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DIVISION DE NUEVAS CREACIONES
Superintendencia de Industria y Comercio
E. S. D.

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 07-007770- -00005-0000

Fecha: 2008-07-15 17:03:42 Dep. 2020 NUECREACIONI
Tra. 11 PATENTEIYII Eve: 379 FASENACIONALI
Act. 538 PETICION Folios: 2

Trámite : 011
Evento : 379
Actuación : 538

Referencia : Expediente No. 07.007.770
Asunto : Solicitud de Patente para **CIERRE PARA UN RECIPIENTE, ESPECIALMENTE PARA BOTELLA**
Solicitante : **SVEN-AKE MAGNUSSON**
Clase : B65D 051/016
Publicada en : La Gaceta No. **587** del 18 de enero de 2008
Fecha de Solicitud : 26 de enero de 2007

1. Yo, Emilio FERRERO, identificado como aparece al pie de mi firma, actuando como apoderado en el asunto de la referencia, atentamente, solicito se efectúe el examen de patentabilidad de la solicitud en referencia presentada de acuerdo con el Capítulo II del PCT y según lo establecido en el artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina. Para tal efecto presento junto con este escrito el recibo por valor de \$ 210.000.00, que corresponde a la tasa fijada según lo dispuesto en la resolución No. 44372 de 26 de diciembre de 2007.

2. Ruego atentamente a la Señora Jefe se sirva ordenar que se anexe este recibo para que se efectúe dicho examen y se continúe con el trámite de la solicitud.

Señora Jefe,

EMILIO FERRERO
T.P.A. No. 31.929

COLO-15691-841-001-0
SDC\ICT\ID-130403\WPC15691
No. M-2008-130403\SDC

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

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RECIBO OFICIAL DE CAJA : 08 - 45,970
 JA : JUNIO 9 DE 2008

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	Vr. PAGO
CAVELIER ABOGADOS	CONSIGNACION	BANCO DE BOGOTA	062754387	2678328	09/06/2008	89,445,000.00

***** CONCEPTO *****

CONT. RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1 50005-01-01 SOLICITUDES	114 PTC CAP-II EXAMEN DE PATENTIBILIDAD	210,000.00
	TOTAL :	\$ 210,000.00

SON: DOSCIENTOS DIEZ MIL PESOS

RESPONSABLE :

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

Cdo 15691-841-001-0

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 07-07770

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCION**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **587** DE

FECHA **18 DE ENERO DE 2008** EL TÉRMINO HÁBIL SEÑALADO POR LA LEY

EXPIRA EL **16 DE ABRIL DE 2008**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____

