



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.05.2011 Bulletin 2011/18

(51) Int Cl.:
B65D 39/00 (2006.01) B65D 39/16 (2006.01)
B65D 41/58 (2006.01)

(21) Application number: **10189621.5**

(22) Date of filing: **02.11.2010**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(72) Inventors:
• **Escobar, Miguel Francisco**
01060 Mexico DF (MX)
• **Escobar, Ricardo**
01060 Mexico DF (MX)

(30) Priority: **30.10.2009 US 256388 P**
23.07.2010 US 842091

(74) Representative: **Delorme, Nicolas et al**
Cabinet Germain & Maureau
BP 6153
69466 Lyon Cedex 06 (FR)

(71) Applicant: **Tapones Escobar, S.A.**
Mexico D.F. 01140 (MX)

(54) **Composite interlocking stopper and method of manufacture**

(57) A composite synthetic cork (10) is provided, wherein the synthetic cork is operatively coupled with a cap (12) via an interlocking contour. In an exemplary em-

bodiment, the interlocking contour(s) is molded on or within an otherwise flat bottom portion of the cap (12). In other exemplary embodiments, the cap (12) and the cork (30) are assembled via co-injection molding.

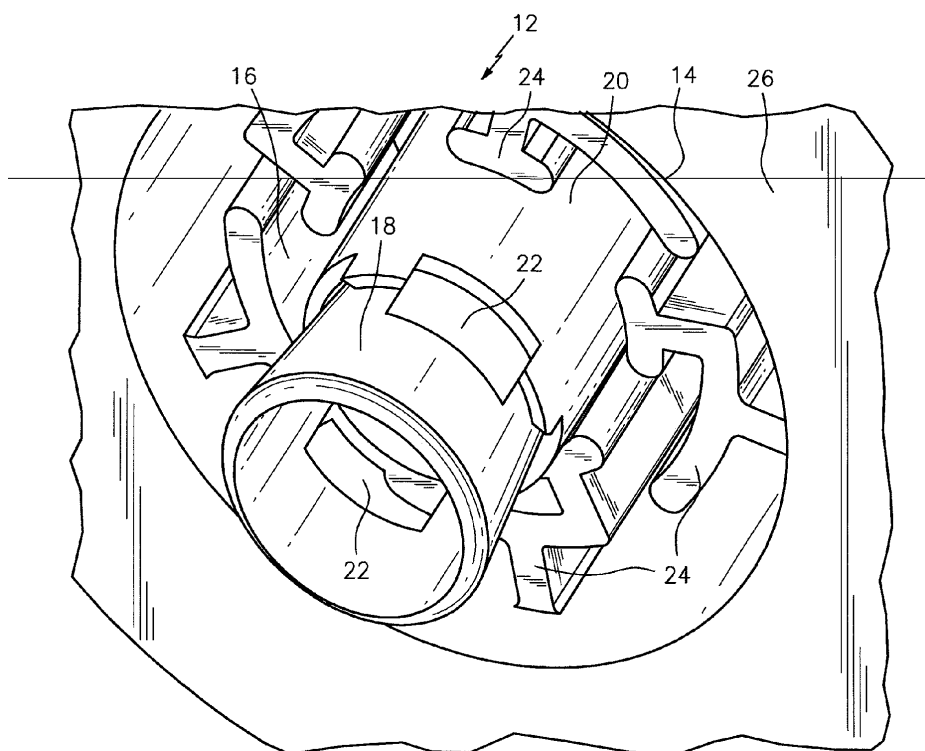


FIG. 1

Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application claims priority to United States Provisional Patent Application Serial No. 61/256,388 filed October 30, 2009, and is a Continuation-In-Part of United States Patent Application Serial No. 12/842,091 filed July 23, 2010, which claims priority to United States Provisional Patent Application Serial No. 61/228,324 filed July 24, 2009, the entire contents each of which are specifically incorporated by reference herein.

