**PatBase - Search results** 17 June 2019
**Search query (1):** [SP]: A metal end for seaming onto a metal container body, the end comprising: an outer curl; a centre panel within the outer curl; a tab having a longitudinal axis A ; a rivet securing the tab to the centre panel; a score in the centre panel having two spaced apart ends which define a hinge therebetween, the hinge lying on one side of said longitudinal axis (A), such that operation of the tab fractures the score and causes the region of the centre panel within the score to pivot about the hinge and provide an aperture in the centre panel, wherein the score extends into a region of the centre panel that is behind a centre line (B) running through the centre of the rivet and perpendicular to said longitudinal axis (A), and on the other side of the longitudinal axis (A) from the hinge.
**Results:** 11

**Search history**

Search 1: [SP]: A metal end for seaming onto a metal container body, the end comprising: an outer curl; a centre panel within the outer curl; a tab having a longitudinal axis A ; a rivet securing the tab to the centre panel; a score in the centre panel having two spaced apart ends which define a hinge therebetween, the hinge lying on one side of said longitudinal axis (A), such that operation of the tab fractures the score and causes the region of the centre panel within the score to pivot about the hinge and provide an aperture in the centre panel, wherein the score extends into a region of the centre panel that is behind a centre line (B) running through the centre of the rivet and perpendicular to said longitudinal axis (A), and on the other side of the longitudinal axis (A) from the hinge. (Results 11)

**1) Family number: 58072004** (US2016130031A)



**Title:** CAN LID AND BEVERAGE CAN

**Priority:** JP20130125055 20130613 JP20130245407 20131127 JP20130245408 20131127 JP20140121887 20140612 CN201480032377 20140613 EP20140811374 20140613 WO2014JP65798 20140613

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| CN105263812 A | 20160120 | CN201480032377 | 20140613 |
| CN105263812 B | 20180406 | CN201480032377 | 20140613 |
| CN106428898 A | 20170222 | CN201611089811 | 20140613 |
| CN106428898 B | 20180828 | CN201611089811 | 20140613 |
| CN108177847 A | 20180619 | CN201810127496 | 20140613 |
| EP3009370 A1 | 20160420 | EP20140811374 | 20140613 |
| EP3009370 A4 | 20170426 | EP20140811374 | 20140613 |
| EP3366601 A1 | 20180829 | EP20180166343 | 20140613 |
| JP2015000734 A2 | 20150105 | JP20130125055 | 20130613 |
| JP2015101398 A2 | 20150604 | JP20130245407 | 20131127 |
| JP2015101399 A2 | 20150604 | JP20130245408 | 20131127 |
| JP2016000621 A2 | 20160107 | JP20140121887 | 20140612 |
| JP6168653 B2 | 20170726 | JP20130125055 | 20130613 |
| JP6243207 B2 | 20171206 | JP20130245408 | 20131127 |
| JP6335490 B2 | 20180530 | JP20130245407 | 20131127 |
| US2016130031 AA | 20160512 | US20140897384 | 20140613 |
| WO14200098 A1 | 20141218 | WO2014JP65798 | 20140613 |

**Probable Assignee:** SHOWA ALUMINUM CAN CORP

**Assignee(s):**(std)**:** SHOWA ALUMINIUM CAN KK ; SHOWA ALUMINUM CAN CORP

**Assignee(s):** SHOWA ALUMINUM KAN KK

**Inventor(s):**(std)**:** KOJIMA SHINICHI ; OKADA HIROYUKI ; KASHIWAZAKI TETSUO ; SUWA ASUMI ; OJIMA SHINICHI ; TASHIRO YASUSHI ; IKEDA KAZUNORI

**Agent(s):** STREHL SCHUEBEL HOPF AND PARTNER; FURUBE JIRO; FURUBE JIRO ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**International class (IPC 8-9):** B65D1/20 B65D17/00 B65D17/28 B65D17/32 B65D17/34 B65D17/347 B65D17/353 B65D8/00 (Advanced/Invention)

**CPC:** B65D7/04 B65D17/02 B65D2517/0014 B65D17/4012 B65D17/404 B65D1/20

**US class:** 220/269

**JP class F-Term:** 3E093 3E093/AA02 3E093/BB01 3E093/CC02 3E093/DD04 3E093/DD05 3E093/AA13 3E093/DD01 3E093/DD06 3E093/AA03 3E093/AA11 3E093/DD02 3E093/DD09 3E093/EE08 3E093/EE20

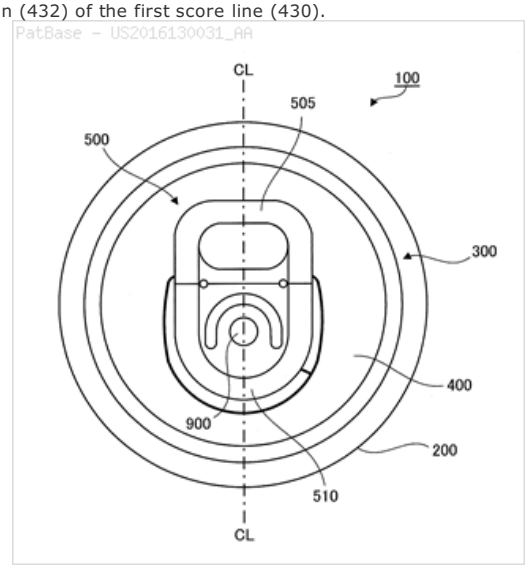
**JP class F-Index:** B65D17/32 B65D17/28 B65D17/34

Classification Explorer

**Cited documents:** WO12091430 A2, WO12091430, US8870012 BB, US8783496 BB, US6354453 BA, US6354453 B1, US6164480 A, US5219257 A, US5219257, US3900128 A, US3894651 A, US2008067171 AA, JP9039962 A2, JP9039962, JP7132937 A2, JP63028633 U1, JP63028633 U, JP63028633 U, JP63028633 U, JP6219448 A2, JP61008525 U1, JP61008525 U, JP61008525 U, JP55050108 Y2, JP5178345 A2, JP51082188 A2, JP51082188 A2, JP4187144 B2, JP2012166826 A2, JP2012166826, JP2009067407 A2, JP2009067407, JP2004035063 A2, JP2003517974 T2, JP2003517974, JP2003095264 A2, JP11321860, EP0993408 A2, CN201347226 Y, CN102951343 A, CN102123917 A,

**Forward Citations:** WO16139274, GB2545403,

**Abstract:**
A first score line (430) is curled inward at one end section (431) and the other end section (432) of the first score line (430) so as to go into a region enclosed by the first score line (430), and the first score line (430) approaches a center line (CL) of a tab as going to the trailing ends thereof. In addition, a curvature at which the first scored line (430) is brought closer to the other end section (432) side is applied to the one end section (431) of the first score line (430), and a curvature at which the first score line (430) is brought closer to the one end section (431) side is also applied to the other end section (432) of the first score line (430).




**2) Family number: 6653037** (US3952912A)



**Title:** CONTAINER WITH ATTACHED CLOSURE

**Priority:** US19720231124 19720302 US19740514069 19741011 US19740515444 19741017 US19760712839 19760809 US19760717993 19760826 US19760744162 19761122

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| US3843011 A | 19741022 | US19720231124 | 19720302 |
| US3952912 A | 19760427 | US19740514069 | 19741011 |
| US3977578 A | 19760831 | US19740515444 | 19741017 |
| US4051976 A | 19771004 | US19760712839 | 19760809 |
| US4062471 A | 19771213 | US19760717993 | 19760826 |
| US4084721 A | 19780418 | US19760744162 | 19761122 |

**Probable Assignee:** CONTINENTAL GROUP

**Assignee(s):**(std)**:** PERRY DECEASED WALTER MERTON ; PERRY EXECUTRIX BY ELIZABETH D ; PERRY W ; PERRY WALTER MERTON ; CONTINENTAL GROUP

**Assignee(s):** CONTINENTAL GROUP INC ; PERRY W US ; THE CONTINENTAL GROUP INC

**Inventor(s):**(std)**:** PERRY W ; PERRY WALTER MERTON ; PERRY EXECUTRIX BY ELIZABETH D ; PERRY DECEASED WALTER MERTON

**Inventor(s):** PERRY W US

**International class (IPC 8-9):** B21D51/38 B21D51/44 B65D17/32 B65D17/50 (Advanced/Invention); B21D51/38 B65D17/00 B65D17/28 (Core/Invention)

**International class (IPC 1-7):** B65D17/00 B65D17/16 B65D17/24 B65D17/32 B65D41/32 B65D43/02 B65D47/10

**CPC:** B65D17/401 B65D17/4012 B65D17/4014 B65D17/28 B65D17/506 B21D51/383 B65D17/503 B65D2517/0011 B65D2517/0013 B65D2517/0014 B65D2517/0017 B65D2517/002 B65D2517/0062 B65D2517/007 B65D2517/0071 B65D2517/0098 B65D2517/5008 B65D2517/5029 B65D2517/5048 B65D2517/5056 B65D2517/5081 B65D2517/5091

