

100 Documents

Publication numbers	Title	Current assignees
EP1425225 A1	Can end	REXAM BEVERAGE CAN
EP3386878 A1	Can end with venting feature	CROWN PACKAGING
EP1755966 A1	Can end	REXAM BEVERAGE CAN
EP3183181 A1	Metal end closure with an extended score which is opened with a secondary tool	BALL
WO200738066 A1	Can end	REXAM BEVERAGE CAN
EP2640534 A1	Metallic beverage can end closure with offset countersink	BALL
EP2601109 A1	Container end closure with secondary vent opening	BALL
EP2773572 A2	Vented metallic container end closure	BALL
WO2014149768 A1	End closure with a ring pull actuated secondary vent	BALL
EP1353852 A1	Can end for a container	REXAM BEVERAGE CAN
EP3174807 A1	Vented container end closure	BALL
EP2969796 A1	Beverage can end having an asymmetrical opening	CROWN PACKAGING
EP-828663 A1	Can end and method for fixing the same to a can body	DEUTSCHE BANK
WO2015134913 A1	End closure with large opening ring pull tab	BALL
US4217843 A	Method and apparatus for forming ends	AMERICAN NATIONAL CAN CHICAGO
EP1755967 A1	Can end with tab for improved accessibility	REXAM BEVERAGE CAN
US20110031256 A1	Can Shell and Double-Seamed Can End Closure	CONTAINER DEVELOPMENT, ...
EP-993408 A2	End closure with improved openability	REXAM BEVERAGE CAN
EP2473414 A1	Full aperture beverage can end	CROWN PACKAGING
EP3157826 A1	Ecology can end with pressure equalization port	REXAM BEVERAGE CAN
EP3116798 A1	Vented beverage can end	CROWN PACKAGING
EP2197754 A1	Can end with reinforcing bead	REXAM BEVERAGE CAN
EP2750980 A1	Retort container with thermally fused double-seamed or crimp-seamed metal end	SONOCO DEVELOPMENT
EP2173626 A1	Can end with negatively angled wall	REXAM BEVERAGE CAN
EP2969794 A1	Vented beverage can and can end	CROWN PACKAGING
EP1556287 A1	Improved large opening beverage container	BALL
EP1434894 A2	Can shell and double-seamed can end	CONTAINER DEVELOPMENT
WO2014151503 A1	End closure with double anti-missile score	BALL
EP2197755 A1	Tab and can end employing the same	STOLLE MACHINERY
EP2969818 A1	Easy access opening tab for a container end closure	BALL

Publication numbers	Title	Current assignees
EP1337355 A1	Can lid closure and method of joining a can lid closure to a can body	METAL CONTAINER
EP2791032 A1	Contoured neck for a beverage container	BALL
EP2576367 A1	Can end produced from downgauged blank	REXAM BEVERAGE CAN
EP1361164 A1	Can end	DEUTSCHE BANK
EP1237666 A2	Can lid closure and method of joining a can lid closure to a can body	METAL CONTAINER
EP2252522 A1	Can end	CROWN PACKAGING
EP1441957 A1	Reformed can end and method therefore	REXAM BEVERAGE CAN
WO2013158771 A1	Decorated beverage can tabs	REXAM BEVERAGE CAN
EP2195247 A1	Can end with countersink	REXAM BEVERAGE CAN
EP-785037 A1	Method and apparatus for producing container body end countersink	BALL
US4448322 A	Metal container end	REXAM BEVERAGE CAN
EP1773522 A2	Method and apparatus for shaping a metallic container end closure	BALL
EP-497346 A1	Pressure resistant sheet metal end closure	STOLLE MACHINERY
EP2580135 A1	Full aperture beverage can end	CROWN PACKAGING
EP1601580 A1	Modified score for smooth openability	REXAM BEVERAGE CAN
EP2969798 A1	Vented beverage can end having an anti-tension score	CROWN PACKAGING
EP1373079 A1	Metallic beverage can end	BALL
US20120263835 A1	Can end	SILGAN CONTAINERS
EP1259435 A1	Vented container end apparatus and method	BALL
GB-422052 A	Improvements in or relating to closed tins, jars, or like containers	ROBERT BARLOW, ...
US4084721 A	Container with attached closure	CONTINENTAL
EP2675717 A1	Can end	REXAM BEVERAGE CAN
EP1470052 A1	Metallic beverage can end with improved chuck wall and countersink	BALL
WO9834743 A1	Can ends	CROWN CORK & SEAL, ...
EP1907150 A2	Method for forming a reinforcing bead in a container end closure	BALL
EP-139282 A2	Increased strength for metal beverage closure through reforming	BALL
EP-153115 A2	Method of and apparatus for forming a reinforced can end	CMB FOODCAN
EP2844573 A1	Metallic end closure with tear panel having improved rigidity	BALL
EP-103074 A2	Increased strenght for metal closures through reversing curved segments	BALL

Publication numbers	Title	Current assignees
EP1255622 A1	Method and apparatus for forming a can end with minimal warping	DEUTSCHE BANK
JP2009286433 A	Sealed metal container not requiring sealing compound in seamed section	SHOWA DENKO PACKAGING
US20050044920 A1	Method and apparatus for forming container end shells with reinforcing rib	STOLLE MACHINERY, ...
US20150108130 A1	Canister with dispersing aperture	ZIEGLER ROBERT A
WO200257137 A2	Beverage can end with reduced countersink	BALL
US4015744 A	Easy-open ecology end	FRAZE MARTHA L EXECUTRIX, ...
US20020139800 A1	Can opening device	HWANG BO YEOUM, ...
US20030150866 A1	Can end and method for fixing the same to a can body	DEUTSCHE BANK
EP2969800 A1	Container end closure with buckle control feature	BALL
US3424337 A	Container opening devices	ALCOA
EP-454889 A1	Resealable flip-top can and resealable flip-top.	DAGIANIS JOHN J
EP3066015 A1	Full aperture end	CROWN PACKAGING
US3291336 A	Can top	ERMAL C. FRAZE
US3326405 A	Can top and method of making same	FRAZE ERMAL C
WO200465236 A1	End closure with anti-rotation tab	REXAM BEVERAGE CAN EUROPE
EP2021255 A1	Can opening device	CROWN PACKAGING
US3434325 A	Apparatus for the manufacture of caps from sheet material	ALUMINIUM FRANCAIS
EP2969799 A1	End closure with tab guidance features	BALL
EP1165384 A1	End closure with improved non-detachable opening panel	REXAM BEVERAGE CAN
EP2475583 A1	Container lid having a pressure equalizing device	XOLUTION
EP2493776 A1	Vented beverage can end	CROWN PACKAGING
EP2908964 A1	End closure with coined panel radius and reform step	STOLLE MACHINERY
EP2085319 A1	Can end	REXAM BEVERAGE CAN EUROPE
EP2253552 A1	Can end	CROWN PACKAGING
US2004946 A	Container	AMERICAN CAN
US5405039 A	Can for beverage	KOMURA
US4093102 A	End panel for containers	AMERICAN NATIONAL CAN CHICAGO
US3905513 A	Sealant for pushdown gate in a can lid	KLEIN GERALD B
EP2888172 A1	Easy pour spout	STOLLE MACHINERY
WO2011115815 A1	Ornamental and temperature indicating can ends and tabs	REXAM BEVERAGE CAN
US4039100 A	Container having non-removable opening member with	WELLS VERA T

Publication numbers	Title	Current assignees
	attached opening lever	
EP1214251 A1	Safety container end having improved opening characteristics	DEUTSCHE BANK
EP2557051 A1	Can end	DRT MANUFACTURING
WO200636934 A2	Container end closure	BALL
EP2969797 A1	Beverage can end with vent port	REXAM BEVERAGE CAN
EP--88968 A1	A method for further forming a metal closure and a metal container end	BALL
US4254890 A	Non-sliver scored metal end	SONOCO DEVELOPMENT
EP1813540 A1	Can end for a can and such can	ARDAGH MP NETHERLANDS
EP2204112 A1	Pressure cooker foreseen with a control device for locking and unlocking having an asymetric functioning	SEB
EP1358111 A1	Small opening beverage can end adapted for receiving a straw	BALL
EP1456091 A1	Can end for a container	REXAM BEVERAGE CAN

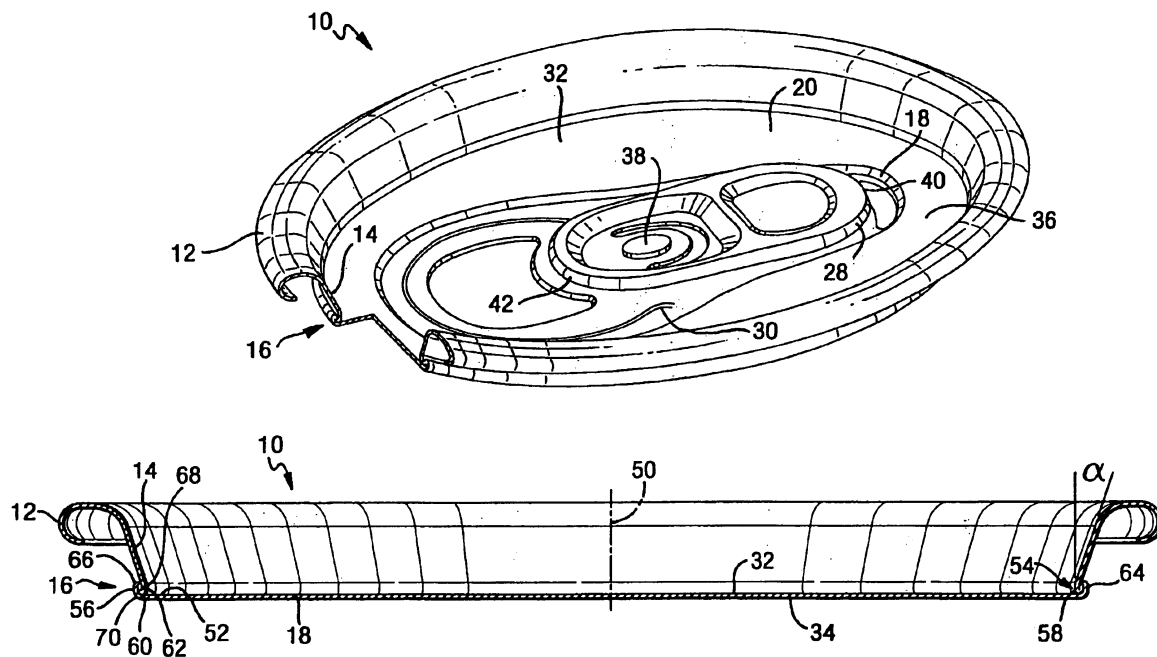
Family 1/100 - FAMPAT - ©Questel

Title

(EP1425225)

Can end

Images



Publication numbers with kind code & date

US8328492	B2	2012-12-11	US8328492
EP1834885	B1	2012-10-17	EP1834885
BR0211974	B1	2012-05-29	BR200211974
DE60221675	T2	2008-06-05	DE60221675
US7350392	B2	2008-04-01	US7350392
US20080050207	A1	2008-02-28	US20080050207
ES2290328	T3	2008-02-16	ES2290328
EP1834885	A3	2007-10-03	EP1834885
DE60221675	D1	2007-09-20	DE60221675
EP1834885	A2	2007-09-19	EP1834885
AT369293	T	2007-08-15	ATE369293
EP1425225	B1	2007-08-08	EP1425225
US7174762	B2	2007-02-13	US7174762
AU2002326666	C1	2006-11-30	AU2002326666
CN1284704	C	2006-11-15	CN1284704C
US7004345	B2	2006-02-28	US7004345
RU2270794	C2	2006-02-27	RU2270794
AU2002326666	B2	2006-02-23	AU2002326666
NZ531485	A	2006-01-27	NZ-531485
KR100522317	B1	2005-10-18	KR100522317
MXPA04001409	A	2005-06-06	MX2004PA001409
RU2004105148	A	2005-02-27	RU2004105148
CN1555327	A	2004-12-15	CN1555327
US20040211780	A1	2004-10-28	US20040211780
US20040200838	A1	2004-10-14	US20040200838
BR0211974	A	2004-09-21	BR200211974



US6772900	B2	2004-08-10	US6772900				
EP1425225	A1	2004-06-09	EP1425225				
KR20040030127	A	2004-04-08	KR20040030127				
US20040065663	A1	2004-04-08	US20040065663				
US20030042258	A1	2003-03-06	US20030042258				
WO03/16155	A1	2003-02-27	WO200316155				
US20030034346	A1	2003-02-20	US20030034346				

Abstract

(EP1425225)

A can end member has a central panel, a circumferential chuckwall, and a transition wall. The central panel is centered about a longitudinal axis and has a peripheral edge. The curl defines an outer perimeter of the end member. The circumferential chuckwall extends downwardly from the curl to the transition wall. The transition wall connects the chuckwall with the peripheral edge of the central panel. The transition wall has a folded portion extending outwardly relative to the longitudinal axis.

Inventors

TURNER TIMOTHY

GOPALASWAMY RAJESH

FORREST RANDALL G

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

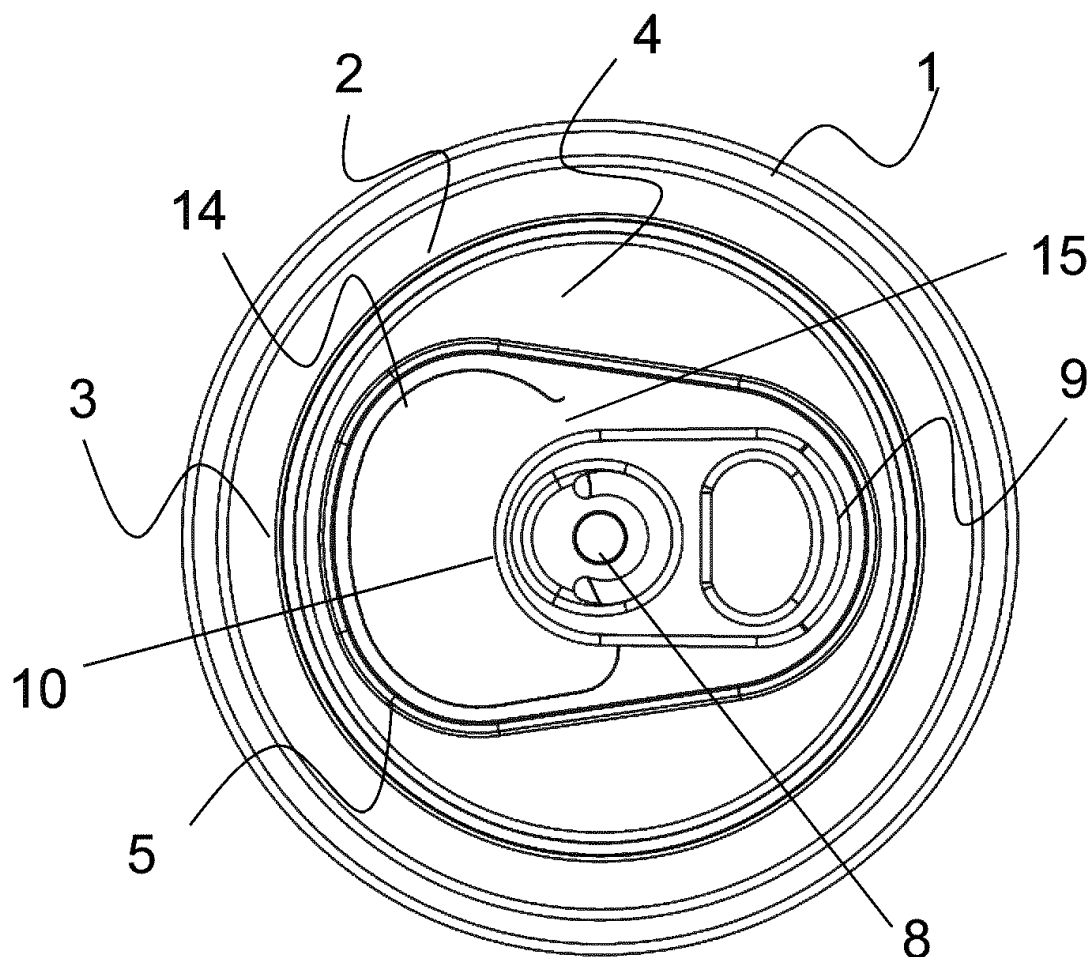
Family 2/100 - FAMPAT - ©Questel

Title

(EP3386878)

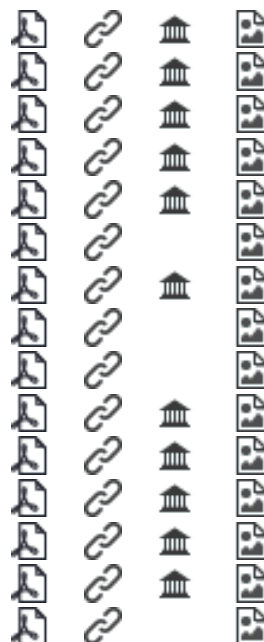
Can end with venting feature

Images



Publication numbers with kind code & date

GB2545403	B	2019-04-10	GB2545403
US20180362209	A1	2018-12-20	US20180362209
JP2018536592	A	2018-12-13	JP2018536592
BR112018011566	A2	2018-11-27	BR112018011566
EP3386878	A1	2018-10-17	EP3386878
MX2018006514	A	2018-09-06	MX2018006514
CN108430878	A	2018-08-21	CN108430878
CO2018006523	A2	2018-07-10	CO2018006523
SG11201804382Q	A	2018-06-28	SG11201804382Q
AU2016366496	A1	2018-06-21	AU2016366496
BR112018011566	A1	2018-06-19	BR112018011566
GB2545403	A	2017-06-21	GB2545403
CA3007522	A1	2017-06-15	CA3007522
WO2017/097903	A1	2017-06-15	WO201797903
GB201521700	D0	2016-01-20	GB201521700



Abstract

(EP3386878)

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.