NO X



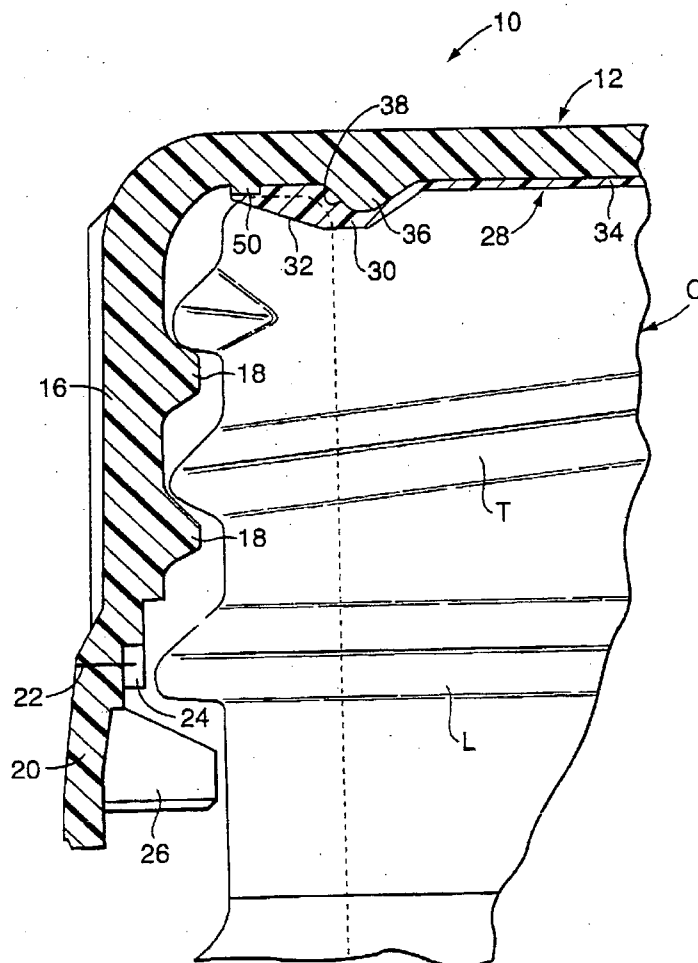
US 20030127421A1

(19) **United States**(12) **Patent Application Publication**
Ziegler et al.(10) **Pub. No.: US 2003/0127421 A1**(43) **Pub. Date: Jul. 10, 2003**(54) **VENTING PLASTIC CLOSURE****Publication Classification**(76) **Inventors:** John D. Ziegler, Carmel, IN (US);
David E. Babcock, Lafayette, IN (US);
Coy Herald, West Lafayette, IN (US)(51) **Int. Cl.⁷** **B65D 51/16**(52) **U.S. Cl.** **215/307; 215/271; 215/349****Correspondence Address:****WOOD, PHILLIPS, KATZ, CLARK &
MORTIMER
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CHICAGO, IL 60661 (US)**(57) **ABSTRACT**

A venting plastic closure for use with an associated container includes an outer plastic cap having a top wall portion and an annular depending skirt including an internal thread formation. A disc-shaped sealing liner is positioned on the inside surface of the top wall portion for creating a top/inside seal with the associated container. In order to facilitate venting of gas pressure from within the container, and to facilitate removal of the closure from the container by consumers, the closure includes one or more positive stop elements which engage the container after the sealing liner of the closure has been sealingly engaged therewith. The stop elements act to limit the degree of sealing engagement between the sealing lines of the closure and the finish of the closure.

(21) **Appl. No.:** 10/303,278(22) **Filed:** Nov. 25, 2002**Related U.S. Application Data**

(63) Continuation of application No. 09/666,522, filed on Sep. 20, 2000, now abandoned.



VENTING PLASTIC CLOSURE

TECHNICAL FIELD

[0001] The present invention relates generally to a plastic closure for use with an associated container, and more particularly to an internally threaded plastic closure having at least one container-engaging stop element for limiting sealing engagement of the closure with the container, thereby facilitating venting of gas pressure from within the container, and removal of the closure from the container by consumers. The present invention also contemplates a method of packaging a hot-fill beverage which facilitates venting of gas pressure.

BACKGROUND OF THE INVENTION

[0002] Threaded plastic closures have found very widespread application for use in connection with bottles and like containers by virtue of their economical manufacture and sealing performance. Closures of this nature typically include an outer plastic closure cap having an internal thread formation, and a sealing liner positioned adjacent the inside surface of a top wall portion of the outer cap. As the closure is threadingly applied to an associated container, the sealing liner is urged into sealing engagement with the sealing container. Threaded fitment of the closure to the container facilitates initial application of the closure, as well as re-application of the closure to the container by consumers after partial consumption of the container's contents.

[0003] While closures of the above type have proven very commercially successful, over-application of the closures to containers can be problematic. When closures are applied to containers, either by high-speed capping equipment or by consumers, closures can be applied with a torque which exceeds that required for effecting the desired sealing engagement with the associated container. As will be appreciated, over-application can undesirably result in closures which are difficult for consumers to remove. This problem has been recognized in connection with closures having multi-lead thread formations, which are sometimes used on so-called "hot-fill" beverages, that is, those filled at elevated temperatures. To control application, these types of closures typically have external marks ("pull-ups") that are used with reference to marks on the container finish to indicate the degree to which the closure has been applied.