**European class:** B21D51/38B B65D17/16 B65D17/16B B65D17/16B2 B65D17/16B2B B65D17/50A2 B65D17/50B L65D517/00Y2A L65D517/00Y2B L65D517/00Y2C L65D517/00Y2E L65D517/00Y2Z L65D517/00Y7A1A L65D517/00Y7B1 L65D517/00Y7B2 L65D517/00Y9 L65D517/50M10A1 L65D517/50M2 L65D517/50P1A1 L65D517/50P2 L65D517/50Q1B L65D517/50Q99

**US class:** 220/260 220/265 220/268 220/269 220/277 220/359.2 220/4.7 220/47 222/541 222/541.9 222/561

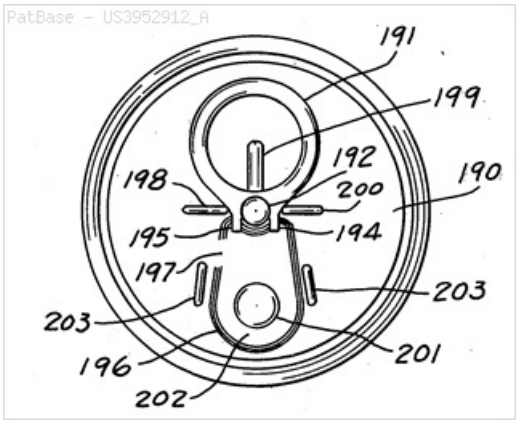
Classification Explorer

**Cited documents:** US3977561 A, US3967753 A, US3967752 A, US3856184 A, US3843011 A, US3836038 A, US3744667 A, US3744666 A, US3738526 A, US3703979 A, US3446389 A, US2723778 A, US2590437 A, US2320484 A, US2274752 A, US2261117 A, US117510 A,

**Forward Citations:** WO9714621, WO8907556, WO17097903, WO16132287, WO14003586, WO14003585, WO13018110, WO12112487, WO11117772, WO09051409, WO09051409, WO08104392, WO08051099, WO07147542, WO07056844, WO06010688, WO04113186, WO02070165, WO0183303, WO0146025, WO0105663, WO0105663, WO0069735, WO0056613, WO0037323, USRE42485, USD762114, USD750488, USD749415, USD727725, USD715647, USD715144, USD691039, USD582274, USD582273, USD533452, USD532691, USD532298, USD530610, USD513452, USD509426, USD507485, USD476889, US9901972, US9714115, US9694935, US9592928, US9566634, US9540137, US9446879, US9359108, US9267705, US9233784, US9163653, US9033174, US8998015, US8973780, US8950619, US8875936, US8870012, US8783495, US8733576, US8627979, US8616399, US8567158, US8556104, US8371467, US8328492, US8215513, US8196767, US8104319, US8080770, US8052005, US8011527, US7975884, US7950542, US7812292, US7748563, US7644833, US7594585, US7556168, US7378625, US7350392, US7174762, US7165696,

US7112771, US7051896, US7004345, US7000797, US6772900, US6761281, US6748789, US6715629, US6405889, US6354453, US6330954, US6260728, US6244455, US6234336, US6161717, US6129230, US6079583, US6024239, US5967726, US5931331, US5860553, US5806757, US5715964, US5711448, US5692636, US5566850, US5555992, US5402921, US5375729, US5335808, US5219257, US5129541, US5085348, US5065882, US5064087, US5007231, US4901880, US4801038, US4624386, US4585140, US4446985, US4411370, US4387827, US4372462, US4322016, US4184607, US4155480, US4141464, US4078695, US4078694, US4054228, US4030631, US4024981, US4024980, US3997075, US3977578, US3977561, US3972445, US3967753, US3967752, US3967750, US3935961, US2015353229, US2015176622, US2012043325, US2012031056, US2010269345, US2010213194, US2010200590, US2010163560, US2010065568, US2009269169, US2009266824, US2009206083, US2009090716, US2008257900, US2008073343, US2008050207, US2008011786, US2007284368, US2007108208, US2007108198, US2007108197, US2007108196, US2007102425, US2006163253, US2006096994, US2005199619, US2005199617, US2005051552, US2005006388, US2004211786, US2004211780, US2004200838, US2004065663, US2003213803, US2003080132, US2003042258, US2003038134, US2003001788, US10017295, JP57196640, JP56056734, JP5414074, JP2011500467, JP2003517974, GB2545403, GB2545403, GB2156772, GB2125762, FR2957898, EP2969799, EP2675717, EP2546159, EP2546159, EP1964784, EP0621195, EP0621195, EP0592550, EP0592550, EP0160626, EP0160626, EP0090809, EP0090809, EP0033449, EP0000091, EA027464, EA017452, EA015059, DE2707064, CN108430878, AU761490,

**Abstract:**
Improved easy opening means for containers. Especially adapted to those used for liquids, including carbonated beverages, and permitting drinking from the container or pouring out contents. An important feature is attachment of closure to container after opening to avoid litter. Another feature is lift tab for easy opening, and with closure sealed by either a frangible adhesive sealant or by membrane sealing means. Lift tab initiates rupture of sealant, and then is pushed below container top with means to hold tab below opening so there is no interference when drinking from the can. Another closure has a small end for initial pressure release, and then whole closure hinges inwardly. Still another means comprises a slide gate with frangible membrane for sealing and for very easy opening. Optionally a pressure release button is provided to release the internal pressure before pulling the slide gate. An improved forming method for making the opening smaller than the closure where the closure is cut from the ductile metal top material. Partial use of score lines is included. Container top may be of ductile metal or of plastic for some of the designs. Primary objectives are the elimination of separate closure device that would cause litter, closure easier to open than heretofore, low cost, and no danger of a piece coming loose inside container.




**3) Family number: 61247072** (US2015367984A)



**Title:** ECOLOGY CAN END WITH PRESSURE EQUALIZATION PORT

**Priority:** US20140312296 20140623 WO2015US37147 20150623

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| BR112016030113 A2 | 20170822 | BR20161130113 | 20150623 |
| CA2951394 AA | 20161206 | CA20152951394 | 20150623 |
| CA2951394 C | 20190312 | CA20152951394 | 20150623 |
| CN106536358 A | 20170322 | CN201580041183 | 20150623 |
| CN106536358 B | 20180918 | CN201580041183 | 20150623 |
| EP3157826 A1 | 20170426 | EP20150734514 | 20150623 |
| MX2016015817 A1 | 20170227 | MX20160015817 | 20150623 |
| US2015367984 AA | 20151224 | US20140312296 | 20140623 |
| US9884701 BB | 20180206 | US20140312296 | 20140623 |
| WO15200301 A1 | 20151230 | WO2015US37147 | 20150623 |

**Probable Assignee:** REXAM BEVERAGE CAN CO

**Assignee(s):**(std)**:** REXAM BEVERAGE CAN CO ; REXAM BEVERAGE CAN CO LTD

**Assignee(s):** FORREST RANDALL G ; GOGOLA MICHAEL R

**Inventor(s):**(std)**:** FORREST RANDALL G ; GOGOLA MICHAEL R ; RANDALL G FORREST ; MICHAEL R GOGOLA

**Agent(s):** SMART AND BIGGAR; TOMKINS AND CO; GREER BURNS AND CRAIN LTD; KLOBUCHAR PETER M

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**International class (IPC 8-9):** B65D17/00 B65D17/32 B65D17/34 B65D17/347 B65D47/32 (Advanced/Invention); B65D17/00 (Core/Invention)

**CPC:** B65D47/32 B65D2517/0013 B65D2517/0091 B65D2517/0014 B65D2517/0062 B65D2517/0071

B65D2517/0074 B65D2517/0082 B65D2517/0092 B65D17/4012 B65D17/32

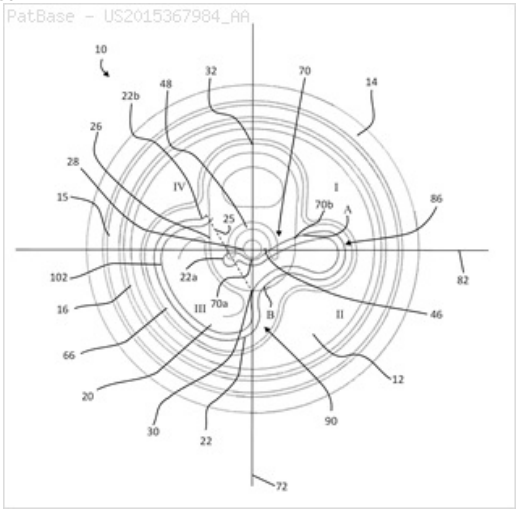
**US class:** 220/269

Classification Explorer

**Cited documents:** WO11136860 A1, WO04009459 A1, USD650278 S1, USD650277 S1, USD650276 S1, US8196767 BB, US7975884 BB, US7748557 BB, US7594585 BA, US7513383 BB, US6761281 BB, US6715629 BB, US6354453 BA, US6354453 B1, US6079583 A, US6024239 A, US5860553 A, US5819973 A, US5738237 A, US5692636 A, US5555992 A, US5375729 A, US5335808 A, US5307947 A, US5011037 A, US4576306 A, US4572398 A, US4205760 A, US3744667 A, US3325043 A, US2013126529 AA, US2011266281 AA, US2009200306 AA, US2008083754 AA, US2003189045 AA, JP3682999 B2, FR2293369 A1, CN1125679 A,

**Forward Citations:** WO17207277, US9969524, US9714115, US9694935, US2016052667, US10246217, US10017295, GB2545403,

**Abstract:**
An ecology stay-on tab beverage can end has a first curvilinear segment of frangible score severable to form a vent region and a pressure equalization port. A second curvilinear segment of frangible score has opposing terminal ends separated by a hinge segment of the center panel. The second curvilinear segment of frangible score is severable to form a pour opening. A lifting of a lift end of a tab actuates an opening sequence in which the first curvilinear segment of frangible score is severed causing the vent region and the pressure equalization port to form before the pour opening is completely formed.