Inventors

RAMSEY CHRISTOPHER PAUL

GROVES THOMAS ALEXANDER

FRANCO ANTHONY CHARLES

Latest standardized assignees - inventors removed

CROWN PACKAGING

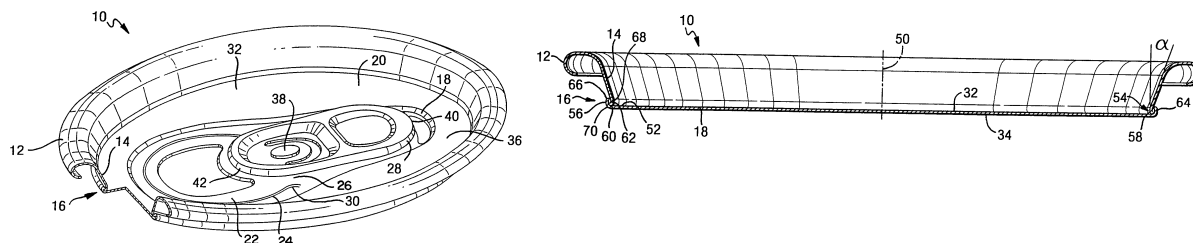
Family 3/100 - FAMPAT - ©Questel

Title

(EP1755966)

Can end

Images



Publication numbers with kind code & date

US8104319	B2	2012-01-31	US8104319
US8052005	B2	2011-11-08	US8052005
IN249633	B	2011-11-04	IN-249633
AU2005245402	B2	2011-08-11	AU2005245402
RU2424166	C2	2011-07-20	RU2424166
CN101014503	B	2011-02-09	CN101014503B
EG24911	A	2010-12-19	EG--24911
JP3163018	U	2010-09-01	JP3163018U
ES2343533	T3	2010-08-03	ES2343533
DE602005021102	D1	2010-06-17	DE602005021102
AT466779	T	2010-05-15	ATE466779
EP1755966	B1	2010-05-05	EP1755966
NZ551368	A	2010-04-30	NZ-551368
CA2566679	C	2010-04-20	CA2566679
US20090266824	A1	2009-10-29	US20090266824
US20090269169	A1	2009-10-29	US20090269169
US7556168	B2	2009-07-07	US7556168
KR100862404	B1	2008-10-08	KR100862404
RU2006142349	A	2008-06-20	RU2006142349
JP2007537107	A	2007-12-20	JP2007537107
BRPI0511128	A	2007-11-27	BR200511128
IN6765/DELNP/2006	A	2007-08-31	IN2006DN06765
CN101014503	A	2007-08-08	CN101014503
KR20070028414	A	2007-03-12	KR20070028414
EP1755966	A1	2007-02-28	EP1755966
MXPA06013204	A	2007-02-28	MX2006PA013204
TR200606355	T2	2007-01-22	TR200606355
AU2005245402	A1	2005-12-01	AU2005245402



CA2566679	A1	2005-12-01	CA2566679
WO2005/113351	A1	2005-12-01	WO2005113351
US20050006388	A1	2005-01-13	US20050006388

**Abstract**

(EP1755966)

A can end member (10) has a center panel (18), a circumferential chuck wall, and a transition wall. The center panel is centered about a longitudinal axis (50) and has a peripheral edge. The center panel also has a step portion located radially outwardly from the longitudinal axis. The step portion has an annular convex portion joined to an annular concave portion and displaces at least a portion of the center panel vertically in a direction parallel to the longitudinal axis. The curl defines an outer perimeter of the end member. The circumferential chuck wall extends downwardly from the curl to the transition wall. The transition wall connects the chuck wall with the peripheral edge of the center panel. The transition wall comprises a folded portion. The folded portion has a first leg (56), a second leg (62), and a third leg (68). The first leg is directly connected to the chuck wall and joined to the second leg by a concave annular portion. The second leg is joined to the third leg by a convex annular portion, and the third leg is joined to the center panel. The convex annular portion has a radius of curvature greater than 0.002 ins.

Inventors

TURNER TIMOTHY

FORREST RANDALL G

GOPALASWAMY RAJESH

GOGOLA MICHAEL R

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

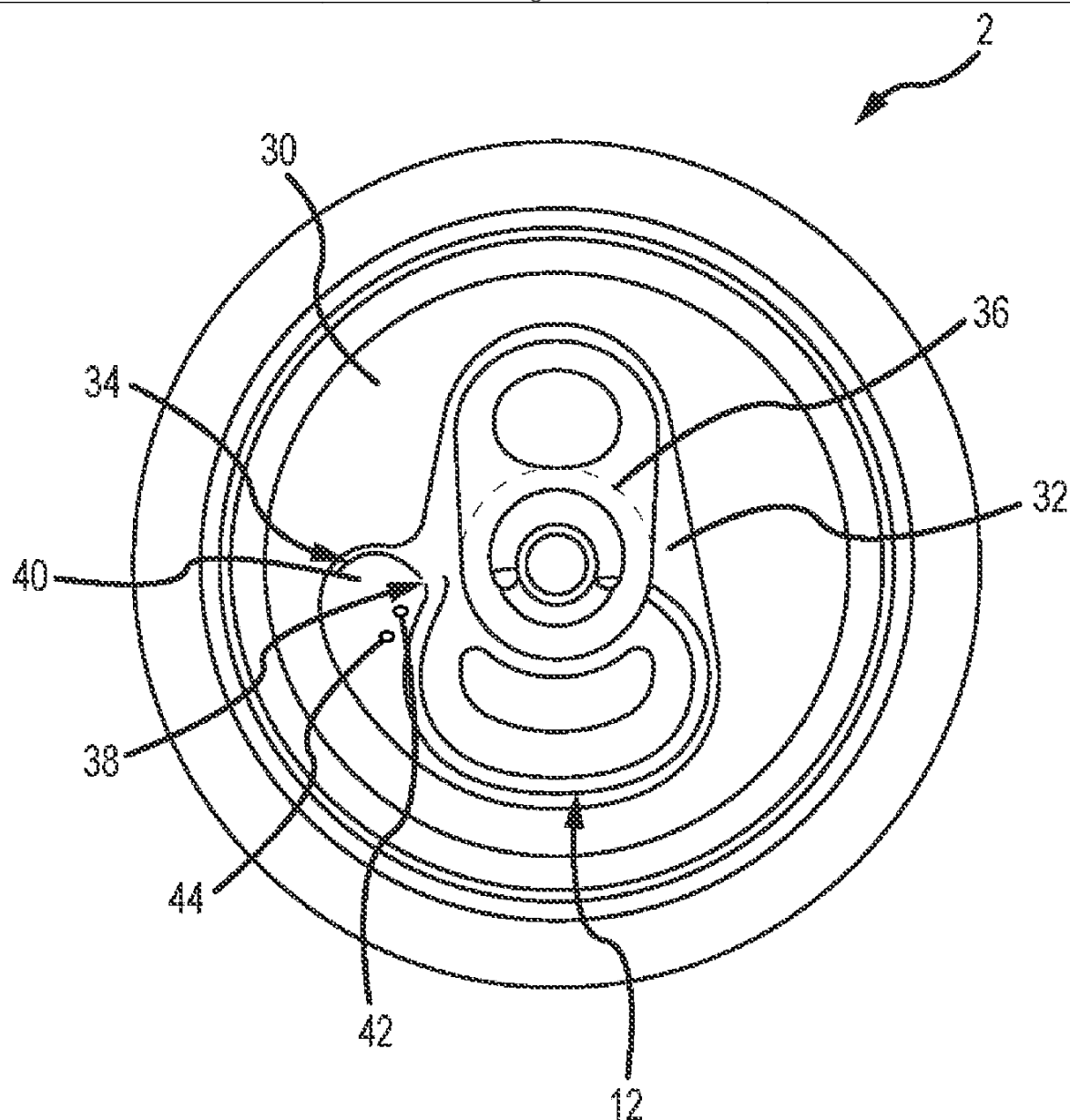
Family 4/100 - FAMPAT - ©Questel

Title

(EP3183181)

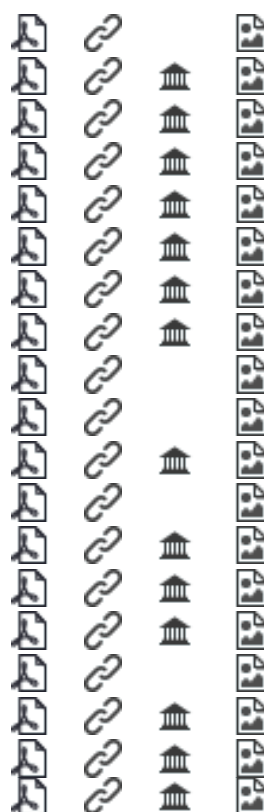
Metal end closure with an extended score which is opened with a secondary tool

Images



Publication numbers with kind code & date

RU2686724	C1	2019-04-30	RU2686724
AU2016298537	B2	2019-02-21	AU2016298537
EP3328747	A4	2019-01-09	EP3328747
BR112018000997	A2	2018-09-18	BR112018000997
US20180257812	A1	2018-09-13	US20180257812
EP3328747	A1	2018-06-06	EP3328747
BR112018000997	A1	2018-05-22	BR112018000997
US9969524	B2	2018-05-15	US9969524
CL2018000209	A1	2018-05-11	CL201800209
VN57229	A	2018-04-26	VN--57229
CN107949525	A	2018-04-20	CN107949525
MX2018001224	A	2018-04-13	MX2018001224
EP3183181	A4	2018-03-28	EP3183181
AU2016298537	A1	2018-02-15	AU2016298537
BR112017003264	A2	2017-11-28	BR112017003264
MX2017002238	A	2017-08-02	MX2017002238
EP3183181	A1	2017-06-28	EP3183181
BR112017003264	A1	2017-03-01	BR112017003264



CA2992441	A1	2017-02-02	CA2992441
WO2017/019269	A1	2017-02-02	WO201719269
CA2958649	A1	2016-02-25	CA2958649
US20160052667	A1	2016-02-25	US20160052667
WO2016/028860	A1	2016-02-25	WO201628860

**Abstract**

(EP3183181)

A metallic container end closure is provided that generally comprises a primary pour opening and an extended or secondary score which is opened with a secondary tool to form a secondary pour opening. The fact that a secondary tool is required allows the secondary score to be shallower, and thus more secure than deeper scores that are openable by finger pressure alone. Once the secondary tool is used to fracture the secondary score, a secondary pour opening is produced adjacent to the primary pour opening to form a larger opening. A user may insert materials such as ice or oranges through the enlarged pour opening.

Inventors

GATEWOOD ERIK E

JACOBER MARK A

Latest standardized assignees - inventors removed

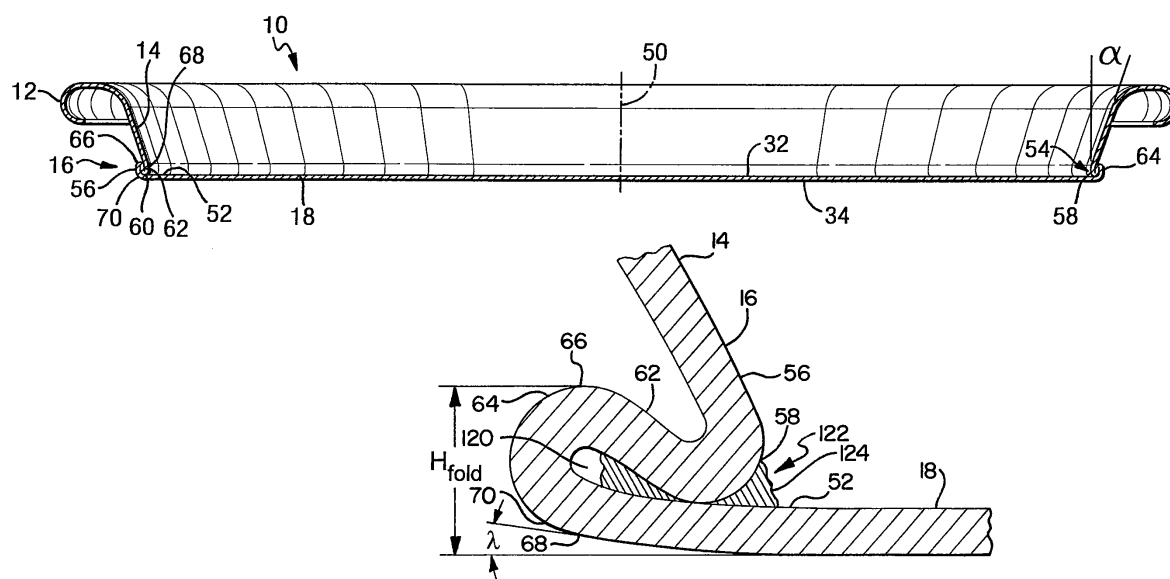
BALL

Family 5/100 - FAMPAT - ©Questel

Title

(WO200738066)

Can end

Images**Publication numbers with kind code & date**

US7644833	B2	2010-01-12	US7644833
WO2007/038066	A1	2007-04-05	WO200738066
US20060096994	A1	2006-05-11	US20060096994

**Abstract**

(WO2007/038066)

A can end member for a beverage container is disclosed. The end member has a curl at least substantially defining a perimeter of the can end, a chuck wall extending downwardly and radially inwardly from the curl, and a central panel wall centered about a longitudinal axis. The central panel wall has a product side and a public side. The public side has a means for opening a frangible panel segment. The end member also has a fold joining the chuck wall with the central panel

wall. The fold has an opening. A fluid is located adjacent the opening.

Inventors

TURNER TIMOTHY

GOPALASWAMY RAJESH

FORREST RANDALL G

Latest standardized assignees - inventors removed

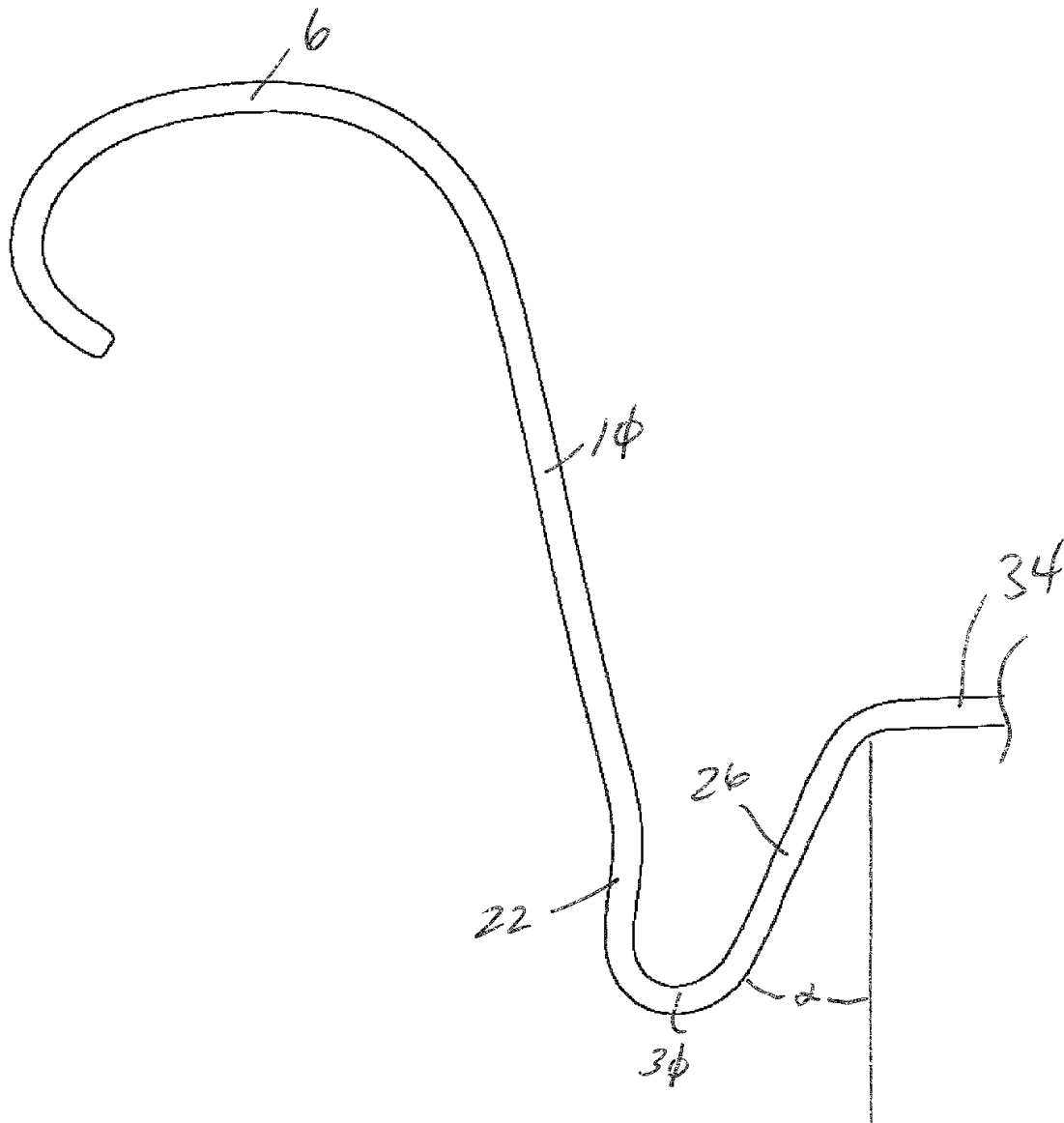
REXAM BEVERAGE CAN

Family 6/100 - FAMPAT - ©Questel

Title

(EP2640534)

Metallic beverage can end closure with offset countersink

Images**Publication numbers with kind code & date**

BR112013011599	A2	2019-09-24	BR112013011599
EP2640534	A4	2015-09-09	EP2640534
RU2013125440	A	2014-12-10	RU2013125440
US8727169	B2	2014-05-20	US8727169



EP2640534	A1	2013-09-25	EP2640534
VN35171	A	2013-09-25	VN--35171
CN103282138	A	2013-09-04	CN103282138
MX2013005627	A	2013-08-29	MX2013005627
AU2011329879	A1	2013-05-30	AU2011329879
CA2817582	A1	2012-05-24	CA2817582
US20120125935	A1	2012-05-24	US20120125935
WO2012/068324	A1	2012-05-24	WO201268324



Abstract

(EP2640534)

The present invention describes a beverage container end closure that utilizes less material and has improved internal buckle strength based on the geometric configuration of a chuck wall, inner panel wall, outer panel wall, and central panel and that utilizes an outwardly oriented countersink. Certain embodiments of said container end closure comprising: a peripheral curl adapted for interconnection to a container body side wall; a chuck wall interconnected to said peripheral curl and extending downwardly and inwardly at an angle; an outer panel wall interconnected to a lower portion of the chuck wall, said outer panel wall being angled; a countersink interconnected to a lower portion of said outer panel wall; an inner panel wall interconnected to said countersink and extending upwardly at an angle; and a central panel interconnected to an upper end of said inner panel wall and raised above a lowermost portion of said countersink.

Inventors

NGUYEN TUAN A

Latest standardized assignees - inventors removed

BALL

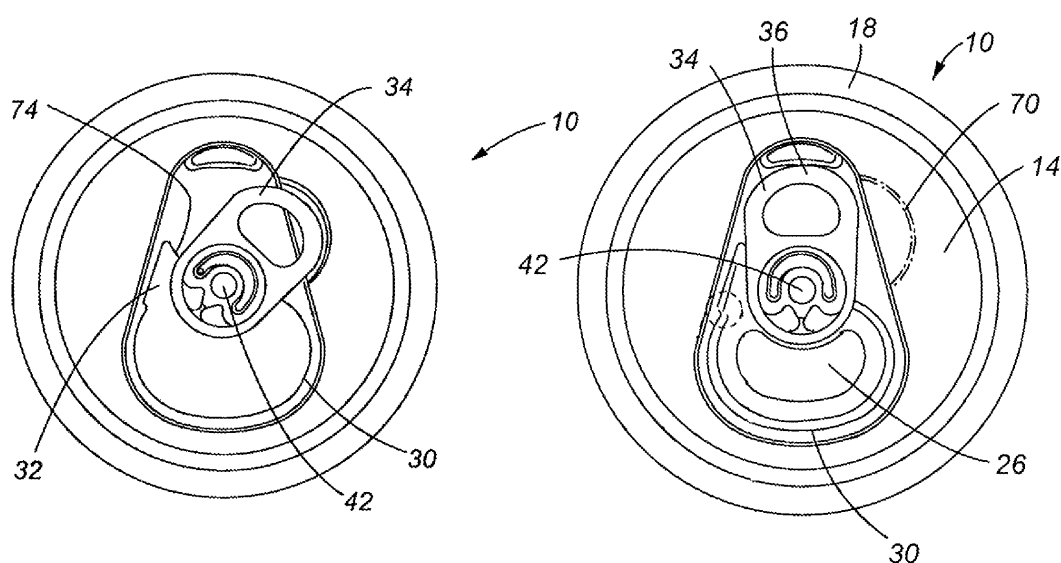
Family 7/100 - FAMPAT - ©Questel

Title

(EP2601109)

Container end closure with secondary vent opening

Images



Publication numbers with kind code & date

BR112013002863	B1	2019-10-22	BR112013002863
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US10017295	B2	2018-07-10	US10017295				
VN0018389	B	2018-03-26	VN--18389B				
RS55892	B1	2017-08-31	RS--55892				
PL2601109	T3	2017-03-31	PL2601109				
ES2601810	T3	2017-02-16	ES2601810				
DK2601109	T3	2017-01-09	DK2601109T				
EP2601109	B1	2016-10-19	EP2601109				
US9446879	B2	2016-09-20	US9446879				
BR112013002863	A2	2016-06-07	BR112013002863				
MX337754	B	2016-03-17	MX-337754				
RU2573284	C2	2016-01-20	RU2573284				
US20150329238	A1	2015-11-19	US20150329238				
CN103140423	B	2015-08-26	CN103140423B				
CA2806879	C	2015-04-28	CA2806879				
RU2013109931	A	2014-09-20	RU2013109931				
EP2601109	A4	2014-04-30	EP2601109				
AU2011286291	B2	2014-04-17	AU2011286291				
US20140096491	A1	2014-04-10	US20140096491				
US8567158	B2	2013-10-29	US8567158				
EP2601109	A1	2013-06-12	EP2601109				
CN103140423	A	2013-06-05	CN103140423				
VN33953	A	2013-05-27	VN--33953				
MX2013001492	A	2013-05-01	MX2013001492				
AU2011286291	A1	2013-02-28	AU2011286291				
CA2806879	A1	2012-02-09	CA2806879				
US20120031056	A1	2012-02-09	US20120031056				
WO2012/018549	A1	2012-02-09	WO201218549				

Abstract

(EP2601109)

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.