BACKGROUND

[0002] The present disclosure relates to container closures including a cork material interlocked with a handle or cap (hereinafter referred to as a cap).

[0003] Producers of liquid consumable products, such as wine, liquor and other products, that are sold in bottles or other containers that are traditionally closed and sealed with cork stoppers have long been concerned about the reliability and structural integrity of the cork and cap, particularly along the interface of the two. Traditional models use glue to bond the cork to the cap. However, breakage of the bond remains a significant concern in the industry.

[0004] Accordingly, there is a need in the industry for a more reliable bond between the cork and the cap.

SUMMARY

[0005] The present stopper comprises a cork portion that is bonded to a cap portion via an interlocking interface. In an exemplary embodiment, the cork material is a synthetic cork material. In another exemplary embodiment, the cork material is injection molded over a portion of the cap, which portion includes surface contouring that provides more surface area for the cork to cap bond.

[0006] In another exemplary embodiment, a first cap portion contour creates a mechanical interlock that resists relative movement of the cork and the cap in a first direction. In another exemplary embodiment, a second cap portion contour creates a mechanical interlock that resists relative movement of the cork and the cap in a second direction.

[0007] In other exemplary embodiments, a first cap portion contour creates a mechanical interlock that resists separation of the cork and the cap. In other exemplary embodiments, a first cap portion contour creates a mechanical interlock that resists rotation of the cork relative to the cap. In other exemplary embodiments, a first cap portion contour creates a mechanical interlock that resists separation of the cork and the cap and rotation of the cork relative to the cap.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Referring now to the drawings, wherein like elements are numbered alike in the following FIGURES:

[0009] FIGURE 1 is perspective view of an exemplary cap;

[0010] FIGURE 2 is another perspective view of the exemplary cap of FIGURE 1;

[0011] FIGURE 3 is a side elevation view of the exemplary cap of FIGURE 1; and

[0012] FIGURE 4 is a perspective view of an exemplary stopper.

DETAILED DESCRIPTION

[0013] As was noted above, the present disclosure relates to a stopper, comprising a cork portion that is bonded to a cap portion via an interlocking interface.

[0014] Referring now to FIGURES 1-3, an exemplary cap is shown generally at 12. The cap includes a handle portion 14 and a cork interface portion, shown generally at 16. As is illustrated in FIGURES 1-3, the cork interface portion includes at least one contour that provides more surface area for the cork to cap bond. The illustrated exemplary cork interface portion includes a pin contour 18, a groove contour 20 on the pin contour 18, a hole contour 22 within the pin contour 18, and a plurality of fin contours 24 within the groove contour. The handle portion includes a generally flat surface 26 configured to interface with cork material in circumstances where the cork diameter exceeds the diameter of the groove contour 20.

[0015] Referring now to FIGURE 4, an exemplary stopper is illustrated generally at 10. The exemplary stopper includes the exemplary elements of FIGURES 1-3 with a cork material 30 bonded thereto. In an exemplary embodiment, the cork material is a synthetic cork material. In another exemplary embodiment, the cork material is injection molded over the cork interface portion. In another exemplary embodiment, the cap and cork material are co-injected during assembly. In molding certain contours of the cap portion (e.g., grooves, holes or fins), sliders may be used in the mold to release such contours. However, in certain embodiments, sliders are not necessary for molding of the cap portion (for example, with reference to the exemplary embodiment of FIGURE 2, the material of the pin contour is arranged such that a mold would not require sliders to generate the hole contours 22).

[0016] In another exemplary embodiment, a first cap portion contour creates a mechanical interlock that resists relative movement of the cork and the cap in a first direction. It is noted that each of the described contours resists relative movement of the cork and the cap in at least one direction. For example, the pin contour 18 resists bending of the cork material 30 off of its longitudinal axis. The groove 20 contour further resists bending of the cork material (by incorporation of the cork material past the flat surface 26 of the handle portion into the

groove 20. The fin contours 24 within the groove 20 increase the bonding area between the cap and cork and resist rotation of the cork 30 about the pin contour 18. The hole contours 22 resist both pulling of the cork 30 away from the bottom 26 of the cap 12 and rotation of the cork 30 about the pin contour 18. Thus, various cap portion contours create a mechanical interlock that resist relative movement of the cork and the cap in at least one direction.