**4) Family number: 8457178** (US5950858A)



**Title:** CONTAINER END CLOSURE

**Priority:** GB19930003218 19930218 GB19930025192 19931208 WO1994GB00335 19940218

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| AU199460408 A1 | 19940914 | AU19940060408 | 19940218 |
| AU687378 B2 | 19980226 | AU19940060408 | 19940218 |
| CN1041188 C | 19981216 | CN19941091228 | 19940218 |
| CN1118150 A | 19960306 | CN19941091228 | 19940218 |
| EP0683746 A1 | 19951129 | EP19940906958 | 19940218 |
| GB2275248 A1 | 19940824 | GB19930025192 | 19931208 |
| GB2275248 B2 | 19961204 | GB19930025192 | 19931208 |
| GB9303218 A0 | 19930407 | GB19930003218 | 19930218 |
| GB9325192 A0 | 19940209 | GB19930025192 | 19931208 |
| JP8506786 T2 | 19960723 | JP19940518754T | 19940218 |
| KR19960700937 A | 19960224 | KR19950703409 | 19940218 |
| RU2121456 C1 | 19981110 | RU19950121599 | 19940218 |
| RU95121599 A | 19970910 | RU19950121599 | 19950918 |
| US5950858 A | 19990914 | US19950507339 | 19951002 |
| WO9419246 A2 | 19940901 | WO1994GB00335 | 19940218 |
| WO9419246 A3 | 19941013 | WO1994GB00335 | 19940218 |

**Probable Assignee:** SERGEANT DAVID R

**Assignee(s):**(std)**:** SARDZHENT DEJVID ROBERT ; SERGEANT DAVID R ; SERGEANT DAVID ROBERT ; D R SERGEANT

**Assignee(s):** DAVID ROBERT SERGEANT

**Inventor(s):**(std)**:** SARDZHENT DEJVID ROBERT ; SERGEANT D R ; SERGEANT DAVID ROBERT

**Inventor(s):** DAVID ROBERT SERGEANT ; D R SERGEANT

**Agent(s):** HALFORDS IP

**Designated states:** AT AU BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CZ DE DK ES FI FR GA GB GN GR HU IE IT JP KP KR KZ LK LU LV MC MG ML MN MR MW NE NL NO NZ PL PT RO RU SD SE SK SN TD TG UA US UZ VN

**International class (IPC 8-9):** B21D22/20 B21D22/21 B65D17/00 B65D17/34 B65D41/32 B65D8/08 (Advanced/Invention);
B65D17/00 (Advanced/Non-invention);
B21D22/20 B65D17/00 B65D17/28 B65D41/32 B65D8/04 (Core/Invention)

**International class (IPC 1-7):** B21D22/02 B21D22/20 B21D22/21 B21D51/44 B65D17/00 B65D17/28 B65D17/34 B65D41/32 B65D43/14 B65D51/00 B65D8/08

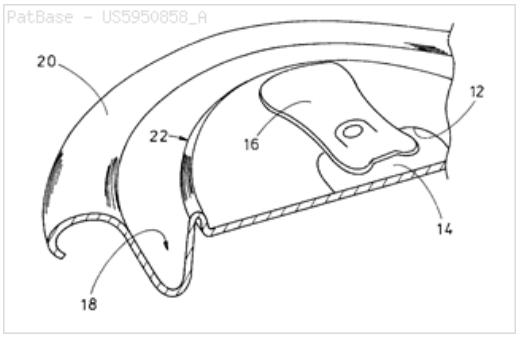
| | |
|---|---|
| **CPC:** | B65D17/401 B65D17/4012 B21D22/20 B21D22/21 |
| **European class:** | B21D22/20 B21D22/21 B65D17/16B B65D17/16B2 |
| **US class:** | 220/269 220/617 220/619 220/624 |
| **JP class F-Term:** | 3E093 3E093/AA02 3E093/BB01 3E093/CC01 |
| **JP class F-Index:** | B65D17/00 |

Classification Explorer

**Cited documents:** WO9109784 A1, US5217134 A, US5152421 A, US5105977 A, US5038956 A, US4832223 A, US4606472 A, US4511299 A, US4448322 A, US4254890 A, US4109599 A, US4093102 A, US4055134 A, US3893325 A, US3843014 A, US3696961 A, US3494169 A, US3432067 A, JP59225830 A2, JP59225830, JP2205208 A2, GB609907 A, GB2241184 A1, GB2234497 A1, GB2234197 A1, GB2191168 A1, GB2107273 A1, GB2060548 A1, GB2050879 A1, GB2040200 A1, GB1300340 A, FR2112318 A1, EP0524098 A1, EP0241788 A2, DE477766 A, DE2315832 A1,

**Forward Citations:** WO03016155, USD559680, US9540137, US9371152, US8973780, US8931660, US8875936, US8851323, US8727169, US8505765, US8496132, US8328492, US8313004, US8235244, US8205477, US8157119, US8104319, US8052005, US8011527, US7938290, US7743635, US7673768, US7644833, US7591392, US7556168, US7506779, US7500376, US7350392, US7174762, US7100789, US7004345, US6772900, US6460723, US6386013, US2010044383, US2009269169, US2009266824, US2009039091, US2008257900, US2008050207, US2006096994, US2005161453, US2005115976, US2005006388, US2004226955, US2004211780, US2004200838, US2004065663, US2003001788, US10246217, RU2679505, EP1834885, EP1425225, CN108430878, AU2002326666, AU2002326666,

**Abstract:**
PCT No. PCT/GB94/00335 Sec. 371 Date Oct. 2, 1995 Sec. 102(e) Date Oct. 2, 1995 PCT Filed Feb. 18, 1994 PCT Pub. No. WO94/19246 PCT Pub. Date Sep. 1, 1994An end closure for a container has a central panel, a circumferential countersink (18) formed around the center panel and adjacent the periphery of the end closure, and a fold (22) formed at the junction between the countersink and the center panel, the fold having opposite side walls which lie closely adjacent or in contact with each other and project upwards from the end closure. The fold may instead be formed at the base of the countersink. The fold forms an annular rigid zone in the end closure.




**5) Family number: 1301246** (US3836038A)



**Title:** EASY-OPEN WALL

**Priority:** US19720293115 19720928 US19730378448 19730712 US19740488805 19740715 US19740492033 19740726 US19740506453 19740916 US19740519992 19741101 US19740529461 19741204 US19750592232 19750701 US19750634755 19751124 BR19760002984 19760512

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| AU197359924 A1 | 19750327 | AU19730059924 | 19730903 |
| AU197587205 A1 | 19770609 | AU19750087205 | 19751203 |
| AU472924 B2 | 19760610 | AU19730059924 | 19730903 |
| AU498737 B2 | 19790322 | AU19750087205 | 19751203 |
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| CA1005004 A1 | 19770208 | CA19730179593 | 19730824 |
| CA1034520 A1 | 19780711 | CA19750240694 | 19751128 |
| DE2348648 A1 | 19740404 | DE19732348648 | 19730927 |
| DE2348648 B2 | 19800221 | DE19732348648 | 19730927 |
| DE2348648 C3 | 19840830 | DE19732348648 | 19730927 |
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| DE2553835 B2 | 19800214 | DE19752553835 | 19751129 |
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| GB1540229 A | 19790207 | GB19750049077 | 19751128 |
| HK4482 A | 19820212 | HK19820000044 | 19820204 |
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| JP1150186 C3 | 19830614 | JP19750143819 | 19751202 |
| JP1252429 C3 | 19850226 | JP19730109190 | 19730928 |
| JP49101193 A2 | 19740925 | JP19730109190 | 19730928 |
| JP51082188 A2 | 19760719 | JP19750143819 | 19751202 |
| JP57042544 B4 | 19820909 | JP19750143819 | 19751202 |
| JP59000417 B4 | 19840106 | JP19730109190 | 19730928 |

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|---|---|---|---|
| US3836038 A | 19740917 | US19720293115 | 19720928 |
| US3967750 A | 19760706 | US19750592232 | 19750701 |
| US3967752 A | 19760706 | US19750634755 | 19751124 |
| US3967753 A | 19760706 | US19740492033 | 19740726 |