Inventors

CHASTEEN HOWARD C

JACOB MARK A

Latest standardized assignees - inventors removed

BALL

Family 8/100 - FAMPAT - ©Questel

Title

(EP2773572)

Vented metallic container end closure

Images

CN104364164	A	2015-02-18	CN104364164				
VN39266	A	2014-09-25	VN--39266				
EP2773572	A2	2014-09-10	EP2773572				
CR20140207	A	2014-08-21	CR201400207				
BR112014010657	A1	2014-08-19	BR112014010657				
AU2012332214	A1	2014-05-29	AU2012332214				
US20130118133	A1	2013-05-16	US20130118133				
CA2854320	A1	2013-05-10	CA2854320				
WO2013/067398	A2	2013-05-10	WO201367398				

Abstract

(EP2773572)

A metallic container end closure is provided that generally comprises a dispensing opening and a vent opening. The vent opening improves pourability through the dispensing opening and provides an alternative option for consuming the contents of the container. The end closure may include features to ease opening of the vent opening, such as stiffeners and/or vent form features. Additionally, the end closure may include various safety features, such as a safety fold. In some configurations, the container end closure does not include a pull tab for opening.

Inventors

JACOBBER MARK A

CHASTEEN HOWARD C

Latest standardized assignees - inventors removed

BALL

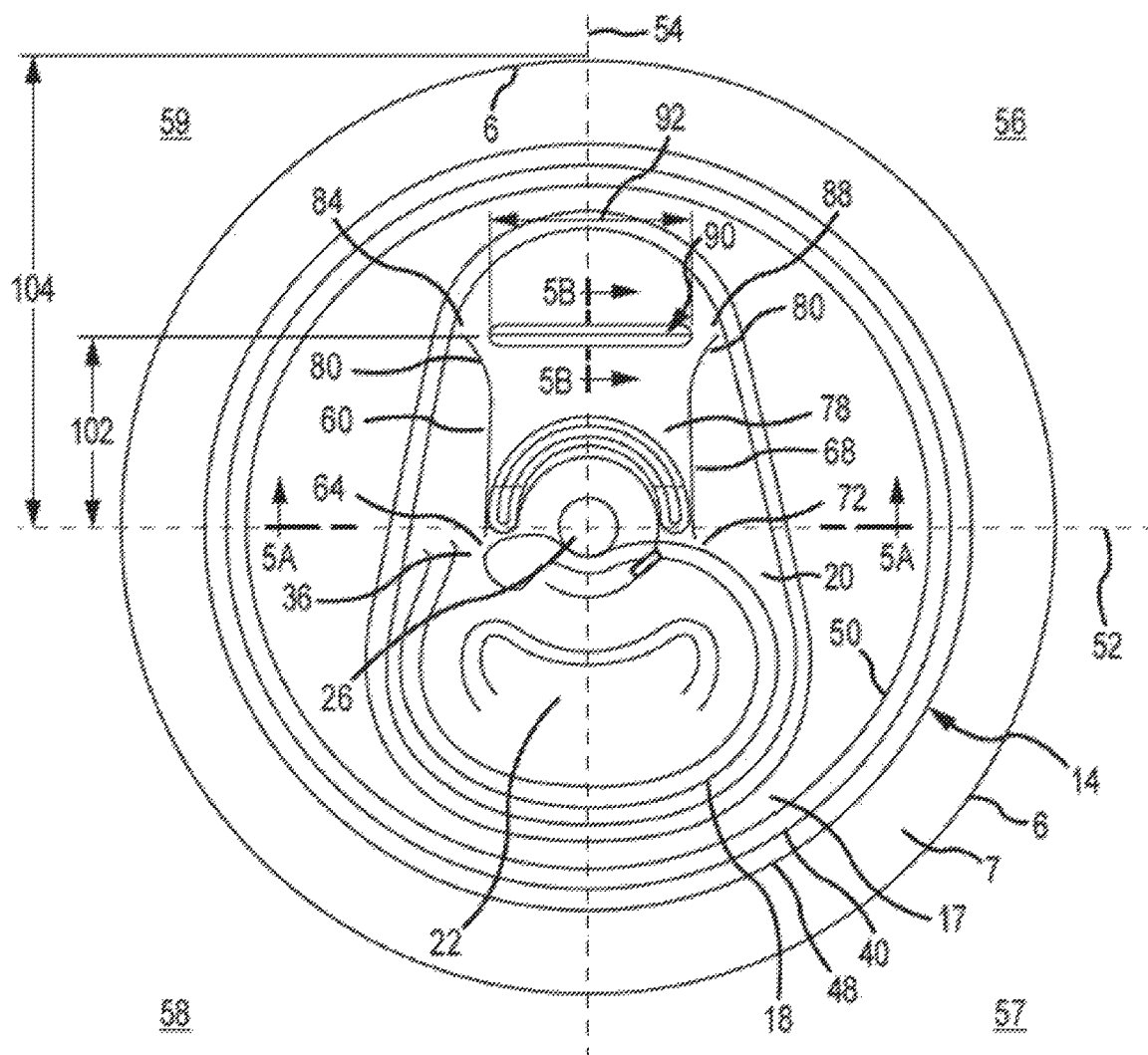
Family 9/100 - FAMPAT - ©Questel

Title

(WO2014149768)

End closure with a ring pull actuated secondary vent

Images



Publication numbers with kind code & date

US20170232497	A1	2017-08-17	US20170232497
US9694935	B2	2017-07-04	US9694935
CN105102332	B	2016-12-28	CN105102332B
CN105102332	A	2015-11-25	CN105102332
WO2014/149768	A1	2014-09-25	WO2014149768
US20140263334	A1	2014-09-18	US20140263334



Abstract

(WO2014/149768)

The present invention relates to a container end closure that generally comprises a pour opening and a secondary vent opening which improves venting during emptying of contents from the container. In particular, the present invention relates to an end closure for a container having scores defining a secondary vent opening which may optionally be opened. The secondary vent opening has a significantly larger area than vents of prior art designs and thereby improves pour rate and smoothness of pour. After the pour opening is opened using a pull tab interconnected to the end closure, a consumer may selectively open the secondary vent opening by pulling back on the tab.

Inventors

SCOTT ANTHONY J

Latest standardized assignees - inventors removed

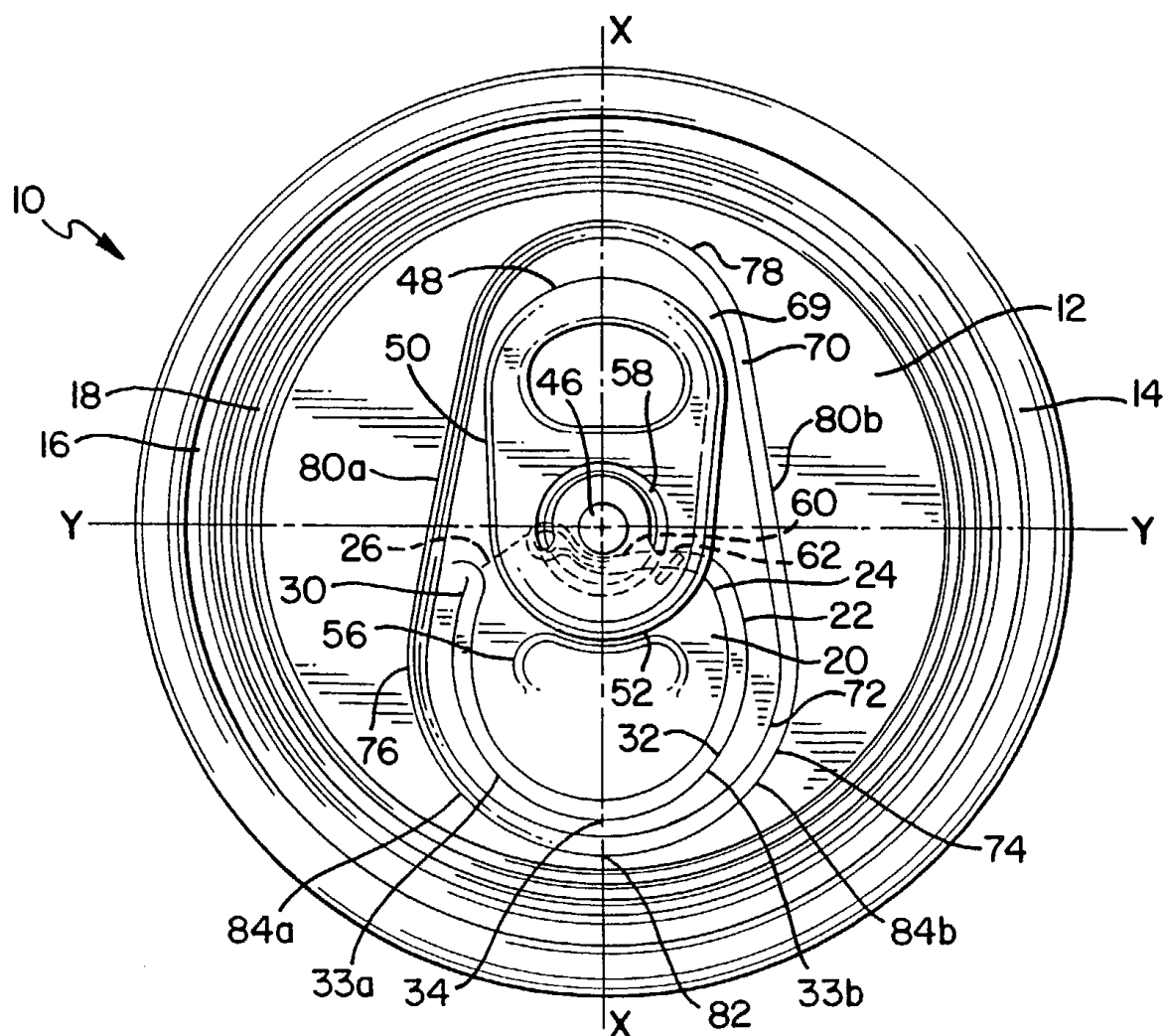
BALL

Family 10/100 - FAMPAT - ©Questel

Title

Can end for a container

Images



BR0116603	B1	2012-11-27	BR200116603
ES2345007	T3	2010-09-13	ES2345007
DE60142262	D1	2010-07-08	DE60142262
AT469041	T	2010-06-15	ATE469041
EP1857370	B1	2010-05-26	EP1857370
DE60141367	D1	2010-04-01	DE60141367
AT457839	T	2010-03-15	ATE457839
EP1857196	B1	2010-02-17	EP1857196
DE60131296	T2	2008-08-28	DE60131296
EP1857370	A3	2008-05-14	EP1857370
ES2295240	T3	2008-04-16	ES2295240
DE60131296	D1	2007-12-20	DE60131296
EP1857196	A3	2007-11-28	EP1857196
EP1857196	A2	2007-11-21	EP1857196
EP1857370	A2	2007-11-21	EP1857370
AT377560	T	2007-11-15	ATE377560
EP1353852	B1	2007-11-07	EP1353852
CN1315697	C	2007-05-16	CN1315697C



RU2283265	C2	2006-09-10	RU2283265				
US7000797	B2	2006-02-21	US7000797				
EP1353852	A4	2005-08-31	EP1353852				
MXPA03005928	A	2005-02-14	MX2003PA005928				
CN1487896	A	2004-04-07	CN1487896				
BR0116603	A	2004-02-10	BR200116603				
EP1353852	A1	2003-10-22	EP1353852				
US20030080132	A1	2003-05-01	US20030080132				
US20020113069	A1	2002-08-22	US20020113069				
WO02/51710	A1	2002-07-04	WO200251710				

Abstract

(EP1353852)

A can end (10) has a peripheral seaming edge (14) for fastening to a can sidewall and a central panel (12). The deboss panel (70) has first and second spaced apart end portions (76, 78) joined by first and second sidewalls (80a, 80b). The first spaced apart end portion has an apex (82) and first and second arcuate portions (84a, 84b). A distance between the first and second arcuate portions is defined by a plurality of progressively increasing secant lengths (88a-88d). The score groove (22), in the deboss panel, has first and second ends (28, 30) connected by a curvilinear segment (32) that includes first and second curved segments (33a, 33b) joined by a transition point located adjacent the apex of the deboss panel and is defined by a plurality of progressively increasing chordal lengths (31a-31d). A ratio of the increasing secant lengths to the increasing chordal lengths increases along respective lengths of the first and second arcuate portions.

Inventors

FORREST RANDY G

TURNER TIMOTHY

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

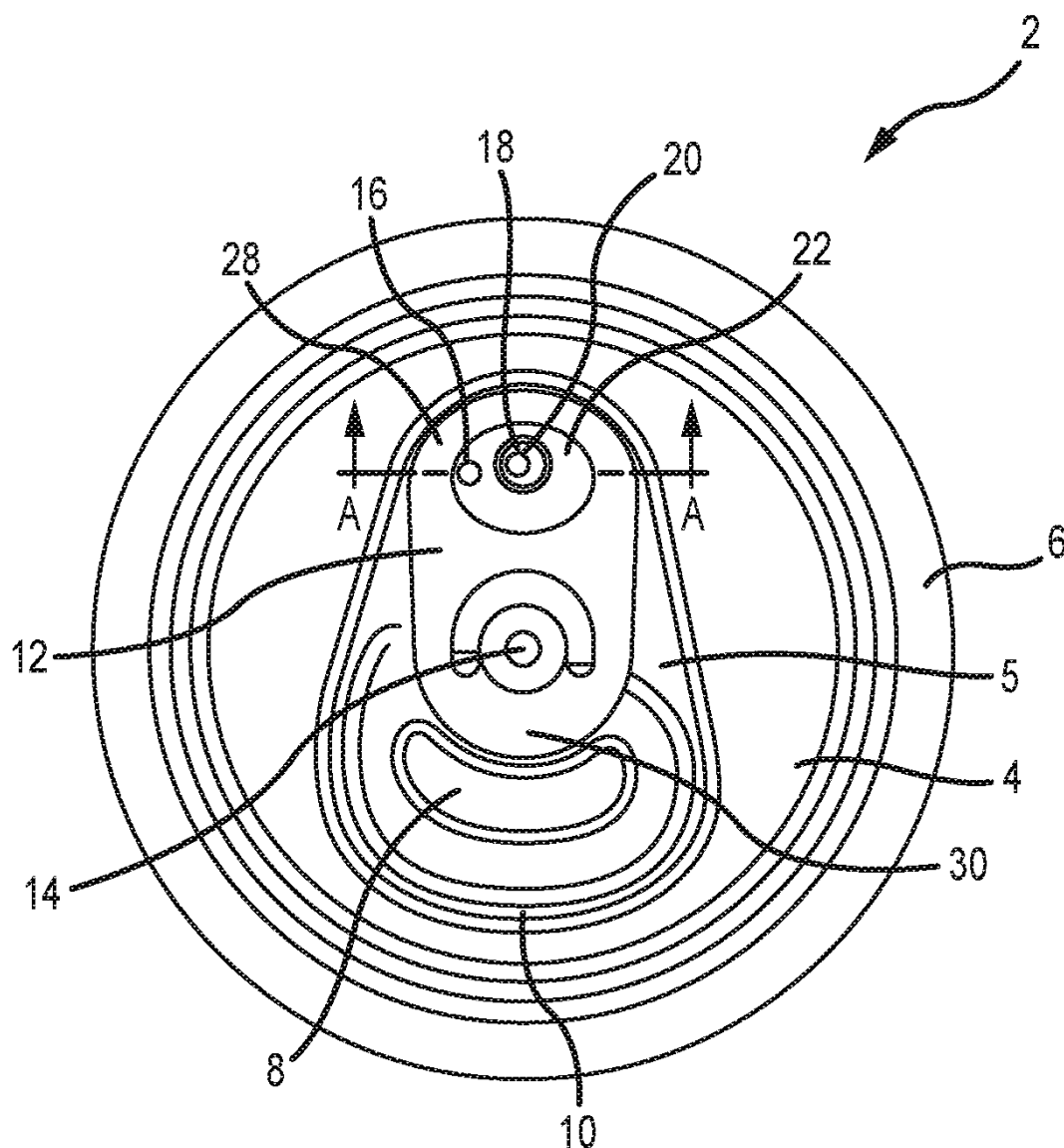
Family 11/100 - FAMPAT - ©Questel

Title

(EP3174807)

Vented container end closure

Images



Publication numbers with kind code & date

US20190233161	A1	2019-08-01	US20190233161
US10358257	B2	2019-07-23	US10358257
MX357385	B	2018-07-06	MX-357385
CA2956783	C	2018-05-30	CA2956783
EP3174807	A4	2018-03-21	EP3174807
BR112017001768	A2	2017-11-21	BR112017001768
US20170320619	A1	2017-11-09	US20170320619
US9714115	B2	2017-07-25	US9714115
EP3174807	A1	2017-06-07	EP3174807
MX2017001233	A	2017-05-08	MX2017001233
CN106604871	A	2017-04-26	CN106604871
BR112017001768	A1	2017-02-21	BR112017001768
CA2956783	A1	2016-02-04	CA2956783
US20160031613	A1	2016-02-04	US20160031613
WO2016/018977	A1	2016-02-04	WO201618977



Abstract

(EP3174807)

A metallic container end closure is provided that generally comprises a dispensing opening and a vent opening. The vent opening improves pourability through the dispensing opening and provides an alternative option for consuming the contents of the container. The end closure may include features to ease opening of the vent opening, such as stiffeners and/or vent form features.