[0004] Apart from high removal torque, over-application of closures can be of concern in connection with the build-up of gas pressure within a container, such as the result of product fermentation caused by spoilage. Over-application of a closure can undesirably inhibit the closure's venting characteristics. This occurs because the degree of sealing engagement between the closure and the container is beyond that which is necessary to achieve sealing integrity under normal conditions. As a consequence, deformation of the closure under the influence of internal gas pressure is insufficient to move the closure out of sealing engagement with the container.

[0005] The present invention is directed to an improved closure construction for a container which facilitates closure removal and venting of internal gas pressure by obviating problems associated with over-application of the closure.

SUMMARY OF THE INVENTION

[0006] A venting plastic closure embodying the principles of the present invention is particularly suited for use with an

associated container having contents which ferment or otherwise spoil, resulting in the creation of internal gas pressure within the container. By virtue of the closure's configuration, venting of gas pressure from within the container to acceptable levels is accommodated. The closure is configured to facilitate venting even in the event of over-application of the closure to the container, such as can occur attendant to the use of high-speed automated capping equipment, as well as facilitating convenient closure removal by consumers. A method of packaging a hot-fill beverage is also disclosed.

[0007] A venting plastic closure embodying the principles of the present invention includes an outer plastic cap having a top wall portion, and a depending annular skirt portion. The skirt portion includes at least one internal thread formation and may include plural, multi-lead threads.

[0008] The closure includes a disc-shaped sealing liner positioned on an inside surface of the top wall portion, with the liner configured for sealing engagement with the associated container. To this end, the liner is spaced inwardly of the annular skirt portion, and includes a depending annular sealing bead having a generally downwardly and outwardly facing sealing surface. This sealing surface is configured for sealing engagement with a generally upwardly and inwardly facing portion of the associated container, to form what is referred to as a "top/inside seal".

[0009] In accordance with the present invention, the outer plastic cap of the present closure includes at least one positive stop element engageable with the associated container. The stop element may be configured in various forms in accordance with the present invention. In accordance with one form, a plurality of circumferentially spaced stop elements depend from the inside surface of the top wall portion. In accordance with the preferred embodiment, each stop element has a generally downwardly, facing stop surface engageable with the associated container. In an alternate embodiment, the positive stop element is positioned on the closure skirt portion, preferably adjacent the thread formation of the closure for engagement with a cooperating thread formation on the associated container. When the closure is configured to include a plurality of thread formations, the closure may include a like plurality of stop elements respectively positioned adjacent the thread formations.

[0010] Features of the present closure facilitate efficient sealing with the associated container. In the preferred form, the outer plastic cap includes an annular liner support element which depends from the inside surface of the top wall portion. The support element is positioned within the annular sealing bead of the sealing liner, positioned inwardly of and generally parallel to the generally downwardly and outwardly facing sealing surface of the sealing liner. The sealing liner is preferably efficiently formed by compression molding, and preferably includes a relatively thin central panel portion, positioned inwardly of the annular sealing bead, for efficient use of liner material.

[0011] In one form, the annular stop elements depending from the inside surface of the top wall portion are positioned radially outwardly of the sealing liner, whereby each stop surface of each stop element is exposed for engagement with the associated container. In an alternate embodiment, the stop element depends from the inside surface of the top wall beneath the sealing liner, and thus cooperation with the

container, while the surface of the stop element does not actually contact the container.

[0012] Other features and advantages of the present invention will become readily apparent from the following detailed description, the accompanying drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a side elevational view, in partial cross-section, of a venting plastic closure embodying the principles of the present invention;

[0014] FIG. 2 is a fragmentary, cross-sectional view of the venting plastic closure shown in FIG. 1;

[0015] FIG. 2a is a diagrammatic view of the inside surface of the closure cap top wall portion;

[0016] FIG. 3 is a fragmentary, cross-sectional view of an alternate embodiment;

[0017] FIG. 4 is a fragmentary, cross-sectional view of a further alternate embodiment of the present venting plastic closure;

[0018] FIG. 5 is a fragmentary, cross-sectional view of a further alternate embodiment of the present venting closure; and

[0019] FIG. 6 is a finite element analysis of a venting plastic closure configured in accordance with the present invention.

