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Inventor(s)	Lohrman; Richard D. et al.

Protrusion on container neck

Abstract

A protrusion on a container neck is provided. The protrusion is configured to interface with hinged, tethered closures to bias the body of the closure away from the container neck.

Inventors: **Lohrman; Richard D. (Montgomery, IL), Guio; John D. (Geneva, IL)**

Applicant: **Silgan White Cap LLC** (Downers Grove, IL)

Family ID: **1000008751652**

Assignee: **Silgan White Cap LLC (Downers Grove, IL)**

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Primary Examiner: Stevens; Allan D

Attorney, Agent or Firm: Reinhart Boerner Van Deuren s.c.

Background/Summary

CROSS-REFERENCE TO RELATED PATENT APPLICATIONS (1) The present application is a continuation of International Application No. PCT/US2022/079390, filed Nov. 7, 2022, which claims the benefit of and priority to U.S. Provisional Application No. 63/292,266, filed Dec. 21, 2021, and U.S. Provisional Application No. 63/276,991, filed Nov. 8, 2021, each of which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION
(1) The present disclosure is directed generally to container. The present disclosure relates specifically to container for liquids that include hinged, tethered closures.
SUMMARY OF THE INVENTION
(2) One embodiment of the invention relates to a container including a body defining a storage compartment, a container neck coupled to the body, the container neck extending along a longitudinal axis between the body and an opening, a thread extending helically outward from the container neck, the thread configured to detachably engage with a closure affixed to the container neck, the closure configured to actuate between a closed configuration in which the closure encloses the opening and an open configuration in which a tab of the closure interfaces with the container neck to bias a body of the closure away from the container neck, an A-bead extending radially away from the container neck, the A-bead configured to engage with a retention band of the closure to bias the retention band to remain coupled to the container neck after the closure has been opened, and a protrusion extending upward from the A-bead. The protrusion is configured to engage the tab of the closure to bias the body of the closure away from the container neck.
(3) Another embodiment of the invention relates to a container including a body, a container neck coupled to the body, the container neck extending along a longitudinal axis between the body and an opening, a thread extending helically outward from the container neck, an outermost portion of

the thread defining a T-diameter that is a maximum diameter of the thread with respect to the axis, the thread configured to detachably engage with a closure affixed to the container neck, the closure configured to actuate between a closed configuration in which the closure encloses the opening and an open configuration in which a tab of the closure interfaces with the container neck to bias a body of the closure away from the container neck, an A-bead extending radially away from the container neck, the A-bead configured to engage with a retention band of the closure to bias the retention band to remain coupled to the container neck after the closure has been opened, and a protrusion extending upward from the A-bead. The protrusion defines an outer surface defining a second diameter that is a maximum diameter of the protrusion with respect to the axis, and the second diameter is less than or equal to the T-diameter.

(4) Another embodiment of the invention relates to a container including a body, a container neck coupled to the body, the container neck extending along a longitudinal axis between the body and an opening, a thread extending helically outward from the container neck, the thread configured to detachably engage with a closure affixed to the container neck, the closure configured to actuate between a closed configuration in which the closure encloses the opening and an open configuration in which a tab of the closure interfaces with the container neck to bias a body of the closure away from the container neck, an A-bead extending radially away from the container neck, the a-bead configured to engage with a retention band of the closure to bias the retention band to remain coupled to the container neck after the closure has been opened, the A-bead defining an outer surface defining a first diameter that is a maximum diameter of the A-bead with respect to the axis, and a protrusion extending upward from the a-bead. The protrusion defines an outer surface facing away from the axis, the outer surface defines a second diameter that is a maximum diameter of the protrusion from the axis, and the second diameter is less than the first diameter.

(5) Another embodiment of the invention relates to a container neck of a container. The container includes an A-ring that interfaces with the tab of a hinged, tethered closure when the closure is in the open configuration. In particular, a protrusion, such as a triangular bump, extends from the A-ring and interfaces with the hinged, tethered closure when the closure is in the open configuration. As a result, the body of the closure is displaced further from the container neck opening than without the protrusion on the A-ring.