Inventors

CHASTEEN HOWARD C

JACOB MARK A

Latest standardized assignees - inventors removed

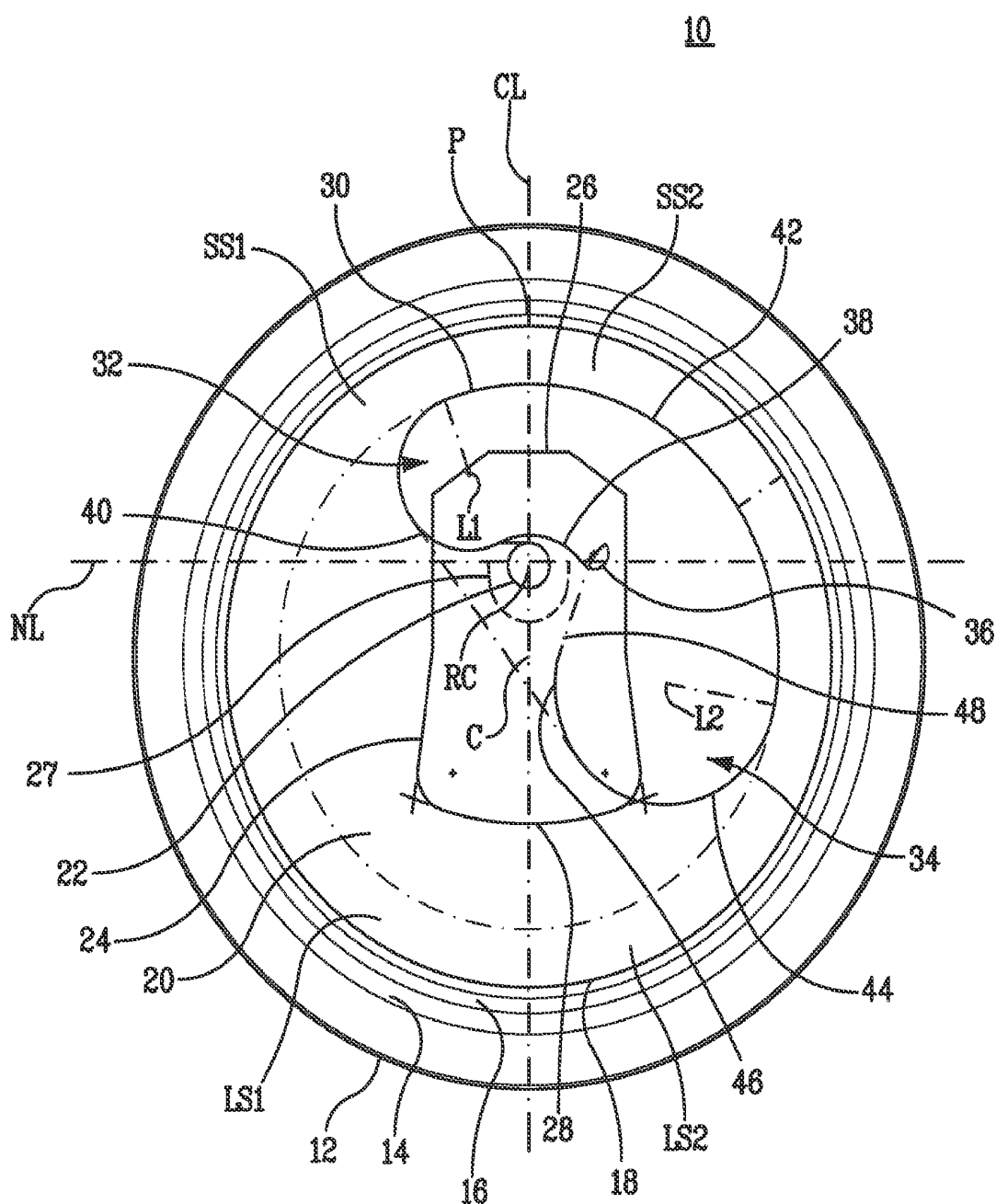
BALL

Family 12/100 - FAMPAT - ©Questel

Title

(EP2969796)

Beverage can end having an asymmetrical opening

Images

MX365109	B	2019-05-23	MX-365109				
US10144550	B2	2018-12-04	US10144550				
JP6404315	B2	2018-10-10	JP6404315				
CN105873829	B	2018-08-31	CN105873829B				
PL2969796	T3	2017-09-29	PL2969796				
EP2969796	B1	2017-05-03	EP2969796				
TH159438	A	2017-01-18	TH-159438				
CN105873829	A	2016-08-17	CN105873829				
JP2016515984	A	2016-06-02	JP2016515984				
MX2015012256	A	2016-04-25	MX2015012256				
US20160039563	A1	2016-02-11	US20160039563				
EP2969796	A1	2016-01-20	EP2969796				
BR112015023174	A1	2015-12-08	BR112015023174				
CA2905459	A1	2014-09-25	CA2905459				
WO2014/152235	A1	2014-09-25	WO2014152235				

Abstract

(EP2969796)

A beverage can end for pressurized contents includes a score that defines a pair of The lobes have longitudinal axes that are not mutually parallel and in some embodiments substantially perpendicular to improve flow.

Inventors

DUNWOODY PAUL ROBERT

RAMSEY CHRISTOPHER PAUL

CHANT GARRY RICHARD

CLAYDON PAUL CHARLES

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 13/100 - FAMPAT - ©Questel

Title

(EP-828663)

Can end and method for fixing the same to a can body

Images

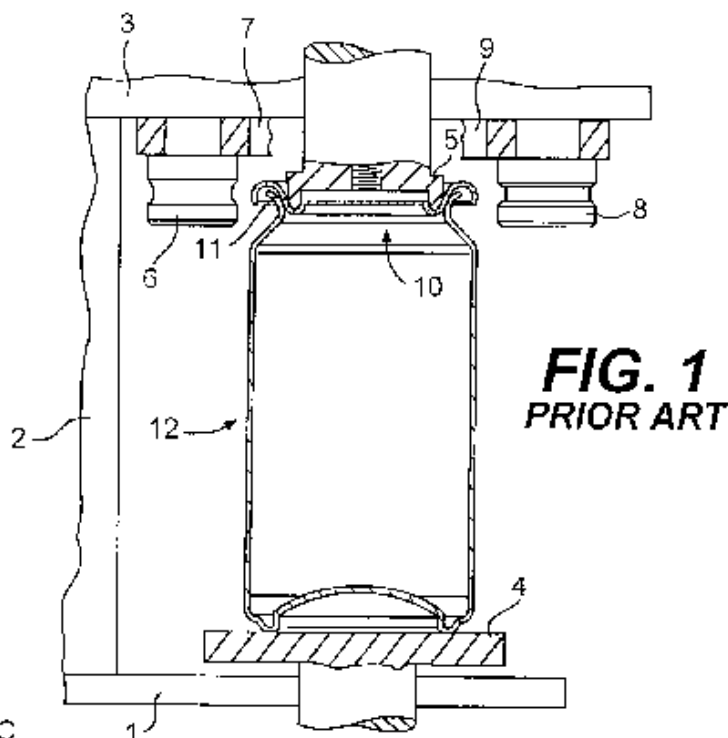


FIG. 1
PRIOR ART

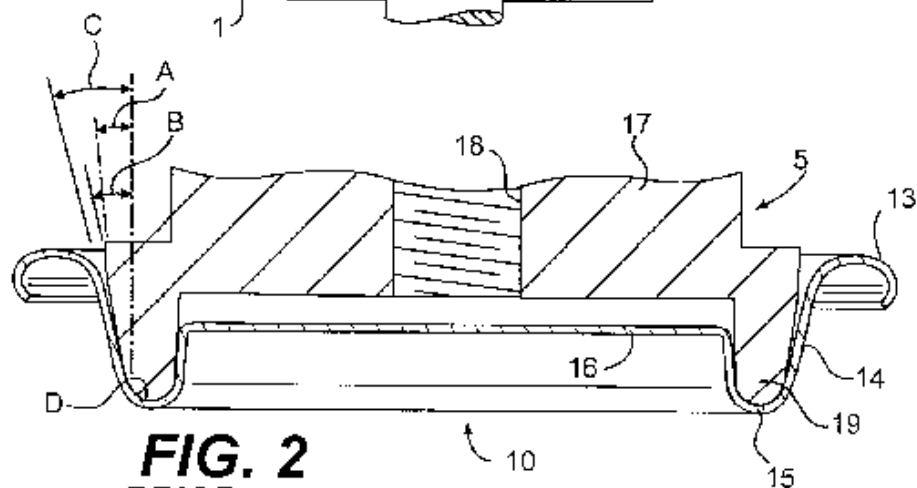


FIG. 2
PRIOR ART

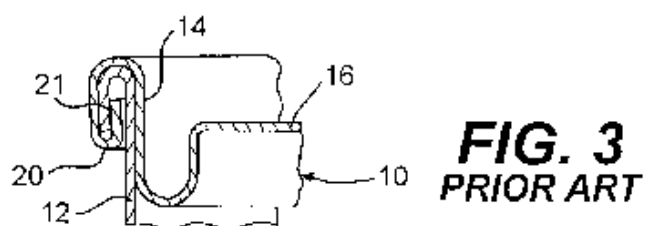
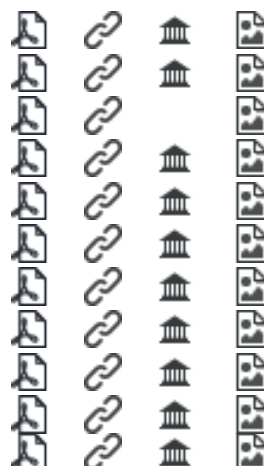


FIG. 3
PRIOR ART

Publication numbers with kind code & date

JP4083186	B2	2008-02-22	JP4083186
JP4083187	B2	2008-02-22	JP4083187
SA1289	B1	2006-09-20	SA---1289
DE69605789	T3	2006-06-01	DE69605789
JP3809190	B2	2006-05-26	JP3809190
JP2006052023	A	2006-02-23	JP2006052023
JP2006052024	A	2006-02-23	JP2006052024
CA2467039	C	2006-01-17	CA2467039
ES2140074	T5	2005-12-16	ES2140074
EP0828663	B2	2005-09-14	EP-828663



CA2222014	C	2004-09-14	CA2222014				
KR100398029	B1	2003-12-31	KR100398029				
EG21902	A	2002-04-30	EG--21902				
CN1076300	C	2001-12-19	CN1076300C				
VN0002171	B	2001-08-27	VN---2171B				
PL180411	B1	2001-01-31	PL-180411				
GR3032571	T3	2000-05-31	GR3032571				
US6065634	A	2000-05-23	US6065634				
DE69605789	T2	2000-04-27	DE69605789				
ES2140074	T3	2000-02-16	ES2140074				
DE69605789	D1	2000-01-27	DE69605789				
AT187944	T	2000-01-15	ATE187944				
EP0828663	B1	1999-12-22	EP-828663				
BR9608906	A	1999-06-15	BR9608906				
JPH11505791	A	1999-05-25	JP11505791				
IL117756	B	1999-04-11	IL-117756				
KR19990021927	A	1999-03-25	KR19990021927				
CN1191513	A	1998-08-26	CN1191513				
AU695640	B2	1998-08-20	AU-695640				
MX9709042	A	1998-03-31	MX9709042				
PL323455	A1	1998-03-30	PL96323455				
EP0828663	A1	1998-03-18	EP-828663				
AR001817	A1	1997-12-10	AR---1817				
PE30097	A1	1997-09-08	PE9700300				
AU5153396	A	1996-12-11	AU9651533				
TW292998	B	1996-12-11	TW-292998				
CA2222014	A1	1996-11-28	CA2222014				
CA2467039	A1	1996-11-28	CA2467039				
WO96/37414	A1	1996-11-28	WO9637414				
ZA9603243	B	1996-10-25	ZA9603243				
IL117756	A	1996-08-04	IL-117756				
GB9510515	D0	1995-07-19	GB9510515				

Abstract

(EP0828663)

A can end (22) comprising a peripheral cover hook (23), a chuck wall (24) dependent from the interior of the cover hook, an outwardly concave annular reinforcing bead (25) extending radially inwards from the chuck wall, and a central panel (26) supported by an inner portion (27) of the reinforcing bead, characterised in that, the chuck wall (24) is inclined to an axis perpendicular to the exterior of the central panel at an angle between 20 DEG and 60 DEG , and the concave cross-sectional radius of the reinforcing bead (25) is less than 0.75 mm.

Inventors

BRIFCANI MOUAYED NAMDOOH

HINTON PETER JAMES

KYSH MARK CHRISTOPHER

Latest standardized assignees - inventors removed

DEUTSCHE BANK

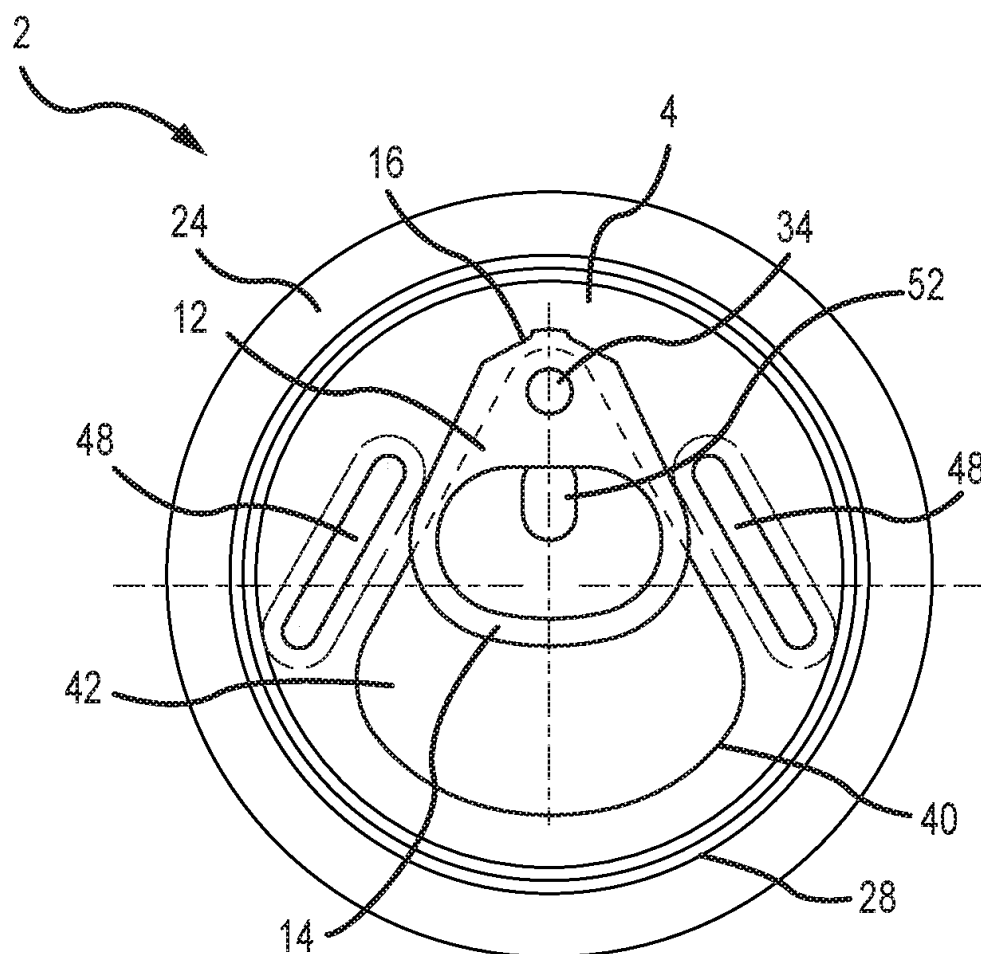
Family 14/100 - FAMPAT - ©Questel

Title

(WO2015134913)

End closure with large opening ring pull tab

Images



Publication numbers with kind code & date

CN110015485	A	2019-07-16	CN110015485
CN106132837	B	2019-05-14	CN106132837B
US20180126442	A1	2018-05-10	US20180126442
US9901972	B2	2018-02-27	US9901972
JP2017512163	A	2017-05-18	JP2017512163
CN106132837	A	2016-11-16	CN106132837
WO2015/134913	A1	2015-09-11	WO2015134913
US20150251803	A1	2015-09-10	US20150251803



Abstract

(WO2015/134913)

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.

Inventors

RAYBURN ROBERT M

Latest standardized assignees - inventors removed

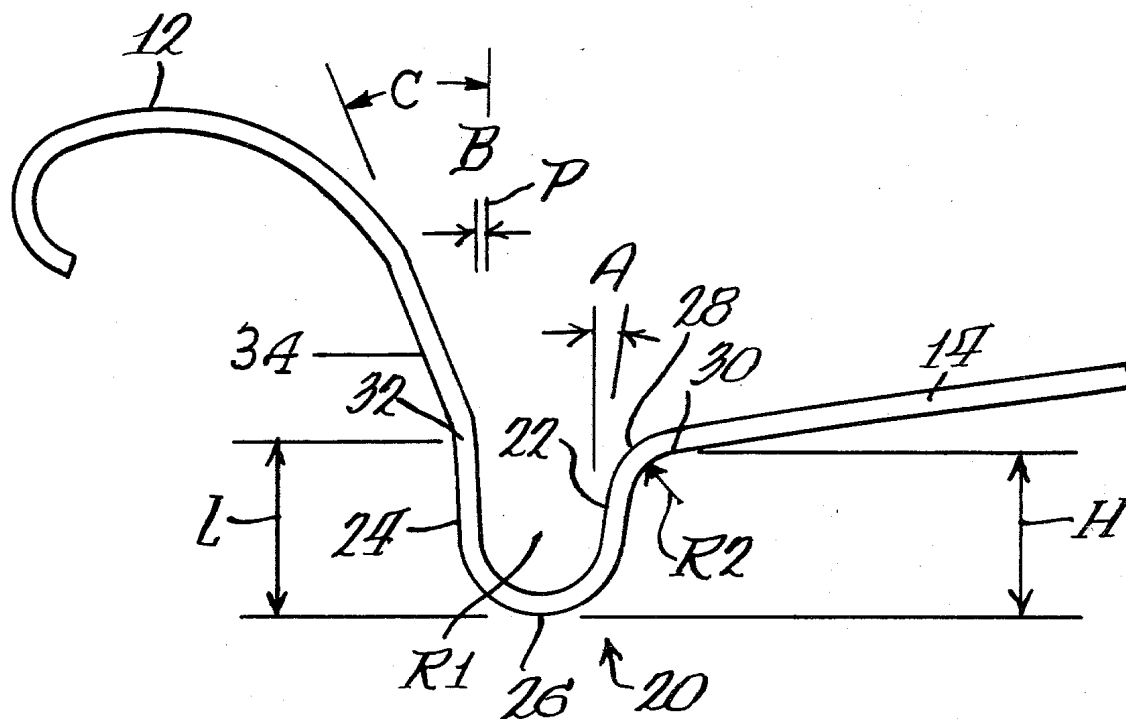
BALL

Family 15/100 - FAMPAT - ©Questel

Title

(US4217843)

Method and apparatus for forming ends

Images**Publication numbers with kind code & date**

IE46997	B1	1983-11-30	IE--46997
GB1604068	A	1981-12-02	GB1604068
US4217843	A	1980-08-19	US4217843
IE781206	L	1979-01-29	IE7801206
GR60707	B	1978-07-12	GR--60707

**Abstract**

(US4217843)

A container end formed from metal having an approximate thickness of 0.0120 inches which is capable of withstanding at least 90 psi buckle pressure and at least 60 psi rock pressure is disclosed herein. A container end panel includes a peripheral curl surrounding a substantially flat center panel with a countersink therebetween. The countersink has inner and outer substantially flat walls that are interconnected by an arcuate portion that has a radius of approximately 0.030 inches and the inner wall is connected to the periphery of the center panel through an arcuate portion that has a radius of approximately 0.025 inches. The outer flat wall has a length which is greater than the length of the inner flat wall and the outer flat wall defines an angle of less than five degrees with respect to a plane that extends perpendicular through the center flat panel. The inner flat wall has a length to locate the lower edge of the countersink about 0.075 inches or more below the lower edge of the periphery of the center panel and defines a minimum angle with respect to a vertical reference plane.