**Probable Assignee:** REYNOLDS METALS CO

**Assignee(s):**(std)**:** REYNOLDS METALS CO

**Assignee(s):** REYNOLDS METALS CO US ; REYNOLDS METALS CO HENRICO COUNTY VA V ST A ; REYNOLDS METALS CO HENRICO COUNTY VA US ; REYNOLDS METALS CY ; REYNOLDS METALS COMPANY ; CUDZIK DANIEL F ; REINORUZU METARUSU CO

**Inventor(s):**(std)**:** CUDZIK D ; CUDZIK D F ; CUDZIK DANIEL F ; CUDZIK DANIEL FRANK ; DANIERU FURANKU KADOZUITSUKU

**Inventor(s):** DANIEL FRANK CUDZIK ; DANIERU FURANKU KAZUITSUKU ; CUDZIK DANIEL FRANK RICHMOND VA VSTA ; DF CUDZIK ; FRANK CUDZIK DANIEL ; GODZIK D F ; CUDZIK D US ; CUDZIK DANIEL FRANK RICHMOND VA ; D F CUDZIK ; CUDZIK DANIEL FRANK RICHMOND VA V ST A ; CUDZIK DANIEL FRANK RICHMOND VA US

**Agent(s):** CA; DAVIES COLLISON CAVE PTY LTD

**International class (IPC 8-9):** B65D17/00 B65D17/32 B65D17/34 B65D17/347 B65D17/353 B65D41/32 (Advanced/Invention);
B65D17/00 B65D17/28 B65D41/32 (Core/Invention);
B61B (Subclass/Invention)

**International class (IPC 1-7):** B65D17/00 B65D17/02 B65D17/16 B65D17/18 B65D17/20 B65D17/24 B65D17/32 B65D17/34 B65D41/32

**CPC:** B65D17/4012 B65D17/404 B65D17/28

**European class:** B65D17/16 B65D17/16B2 B65D17/24

**US class:** 220/266 220/269 220/270 220/277 220/4.8 220/48 D9/438

**JP class F-Term:** 3E093 3E093/AA02 3E093/AA13 3E093/BB02 3E093/CC01 3E093/CC02 3E093/CC03 3E093/DD01 3E093/DD02 3E093/DD05 3E093/DD06 3E093/AA03 3E093/BB01 3E093/DD07 3E093/DD09 3E093/DD10

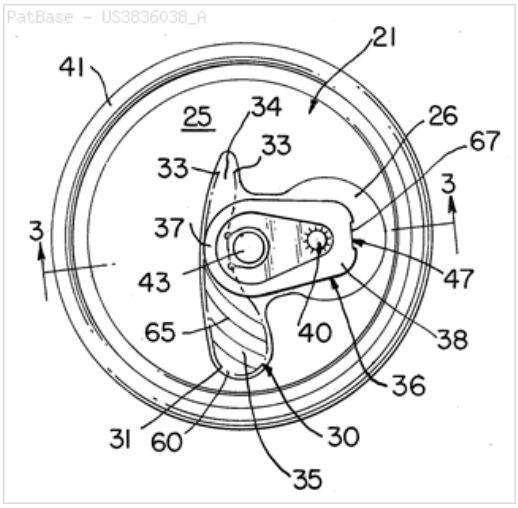
**JP class F-Index:** B65D17/32 B65D17/34 B65D17/347

Classification Explorer

**Cited documents:** US3843011 A, US3813000 A, US3749275 A, US3744667 A, US3744666 A, US3730379 A, US3446389 A, US3435977 A, US3401823 A, US3338460 A, US3322296 A, US3289880 A, US3215305 A, US2828883 A, US2085200 A, DE2126933 A1, DE1761153 A, AT283191 B, AT258781 B,

**Forward Citations:** WO9822356, WO9730902, WO9729960, WO9729960, WO8403080, WO8204026, WO17097903, WO15200301, WO15004965, WO14200098, WO14073350, WO13161021, WO13080117, WO07081349, WO0146025, USRE42485, USD828753, USD795693, USD762114, USD750488, USD749415, USD747649, USD747199, USD727725, USD715647, USD715144, USD691039, USD559680, USD507485, USD476889, USD424438, US9901972, US9884701, US9878833, US9850025, US9850024, US9714115, US9694935, US9649254, US9637269, US9592936, US9533800, US9446879, US9371152, US9321562, US9315290, US9272819, US9254945, US9233784, US9199763, US9016034, US8931660, US8857644, US8844761, US8783495, US8733576, US8727169, US8640905, US8627979, US8567158, US8505765, US8328041, US8313004, US8235244, US8205477, US8196767, US8061544, US7938290, US7743635, US7673768, US7594585, US7513383, US7506779, US7500577, US7500376, US7380684, US7165696, US7152766, US7100789, US7000797, US6935826, US6889862, US6877941, US6848875, US6837093, US6761281, US6666933, US6575684, US6460723, US6408498, US6405889, US6354467, US6354453, US6330954, US6260728, US6234336, US6164480, US6161717, US6138856, US6129230, US6079583, US6065634, US6024239, US5967726, US5964366, US5931331, US5806757, US5749488, US5738237, US5715964, US5711448, US5653355, US5219257, US5190149, US5133473, US5129541, US5007554, US4402421, US4399925, US4387827, US4322016, US4257529, US4253582, US4215794, US4184607, US4150765, US4130074, US4084721, US4062471, US4051976, US4030631, US4024981, US4015744, US4002262, US2014054332, US2013126528, US2012292329, US2012205378, US2011186575, US2010133275, US2010089923, US2009200306, US2008302756, US2008230548, US2007131690, US2007007294, US2006163254, US2006071005, US2006042344, US2005247717, US2005173437, US2005064755, US2005006395, US2004056032, US2003202862, US2003173367, US2003116574, US2003080132, US2002170913, US10246217, US10017295, NL7705102, JP8268429, JP60179629, JP55143248, JP54176568, JP4201851, JP2957930, JP2006232306, FR2648113, FR2550767, FR2508417, FR2486495, FR2459181, FR2408530, EP3366601, EP3020645, EP3009370, EP2918507, EP2750981, EP2356037, EP1210273, EP1210273, EP1194337, EP1194337, EP0929450, EP0704382, EP0704382, EP0564725, EP0289022, EP0289022, EP0080775, EP0080775, EP0079673, EP0079673, EP0043786, DE3941239, DE3110770, DE2855037, DE2842449, DE2637420, DE202015002495, DE102012023131, AU705788, AU576900,

**Abstract:**
An easy-open wall is provided for a container and comprises an approximately U-shaped score line in such wall with the score line having a bight and a pair of extensions extending from the bight and terminating in spaced ends having a portion of the wall therebetween. The score line defines a panel which is completely severable from the wall along the bight and along parts of the extensions adjoining the bight while remaining attached at the wall portion to define an opening in the wall. A non-detachable tab is attached substantially flatly against the wall and the tab has a forward portion which overlies part of the panel and has a rear portion. The rear portion is easily grasped and lifted to urge the forward portion against the panel to thereby sever such panel and move it within the container with the wall portion holding the panel securely to the wall.




**6) Family number: 126370** (US3662916A)



| | |
|---|---|
| **Title:** | EASY OPENING CONTAINER |
| **Priority:** | US19700091645 19701123 |

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| AU197134360 A1 | 19730412 | AU19710034360 | 19711007 |
| BE775647 A | 19720316 | BE19710775647 | 19711122 |
| BR7103958 A0 | 19730208 | BR19710003958 | 19710624 |
| CA951656 A1 | 19740723 | CA19710106108 | 19710223 |
| DE2126933 A1 | 19720531 | DE19712126933 | 19710529 |
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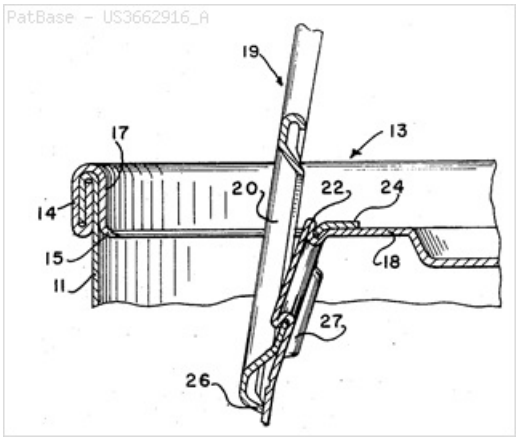
| JP47000297 U1 | 19720626 | JP19710109728U | 19711122 |
| JP52035243 Y1 | 19770811 | JP19710109728U | 19711122 |
| JP52035243 Y2 | 19770811 | JP19710109728U | 19711122 |
| NL167921 B | 19810916 | NL19710015720 | 19711115 |
| NL167921 C | 19820216 | NL19710015720 | 19711115 |
| NL7115720 A | 19720525 | NL19710015720 | 19711115 |
| US3662916 A | 19720516 | US19700091645 | 19701123 |
| ZA7100770 A | 19720927 | ZA19710000770 | 19710208 |