[0017] It will be apparent to those skilled in the art that, while exemplary embodiments have been shown and described, various modifications and variations can be made to the synthetic cork and method of making disclosed herein without departing from the spirit or scope of the invention. For example, recitations of contours, including projections and recesses, are nonlimiting. The cap interface portion may include a single or a combination of contours providing a mechanical interlock. Additionally, various amounts of cork (e.g., widths) may be used such that the cork covers only a portion or, e.g., all of the bottom surface of the cap handle. Accordingly, it is to be understood that the various embodiments have been described by way of illustration and not limitation.

Claims

1. A stopper, comprising:

a cap, including a handle portion, a bottom portion and at least contour dependent from said bottom portion, the contour providing increased surface area relative to said bottom portion; and a cork portion that is bonded to a cap portion via an interlocking interface provided by said contour, the interlocking interface resisting relative movement of the assembled cap and cork in at least one direction.

2. A stopper in accordance with claim 1, further comprising, a second cap portion contour configured to create a second mechanical interlock that resists relative movement of the cork and the cap in a second direction.

3. A stopper in accordance with claim 1, wherein said mechanical interlock resists separation of the cork and the cap.

4. A stopper in accordance with claim 1, wherein said mechanical interlock resists rotation of the cork relative to the cap.

5. A stopper in accordance with claim 1, wherein said mechanical interlock resists separation of the cork and the cap and rotation of the cork relative to the cap.

6. A stopper in accordance with claim 1, wherein said cork material is a synthetic cork material.

7. A method of manufacturing a stopper, comprising:

injection molding a cap, including a handle portion, a bottom portion and at least contour dependent from said bottom portion, the contour providing increased surface area relative to said bottom portion; and

injection molding a cork portion around said a cork interface portion of said cap to bond said cork to the cap portion via an interlocking interface provided by said contour, the interlocking interface resisting relative movement of the assembled cap and cork in at least one direction.