Inventors

KRASKA JOHN L

Latest standardized assignees - inventors removed

AMERICAN NATIONAL CAN CHICAGO

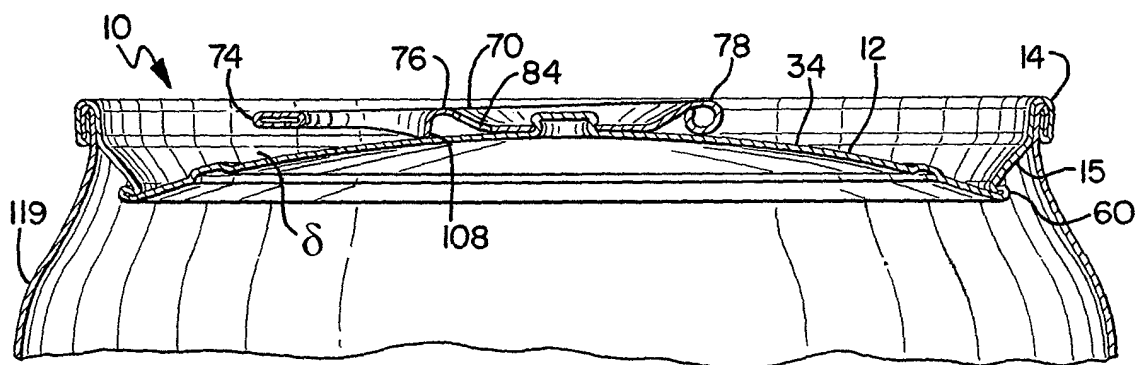
Family 16/100 - FAMPAT - ©Questel

Title

(EP1755967)

Can end with tab for improved accessibility

Images



Publication numbers with kind code & date

AT539002	T	2012-01-15	ATE539002
EP1755967	B1	2011-12-28	EP1755967
CA2566777	C	2011-12-20	CA2566777
AU2005245413	B2	2011-08-11	AU2005245413
US7909196	B2	2011-03-22	US7909196
JP3166699	U	2011-02-23	JP3166699U
NZ551367	A	2010-05-28	NZ-551367
RU2344056	C2	2009-01-20	RU2344056
EG24310	A	2009-01-14	EG--24310
RU2006142348	A	2008-06-20	RU2006142348
JP2007537108	A	2007-12-20	JP2007537108
BRPI0511120	A	2007-11-27	BR200511120
IN6768/DELNP/2006	A	2007-08-31	IN2006DN06768
CN101014504	A	2007-08-08	CN101014504
KR20070026518	A	2007-03-08	KR20070026518
EP1755967	A1	2007-02-28	EP1755967
MXPA06013203	A	2007-02-28	MX2006PA013203
TR200606354	T2	2007-01-22	TR200606354
AU2005245413	A1	2005-12-01	AU2005245413
CA2566777	A1	2005-12-01	CA2566777
WO2005/113352	A1	2005-12-01	WO2005113352
US20050252917	A1	2005-11-17	US20050252917



Abstract

(EP1755967)

A can end for a container has a curl defining an outer perimeter of the can end. A chuckwall extends downwardly from the curl. A means for increasing the strength of the can end is integral with the chuckwall, and a center panel is integral with the means for increasing the strength of the can end. The center panel is centered about a longitudinal axis, and has a product side, a public side, a rivet, and a displaceable tear panel at least substantially defined by a frangible score and a non-frangible hinge segment. A non-detachable tab is staked to the central panel wall by the rivet. The non-detachable tab has a nose end extending over a portion of the tear panel, a lift end opposite the nose end, and a central webbing between the nose end and the lift end. The central webbing has a hinge region and a rivet island surrounding the rivet. The rivet

island is at least partially surrounded by a first void region to provide a first exposed area of the central panel. The central webbing further comprises a second void region between the lift end and the first void region to provide a second exposed area of the central panel. The first and second void regions are separated by a narrow strip of the central webbing. A portion of the narrow strip extends downwardly and approaches the public side of the central panel wherein a height of the lift end of the tab above the public side of the central panel is maintained at a predetermined height.

Inventors

TURNER TIMOTHY

FORREST RANDALL G

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

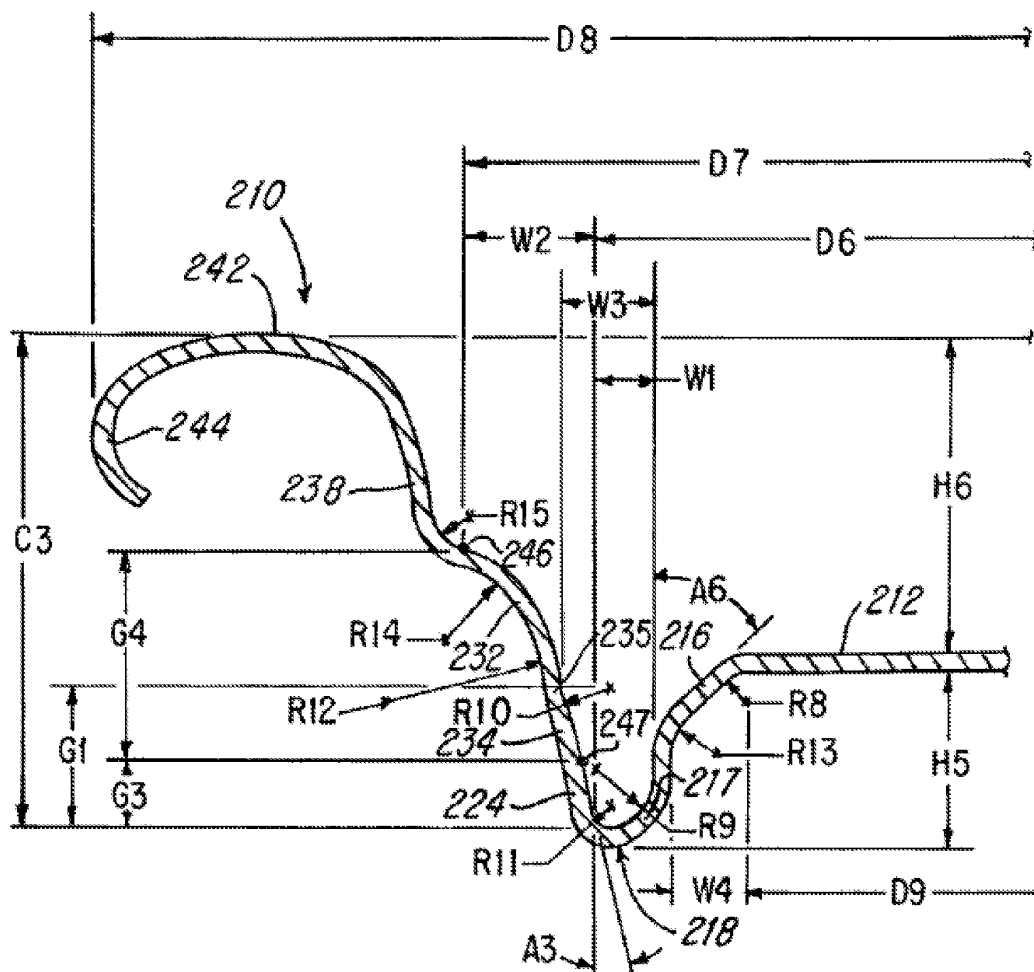
Family 17/100 - FAMPAT - ©Questel

Title

(US20170341807)

Can Shell and Double-Seamed Can End Closure

Images



Publication numbers with kind code & date

US10246217	B2	2019-04-02	US10246217
US20180127145	A1	2018-05-10	US20180127145
US20170341807	A1	2017-11-30	US20170341807
US9771177	B2	2017-09-26	US9771177



US20160297564	A1	2016-10-13	US20160297564				
US20160264288	A1	2016-09-15	US20160264288				
US9371152	B2	2016-06-21	US9371152				
US20150122829	A1	2015-05-07	US20150122829				
US8931660	B2	2015-01-13	US8931660				
US20130175280	A1	2013-07-11	US20130175280				
US8313004	B2	2012-11-20	US8313004				
US20110031256	A1	2011-02-10	US20110031256				

Abstract

(US20170341807)

A drawn aluminum can shell has a peripheral crown which is double-seamed with an end portion of an aluminum can body to provide a can end having a generally flat center panel connected by an inclined curved or straight panel wall to an inner wall of an annular U-shaped countersink. The countersink has an outer wall which connects with a lower wall portion of a chuck wall, and the chuck wall has an upper wall portion which connects with an inner wall of the crown. The chuck wall also has an intermediate wall portion forming a break, and the inner bottom width of the countersink is less than the radial width of the panel wall.

Inventors

STODD R PETER

BATHURST JESS N

Latest standardized assignees - inventors removed

CONTAINER DEVELOPMENT

BALL

Family 18/100 - FAMPAT - ©Questel

Title

(EP-993408)

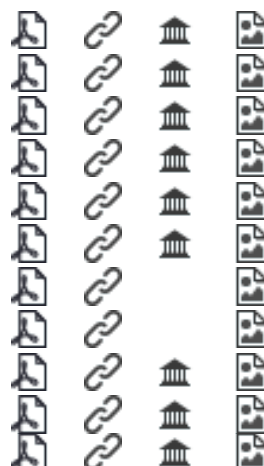
End closure with improved openability

Images

4.713.95,8

4,091,837	6/2/97	Jordan ,	4,716,753	1/1998	Bulboacă et al. ,
4,091,243	12/2/97	Skelsey	4,722,215	2/1988	Taib et al. ,
4,090,777	12/2/97	Perry	4,733,793	3/1998	Vogel ,
4,090,727	6/2/98	Perry ,	4,733,893	4/1998	Bachmann et al. ,
4,090,599	8/2/98	Schulze ,	4,749,100	5/1988	Eberhart ,
4,170,219	12/2/98	Mallocca ,	4,796,705	2/1988	Wilkinson et al. ,
4,165,630	11/2/99	Reynolds et al. ,	4,796,772	1/1989	Nguyen ,
4,164,617	1/2/98	Prish ,	4,804,104	2/1989	Vogel ,
4,204,760	06/2000	Hasegawa ,	4,808,032	2/1989	Bulboacă et al. ,
4,210,257	7/2/98	Radtke ,	4,832,223	5/1989	Kalerak et al. ,
4,211,535	7/2/98	Långsjoeden ,	4,862,712	8/1988	Frazer et al. ,
4,217,815	8/2/98	Graska ,	4,865,596	9/1989	Kraminski ,
4,266,688	05/2001	Reid ,	4,872,577	10/1989	Hamada ,
4,276,093	7/2/98	Hasegawa ,	4,886,116	11/1989	Engel ,
4,283,251	9/2/98	Maliszewski ,	4,928,544	5/1990	LaRocca ,
4,305,523	12/2/98	Dalli et al. ,	4,936,654	5/1990	Tilbacht et al. ,
4,361,757	11/2/98	Långsjoeden et al. ,	4,936,658	5/1990	McElowney ,
4,363,419	12/2/98	Watz, Sr. ,	4,991,775	2/1991	Riendich ,
4,387,827	6/2/98	Rummen, Jr. ,	5,011,017	4/1991	Vogel et al. ,
4,430,983	1/2/98	Post ,	5,016,087	11/1991	Koch ,
4,434,647	3/2/98	Nguyen ,	5,119,664	5/1992	Schubert ,
4,465,204	8/2/98	Kraminski et al. ,	5,209,541	7/1992	Voigt et al. ,
4,516,420	5/2/98	Bulso, Jr. et al. ,	5,249,226	9/1992	McElowney et al. ,
4,530,667	7/2/98	Kraminski et al. ,	5,299,551	4/1993	Tilbacht et al. ,
4,549,424	10/2/98	Bulso, Jr. et al. ,	5,287,718	2/1994	Yamamoto ,
4,559,801	1/2/98	Saito et al. ,	5,307,947	5/1994	Vogel et al. ,
4,561,280	12/2/98	Bachmann et al. ,	5,375,729	12/1994	Schubert ,
4,571,978	2/2/98	Taib et al. ,	5,385,254	1/1985	Hamada ,
4,577,774	3/2/98	Nguyen ,	5,403,039	4/1995	Korman ,
4,606,477	8/2/98	Taib et al. ,	5,456,378	10/1995	DeMars ,
4,641,767	2/2/98	Smith et al. ,	5,711,448	1/1995	Clarke, III ,
4,704,887	11/2/98	Bachmann et al. ,	5,715,861	2/1988	Thayer et al. ,

DE69833887	T2	2007-03-01	DE69833887
DE69833890	T2	2007-02-22	DE69833890
ES2260529	T3	2006-11-01	ES2260529
ES2260572	T3	2006-11-01	ES2260572
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EP1306310	B1	2006-03-22	EP1306310
EP1318077	B1	2006-03-22	EP1318077



DE69817825	T2	2004-07-01	DE69817825
ES2205515	T3	2004-05-01	ES2205515
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AT248753	T	2003-09-15	ATE248753
EP0993408	B1	2003-09-03	EP-993408
EP1318077	A1	2003-06-11	EP1318077
EP1306310	A3	2003-05-07	EP1306310
EP1306310	A2	2003-05-02	EP1306310
BR9810532	A	2002-01-22	BR9810532
AR013179	A1	2000-12-13	AR--13179
EP0993408	A2	2000-04-19	EP-993408
US6024239	A	2000-02-15	US6024239
WO99/01351	A3	1999-06-10	WO9901351
WO99/01351	A2	1999-01-14	WO9901351



Abstract

(EP0993408)

The present invention provides an end closure for a container having a central panel wall with a displaceable tear panel defined by a frangible score with a sloping segment and a non-frangible hinge segment. A tab is attached to the panel wall by a rivet, the tab having a nose extending over a portion of the tear panel, a lift end opposite the nose, and a central webbing with a hinge region and a rivet island surrounding the rivet. A bead is formed entirely in an exposed area of the central panel formed by a void region of the webbing. The invention further provides a score with a first scoreline segment with a vent region and a second curvilinear scoreline segment extending from the first segment toward the panel outer edge portion. The nose of the tab has a generally asymmetric shaped outer edge with a first portion and a second portion, the second portion extending further over the tear panel toward the curvilinear transition zone than the first portion of the nose. The invention further provides a tab with an asymmetrical thickness, with a thickened portion being adjacent the second scoreline segment, and further provides an end having a bead segment positioned under a side portion of the tab nose adjacent the second segment of the score. The present invention also provides an end with a tab having a central longitudinal axis and a webbing with a hinge region adapted to bend at a hinge line when a lifting force is applied to the lift end of the tab to provide a leverage force by the nose against the tear panel, the hinge line intersecting the central longitudinal axis of the tab at an oblique angle. The invention also provides a stepped profile of the panel outer edge with a countersink having substantially parallel walls and a chuck wall angularly extending from below the panel height to the curl.

Inventors

TURNER TIMOTHY L

FORREST RANDALL G

MILES MICHAEL P

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

Family 19/100 - FAMPAT - ©Questel

Title

(EP2473414)

Full aperture beverage can end

Images

Abstract

(EP2473414)

The present invention concerns a full aperture beverage end (14) having a centre panel (30), a countersink (22) surrounding the centre panel (30), a main score (50) arranged in proximity to the countersink (22) to define a removeable aperture panel (54) and a vent score (46). The beverage end (14) is adapted for use with products that are pressurised to over 30 psi (207 kPa) when opened, and during opening the vent score (46) is adapted to sever first, controlling the pressure differential between the external surface and internal surface of the centre panel (30), thereby allowing the main score (50) to tear in a controlled and reliable manner.

Inventors

RAMSEY CHRISTOPHER PAUL

CHANT GARRY RICHARD

LOCKLEY ANDREW ROBERT

FIELDS BRIAN

WATSON MARTIN JOHN

HYDE ELEANOR RACHEL ANN

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 20/100 - FAMPAT - ©Questel

Title

(EP3157826)

Ecology can end with pressure equalization port

Images

Inventors

FORREST RANDALL G

GOGOLA MICHAEL R

Latest standardized assignees - inventors removed

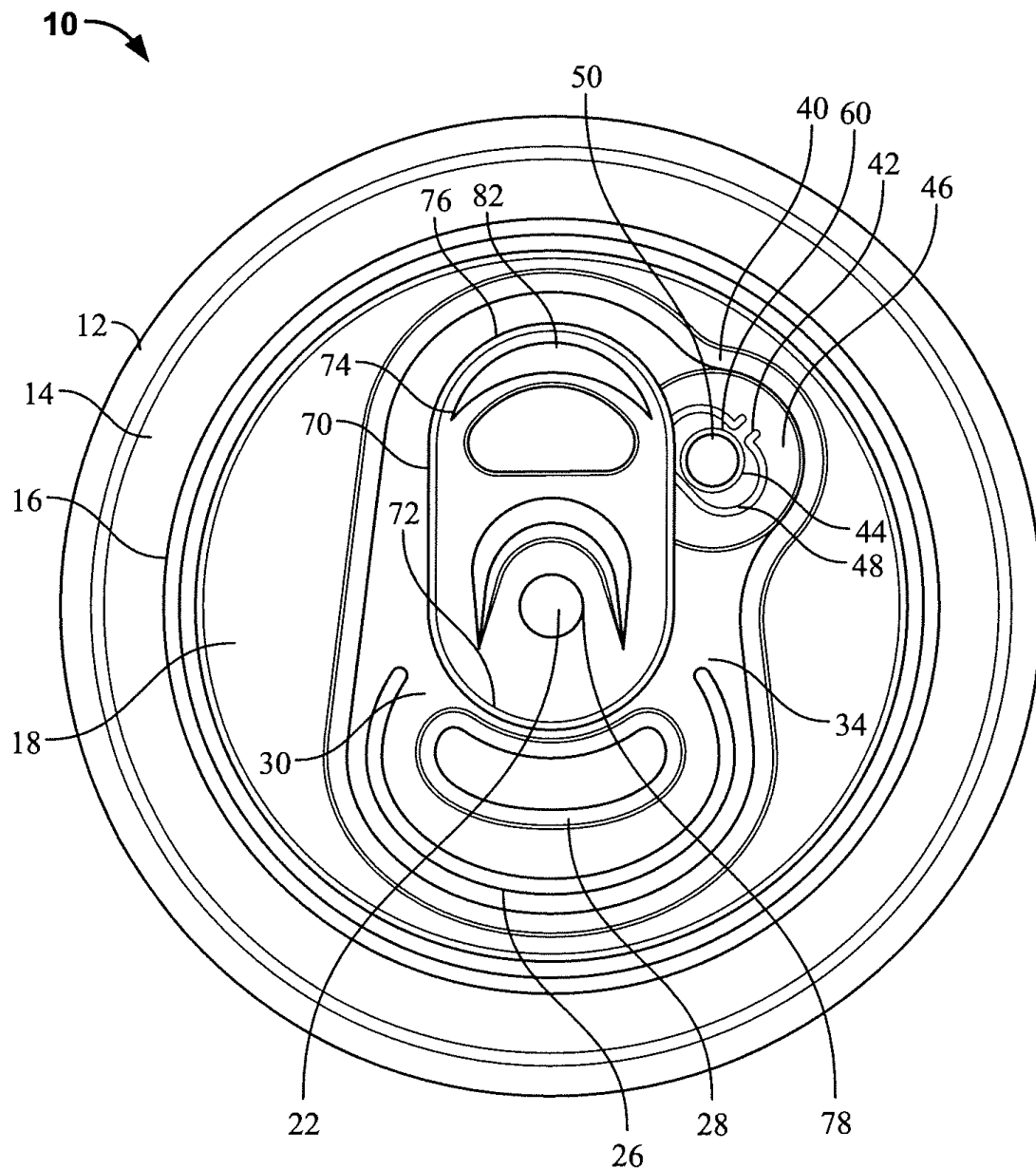
REXAM BEVERAGE CAN

Family 21/100 - FAMPAT - ©Questel

Title

(EP3116798)

Vented beverage can end

Images**Publication numbers with kind code & date**

AU2015229633	B2	2019-08-01	AU2015229633
US10246229	B2	2019-04-02	US10246229
PL3116798	T3	2018-11-30	PL3116798
RS57622	B1	2018-11-30	RS--57622
ES2680470	T3	2018-09-07	ES2680470



TR201810807	T4	2018-08-27	TR201810807				
DK3116798	T3	2018-08-06	DK3116798T				
EP3116798	B1	2018-05-02	EP3116798				
ZA201606178	B	2017-09-27	ZA201606178				
TH163983	A	2017-06-29	TH-163983				
US20170107010	A1	2017-04-20	US20170107010				
CN106488876	A	2017-03-08	CN106488876				
VN50691	A	2017-02-27	VN--50691				
EP3116798	A1	2017-01-18	EP3116798				
MX2016011701	A	2016-12-14	MX2016011701				
BR112016020855	A1	2016-11-01	BR112016020855				
SG11201607292T	A	2016-09-29	SG11201607292T				
AU2015229633	A1	2016-09-22	AU2015229633				
CA2942302	A1	2015-09-17	CA2942302				
WO2015/138413	A1	2015-09-17	WO2015138413				

Abstract

(EP3116798)

A beverage can end has a vent (40) that includes a button (50). The vent is actuated by downward force of a pull tab (70) that is transmitted to the vent score (42) through the button. The center panel (18) includes beads.