| | |
|---|---|
| **Probable Assignee:** | CONTINENTAL CAN CO |
| **Assignee(s):**(std)**:** | CONTINENTAL CAN CO |
| **Assignee(s):** | CONTINENTAL CAN CO INC ; CONTINENTAL CAN CO INC TE NEW YORK ; CONTINENTAL CAN COMPANY INC ; CONTINENTAL CAN COMPANY INC TE NEW YORK ; CONTINENTAL CAN CY INC ; CONTINENTAL CAN CY INC NEW YORK V S A ; HOLK ALBERT J |
| **Inventor(s):**(std)**:** | HOLK A ; HOLK A J ; HOLK ALBERT J JR |
| **Inventor(s):** | HOLK ALBERT J ; A J HOLK ; AJ HOLK ; ALBERT J HOLK JR |
| **International class (IPC 8-9):** | B65D17/00 B65D17/34 B65D5/00 (Advanced/Invention);<br>B65D17/00 B65D17/28 B65D5/00 (Core/Invention);<br>B65D (Subclass/Invention) |
| **International class (IPC 1-7):** | B65D17/00 B65D17/16 B65D17/24 B65D17/34 B65D5/00 |
| **CPC:** | B65D17/4011 |
| **European class:** | B65D17/16B1 |
| **US class:** | 220/273 220/54 |
| **JP class F-Term:** | 3E093 3E093/AA05 3E093/BB01 |
| **JP class F-Index:** | B65D17/34 B65D17/347 |
| Classification Explorer | |
| **Cited documents:** | US3591037 A, US3404801 A, |
| **Forward Citations:** | US9199763, US9016034, US8733576, US8454292, US8371467, US8113375, US5713481, US3891117, US3874553, US3858753, US3838788, US3795342, US3752353, US3712503, US2011186575, US2010287886, US2010116374, US2007108209, US2004099665, JP59184404, JP57185109, JP57163641, JP56041140, JP50052779, JP50027681, FR2393733, EP0236736, EP0236736, DE2348648, CN108430878, |

**Abstract:**
A full panel type of easy opening container having means for increasing the initial opening arc of the score line during upward tilting of the pull tab. The rigidifying means comprises beads arranged to form a rigid panel portion at the rivet so that a bend line occurs behind the rivet upon penetration of the pull tab nose into the container.




**7) Family number: 33901563** (US2010108678A) 

**Title:** EASISLY OPENABLE CAN AND METHOD OF OPENING THE CAN

**Priority:** JP20050178499 20050523 JP20050380869 20051208 JP20060133030 20060511 WO2006JP310062 20060519 WO2006JP310062 20060619 WO2006JP310062 20071114

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| AU2006250571 AA | 20061130 | AU20060250571 | 20060519 |
| BRPI0612466 A2 | 20160906 | BR2006PI12466 | 20060519 |
| BRPI0612466 A2 | 20171010 | BR2006PI12466 | 20060519 |
| EP1884476 A1 | 20080206 | EP20060746669 | 20060519 |
| EP1884476 A4 | 20110629 | EP20060746669 | 20060519 |
| JP2007182257 A2 | 20070719 | JP20060133030 | 20060511 |
| JP3923071 B1 | 20070530 | JP20060133030 | 20060511 |
| KR100853811 B1 | 20080822 | KR20077026449 | 20060519 |
| KR20070118192 A | 20071213 | KR20077026449 | 20071114 |
| US2010108678 AA | 20100506 | US20060993864 | 20060619 |
| US2010108678 AA | 20100506 | US20060993864 | 20060519 |
| US8540105 BB | 20130924 | US20060993864 | 20060519 |
| WO06126463 A1 | 20061130 | WO2006JP310062 | 20060519 |

**Probable Assignee:** NORY CO LTD

**Assignee(s):**(std)**:** NORY CO LTD ; YASUI NORIO

**Assignee(s):** NORY CO

**Inventor(s):**(std)**:** YASUI NORIO

**Inventor(s):** NORIO YASUI

**Agent(s):** FB RICE; FB RICE PTY LTD; SEIFFERT KLAUS ET AL; JOSEPH L STRABALA ESQ; JOSEPH L

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**International class (IPC 8-9):** B21D51/26 B21D51/44 B65D17/30 B65D17/32 B65D17/34 B65D17/36 B65D17/40 B65D17/42 B65D41/32 B65D43/03 B65D47/36 B65D8/04 (Advanced/Invention);
B65D17/42 B65D41/32 B65D47/36 (Advanced/Non-invention);
B21D51/26 B21D51/38 B65D17/00 B65D17/28 B65D41/32 B65D47/00 B65D8/04 (Core/Invention)

**International class (IPC 1-7):** B65D17/42 B65D41/32 B65D47/36

**CPC:** B65D17/4012 B65D17/401 B65D2517/0011 B65D2517/0056

**European class:** B65D17/16B B65D17/16B2 L65D517/00Y2A L65D517/00Y6Z

**US class:** 206/504 206/508 206/509 220/23.4 220/23.6 220/266 220/270 220/277 220/380 220/906

**JP class F-Term:** 3E061 3E061/AA16 3E061/AB04 3E061/BA01 3E061/BB07 3E061/BB15 3E061/DA01 3E061/DB08 3E093 3E093/AA02 3E093/AA04 3E093/AA13 3E093/BB01 3E093/EE20 4E085 4E159

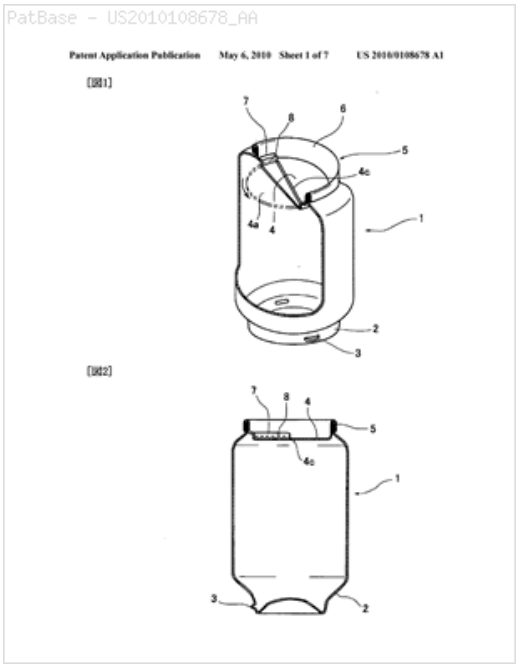
**JP class F-Index:** B21D51/26/R B21D51/44/C B21D51/44/H B65D17/30 B65D17/32 B65D17/36 B65D17/40 B65D17/42 B65D8/04/L

Classification Explorer

**Cited documents:** US6112932 A, US5573133 A, US5076430 A, US4930636 A, US4913305 A, US4386713 A, US4084723 A, US3815281 A, US3139211 A, US2957601 A, US2149308 A, KR200218626 Y1, KR200187666 Y1, JP9240758 A2, JP8217106 A2, JP6169026 U, JP58177325 U1, JP2152667 A2, JP2006001586, JP1161426 U,

**Forward Citations:** WO18007651, WO17097903, USD787952, US9265287, US8960487, US2015375889, US2014262870,

**Abstract:**
An easily openable metal can largely openable in the arranged state of two sheet metal-made cans in series. A means such as a projection for opening the drinking mouth of another can is formed at the lower part of a can body, and a break line and a means for guiding the means such as the projection are formed at the upper part thereof.




**8) Family number: 60278595** (US2015251803A)



**Title:** END CLOSURE WITH LARGE OPENING RING PULL TAB

**Priority:** US20140949404P 20140307 US20150641035 20150306 WO2015US19265 20150306 US20180866839 20180110

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| CN106132837 A | 20161116 | CN201580017661 | 20150306 |
| CN106132837 B | 20190514 | CN201580017661 | 20150306 |
| JP2017512163 T2 | 20170518 | JP20160573709T | 20150306 |
| US2015251803 AA | 20150910 | US20150641035 | 20150306 |
| US2018126442 AA | 20180510 | US20180866839 | 20180110 |
| US9901972 BB | 20180227 | US20150641035 | 20150306 |
| WO15134913 A1 | 20150911 | WO2015US19265 | 20150306 |

**Probable Assignee:** BALL CORP

**Assignee(s):**(std)**:** BALL CORP

**Inventor(s):**(std)**:** RAYBURN ROBERT M

**Agent(s):** ONDA MAKOTO; ONDA HIRONORI; SHERIDAN ROSS PC; KUGLER BRUCE A

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**International class (IPC 8-9):** B21D51/38 B21D51/44 B65D17/00 B65D17/28 B65D17/34 (Advanced/Invention)