(6) Additional features and advantages will be set forth in the detailed description which follows, and, in part, will be readily apparent to those skilled in the art from the description or recognized by practicing the embodiments as described in the written description included, as well as the appended drawings. It is to be understood that both the foregoing general description and the following detailed description are exemplary.

(7) The accompanying drawings are included to provide further understanding and are incorporated in and constitute a part of this specification. The drawings illustrate one or more embodiments and, together with the description, serve to explain principles and operation of the various embodiments.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) This application will become more fully understood from the following detailed description, taken in conjunction with the accompanying figures, wherein like reference numerals refer to like elements in which:

(2) FIG. **1** is a perspective view of a closure coupled to container including a protrusion on the A-bead, according to an exemplary embodiment.

(3) FIG. **2** is a front view of a closure coupled to container including a protrusion on the A-bead, according to an exemplary embodiment.

(4) FIG. **3** is a cross-section view of the closure and container of FIG. **1** taken along the line **3-3** in

FIG. **2**, according to an exemplary embodiment.
(5) FIG. **4** is a detailed cross-section view of the closure and container of FIG. **1** taken along the line **3-3** in FIG. **2**, according to an exemplary embodiment.
(6) FIG. **5** is a detailed cross-section view of the closure and container of FIG. **1** taken along the line **3-3** in FIG. **2**, according to an exemplary embodiment.
(7) FIG. **6** is a detailed cross-section view of the closure and container of FIG. **1** taken along the line **3-3** in FIG. **2**, according to an exemplary embodiment.
(8) FIG. **7** is a detailed cross-section view of the closure of FIG. **1** taken along the line **3-3** in FIG. **2** and a second container, according to an exemplary embodiment.
(9) FIG. **8** is a detailed cross-section view of the closure of FIG. **1** taken along the line **3-3** in FIG. **2** and a third container, according to an exemplary embodiment.
(10) FIG. **9** is a side view of the container of FIG. **1**, according to an exemplary embodiment.
(11) FIG. **10** is a side view of the container of FIG. **1**, according to an exemplary embodiment.
(12) FIG. **11** is a cross-section view of the closure and container of FIG. **1** taken along the line **3-3** in FIG. **2**, according to an exemplary embodiment.
(13) FIG. **12** is a cross-section view of a closure and a container including a protrusion on the A-bead, according to an exemplary embodiment.

DETAILED DESCRIPTION

(14) Referring generally to the figures, various embodiments of a container neck are shown. The container neck includes a protrusion configured to engage with the tab of a hinged, tethered closure. In use, the protrusion biases the body of the closure further from the container neck opening than if the protrusion was not present. As shown, the A-bead biases the tab of the closure further upward and away from the longitudinal axis of the container neck. As a result, when a protrusion is coupled to A-bead and extending upward, the body of the closure is biased further from the container neck than if the protrusion was not present.
(15) Referring to FIGS. **1-2**, a closure **10** is shown affixed to a container **50**, such as by being coupled to container **50** via helical threads. Closure **10** includes a top panel **14**, a skirt **16** extending downward from the top panel, the skirt **16** centered on axis **12**.
(16) Body **34** of closure **10** includes top panel **14** and skirt **16**, which is coupled to retention band **18** via various structures. Skirt **16** is initially coupled to retention band **18** via one or more plurality of frangible connections extending across primary slit **20**. Closure **10** also includes one or more tethers **28** that couple body **34** to retention band **18** after closure **10** has been opened. As shown, closure **10** includes two tethers **28**. Tethers **28** extend circumferentially around closure **10** between primary slit **20** and secondary slit **24**. In various embodiments, primary slit **20** and secondary slit **24** are mechanically slit via a blade and/or are formed when the closure **10** is formed (e.g., slits **20**, **24** are molded into the closure). In various alternative embodiments, primary slit **20** and/or secondary slit **24** form different configurations for the tethers **28** and tab **30** (e.g., secondary slit **24** forms multiple tabs that interface against the container neck).
(17) As will be understood, the frangible connections break the first time that closure **10** is opened from container **50**, thereby evidencing the fact that closure **10** has been opened. In particular, J-band **22** of closure **10** interfaces with a portion of container **50**, such as A-bead **60**, thereby biasing the retention band **18** downward as body is biased upward by the user twisting closure **10** into the open position. In various embodiments, retention band **18** interfaces against the container neck (e.g., A-bead **60**) via structures other than a J-band.
(18) After closure **10** is opened, body **34** is pivoted away from the opening of the container **50**. In various embodiments, body **34** pivots with respect container **50** at or near a rotational axis at hinge **26**. As will be shown, when body **34** is pivoted into the open position, tab **30** interfaces with the neck of container **50** to bias body **34** away from the opening of the container **50**. In particular, closure **10** is configured to actuate between a closed configuration in which the closure **10** encloses the opening of container **50** and an open configuration in which a tab **30** of the closure **10** interfaces