Inventors

KEANE BRENDAN

FIELDS BRIAN

DOSHI VIVEK

Latest standardized assignees - inventors removed

CROWN PACKAGING

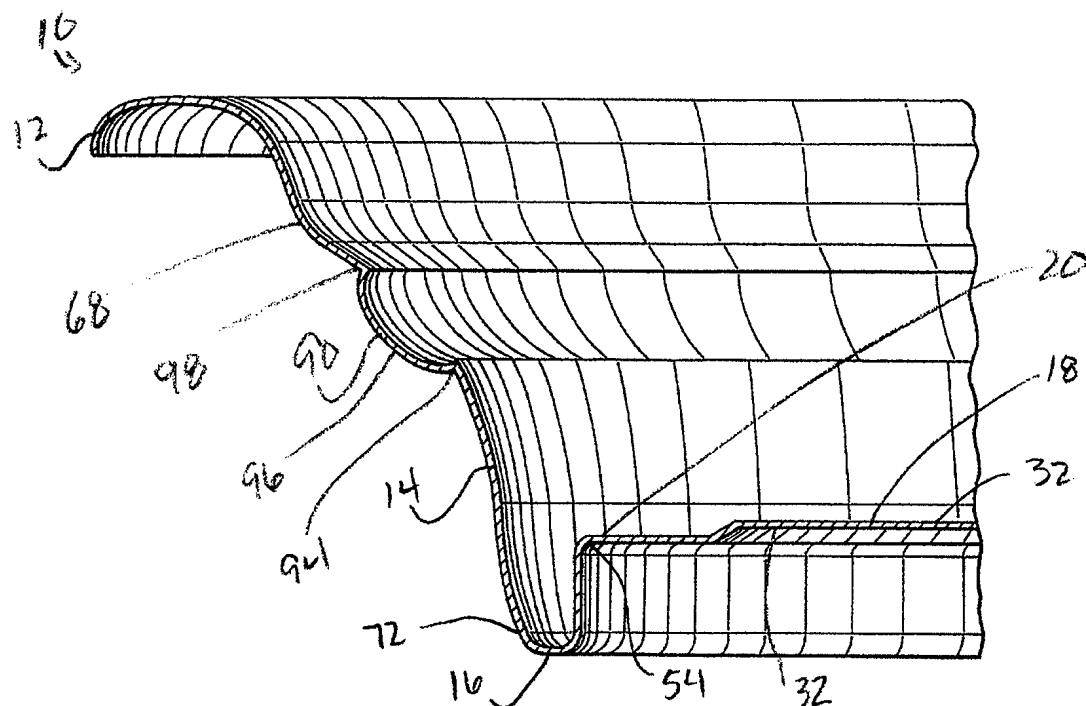
Family 22/100 - FAMPAT - ©Questel

Title

(EP2197754)

Can end with reinforcing bead

Images



Publication numbers with kind code & date

BRPI0816204	B1	2018-10-23	BR200816204				
US9540137	B2	2017-01-10	US9540137				
US20150175296	A1	2015-06-25	US20150175296				
BRPI0816204	A2	2015-04-14	BR200816204				
US8973780	B2	2015-03-10	US8973780				
CA2699193	C	2013-10-29	CA2699193				
ES2421566	T3	2013-09-03	ES2421566				
EP2197754	B1	2013-04-24	EP2197754				
KR101179303	B1	2012-09-03	KR101179303				
AU2008287051	B9	2012-02-02	AU2008287051				
RU2437811	C2	2011-12-27	RU2437811				
AU2008287051	B2	2011-12-08	AU2008287051				
TR201003276	T1	2010-11-22	TR201003276				
EP2197754	A1	2010-06-23	EP2197754				
KR20100055457	A	2010-05-26	KR20100055457				
WO2009/023554	A9	2009-04-09	WO200923554				
AU2008287051	A1	2009-02-19	AU2008287051				
CA2699193	A1	2009-02-19	CA2699193				
WO2009/023554	A1	2009-02-19	WO200923554				
US20090039090	A1	2009-02-12	US20090039090				

Abstract

(EP2197754)

A can end (10) for a two-piece beverage can is described. The can end (10) has a center panel (18) positioned about a vertical center axis (50). The center panel (18) has a means for opening the can end (10) located on a public side (32). A circumferential strengthening member is located about the center panel (18). A wall (14) extends upwardly from the circumferential strengthening member. A curl (12) is joined to an upper end of the wall (14). The curl (12) defines an outer perimeter of the can end (10). A reinforcing bead (90) is located on the wall (14) between an uppermost portion of the wall (14) and a lowermost portion of the wall (14).

Inventors

TURNER TIMOTHY L

FORREST RANDALL G

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

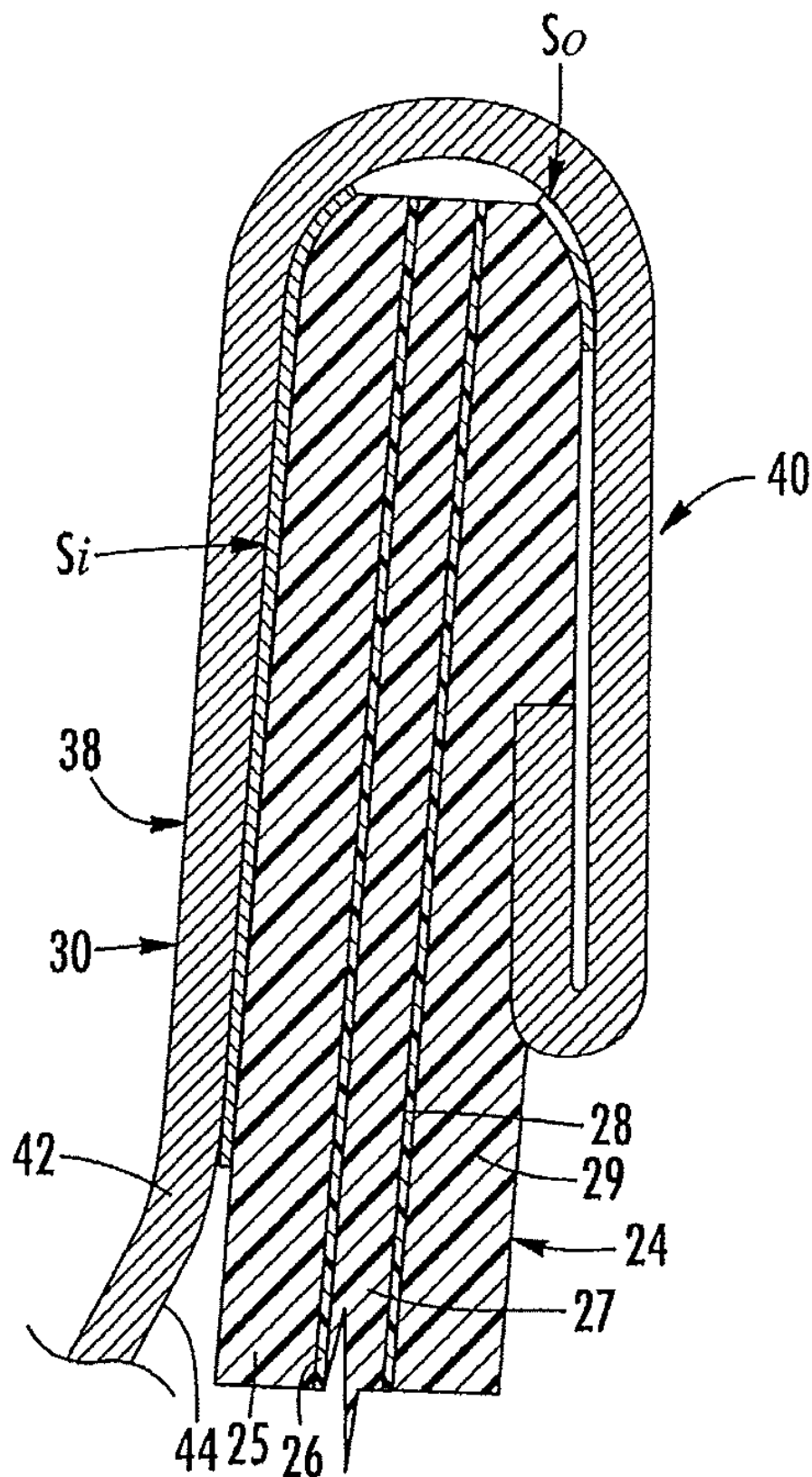
Family 23/100 - FAMPAT - ©Questel

Title

(EP2750980)

Retort container with thermally fused double-seamed or crimp-seamed metal end

Images



Publication numbers with kind code & date

US20190177033	A1	2019-06-13	US20190177033
US10259612	B2	2019-04-16	US10259612
TH64960	B	2018-09-19	TH--64960B
US20180251258	A1	2018-09-06	US20180251258
CN105905397	B	2018-08-07	CN105905397B
US9988179	B2	2018-06-05	US9988179



HUE034342	T2	2018-02-28	HUE034342				
US20170369201	A1	2017-12-28	US20170369201				
US9783337	B2	2017-10-10	US9783337				
PL2750980	T3	2017-07-31	PL2750980				
ES2626795	T3	2017-07-26	ES2626795				
BR112014005032	A2	2017-03-21	BR112014005032				
EP2750980	B1	2017-03-01	EP2750980				
US20170008665	A1	2017-01-12	US20170008665				
US9499299	B2	2016-11-22	US9499299				
CN105905397	A	2016-08-31	CN105905397				
CN103906685	B	2016-08-24	CN103906685B				
MX340624	B	2016-07-18	MX-340624				
CA2847432	C	2016-01-19	CA2847432				
RU2571186	C2	2015-12-20	RU2571186				
RU2014110102	A	2015-10-10	RU2014110102				
US20150251802	A1	2015-09-10	US20150251802				
TH142337	A	2015-08-03	TH-142337				
US8998027	B2	2015-04-07	US8998027				
ZA201402232	B	2015-03-25	ZA201402232				
VN39916	A	2014-11-25	VN--39916				
IN2146/CHENP/2014	A	2014-10-10	IN2014CN02146				
MX2014002455	A	2014-09-08	MX2014002455				
EP2750980	A1	2014-07-09	EP2750980				
CN103906685	A	2014-07-02	CN103906685				
BR112014005032	A1	2014-05-20	BR112014005032				
CA2847432	A1	2013-03-07	CA2847432				
US20130059048	A1	2013-03-07	US20130059048				
WO2013/033343	A1	2013-03-07	WO201333343				

Abstract

(EP2750980)

A retort container includes a metal end (30) applied and sealed to an all-thermoplastic container body (22) by a crimp-seaming or double-seaming operation. The metal end has an outer curl (36) joined to a chuck wall (38) that extends down from the curl. One or both of the inner surface of the container side wall (24) and the outer surface of the chuck wall has/have a heat-sealable material (44) thereon. The metal end is crimp-seamed or double-seamed to the container body and the heat-sealable material(s) are heated to soften or melt such that the interface between the chuck wall and the side wall is fused. The interface is oriented along a direction relative to internal pressure exerted on the metal end such that stress on the interface caused by the internal pressure is predominantly shear stress.

Inventors

PRICE TREVOR

MORIN JEREMY

Latest standardized assignees - inventors removed

SONOCO DEVELOPMENT

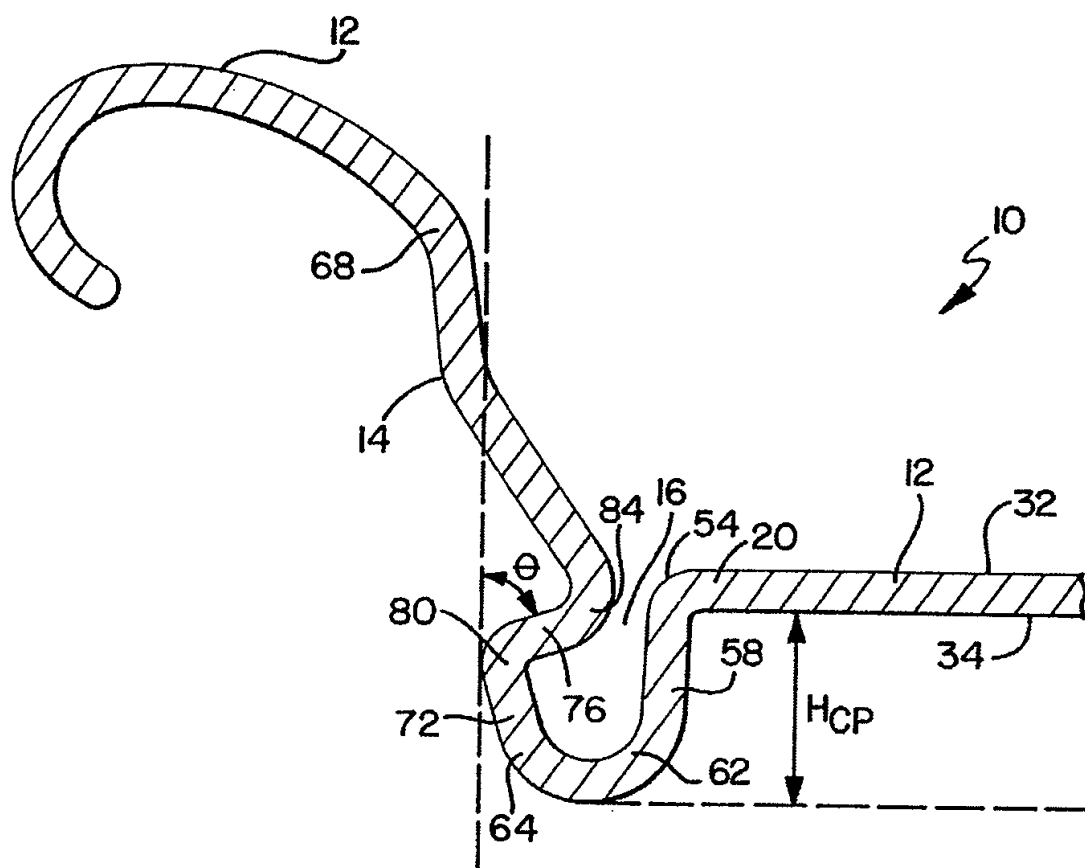
Family 24/100 - FAMPAT - ©Questel

Title

(EP2173626)

Can end with negatively angled wall

Images



Publication numbers with kind code & date

BRPI0810635	B1	2019-01-15	BR200810635
BRPI0810635	A2	2014-11-04	BR200810635
US8875936	B2	2014-11-04	US8875936
ES2385312	T3	2012-07-23	ES2385312
AT542750	T	2012-02-15	ATE542750
EP2173626	B1	2012-01-25	EP2173626
EP2173626	A1	2010-04-14	EP2173626
WO2008/131172	A1	2008-10-30	WO2008131172
US20080257900	A1	2008-10-23	US20080257900



Abstract

(EP2173626)

An end (10) for a beverage can is described. The end has a product side (34), an opposing public side (32), a center panel (18), an annular countersink (16), a circumferential wall (14), and a curl (12). The center panel has a means for opening the end. The annular countersink extends circumferentially about the center panel. The circumferential wall extends upwardly from the countersink and has an angled portion (76) extending radially inwardly toward the center panel. The curl is located radially outward relative to the center panel and defines an outer perimeter of the end.

Inventors

TURNER TIMOTHY

FORREST RANDALL

Latest standardized assignees - inventors removed

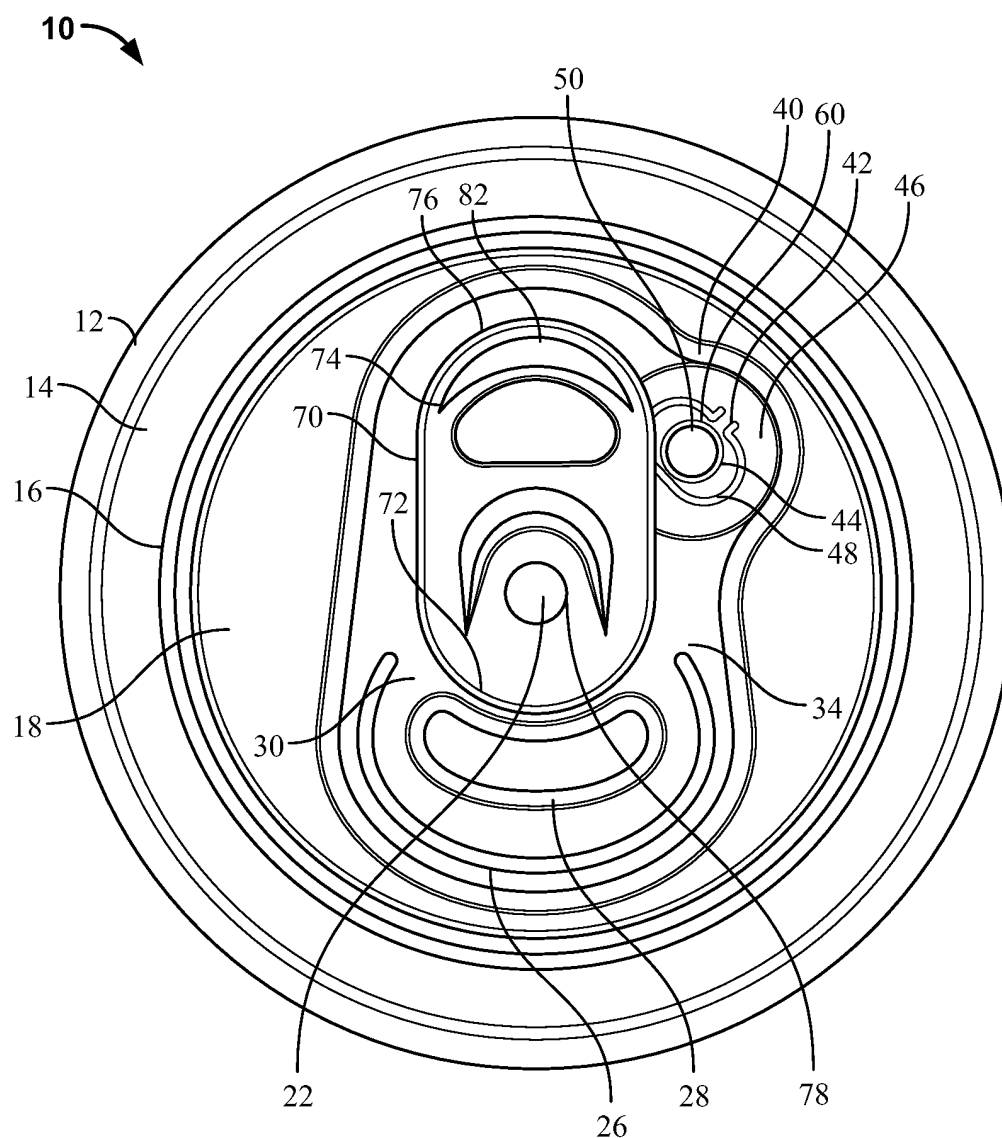
REXAM BEVERAGE CAN

Family 25/100 - FAMPAT - ©Questel

Title

Vented beverage can and can end

Images



MX365133	B	2019-05-24	MX-365133
CN105473455	B	2018-12-28	CN105473455B
JP6416186	B2	2018-10-31	JP6416186
BR112015023167	A2	2017-07-18	BR112015023167
TH158320	A	2016-11-29	TH-158320
US9403628	B2	2016-08-02	US9403628
JP2016518984	A	2016-06-30	JP2016518984
CN105473455	A	2016-04-06	CN105473455
EP2969794	A1	2016-01-20	EP2969794
BR112015023167	A1	2015-12-08	BR112015023167
MX2015012259	A	2015-12-01	MX2015012259
CA2905292	A1	2014-10-02	CA2905292
WO2014/159208	A1	2014-10-02	WO2014159208
US20140263333	A1	2014-09-18	US20140263333



Abstract

(EP2969794)

A beverage can end (10) has a vent (40) that includes a button (50). The vent is actuated by downward force of a pull tab (70) that is transmitted to the vent score (42) through the button.