**CPC:** B21D51/383 B65D2101/00 B65D17/4012 B21D51/443 B65D2517/0002 B65D2517/0071 B65D2517/0077

**US class:** 220/270 413/14 413/16

**JP class F-Term:** 3E093 3E093/AA03 3E093/BB02 3E093/CC10 3E093/DD01 3E093/DD10 4E159

**JP class F-Index:** B21D51/44/C B65D17/34

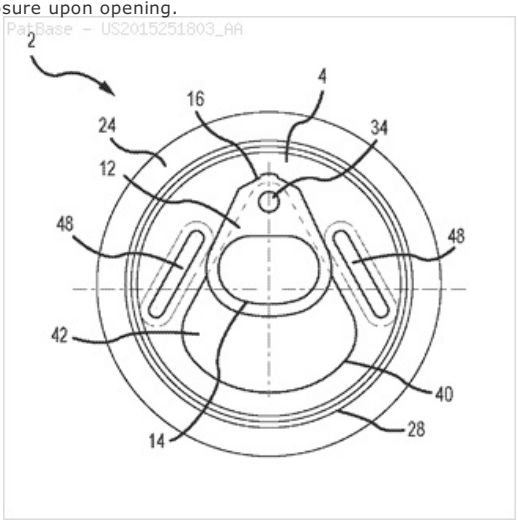
Classification Explorer

**Cited documents:** WO17097903 A1, WO15070051 A1, WO13182354 A1, WO11156140 A1, WO11053776 A1, WO11026900 A1, WO07054568 A1, USRE28910 E, USD636265 S1, USD632958 S1, USD606864 S1, USD582275 S1, USD576878 S1, USD406236 S1, USD371073 S1, USD366832 S1, USD365988 S1, USD365274 S1, USD364807 S1, USD352898 S1, USD337521 S1, USD315507 S1, USD304302 S1, USD300608 S1, USD285661 S1, USD279265 S1, USD257228 S1, US9714114 BB, US9616483 BB, US9592569 BB, US8720717 BB, US8157119 BB, US7950542 BB, US7823740 BB, US7591392 BB, US7549547 BB, US7513381 BB, US7237698 BB, US7198170 BB, US7198168 BB, US7178683 BB, US7152766 BA, US6910598 BB, US6889862 BB, US6883689 BB, US6851576 BB, US6851568 BB, US6817819 BB, US6793087 BB, US6772901 BB, US6763963 BA, US6755315 BA, US6739471 BB, US6626314 BA, US6450358 BA, US6431384 BA, US6405889 BA, US6260728 BA, US6216904 BA, US6206227 BA, US6206222 BA, US6164480 A, US6158608 A, US6059137 A, US6050440 A, US6024239 A, US5947318 A, US5947315 A, US5934498 A, US5850951 A, US5829623 A, US5762230 A, US5758793 A, US5738236 A, US5711448 A, US5711447 A, US5692633 A, US5660290 A, US5566850 A, US5562226 A, US5555992 A, US5522521 A, US5505326 A, US5494184 A, US5421472 A, US5405039 A, US5402921 A, US5383582 A, US5375729 A, US5328313 A, US5307947 A, US5269432 A, US5261548 A, US5205430 A, US5199591 A, US5193704 A, US5167338 A, US5161713 A, US5129773 A, US5129541 A, US5129530 A, US5103973 A, US5090581 A, US5064087 A, US5059360 A, US5027968 A, US5011037 A, US5007554 A, US5007231 A, US4994009 A, US4934554 A, US4930658 A, US4913304 A, US4901880 A, US4901435 A, US4893725 A,

US4887732 A, US4846374 A, US4815626 A, US4792054 A, US4787530 A, US4768667 A, US4747511 A, US4733793 A, US4717039 A, US4709830 A, US4696410 A, US4681238 A, US4674649 A, US4673099 A, US4660735 A, US4611725 A, US4598837 A, US4567995 A, US4541541 A, US4527701 A, US4527700 A, US4513875 A, US4503989 A, US4489864 A, US4465204 A, US4434904 A, US4433793 A, US4372462 A, US4367996 A, US4363419 A, US4361251 A, US4345696 A, US4337870 A, US4320850 A, US4286728 A, US4276993 A, US4266688 A, US4241841 A, US4219127 A, US4211335 A, US4210257 A, US4197956 A, US4184607 A, US4181232 A, US4171062 A, US4150765 A, US4148410 A, US4125203 A, US4111325 A, US4084721 A, US4073399 A, US4062471 A, US4061243 A, US4047634 A, US4030631 A, US4024981 A, US4015744 A, US3977561 A, US3967752 A, US3951331 A, US3949692 A, US3877604 A, US3853242 A, US3838788 A, US3836038 A, US3807597 A, US3762598 A, US3726432 A, US3672535 A, US3667643 A, US3643832 A, US3463347 A, US3441168 A, US3401819 A, US3362569 A, US3334775 A, US3159304 A, US2317420 A, US2017173657 AA, US2017113835 AA, US2011056945 AA, US2010258563 AA, US2010059516 AA, US2008302752 AA, US2008237178 AA, US2008156802 AA, US2007164026 AA, US2007095835 AA, US2007017891 AA, US2006151421 AA, US2004188440 AA, US2003213803 AA, US2003010781 AA, US2001022304 AA, JP2002145263 A2, JP2000159929 A2, GB1200565 A, EP2800705 A1, EP2429736 A1, EP2253552 A1, EP1577222 A1, EP0432659 A1, EP0340835 A1, EP0040277 A1, CN302605385 S, CN302413392 S, CN302412019 S, CN302041222 S, CN203638300 U, CN203158379 U, CN103287663 A, CN103029888 A, CA2662199 AA, CA148866 A, AU2005202056 AA,

**Forward Citations:** WO19040128, US9969524, US9714115, US9694935, US10017295,

**Abstract:**
An end closure for food and beverage containers is provided. The end closure comprises a central panel with a large opening defined by a score line. The end closure further comprises a ring pull tab operably interconnected to the central panel proximate to a peripheral edge of the central panel. Prior to opening the end closure, a tail end of the ring pull tab is positioned over the tear panel. In some embodiments, the tear panel may completely detach from the end closure upon opening.




**9) Family number: 61691733** (US2018362209A)



**Title:** CAN END WITH VENTING FEATURE

**Priority:** GB20150021700 20151209 WO2016EP80252 20161208

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| AU2016366496 AA | 20180621 | AU20160366496 | 20161208 |
| BR112018011566 A2 | 20181127 | BR20181111566 | 20161208 |
| CA3007522 AA | 20180606 | CA20163007522 | 20161208 |
| CN108430878 A | 20180821 | CN201680072324 | 20161208 |
| CO20180006523 A2 | 20180710 | CO20180006523 | 20180625 |
| EP3386878 A1 | 20181017 | EP20160808654 | 20161208 |
| GB201521700 A0 | 20160120 | GB20150021700 | 20151209 |
| GB2545403 A1 | 20170621 | GB20150021700 | 20151209 |
| GB2545403 B2 | 20190410 | GB20150021700 | 20151209 |
| JP2018536592 T2 | 20181213 | JP201805256477T | 20161208 |
| MX2018006514 A1 | 20180906 | MX20180006514 | 20161208 |
| SG11201804382Q A1 | 20180628 | SG20181104382 | 20161208 |
| US2018362209 AA | 20181220 | US20160060713 | 20161208 |
| WO17097903 A1 | 20170615 | WO2016EP80252 | 20161208 |

**Probable Assignee:** CROWN PACKAGING TECHNOLOGY INC

**Assignee(s):**(std)**:** CROWN PACKAGING MFG UK LTD ; CROWN PACKAGING TECH INC ; CROWN PACKAGING TECHNOLOGY INC

**Assignee(s):** FRANCO ANTHONY CHARLES ; RAMSEY CHRISTOPHER PAUL ; GROVES THOMAS ALEXANDER

**Inventor(s):**(std)**:** THOMAS ALEXANDER GROVES ; RAMSEY CHRISTOPHER PAUL ; GROVES THOMAS ALEXANDER ; FRANCO ANTHONY CHARLES ; CHRISTOPHER PAUL RAMSEY ; ANTHONY CHARLES FRANCO

**Agent(s):** PHILLIPS ORMONDE FITZPATRICK; MARKS AND CLERK; JOSE ANDRES RINCON USCATEGUI; LIND ROBERT

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI

SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**International class (IPC 8-9):** B65D17/00 B65D17/28 B65D17/32 B65D17/34 (Advanced/Invention)

**International class (IPC 1-7):** B65D17/00

**CPC:** B65D17/02 B65D17/28 B65D17/401 B65D17/404 B65D2517/0092 B65D2517/0082 B65D2517/0062 B65D2517/0014 B65D17/4012 B65D17/32 B65D17/34

**JP class F-Term:** 3E093 3E093/AA13 3E093/BB02 3E093/CC01 3E093/DD01 3E093/EE05

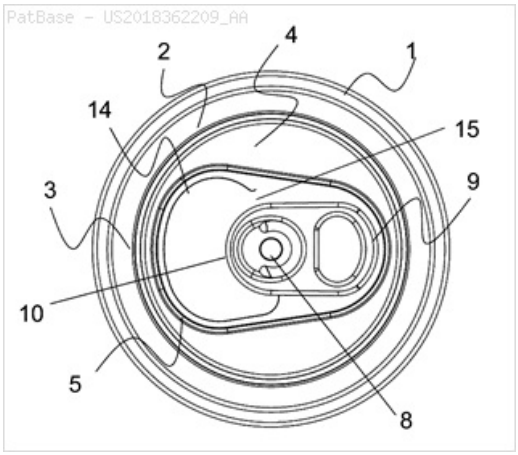
**JP class F-Index:** B65D17/34

Classification Explorer

**Cited documents:** US4062471 A, US3967752 A, US3662916 A, US2015329238 AA, JP2015000734 A2, EP3157826 A1, EP1884476 A1, CN1118150 A, CN102951343 A,

**Forward Citations:** US9901972,

**Abstract:**
A metal end for seaming onto a metal container body. The end comprises an outer curl, a centre panel within the outer curl, and a tab having a longitudinal axis (A). The end further comprises a rivet securing the tab to the centre panel, and a score in the centre panel having two spaced apart ends which define a hinge therebetween, the hinge lying on one side of said longitudinal axis (A), such that operation of the tab fractures the score and causes the region of the centre panel within the score to pivot about the hinge and provide an aperture in the centre panel. The score extends into a region of the centre panel that is behind a centre line (B) running through the centre of the rivet and perpendicular to said longitudinal axis (A), and on the other side of the longitudinal axis (A) from the hinge.