DETAILED DESCRIPTION

[0020] While the present invention is susceptible of embodiment in various forms, there is shown in the drawings, and will hereinafter be described, presently preferred embodiments, with the understanding that the present disclosure is to be considered as an exemplification of the invention, and is not intended to limit the invention to the specific embodiments illustrated.

[0021] With reference first to FIGS. 1 and 2, therein is illustrated a venting plastic closure 10 embodying the principles of the present invention. Plastic closure 10 has been particularly configured for use on bottles or like containers, such as container C, containing beverages or other liquids. The present closure has been particularly configured for use on so-called "hot-fill" beverages, that is, beverages which are introduced into an associated container during packaging when the beverage is at a relatively elevated temperature. However, the present closure construction can be advantageously employed on containers having other types of contents.

[0022] While the present closure construction can be manufactured by various techniques, manufacture of the present closure by compression molding is presently preferred. U.S. Pat. No. 4,497,765, hereby incorporated by reference, discloses a method and apparatus for forming plastic closures including in situ compression molded liners.

[0023] Venting plastic closure 10 includes an outer plastic cap 12 having a top wall portion 14, and annular skirt portion 16. The skirt portion 16 includes at least one internal thread formation 18 configured for engagement with a cooperating container thread formation T. Plural, multi-lead thread for-

mations can be advantageously employed for obtaining the desired closure retention, while permitting the closure to be removed from the container with minimum relative rotation.

[0024] In the illustrated form, the plastic closure 10 is configured to provide tamper-evidence. The closure includes a pilfer band 20 depending from annular skirt portion 16. The pilfer band is distinguished from the skirt portion 16 by circumferentially extending score line 22, which extends inwardly to a plurality of internal frangible ribs or bridges 24 which at least partially detachably connect the pilfer band 20 to the skirt portion 16. The pilfer band 20 includes a plurality of circumferentially spaced, inwardly extending flexible projections 26 which are configured for cooperative engagement with a locking ring L of container C such that during closure removal, the engagement of the projections 26 with the locking ring L results in breakage of bridges 24, and at least partial or complete separation of the pilfer band 20 from the skirt portion 16. The closure pilfer band can be configured in accordance with U.S. Pat. No. 4,418,828, hereby incorporated by reference. It is to be understood that the closure pilfer band can be otherwise configured, such as in accordance with the teachings of U.S. Pat. Nos. 4,938,370, to McBride, and No. 5,004,112, to McBride, both hereby incorporated by reference.

[0025] In order to effect the desired sealing cooperation with an associated container, venting plastic closure 10 includes a disc-shaped sealing liner 28 positioned adjacent the inside surface of top wall portion 14 of closure cap 12. The sealing liner is preferably compression molded within the outer closure cap during closure manufacture, and is configured for effecting a so-called "top/inside seal" with the associated container C. To this end, the sealing liner includes a depending annular sealing bead portion 30 having a generally downwardly and outwardly facing sealing surface 32, shown in an undeformed configuration in FIG. 2 in relation to a generally upwardly and inwardly facing portion of the associated container C. When formed in accordance with the preferred compression molding technique, the sealing liner 28 includes a relatively thin central panel portion 34 positioned inwardly of sealing bead 30.

[0026] In the preferred form, the outer closure cap includes an annular liner support element 36 depending from the inside surface of top wall portion 14. The liner support element is positioned within the annular sealing bead 30 of liner 28, and defines a liner support surface 38 positioned inwardly of and generally parallel to sealing surface 32 of liner 28. The liner support element 36 cooperates with the sealing bead 30 of sealing liner 28 to effect sealing engagement of the sealing bead with the surface of the associated container C, and also desirably reduced the quantity of relatively expensive liner material employed in the closure.

[0027] As discussed, fermentation or other spoilage of the contents of container C can occasionally take place. As a consequence, gas pressure within the container can become elevated, with it therefore being desirable for the closure 10 to flex and deform outwardly to a sufficient degree such that the sealing liner 28 is dislodged from sealing engagement with the associated container. Under such circumstances, gas pressure from within the container can be vented to the atmosphere.

[0028] In accordance with the present invention, the closure 12 is configured to facilitate such venting of gas