with the container neck **52** to bias a body **34** of the closure **10** away from the container neck **52**.
(19) Referring to FIGS. **3-5**, various aspects of protrusion **80** on A-bead **60** of container **50** are shown. Container **50** includes a body **51** defining a storage compartment **57** configured to store contents within the container **50**. Container neck **52** extends upward from body **51**, between body **51** and opening **58** of container **50**. In various embodiments, container neck **52** is centered around and/or extends along longitudinal axis **12**. In various embodiments, container neck **52** includes a helical thread **54** configured to couple container **50** to closure **10**. In various embodiments, container neck **52** is coupled to the body **51**, the container neck **52** extending along a longitudinal axis **12** between the body **51** and an opening **58**. Thread **54** extends helically outward from the container neck **52**, the thread **54** being configured to detachably engage with closure **10** affixed to the container neck **52**. Closure **10** and/or container **50** are configured to, in combination with each other, actuate between a closed configuration in which closure **10** encloses the opening **58** and an open configuration in which a tab **30** of the closure **10** interfaces with the container neck **52** to bias a body **34** of the closure **10** away from the container neck **52**. In various embodiments, helical thread **54** defines a T-diameter **56** that is a maximum diameter of the thread **54** with respect to the axis **12**, and T-diameter **56** defines imaginary cylinder **59** that extends around axis **12** at T-diameter **56** from axis **12**.
(20) A protrusion, shown as A-bead **60**, extends from container neck **52**. In various embodiments, A-bead **60** extends circumferentially around container neck **52**. A-bead **60** is configured to interface with closure **10**, such as being configured to interface with J-band **22** of closure **10** when closure **10** is being opened for the first time. Stated another way, the A-bead **60** is configured to engage with a retention band **18** of the closure **10** to bias the retention band **18** to remain coupled to the container neck **52** after the closure **10** has been opened. In various embodiments, protrusion **80** and A-bead **60** are molded contemporaneously (e.g., when closure **10** is initially formed, such as by being integrally molded). In various embodiments, protrusion **80** is affixed to A-bead **60** via an adhesive.
(21) Referring to FIG. **5**, various aspects of A-bead **60** are shown. A-bead **60** extends radially away from the container neck **52**. A-bead **60** is configured to engage with a retention band **18** of the closure **10** to bias the retention band **18** to remain on (e.g., coupled to) the container neck **52** after the closure **10** has been opened. A-bead **60** includes lower surface **62**, outer surface **64**, and upper surface **66**. Lower surface **62** faces downward or mostly downward, outer surface **64** faces away from axis **12**, and upper surface **66** faces upward and/or away from lower surface **62**. In various embodiments, outer surface **64** and upper surface **66** intersect at corner **68**. Outer surface **64** defines diameter **72** that is a maximum diameter of the A-bead **60** with respect to the axis **12**.
(22) An elevated surface, shown as protrusion **80**, extends from and is coupled to A-bead **60**. In various embodiments, protrusion **80** extends upward from A-bead **60**. Protrusion **80** is configured to engage the tab **30** of the closure **10** to bias the body **34** of the closure **10** away from the container neck **52**. Protrusion **80** defines an upper surface **82** and an outer surface **84**, which intersect at an intersecting location, shown as corner **88**. In various embodiments, outer surface **84** faces away from axis **12** and defines diameter **86** that is a maximum diameter of the protrusion **80** from the axis **12**. In various embodiments, upper surface **82** faces upward, such as parallel to axis **12**. In various aspects, inner surface **32** of tab **30** of closure **10** is configured to interface against protrusion **80**, thereby biasing body **34** away from opening **58** of container **50**.
(23) In various embodiments, tab **30** of closure **10** is configured to interface with the corner **88** when the protrusion **80** is biasing the body **34** of the closure **10** away from the container neck **52**. In various embodiments, tab **30** of the closure **10** does interface with the A-bead **60** at corner **68** when the tab **30** of the closure **10** is interfacing with corner **88**. In various embodiments, the tab **30** of the closure **10** defines an inner surface **32** that faces away from the axis **12** when the closure **10** is in the closed configuration, and the inner surface **32** of the tab **30** interfaces with the corner **88** of the protrusion **80** when the closure **10** is in the open closed configuration (e.g., FIG. **3**).
(24) Alternatively, in various embodiments tab **30** of the closure **10** does not interface with A-bead