**10) Family number: 53006885** (US2013037542A)



**Title:** CAN END

**Priority:** US20110206231 20110809

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| CN102951343 A | 20130306 | CN201210273322 | 20120801 |
| EP2557051 A1 | 20130213 | EP20120177986 | 20120726 |
| US2013037542 AA | 20130214 | US20110206231 | 20110809 |

**Probable Assignee:** DRT MFG CO

**Assignee(s):**(std)**:** CROTHERS THOMAS GLENN ; DRT MFG CO

**Assignee(s):** FIFTH THIRD BANK ADMINISTRATIVE AGENT AS

**Inventor(s):**(std)**:** CROTHERS THOMAS GLENN

**Agent(s):** Wilhelms · Kilian & Partner Patentanwälte

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

**International class (IPC 8-9):** B65D17/34 (Advanced/Invention)

**CPC:** B65D2517/0014 B65D2517/0089 B65D17/4012

**US class:** 220/269

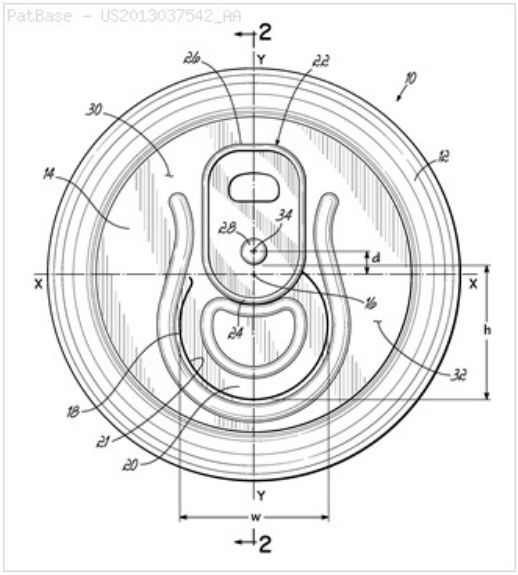
Classification Explorer

**Cited documents:** US7594585 BA, US5711448 A, US5064087 A, US4289251 A, US2008099480 AA, US2004040963 AA, US2002005408 AA, JP2009096493 A2, FR2687372 A1, CN1329559 A,

**Forward Citations:** WO14152235, WO14150180, USD823112, USD770891, USD762114, USD750488, USD749415, US9850025, US9815590, US9714115, US9694935, US9446879, US9254945, US9233784, US2016145000, US2014054332, US2013118133, US10144550, US10017295, EP2969798, EP2969796, CN108430878, CN106604871, CN106428898, CN106428898, CN105873829, CN105473455, CN105473455, CN105339278,

**Abstract:**
A can end comprises a center panel having a diameter, a geometric center lying on a transverse axis of symmetry of the center panel, and a score line defining a periphery of a tear panel, a lift tab having a nose portion and a lift portion opposite the nose portion, the nose portion configured to contact the tear panel as the lift portion is lifted so as to rupture the score line and swing the tear panel out of a plane of the center panel, thereby defining a tear panel aperture for accessing the contents of a can to which the can end is attached, and a rivet attaching the lift tab to the center panel and permitting the nose portion and lift portion to pivot out of the plane

of the center panel. The rivet is located on a first side of the transverse axis of symmetry, and the tear panel is located substantially on a second side of the transverse axis of symmetry opposite the first side.




**11) Family number: 50609953** (US2012031056A)



**Title:** CONTAINER END CLOSURE WITH OPTIONAL SECONDARY VENT OPENING

**Priority:**
US20100851979 20100806
EP20110815019 20110722
WO2011US44940 20110722
US20130066457 20131029
US20140039020P 20140819
US20150812146 20150729
US20150829887 20150819
WO2015US45839 20150819
WO2016US41243 20160707
US20180979153 20180514

**Family:**

| Publication number | Publication date | Application number | Application date |
|---|---|---|---|
| AU2011286291 AA | 20120209 | AU20110286291 | 20110722 |
| AU2011286291 BB | 20140417 | AU20110286291 | 20110722 |
| AU2016298537 AA | 20170202 | AU20160298537 | 20160707 |
| AU2016298537 AA | 20180215 | AU20160298537 | 20160707 |
| AU2016298537 BB | 20190221 | AU20160298537 | 20160707 |
| BR112013002863 A2 | 20160607 | BR20131102863 | 20110722 |
| BR112017003264 A2 | 20171128 | BR20171103264 | 20150819 |
| BR112018000997 A2 | 20180918 | BR20181100997 | 20160707 |
| CA2806879 AA | 20130128 | CA20112806879 | 20110722 |
| CA2806879 C | 20150428 | CA20112806879 | 20110722 |
| CA2958649 AA | 20170217 | CA20152958649 | 20150819 |
| CA2992441 AA | 20180112 | CA20162992441 | 20160707 |
| CL2018000209 A1 | 20180511 | CL20180000209 | 20180125 |
| CN103140423 A | 20130605 | CN201180046744 | 20110722 |
| CN103140423 B | 20150826 | CN201180046744 | 20110722 |
| CN107949525 A | 20180420 | CN201680051255 | 20160707 |
| CO20180002042 A2 | 20180510 | CO20180002042 | 20180226 |
| DE602011031540 D1 | 20161201 | DE201160031540T | 20110722 |
| DK2601109 T3 | 20170109 | DK20110815019T | 20110722 |
| EP2601109 A1 | 20130612 | EP20110815019 | 20110722 |
| EP2601109 A4 | 20140430 | EP20110815019 | 20110722 |
| EP2601109 B1 | 20161019 | EP20110815019 | 20110722 |
| EP3183181 A1 | 20170628 | EP20150833338 | 20150819 |
| EP3183181 A4 | 20180328 | EP20150833338 | 20150819 |
| EP3328747 A1 | 20180606 | EP20160831009 | 20160707 |
| EP3328747 A4 | 20190109 | EP20160831009 | 20160707 |
| ES2601810 T3 | 20170216 | ES20110815019T | 20110722 |
| MX2013001492 A1 | 20130501 | MX20130001492 | 20110722 |
| MX2017002238 A1 | 20170802 | MX20170002238 | 20150819 |
| MX2018001224 A1 | 20180413 | MX20180001224 | 20160707 |
| MX337754 B | 20160317 | MX20130001492 | 20110722 |
| PL2601109 T3 | 20170331 | PL20110815019T | 20110722 |
| RS55892 B1 | 20170831 | RS20160001137 | 20110722 |
| RU2013109931 A | 20140920 | RU20130109931 | 20110722 |
| RU2573284 C2 | 20160120 | RU20130109931 | 20110722 |
| RU2686724 C1 | 20190430 | RU20180107406 | 20160707 |
| US2012031056 AA | 20120209 | US20100851979 | 20100806 |
| US2014096491 AA | 20140410 | US20130066457 | 20131029 |
| US2015329238 AA | 20151119 | US20150812146 | 20150729 |
| US2016052667 AA | 20160225 | US20150829887 | 20150819 |

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|---|---|---|---|
| US2018257812 AA | 20180913 | US20180979153 | 20180514 |
| US8567158 BB | 20131029 | US20100851979 | 20100806 |
| US9446879 BB | 20160920 | US20130066457 | 20131029 |
| US9969524 BB | 20180515 | US20150829887 | 20150819 |
| US10017295 BB | 20180710 | US20150812146 | 20150729 |
| VN18389 A1 | 20180326 | VN20130000709 | 20110722 |
| WO12018549 A1 | 20120209 | WO2011US44940 | 20110722 |
| WO16028860 A1 | 20160225 | WO2015US45839 | 20150819 |
| WO17019269 A1 | 20170202 | WO2016US41243 | 20160707 |

**Probable Assignee:** BALL CORP

**Assignee(s):**(std)**:** BALL CORP ; BOL CORP ; CHASTEEN HOWARD C ; JACOBER MARK A ; BOL KORPOREJSHN

**Assignee(s):** GATEWOOD ERIK E ; BALL BROOMFIELD CORP

**Inventor(s):**(std)**:** CHASTEEN HOWARD C ; JACOBER MARK A ; DZHEKOBER MARK A ; CHESTIN KHOVARD K ; GATEWOOD ERIK E ; CHASTEEN HOWARD ; JACOBER MARK ; DZHEJKOBER MARK A ; CHESTIN GOVARD S ; HOWARD C CHASTEEN ; MARK A JACOBER ; ERIK E GATEWOOD

