container **100** for a consumable product such as a tobacco product which provides a seal with greatly improved barrier properties whilst still maintaining a simple structure so as to not increase manufacturing costs. The seal consists of multiple contact points between a base and lid which overcomes the problems of leakage, exacerbated by wear or irregularities in manufacturing, associated with single contact point seals common to prior art containers. The improved seal enhances the flavour and moisture retention of the product, increasing shelf life and reducing cost due to flavour application rates. The possibility of using tailored oxygen transmission polymers to construct parts of the case offers control over the permeability of the seal to maintain a constant internal atmosphere and further reduce the degradation rate of the stored product over time.

1. A container for a tobacco product comprising:
 - a lid comprising:
 - an outer skirt; and
 - a first abutment projection, the abutment projection running circumferentially on an inside surface of the lid, adjacent to the outer skirt; and
 - a base comprising a side wall configured to contact an outward-facing surface of the first abutment projection during closure of the lid, such that the side wall is outwardly deflected and contacts an inside surface of the outer skirt, sealing the container when the lid is closed.

2. The container of claim **1** wherein, during closure, the outward-facing surface of the first abutment projection is angled relative to the side wall of the base to improve the deflection of the side wall of the base upon closure of the container.

3. The container of claim **1** wherein the side wall of the base contacts both the inside wall of the outer skirt and the first abutment projection when the lid is closed.

4. The container of claim **1** wherein the first abutment projection forms a complete circumferential loop on the inside surface of the lid.

5. The container of claim **1** further comprising a releasable retention mechanism, the releasable retention mechanism comprising:

- a lid coupling portion positioned on an inward-facing surface of the outer skirt; and
- a base coupling portion positioned on an outward-facing surface of the side wall of the base,
wherein the coupling portions are configured to engage upon closure of the lid such that the lid is retained in the closed position,
wherein the engaged coupling portions are configured to release upon application of an appropriate force by a user.

6. The container of claim **1** further comprising a second abutment projection, wherein the second abutment projection is positioned on an inward facing surface of the outer skirt and is configured to contact the side wall of the base upon closure of the container.

7. The container of claim **1** wherein there are at least three contact points between the lid and base when the container is closed.

8. The container of claim **1** wherein a portion of the base side wall is angled inwards so as to increase the contact force between the side wall and the first abutment projection of the lid upon closure.

9. The container of claim **1** wherein a tip of the base side wall is angled outwards such that contact between a tip of the side wall and an inward facing surface of the outer skirt is increased upon closure.

10. The container of claim **1** wherein at least a portion of the container is made from a tailored oxygen transmission polymer.

11. The container of claim **1** further comprising tobacco contained therein.

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