60 when tab **30** is interfacing with protrusion **80**.
(25) In various embodiments, A-bead **60** defines an upper surface **66** that faces upward, and the upper surface **66** of the A-bead **60** extends between the protrusion **80** and the container neck **52** (e.g., upper surface **66** intersects with each of protrusion **80** and container neck **52**). In various embodiments, A-bead **60** defines an upper surface **66** that faces upward and an outer surface **64** that extends away from the longitudinal axis **12**, and the upper surface **66** of the A-bead **60** extends between the protrusion **80** and the outer surface **64** of the A-bead **60** (e.g., upper surface **66** intersects with each of protrusion **80** and outer surface **64**).
(26) In various embodiments, A-bead **60** defines an upper surface **66** that extends from a top **74** of the A-bead **60** to the protrusion **80**, and the protrusion **80** defines an upper surface **82** that faces upward and an outer surface **84** that faces away from the axis **12**, the outer surface **84** of the protrusion **80** and the upper surface **82** of the protrusion **80** intersecting at a corner **88** that is below the top **74** of the A-bead **60**. In various embodiments, the outer surface **84** of the protrusion **80** extends a first height **90** from the A-bead **60**, the top **74** of the A-bead **60** is a second height **76** above the corner **88** of the protrusion **80**, and the second height **76** is less than the first height **90**.
(27) Outer surface **84** of protrusion **80** interfaces with A-bead **60** at intersection, shown as corner **70**. Outer surface **84** defines a diameter **86** that is a maximum diameter of the protrusion **80** with respect to the axis **12**. Outer surface **84** extends height **90** between corner **70** and corner **88**.
(28) In various embodiments, outer surface **84** of protrusion **80** is aligned with cylinder **59** of T-diameter **56** of thread **54** and/or outer surface **84** of protrusion **80** is closer to axis **12** than cylinder **59**. Stated another way, T-diameter **56** is greater than or equal to diameter **86** of protrusion **80**. In various embodiments, diameter **86** of protrusion **80** is less or equal to than T-diameter **56**, and more specifically diameter **86** is less than T-diameter **56**.
(29) In various embodiments, outer surface **64** of A-bead **60** is further from axis **12** than outer surface **84** of protrusion **80**. In various embodiments, diameter **72** of outer surface **64** of A-bead **60** is greater than diameter **86** of outer surface **84** of protrusion **80**. Stated another way, diameter **86** of outer surface **84** is less than diameter **72** of outer surface **64** of A-bead **60**.
(30) In various embodiments, protrusion **80** is inside the T-wall (e.g., inside cylinder **59**), which is the major diameter of the threads **54** (e.g., T-diameter **56**) extending from the container neck **52**. Applicant has observed that having protrusion **80** slightly recessed such that the protrusion **80** is within the T-wall permits the tab of the closure to more easily pivot past protrusion **80** compared to if protrusion **80** extends from the outermost portion of the A-bead **60**.
(31) In various embodiments protrusion **80** is adhered to the A-bead **60**, such as by being glued. In another embodiment, protrusion **80** is molded to the A-bead **60** when the container neck is formed and/or manufactured.
(32) In various embodiments, outer surface **84** of protrusion **80** defines angle **96** with respect to upper surface **66** of A-bead **60**. In various embodiments, angle **96** is between 115 and 165 degrees, and more specifically between 120 and 150 degrees, and more specifically between 125 and 145 degrees, and more specifically between 130 and 140 degrees, and more specifically 135 degrees. In various embodiments, angle **96** is at least 120 degrees, and more particularly is at least 135 degrees, and more particularly is at least 140 degrees, and more particularly is at least 145 degrees.
(33) Referring to FIG. **6**, protrusion **80** also facilitates reapplying the closure (e.g., closure **10**) to the container (e.g., container **50**). For example, sidewalls of closure **10** rest on protrusion **80**, thereby helping the user align the threading of the closure and the threading of the container when the user is applying the closure back on top of the container.
(34) Referring to FIG. **7**, various aspects of container **150** are shown. Container **150** is substantially the same as container **50** except for the differences as described herein. In particular, container **150** includes a recess **152** between protrusion **80** and outer surface **154** of container **150**. This is in contrast to container **50**, in which A-bead **60** extends linearly from protrusion **80** to the outer surface of container **50**.

