

Title (en)  
BOTTLE CAP

Title (de)  
FLASCHENVERSCHLUSSKAPPE

Title (fr)  
SYSTEME DE FERMETURE DE BOUTEILLE

Publication  
**EP 1399368 A4 20060524 (EN)**

Application  
**EP 02746587 A 20020617**

Priority  
• US 0219425 W 20020617  
• US 89318101 A 20010626  
• US 97053401 A 20011003

Abstract (en)  
[origin: US2002195415A1] A closure including a cap and a liner. The bottle cap includes a top, a skirt and a liner retaining protrusion. The top has a perimeter and an inside surface. The skirt depends downwardly from the perimeter. The liner retaining protrusion depends downwardly from the inside surface of the top and is adapted to prevent shifting of the liner with respect to the cap. the top, skirt and liner retaining protrusion may be monolithically formed. The liner retaining protrusion may be conical. The liner retaining protrusion may be spike-shaped. Alternatively, the liner retaining protrusion may include a cylindrical wall which depends downwardly from the inside surface of the top. The liner retaining protrusion may include an outwardly extending bead extending from a lower portion of the cylindrical wall. The liner retaining protrusion extends into the liner to retain the liner and prevent the liner from axially shifting with respect to the cap. The liner retaining protrusion may extend into and through the liner. Alternatively, the liner retaining protrusion may extend through the liner such that an intermediate portion extends axially through the liner and an end portion extends below the liner, the end portion extending at an angle with respect to the intermediate portion.

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**B65D 41/34**; **B65D 41/48**

IPC 8 full level  
**B65D 41/34** (2006.01); **B65D 41/48** (2006.01)

CPC (source: EP US)  
**B65D 41/48** (2013.01 - EP US); **B65D 2251/205** (2013.01 - EP US); **B65D 2401/35** (2020.05 - EP US)

Citation (search report)  
• [XY] US 6082567 A 20000704 - BIETZER STEVEN H [US], et al  
• [Y] US 6237790 B1 20010529 - VERDERBER RUDOLPH R [US]  
• [X] US 4256233 A 19810317 - HARDING SUNE  
• [A] US 4431111 A 19840214 - PROHASKA HELMUT [AT]  
• [A] US 2652165 A 19530915 - WENER DAVID L  
• See references of WO 03002421A1

Designated contracting state (EPC)  
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DOCDB simple family (publication)  
**US 2002195415 A1 20021226**; CA 2449494 A1 20030109; CN 1289359 C 20061213; CN 1518516 A 20040804; EP 1399368 A1 20040324; EP 1399368 A4 20060524; MX PA03011870 A 20040326

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