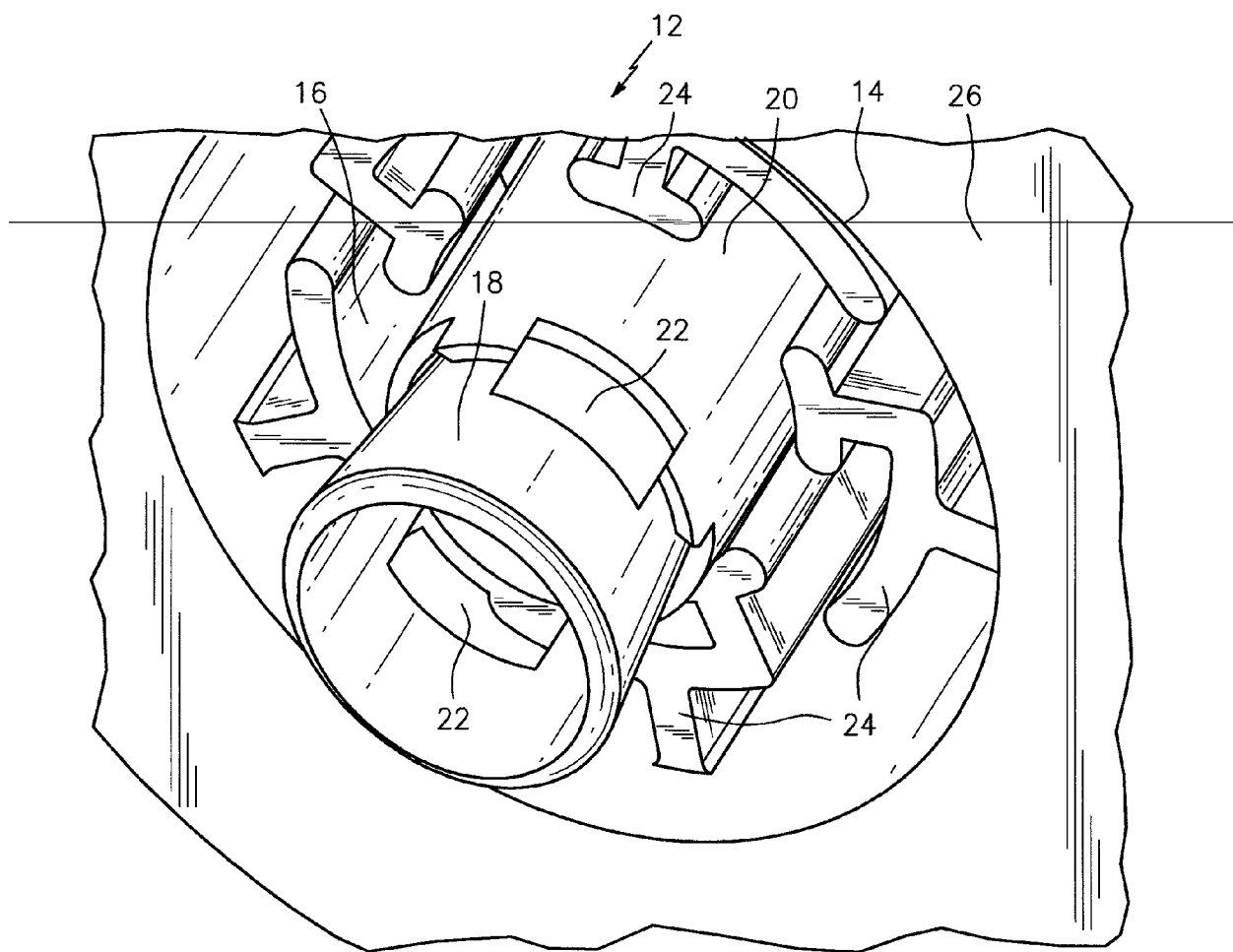


FIG. 1

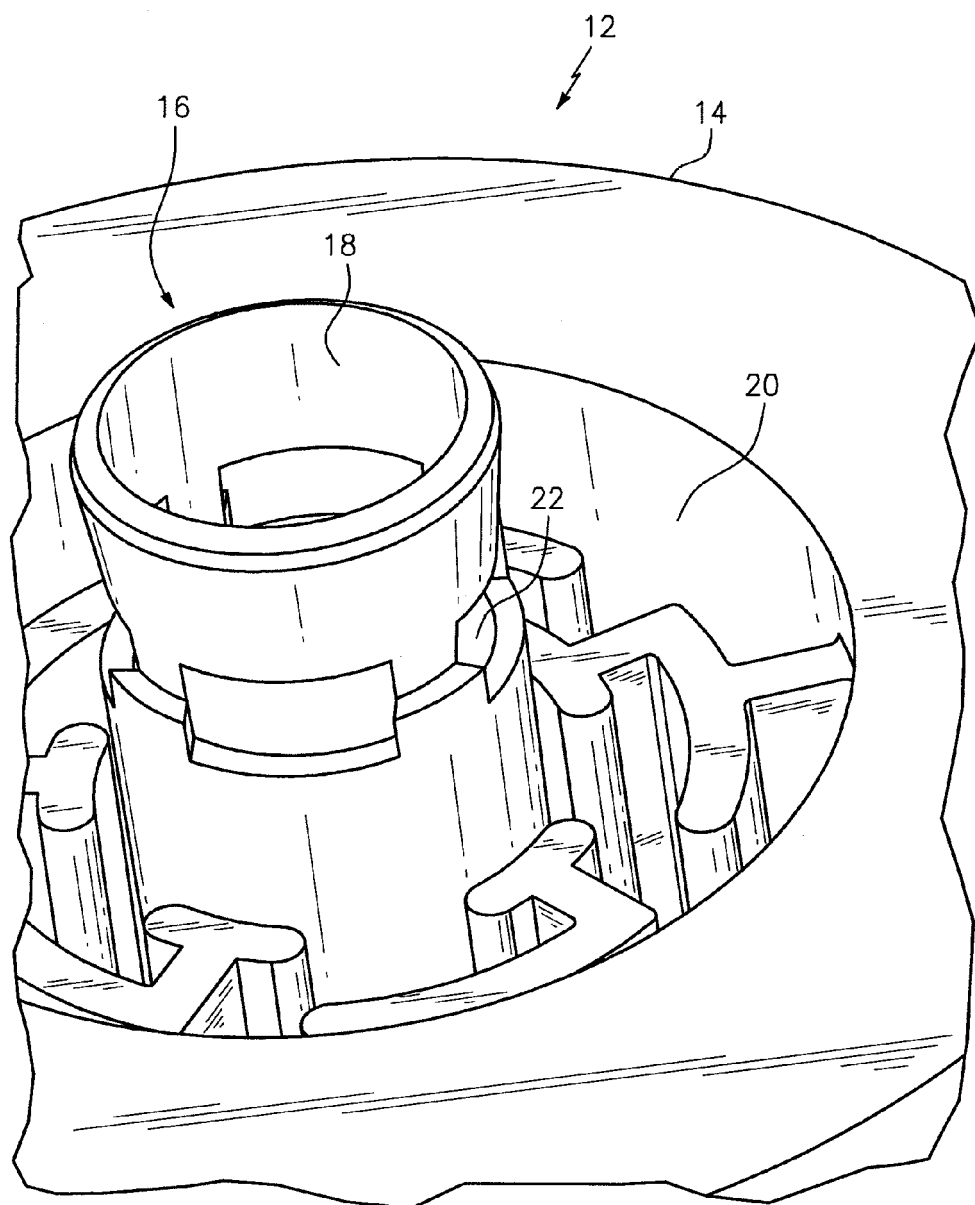


FIG. 2

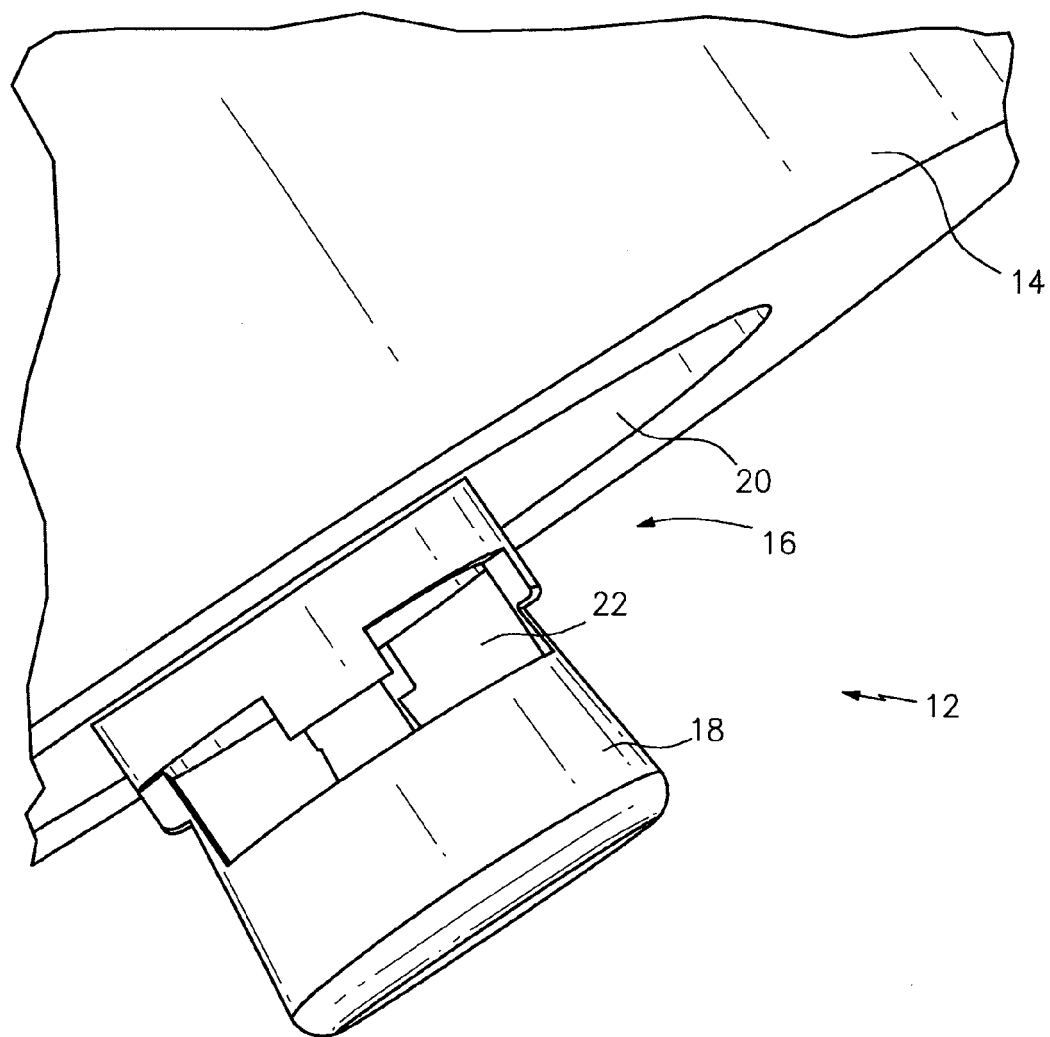


FIG. 3

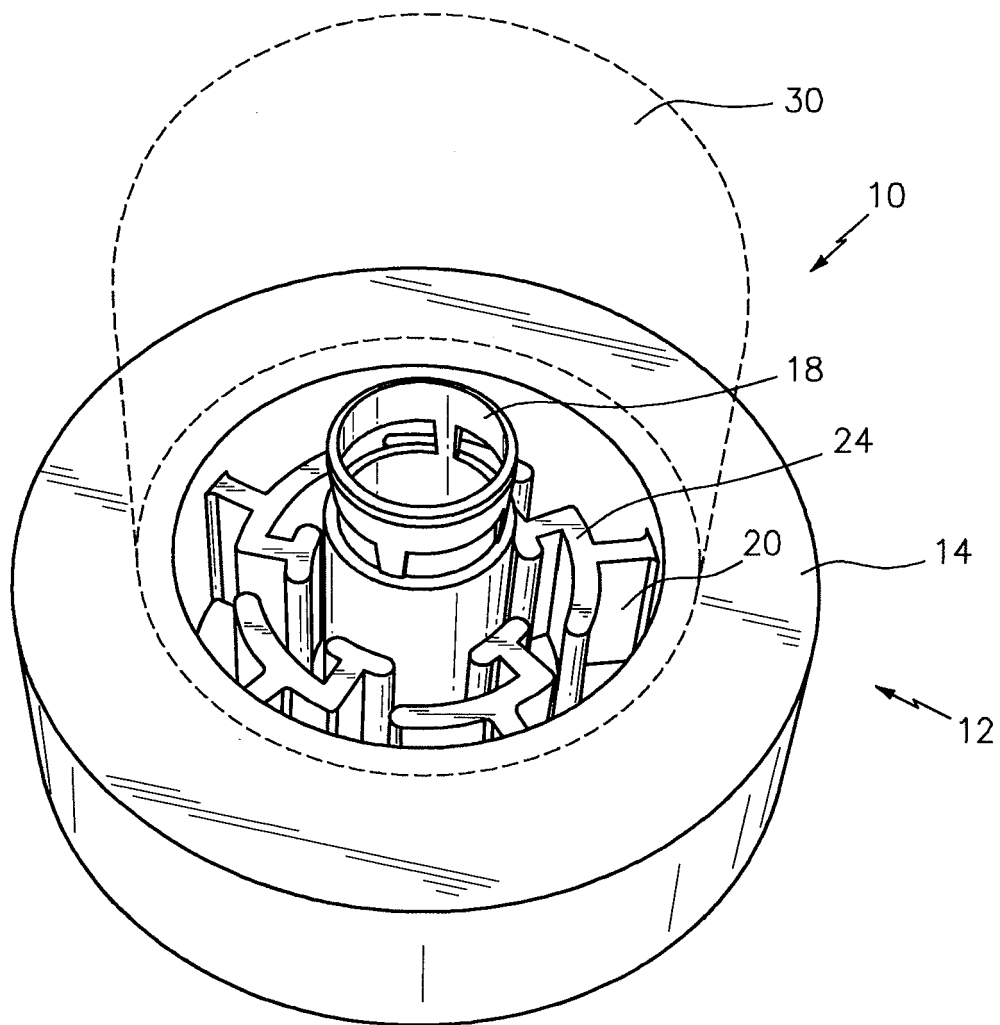


FIG. 4



EUROPEAN SEARCH REPORT

Application Number
EP 10 18 9621

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 99/01354 A1 (SUPREME CORQ [US]; ZECH JEROME M JR [US]; BURNS DENNIS L [US]) 14 January 1999 (1999-01-14) * page 10, line 4 - page 11, line 24; figures 1A-3C *	1-7	INV. B65D39/00 B65D39/16 B65D41/58