(35) Referring to FIG. **8**, various aspects of protrusion **180** are shown. Protrusion **180** is substantially the same as protrusion **80** except for the differences described herein. In particular, protrusion **180** includes one or more curved outer surfaces. In a specific embodiment, protrusion **180** defines a portion of the outer surface of a circle, such as a semi-circle.
(36) Referring to FIG. **9**, in various embodiments protrusion **80** extends circumferentially around the entire container (e.g., container **50**), as shown.
(37) Referring to FIG. **11**, top panel **14** of closure **10** defines angle **94** with respect to horizontal when body **34** of closure **10** is in the open position. In particular, the interface between tab **30** of closure **10** and protrusion **80** of container **50** biases body **34** of closure **10** to define angle **94** with respect to a horizontal plane, shown as H.
(38) In various embodiments, angle **94** is between 135 and 165 degrees, and more specifically between 140 and 160 degrees, and more specifically between 145 and 155 degrees, and more specifically 150 degrees. In various embodiments, angle **94** is at least 135 degrees, and more particularly is at least 140 degrees, and more particularly is at least 145 degrees, and more particularly is at least 150 degrees.
(39) Referring to FIG. **12**, container **250** includes protrusion **280**. Protrusion **280** is substantially the same as protrusion **80** or protrusion **180** except for the differences discussed herein. In particular, protrusion **280** is larger than protrusion **80**. As a result, protrusion **280** biases body **34** of closure **10** to define angle **194** with respect to horizontal plane H, which is greater than angle **94**.
(40) In various embodiments, angle **194** is between 150 and 180 degrees, and more specifically between 155 and 175 degrees, and more specifically between 160 and 170 degrees, and more specifically 165 degrees. In various embodiments, angle **194** is at least 150 degrees, and more particularly is at least 155 degrees, and more particularly is at least 160 degrees, and more particularly is at least 165 degrees.
(41) It should be understood that the figures illustrate the exemplary embodiments in detail, and it should be understood that the present application is not limited to the details or methodology set forth in the description or illustrated in the figures. It should also be understood that the terminology is for description purposes only and should not be regarded as limiting.
(42) Further modifications and alternative embodiments of various aspects of the disclosure will be apparent to those skilled in the art in view of this description. Accordingly, this description is to be construed as illustrative only. The construction and arrangements, shown in the various exemplary embodiments, are illustrative only. Although only a few embodiments have been described in detail in this disclosure, many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter described herein. Some elements shown as integrally formed may be constructed of multiple parts or elements, the position of elements may be reversed or otherwise varied, and the nature or number of discrete elements or positions may be altered or varied. The order or sequence of any process, logical algorithm, or method steps may be varied or re-sequenced according to alternative embodiments. Other substitutions, modifications, changes and omissions may also be made in the design, operating conditions and arrangement of the various exemplary embodiments without departing from the scope of the present disclosure.
(43) Unless otherwise expressly stated, it is in no way intended that any method set forth herein be construed as requiring that its steps be performed in a specific order. Accordingly, where a method claim does not actually recite an order to be followed by its steps or it is not otherwise specifically stated in the claims or descriptions that the steps are to be limited to a specific order, it is in no way intended that any particular order be inferred. In addition, as used herein, the article “a” is intended to include one or more component or element, and is not intended to be construed as meaning only one. As used herein, “rigidly coupled” refers to two components being coupled in a manner such that the components move together in a fixed positional relationship when acted upon by a force.