Inventors

KEANE BRENDAN

FIELDS BRIAN

DOSHI VIVEK

Latest standardized assignees - inventors removed

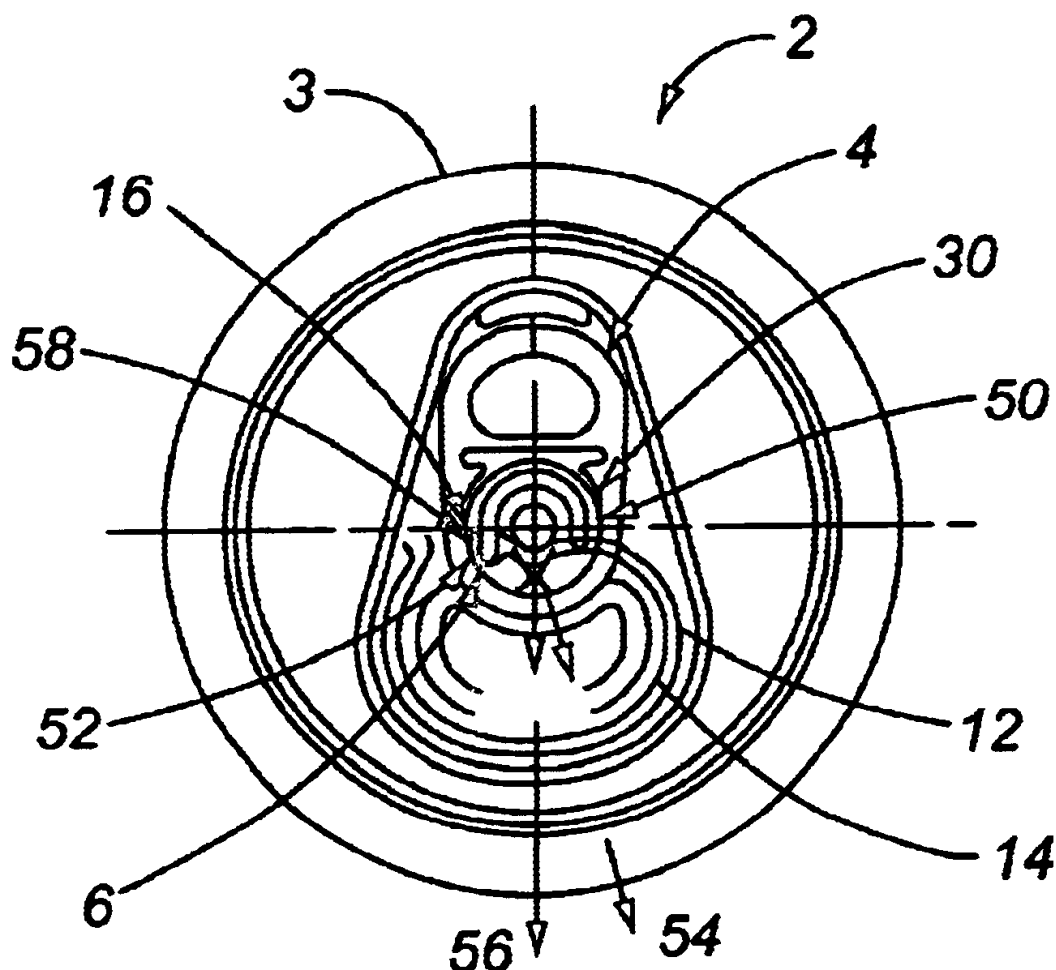
CROWN PACKAGING

Family 26/100 - FAMPAT - ©Questel

Title

(EP1556287)

Improved large opening beverage container

Images**Publication numbers with kind code & date**

BR0314439	B1	2013-05-28	BR200314439
TH27380	B	2010-02-01	TH--27380B
DE60318730	T2	2009-01-15	DE60318730
CN100396570	C	2008-06-25	CN100396570C
ES2298559	T3	2008-05-16	ES2298559
DE60318730	D1	2008-03-06	DE60318730
AT384005	T	2008-02-15	ATE384005



EP1556287	B1	2008-01-16	EP1556287				
EP1556287	A4	2006-09-06	EP1556287				
TH71721	A	2005-11-03	TH--71721				
CN1681711	A	2005-10-12	CN1681711				
EP1556287	A1	2005-07-27	EP1556287				
BR0314439	A	2005-07-19	BR200314439				
MXPA05002940	A	2005-06-03	MX2005PA002940				
US6889862	B2	2005-05-10	US6889862				
AU2003273325	A1	2004-04-08	AU2003273325				
CA2496666	A1	2004-04-01	CA2496666				
WO2004/026712	A1	2004-04-01	WO200426712				
US20040056032	A1	2004-03-25	US20040056032				

Abstract

(EP1556287)

The present invention relates to an improved opening end closure (2) which is adapted for interconnection to a beverage container to prevent premature rupturing and detachment of the tear panel (36) from the center panel (24). More specifically, the present invention includes an improved cent bead (30), an enlarged score origination loop (16), and a pull tab (4) with a cut-out portion (46, 48) with one leg longer than the other leg for selectively orienting the direction of force created on the tear panel (36) away from the hinge portion (19) of the tear panel.

Inventors

VAUGHAN JOSEPH S

Latest standardized assignees - inventors removed

BALL

Family 27/100 - FAMPAT - ©Questel

Title

(EP1434894)

Can shell and double-seamed can end

Images

US6516968	B2	2003-02-11	US6516968
CA2451453	A1	2003-01-16	CA2451453
US20030010785	A1	2003-01-16	US20030010785
WO03/04716	A2	2003-01-16	WO200304716
US6419110	B1	2002-07-16	US6419110

**Abstract**

(EP1434894)

A drawn aluminum can shell (10) has a peripheral crown which is double-seamed with an end portion (48) of an aluminum can body (50) to provide a can end having a generally flat center panel (12) connected by a curved panel wall (16) to an inner wall (17) of an annular U-shaped countersink (18). The countersink (18) has a generally cylindrical outer wall and an inner width less than the radius of the panel wall (16). The outer wall (24) of the countersink (18) connects with a lower wall portion of a frustoconical chuckwall (32) at a junction below the center panel (12), and an upper wall portion of the chuckwall extends to an inner wall of the crown at an angle of at least 16° with the center axis (11). In one embodiment, the chuckwall (32) has an intermediate generally vertical short riser portion (35') connecting the wall portions, and the inner bottom width of the countersink (18') is less than .040 inch.

Inventors

STODD R PETER

Latest standardized assignees - inventors removed

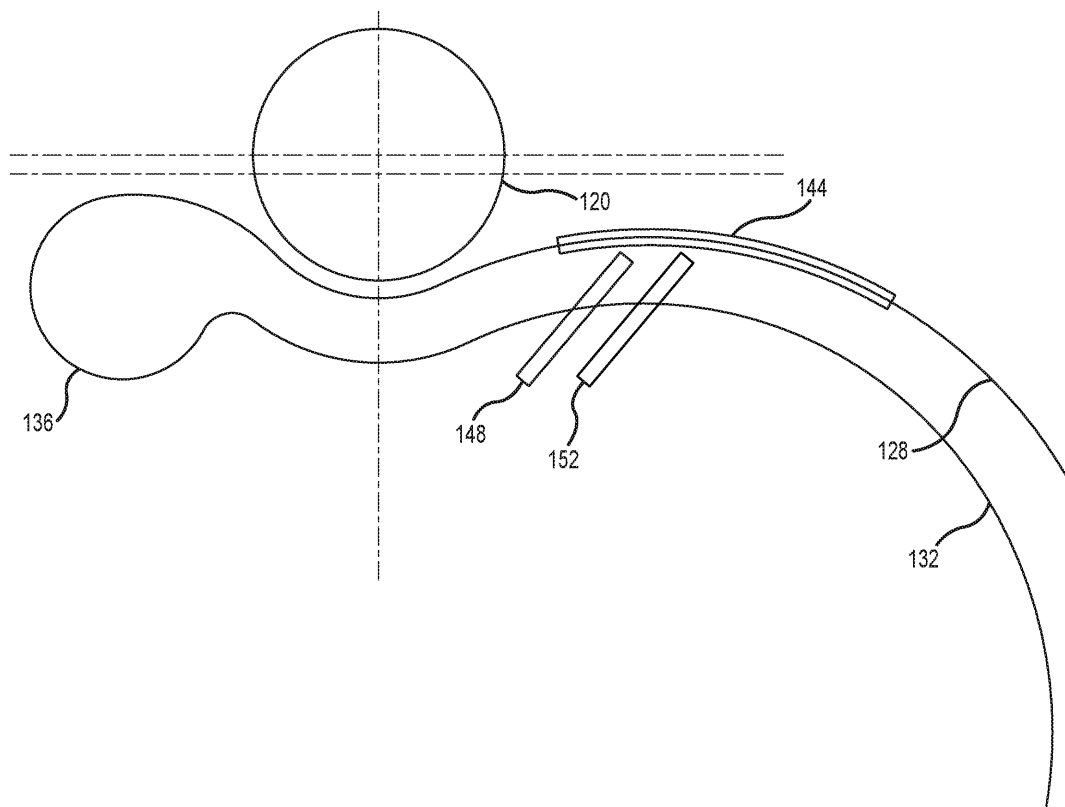
CONTAINER DEVELOPMENT

Family 28/100 - FAMPAT - ©Questel

Title

(WO2014151503)

End closure with double anti-missile score

Images

US10479551	B2	2019-11-19	US10479551
US9580203	B2	2017-02-28	US9580203
US20170021962	A1	2017-01-26	US20170021962
US20150175300	A1	2015-06-25	US20150175300
US9033175	B2	2015-05-19	US9033175
WO2014/151503	A1	2014-09-25	WO2014151503
US20140263332	A1	2014-09-18	US20140263332

**Abstract**

(WO2014/151503)

An end closure for food and beverage containers provides controlled opening characteristics to prevent the unintentional missing of a tear panel. The end closure comprises a score line that defines a portion of the tear panel, and the end closure may comprise one or more anti-missile features that inhibit the propagation of a fracture down a score line, which reduces the likelihood that a tear panel will inadvertently detach from the end closure and injure the user or another.

Inventors

FRANK DENNIS K

Latest standardized assignees - inventors removed

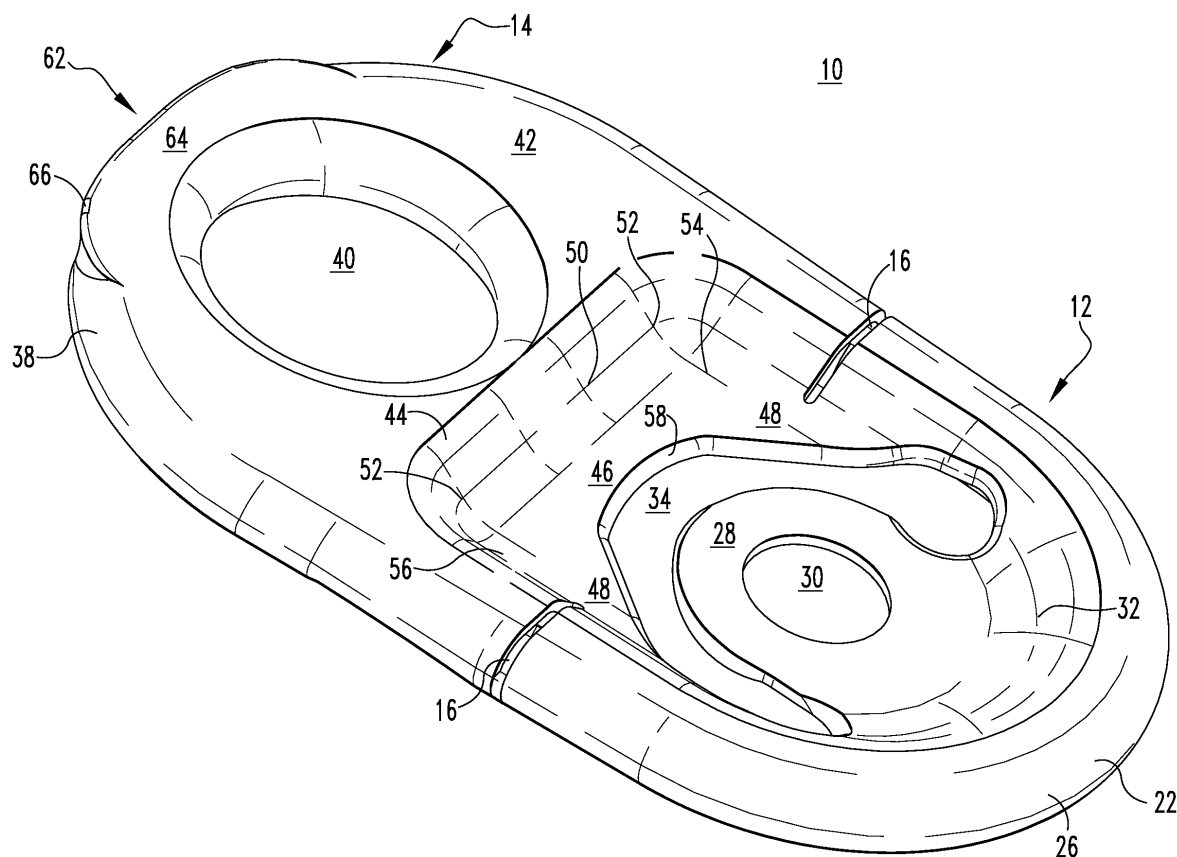
BALL

Family 29/100 - FAMPAT - ©Questel

Title

(EP2197755)

Tab and can end employing the same

Images**Publication numbers with kind code & date**

US20170101214	A1	2017-04-13	US20170101214
JP5628676	B2	2014-10-10	JP5628676



EP2197755	B1	2012-08-22	EP2197755				
CN101821168	B	2012-08-15	CN101821168B				
EP2197755	A4	2011-03-23	EP2197755				
JP2011500463	A	2011-01-06	JP2011500463				
CN101821168	A	2010-09-01	CN101821168				
EP2197755	A1	2010-06-23	EP2197755				
US20090095752	A1	2009-04-16	US20090095752				
WO2009/048832	A1	2009-04-16	WO200948832				

Abstract

(EP2197755)

A tab is provided to facilitate opening of a can end. The tab has a nose portion located at a first end of the tab and a lift portion located at a second end of the tab opposite the nose portion. A rivet receiving portion is located proximate to the nose portion, and includes a rivet hole. A flange extends rearwardly from the lift portion of the tab to define a gap. The gap provides increased space between the underside of the flange and the exterior of the container end, thereby facilitating opening of the container end.

Inventors

MCELDOWNEY CRAIG ALLEN

MITCHELL MARK RICHARD

Latest standardized assignees - inventors removed

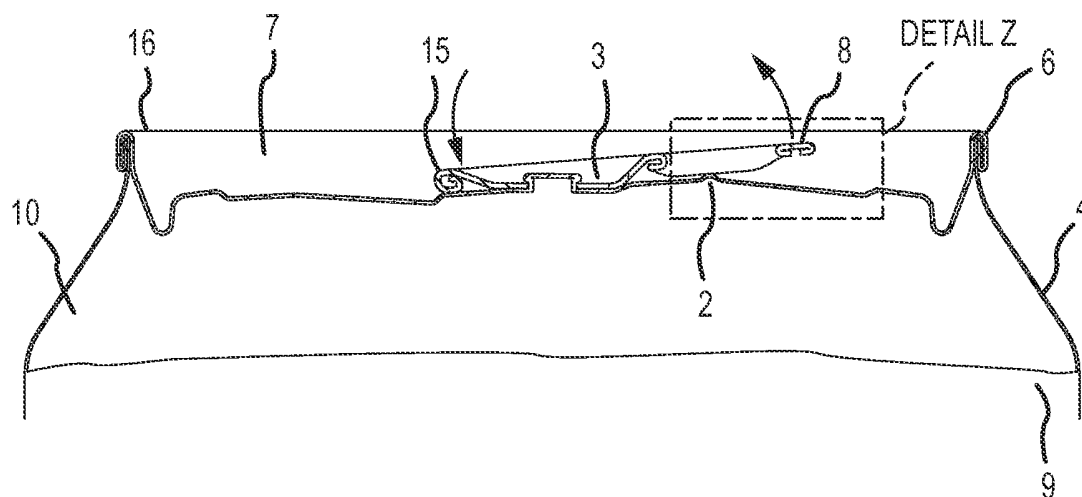
STOLLE MACHINERY

Family 30/100 - FAMPAT - ©Questel

Title

(EP2969818)

Easy access opening tab for a container end closure

Images**Publication numbers with kind code & date**

CA2900636	C	2017-09-26	CA2900636				
CN105073589	B	2017-09-12	CN105073589B				
RU2630572	C2	2017-09-11	RU2630572				
BR112015021150	A2	2017-07-18	BR112015021150				
RU2015144277	A	2017-04-24	RU2015144277				
GT201500271	A	2017-01-04	GT201500271				
EP2969818	A4	2016-11-30	EP2969818				
AU2014238112	B2	2016-09-29	AU2014238112				

VN47802	A	2016-07-25	VN--47802
CL2015002629	A1	2016-04-15	CL201502629
EP2969818	A1	2016-01-20	EP2969818
BR112015021150	A1	2015-12-15	BR112015021150
MX2015013266	A	2015-12-11	MX2015013266
CN105073589	A	2015-11-18	CN105073589
AU2014238112	A1	2015-09-17	AU2014238112
US9033174	B2	2015-05-19	US9033174
CA2900636	A1	2014-09-25	CA2900636
WO2014/149484	A1	2014-09-25	WO2014149484
US20140263329	A1	2014-09-18	US20140263329



Abstract

(EP2969818)

An end closure for food and beverage containers is provided. The end closure comprises a central panel portion having a protuberance for facilitating access to and manipulation of a pull tab. Before the food or beverage container is pressurized, the protuberance is substantially flat to improve stacking and conveying of the end closure. After the food or beverage container is filled and pressurized, the protuberance selectively deflects and lifts a tail portion of the pull tab to facilitate access.