X	DE 10 2004 034709 B3 (SEIBEL PLASTIKO AG [DE]) 9 February 2006 (2006-02-09) * paragraph [0010] - paragraph [0039]; figures 1-4 *	1-6	
X,P	WO 2010/078417 A2 (TAPONES ESCOBAR S A [MX]; ESCOBAR MIGUEL F [MX]) 8 July 2010 (2010-07-08) * paragraphs [0007], [0008], [0019] - [0029]; figures 1-7 *	1-6	
X	JP 2001 048204 A (CROWN CORK JAPAN) 20 February 2001 (2001-02-20) * abstract; figures 1-3 *	1-6	
E	EP 2 277 791 A1 (TAPONES ESCOBAR S A [MX]) 26 January 2011 (2011-01-26) * the whole document *	1-7	TECHNICAL FIELDS SEARCHED (IPC) B65D
A	WO 2004/024585 A1 (AMORIM CORK ITALIA S P A [IT]; DELFINI CLAUDIO [IT]) 25 March 2004 (2004-03-25) * the whole document *	1-6	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 January 2011	Examiner Leijten, René
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

1
EPO FORM 1503 03/82 (P04/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 18 9621

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-01-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9901354 A1	14-01-1999	AU 8474498 A	25-01-1999
DE 102004034709 B3	09-02-2006	EP 1768915 A1	04-04-2007
		WO 2006008095 A1	26-01-2006
		US 2008035599 A1	14-02-2008
WO 2010078417 A2	08-07-2010	US 2010163512 A1	01-07-2010
JP 2001048204 A	20-02-2001	JP 4349696 B2	21-10-2009
EP 2277791 A1	26-01-2011	US 2011017698 A1	27-01-2011
WO 2004024585 A1	25-03-2004	AU 2002368212 A1	30-04-2004
		EP 1539603 A1	15-06-2005

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 61256388 A [0001]
- US 84209110 A [0001]
- US 61228324 A [0001]