(44) Various embodiments of the disclosure relate to any combination of any of the features, and any such combination of features may be claimed in this or future applications. Any of the features, elements or components of any of the exemplary embodiments discussed above may be utilized alone or in combination with any of the features, elements or components of any of the other embodiments discussed above.
(45) For purposes of this disclosure, the term “coupled” means the joining of two components directly or indirectly to one another. Such joining may be stationary in nature or movable in nature. Such joining may be achieved with the two members and any additional intermediate members being integrally formed as a single unitary body with one another or with the two members or the two members and any additional member being attached to one another. Such joining may be permanent in nature or alternatively may be removable or releasable in nature.
(46) While the current application recites particular combinations of features in the claims appended hereto, various embodiments of the invention relate to any combination of any of the features described herein whether or not such combination is currently claimed, and any such combination of features may be claimed in this or future applications. Any of the features, elements, or components of any of the exemplary embodiments discussed above may be used alone or in combination with any of the features, elements, or components of any of the other embodiments discussed above.
(47) In various exemplary embodiments, the relative dimensions, including angles, lengths and radii, as shown in the Figures are to scale. Actual measurements of the Figures will disclose relative dimensions, angles and proportions of the various exemplary embodiments. Various exemplary embodiments extend to various ranges around the absolute and relative dimensions, angles and proportions that may be determined from the Figures. Various exemplary embodiments include any combination of one or more relative dimensions or angles that may be determined from the Figures. Further, actual dimensions not expressly set out in this description can be determined by using the ratios of dimensions measured in the Figures in combination with the express dimensions set out in this description.

Claims

1. A container comprising: a body defining a storage compartment; a container neck coupled to the body, the container neck extending along a longitudinal axis between the body and an opening; a thread extending helically outward from the container neck, the thread configured to detachably engage with a closure affixed to the container neck, wherein the closure is distinct from the container, the closure configured to actuate between a closed configuration in which the closure encloses the opening and an open configuration in which a tab of the closure interfaces with the container neck to bias a body of the closure away from the container neck; an A-bead extending radially away from the container neck, the A-bead configured to engage with a retention band of the closure to bias the retention band to remain coupled to the container neck after the closure has been opened; and a protrusion extending upward from the A-bead, the protrusion configured to engage the tab of the closure to bias the body of the closure away from the container neck, wherein the A-bead defines an upper surface that extends from a top of the A-bead to the protrusion, and wherein the protrusion defines an upper surface that faces upward and an outer surface that faces away from the axis, the outer surface of the protrusion and the upper surface of the protrusion intersecting at a corner, the corner being below the top of the A-bead.
2. The container of claim 1, wherein the outer surface of the protrusion defines a first angle with the upper surface of the A-bead, and wherein the first angle is between 120 degrees and 150 degrees.
3. The container of claim 1, wherein the tab of the closure is configured to interface with the corner when the protrusion is biasing the body of the closure away from the container neck.