**Inventor(s):** JACOBER MARK A ARVADA ; CHASTEEN HOWARD C WESTMINSTER

**Agent(s):** MADDERNS PATENT AND TRADE MARK ATTORNEYS; MADDERNS PTY LTD; GOODWIN MCKAY; GOODWIN LAW; PARLEE MCLAWS LLP; SMART AND BIGGAR; JOHANSSON AND LANGLOIS; JUAN PABLO CADENA SARMIENTO; HANNKE BITTNER AND PARTNER PATENT U RECHTSANWAELTE MBB; HANNKE CHRISTIAN; EISENFUEHR SPEISER; ISERN JORGE; SOYUZPATENT OOO; SHERIDAN ROSS PC; KUGLER BRUCE A; KUGLER BRUCE A ET AL

**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**International class (IPC 8-9):** B65B43/39 B65B69/00 B65D17/00 B65D17/28 B65D17/32 B65D17/34 B65D17/40 B65D17/42 B65D25/00 B65D47/04 B65D47/32 B65D51/16 B67B7/00 (Advanced/Invention);
B65D51/16 (Advanced/Non-invention)

**International class (IPC 1-7):** B65B43/39 B65D17/34 B65D25/00 B65D51/16

**CPC:** B65D47/32 B65B69/00 B65D2517/0094 B65D2517/0007 B65D2517/0082 B65D2517/0089 B65D2517/0092 B65D2517/0013 B65D2517/007 B65D17/404 B65D2517/0014 B65D2517/002 B65D17/40 B65D17/4012 B65D2517/0071

**European class:** B65D17/16B2 L65D517/00Y2C L65D517/00Y2Z L65D517/00Y7B1 L65D517/00Y8B

**US class:** 1/1 220/229 220/269 220/269S 220/272 53/381.1 53/382.1 53/492 53/492P

Classification Explorer

**Cited documents:** WO9742088 A1, WO9722531 A1, WO9602432 A1, WO9602432 A1, WO9413544 A1, WO15138413 A1, WO14152235 A1, WO14150180 A1, WO14031926 A2, WO13156624 A1, WO13102595 A1, WO13102594 A1, WO13022592 A1, WO12143322 A1, WO12018549 A1, WO11053776 A1, WO10046516 A1, WO08057207 A2, WO08023983 A1, WO08008892 A1, WO0146025 A1, WO0146025 A1, WO0056613 A1, USRE30349 E, USRE28910 E, USD770891 S1, USD731887 S1, USD727725 S1, USD715647 S1, USD715144 S1, USD704555 S1, USD691039 S1, USD653944 S1, USD653538 S1, USD650278 S1, USD650277 S1, USD650276 S1, USD623963 S1, USD612724 S1, USD602776 S1, USD600116 S1, USD579771 S1, USD559680 S1, USD535561 S1, USD476889 S1, USD448666 S1, USD434983 S1, USD424438 S1, USD415026 S1, USD402887 S1, USD402555 S1, USD397296 S1, USD396635 S1, USD387987 S1, USD385192 S1, USD382481 S1, USD365274 S1, USD353769 S1, USD271857 S1, USD267633 S1, USD259403 S1, USD255425 S1, USD255424 S1, USD255423 S1, USD239256 S1, USD239255 S1, USD238659 S1, USD238150 S1, USD208591 S1, US9561888 BB, US9403628 BB, US9233784 BB, US9186924 BB, US9181007 BB, US9181006 BB, US9162795 BB, US9156585 BB, US9139343 BB, US9102451 BB, US9033174 BB, US9016504 BB, US8998015 BB, US8978915 BB, US8950619 BB, US8939308 BB, US8939306 BB, US8893913 BB, US8678221 BB, US8646643 BB, US8627979 BB, US8573432 BB, US8567158 BB, US8397935 BB, US8336726 BB, US8245866 BB, US8177092 BB, US8152016 BB, US8136689 BB, US7975884 BB, US7918359 BB, US7891519 BB, US7748557 BB, US7516869 BA, US7513383 BB, US7513383, US7506779 BB, US7506779, US7100789 BB, US7096759 BB, US7000797 BB, US6837093 BB, US6761281 BB, US6715629 BB, US6499329 BA, US6375029 BB, US6354453 BA, US6330954 BA, US6202880 BA, US6161717 A, US6145866 A, US6131763 A, US6079583 A, US6062414 A, US6059137 A, US6050440 A, US6024239 A, US5979697 A, US5975327 A, US5964366 A, US5938390 A, US5911331 A, US5860553 A, US5819973 A, US5715964 A, US5713481 A, US5711448 A, US5695085 A, US5692636 A, US5683006 A, US5655678 A, US5653355 A, US5555992 A, US5494184 A, US5456378 A, US5456378 A, US5405039 A, US5397014 A, US5375729 A, US5307947 A, US5285919 A, US5248053 A, US5224618 A, US5219257 A, US5190149 A, US5145086 A, US5131555 A, US5129541 A, US5065882 A, US5064087 A, US5011037 A, US5007554 A, US4994009 A, US4930658 A, US4901880 A, US4701090 A, US4576306 A, US4576305 A, US4465204 A, US4448325 A, US4438865 A, US4417668 A, US4416389 A, US4402421 A, US4397403 A, US4387827 A, US4361251 A, US4320850 A, US4318494 A, US4305523 A, US4289251 A, US4289251 A, US4280427 A, US4276993 A, US4267938 A, US4257529 A, US4252247 A, US4244490 A, US4244489 A, US4213538 A, US4210257 A, US4205760 A, US4196823 A, US4184607 A, US4148410 A, US4146149 A, US4128186 A, US4105133 A, US4084721 A, US4073403 A, US4062471 A, US4061243 A, US4054228 A, US4051976 A, US4039100 A, US4032034 A, US4030631 A, US4024981 A, US3982657 A, US3970212 A, US3908856 A, US3881630 A, US3877606 A, US3877604 A, US3856184 A, US3836038 A, US3833144 A, US3826401 A, US3794206 A, US3779417 A, US3765208 A, US3762597 A, US3744667 A, US3741432 A, US3731836 A, US3618815 A, US3499573 A, US3446389 A, US3442416 A, US3441169 A, US3370169 A, US3362569 A, US3326406 A, US3307737 A, US3262611 A, US3246791 A, US3227304 A, US3215305 A, US3169678 A, US2272111 A, US2160429 A, US2016236825 AA, US2016215377 AA, US2016052667 AA, US2016039563 AA, US2016031613 AA, US2016023801 AA, US2015367984 AA, US2015329238 AA, US2015251803 AA, US2015239607 AA, US2015196948 AA, US2015158627 AA, US2015136776 AA, US2015053681 AA, US2015034648 AA, US2015001220 AA, US2014374419 AA, US2014367382 AA, US2014325943 AA, US2014263334 AA, US2014263333 AA, US2014263329 AA, US2014263327 AA, US2014158685 AA, US2014110408 AA, US2014103044 AA, US2014096491 AA, US2014069924 AA, US2014054332 AA, US2014054290 AA, US2013299496 AA, US2013292382 AA, US2013270269 AA, US2013270267 AA, US2013264344 AA, US2013264343 AA, US2013126529 AA, US2013118133 AA, US2013075401 AA, US2013037543 AA, US2013037542 AA, US2012312815 AA, US2012260613 AA, US2012228296 AA, US2012205378 AA, US2012199587 AA, US2012199586 AA, US2012175371 AA, US2012048870 AA, US2012031056 AA, US2012012584 AA, US2011303672 AA, US2011297679 AA, US2011266281 AA, US2011253719 AA, US2011240645 AA,

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**Forward Citations:** WO17097903, WO17019269, WO16028860, WO14150180, WO14149768, WO14071345, WO14031926, WO14031926, USD787952, USD762114, USD750488, USD749415, USD727725, USD715647, USD715144, USD698668, US9969524, US9950832, US9938043, US9896237, US9815590, US9714115, US9694935, US9446879, US9403628, US9233784, US9181007, US9162795, US9102451, US8893913, US8875926, US2017029165, US2015053681, US2014054290, US2013240535, US10144550, US10017295, RU2686724, GB2545403, GB2545403, EP3328747, EP3183181, EP2969798, EP2969796, EP2888173, CN107949525, CN107352119, CN106488876, CN105745156, CN105102332, CN104703886, CN104684813, AU2016298537,

**Abstract:**
The present invention relates to an opening device for a beverage container. More specifically, the invention relates to a metal end closure having a primary opening area and at least one optional secondary vent opening which can be opened with the same pull tab. The primary opening area of the metal end closure may be opened by utilizing a pull tab interconnected to a central panel, the pull tab being adapted for applying a downward force to form a first opening. Subsequently, the pull tab is rotated and the tail end lifted to form a second opening in the end closure.