4. The container of claim 1, wherein: the thread defines a first diameter that is a maximum diameter of the thread with respect to the axis; and the outer surface of the protrusion defining a second diameter that is less than or equal to the first diameter.
5. The container of claim 4, wherein the second diameter is less than the first diameter.
6. The container of claim 1, wherein the protrusion is affixed to the A-bead via an adhesive.
7. The container of claim 1, wherein the protrusion and the A-bead are molded contemporaneously.
8. The container of claim 1, the upper surface of the A-bead extends between the protrusion and the container neck.
9. The container of claim 1, wherein the A-bead defines an outer surface that extends away from the longitudinal axis, and wherein the upper surface of the A-bead extends between the protrusion and the outer surface of the A-bead.
10. The container of claim 1, the outer surface of the protrusion extending a first height from the A-bead, wherein the top of the A-bead is a second height above the corner of the protrusion, and wherein the second height is less than the first height.
11. A container comprising: a body; a container neck coupled to the body, the container neck extending along a longitudinal axis between the body and an opening; a thread extending helically outward from the container neck, an outermost portion of the thread defining a T-diameter that is a maximum diameter of the thread with respect to the axis, the thread configured to detachably engage with a closure affixed to the container neck, wherein the closure is distinct from the container, the closure configured to actuate between a closed configuration in which the closure encloses the opening and an open configuration in which a tab of the closure interfaces with the container neck to bias a body of the closure away from the container neck; an A-bead extending radially away from the container neck, the A-bead configured to engage with a retention band of the closure to bias the retention band to remain coupled to the container neck after the closure has been opened; and a protrusion extending upward from the A-bead, the protrusion defining an outer surface defining a second diameter that is a maximum diameter of the protrusion with respect to the axis, wherein the second diameter is less than the T-diameter, wherein the A-bead defines an upper surface that faces upward, and wherein the upper surface of the A-bead extends between the protrusion and the container neck, and wherein the A-bead defines an outer surface that extends away from the longitudinal axis, and wherein the upper surface of the A-bead extends between the protrusion and the outer surface of the A-bead.
12. The container of claim 11, the protrusion defining an upper surface that faces upward and wherein the outer surface faces away from the axis, the outer surface of the protrusion and the upper surface of the protrusion intersecting at a corner, and wherein the tab of the closure is configured to interface with the corner when the protrusion is biasing the body of the closure away from the container neck.
13. A container comprising: a body; a container neck coupled to the body, the container neck extending along a longitudinal axis between the body and an opening; a thread extending helically outward from the container neck, the thread configured to detachably engage with a closure affixed to the container neck, wherein the closure is distinct from the container, the closure configured to actuate between a closed configuration in which the closure encloses the opening and an open configuration in which a tab of the closure interfaces with the container neck to bias a body of the closure away from the container neck; an A-bead extending radially away from the container neck, the A-bead configured to engage with a retention band of the closure to bias the retention band to remain coupled to the container neck after the closure has been opened, the A-bead defining an outer surface defining a first diameter that is a maximum diameter of the A-bead with respect to the axis; and a protrusion extending upward from the A-bead, the protrusion defining an outer surface facing away from the axis, the outer surface of the protrusion defining a second diameter that is a maximum diameter of the protrusion from the axis, wherein the second diameter is less than the first diameter, wherein the A-bead defines an upper surface that extends from a top of the A-bead to

the protrusion, and wherein the protrusion defines an upper surface that faces upward, the outer surface of the protrusion and the upper surface of the protrusion intersecting at a corner, the corner being below the top of the A-bead.

14. The container of claim 13, wherein the outer surface of the protrusion defines a first angle with the upper surface of the A-bead, and wherein the first angle is between 120 degrees and 150 degrees.

15. The container of claim 13, wherein the tab of the closure is configured to interface with the corner when the protrusion is biasing the body of the closure away from the container neck.