Inventors

CHASTEEN HOWARD C

JACOB MARK A

Latest standardized assignees - inventors removed

BALL

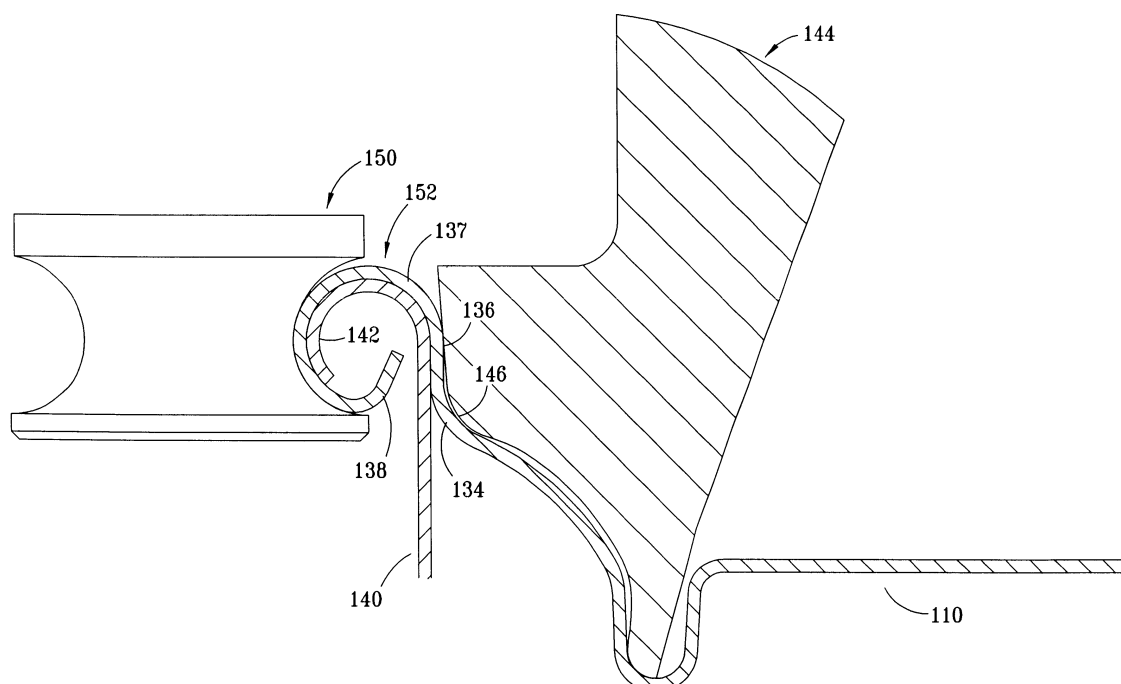
Family 31/100 - FAMPAT - ©Questel

Title

(EP1337355)

Can lid closure and method of joining a can lid closure to a can body

Images



Publication numbers with kind code & date



CA2427611	C	2009-08-04	CA2427611				
BR0115703	B1	2009-01-13	BR200115703				
HK1061995	A1	2006-11-24	HK1061995				
AU2002231236	B2	2006-09-07	AU2002231236				
CN1250357	C	2006-04-12	CN1250357C				
DE60108664	T2	2006-03-30	DE60108664				
ES2238499	T3	2005-09-01	ES2238499				
DE60108664	D1	2005-03-03	DE60108664				
AT287773	T	2005-02-15	ATE287773				
EP1337355	B1	2005-01-26	EP1337355				
MXPA03004715	A	2005-01-25	MX2003PA004715				
JP2004514561	A	2004-05-20	JP2004514561				
CN1476359	A	2004-02-18	CN1476359				
BR0115703	A	2003-09-09	BR200115703				
EP1337355	A1	2003-08-27	EP1337355				
US6561004	B1	2003-05-13	US6561004				
AU3123602	A	2002-06-11	AU200231236				
CA2427611	A1	2002-06-06	CA2427611				
WO02/43895	A1	2002-06-06	WO200243895				

Abstract

(EP1337355)

A preferred embodiment of the disclosed can lid has a center panel having a central axis that is perpendicular to a diameter of the outer rim, or peripheral curl portion, of the can lid, an annular countersink surrounding the center panel, an arcuate portion extending radially outward from the annular countersink, a step portion extending radially upward and outward from the arcuate portion, a first transitional portion extending radially outward from the step portion, a second transitional portion extending radially outward and upward from the first transitional portion, and a peripheral curl portion extending outwardly from the second transitional portion.

Inventors

NEINER CHRISTOPHER G

REED JAMES

Latest standardized assignees - inventors removed

METAL CONTAINER

Family 32/100 - FAMPAT - ©Questel

Title

(EP2791032)

Contoured neck for a beverage container

Images

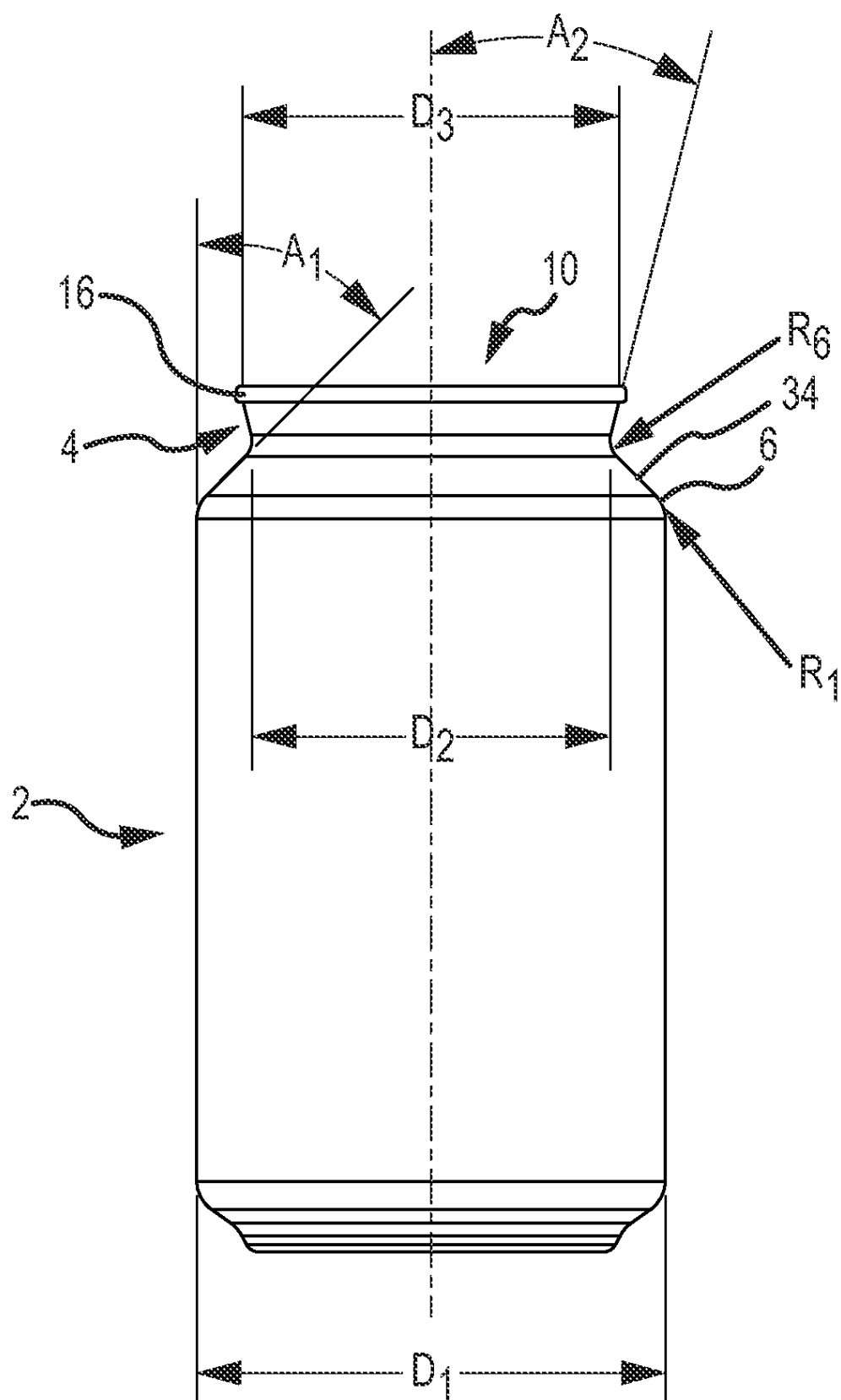


FIG. 1B

EP2791032	A4	2016-07-20	EP2791032				
MX2015005599	A	2016-02-03	MX2015005599				
EP2791032	A1	2014-10-22	EP2791032				
BR112014017978	A1	2014-08-26	BR112014017978				
CA2890017	A1	2014-05-08	CA2890017				
WO2014/071345	A1	2014-05-08	WO201471345				

Abstract

(EP2791032)

An end closure for food and beverage containers is provided. The end closure comprises a contoured neck feature configured for increased strength and alignment with a user's lips. The contoured neck may further comprise features increasing container buckling strength and reducing user spillage. The present invention relates generally to beverage container necks. More specifically, the present invention relates to beverage container necks with contoured neck features configured for increased buckling strength and alignment with a user's lips.

Inventors

JACOBBER MARK A

CHASTEEN HOWARD C

Latest standardized assignees - inventors removed

BALL

Family 33/100 - FAMPAT - ©Questel

Title

(EP3549881)

Can end produced from downgauged blank

Images

GOGOLA MICHAEL R

FORREST RANDALL G

Latest standardized assignees - inventors removed

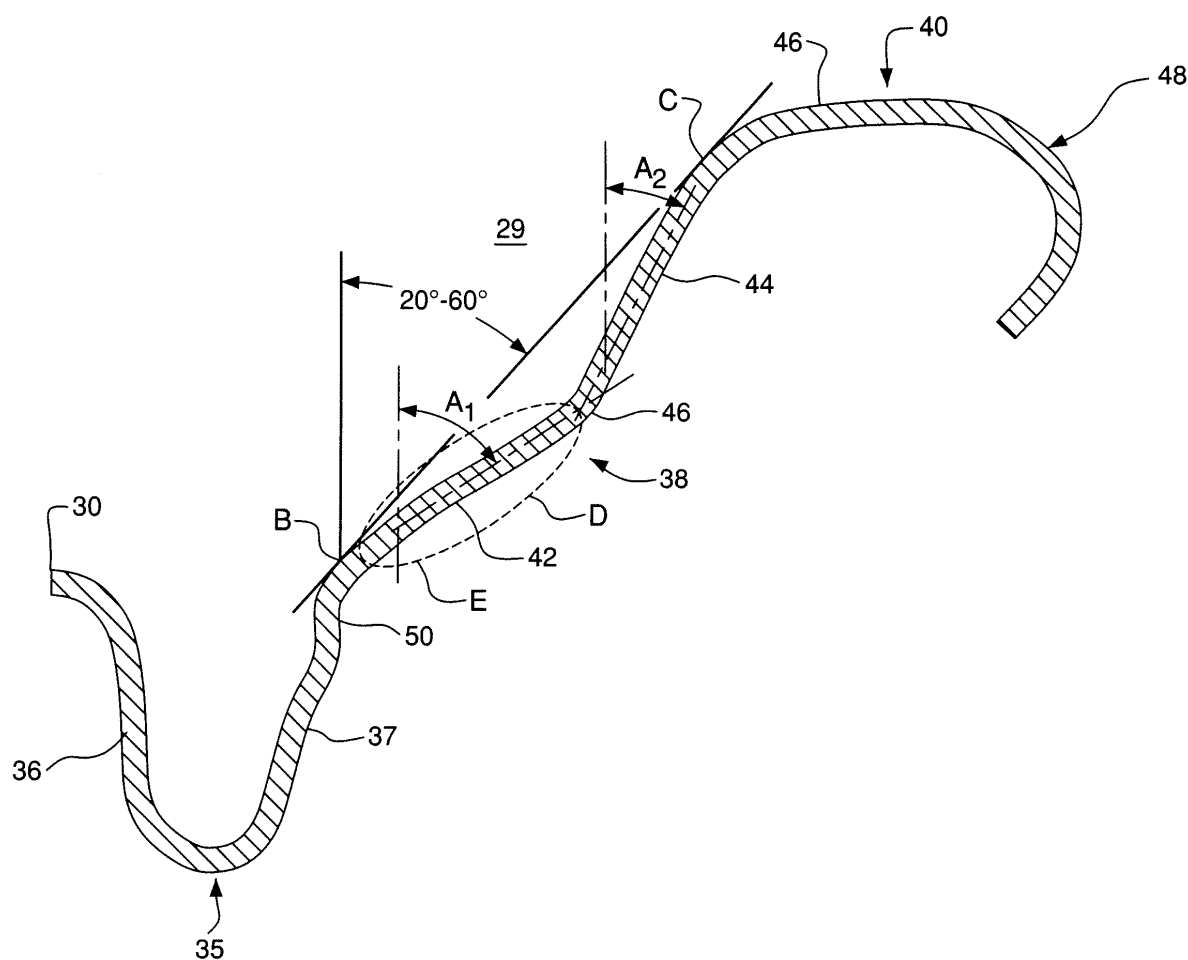
REXAM BEVERAGE CAN

Family 34/100 - FAMPAT - ©Questel

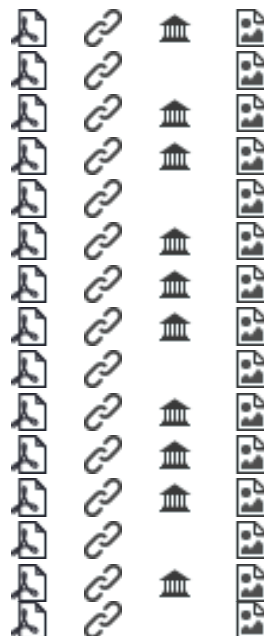
Title

(EP1361164)

Can end

Images**Publication numbers with kind code & date**

BR0309446	B1	2014-10-07	BR200309446
TH33349	B	2012-08-01	TH--33349B
CA2482984	C	2012-06-26	CA2482984
US7591392	B2	2009-09-22	US7591392
HK1080782	A1	2009-07-17	HK1080782
ES2318126	T3	2009-05-01	ES2318126
JP4280645	B2	2009-03-19	JP4280645
DE60324910	D1	2009-01-08	DE60324910
AT415217	T	2008-12-15	ATE415217
EP1497054	B1	2008-11-26	EP1497054
AU2003229636	B2	2008-06-26	AU2003229636
CN100393443	C	2008-06-11	CN100393443C
RU2319571	C2	2008-03-20	RU2319571
JP2006514595	A	2006-05-11	JP2006514595



ZA200408419	B	2005-11-30	ZA200408419
RU2004133891	A	2005-09-10	RU2004133891
CN1646243	A	2005-07-27	CN1646243
MXPA04010456	A	2005-07-14	MX2004PA010456
US20050115976	A1	2005-06-02	US20050115976
BR0309446	A	2005-02-09	BR200309446
EP1497054	A1	2005-01-19	EP1497054
US20040238546	A1	2004-12-02	US20040238546
TH61404	A	2004-04-07	TH--61404
EP1361164	A1	2003-11-12	EP1361164
AU2003229636	A1	2003-11-03	AU2003229636
CA2482984	A1	2003-10-30	CA2482984
WO03/89167	A1	2003-10-30	WO200389167



Abstract

(EP1361164)

A can end having a countersink bead (25), an inclined chuck wall (24) and a strong seam, resists distortion from its circular profile when subjected to thermal processing or when packaging carbonated beverages. This high hoop strength affects the manner in which the can end ultimately fails when placed under extreme abuse conditions, even if buckle pressure performance is within industry specified standards. The can end of the invention has weakened regions introduced which control the failure mode whilst maintaining specified buckle pressure performance. In one embodiment, the weakened region comprises expansion of the countersink bead to act as a trigger for local peaking, together with a groove in the chuck wall which prevents the peaking force from being concentrated at a single point which could result in leaking by the production of a pin hole.

Inventors

WATSON MARTIN

FIELDS BRIAN

LOCKLEY ANDREW ROBERT

Latest standardized assignees - inventors removed

DEUTSCHE BANK

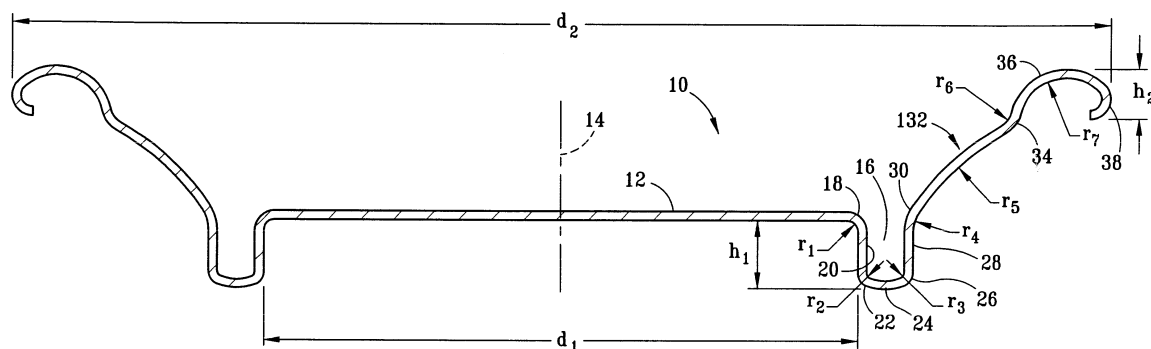
Family 35/100 - FAMPAT - ©Questel

Title

(EP1237666)

Can lid closure and method of joining a can lid closure to a can body

Images



Publication numbers with kind code & date

HK1093938	A1	2008-09-05	HK1093938
CN100364688	C	2008-01-30	CN100364688C



CA2392994	C	2006-10-24	CA2392994				
HK1056137	A1	2006-08-18	HK1056137				
CN1799723	A	2006-07-12	CN1799723				
CN1244418	C	2006-03-08	CN1244418C				
DE60015385	T2	2005-11-10	DE60015385				
AU771993	C	2005-06-30	AU-771993				
ES2231308	T3	2005-05-16	ES2231308				
DE60015385	D1	2004-12-02	DE60015385				
AT280643	T	2004-11-15	ATE280643				
EP1237666	B1	2004-10-27	EP1237666				
MXPA02005671	A	2004-09-10	MX2002PA005671				
US20040140312	A1	2004-07-22	US20040140312				
AU771993	B2	2004-04-08	AU-771993				
US6702142	B2	2004-03-09	US6702142				
CN1433344	A	2003-07-30	CN1433344				
JP2003520135	A	2003-07-02	JP2003520135				
US6499622	B1	2002-12-31	US6499622				
US20020190071	A1	2002-12-19	US20020190071				
EP1237666	A2	2002-09-11	EP1237666				
BR0016243	A	2002-08-27	BR200016243				
WO01/41948	A3	2002-02-14	WO200141948				
AU4516601	A	2001-06-18	AU200145166				
CA2392994	A1	2001-06-14	CA2392994				
WO01/41948	A2	2001-06-14	WO200141948				

Abstract

(EP1237666)

A preferred embodiment of the disclosed can lid (10) has a center panel (12) having a central axis that is perpendicular to a diameter of the outer rim, or peripheral curl portion (38), of the can lid (10), an annular countersink surrounding the center panel, an arcuate chuckwall extending radially outward from the annular countersink, an arcuate step portion extending radially outward from the arcuate chuckwall, a transitional portion extending radially outward from the arcuate step portion, and a peripheral curl portion extending outwardly from the transitional portion.

Inventors

NEINER CHRISTOPHER G

Latest standardized assignees - inventors removed

METAL CONTAINER

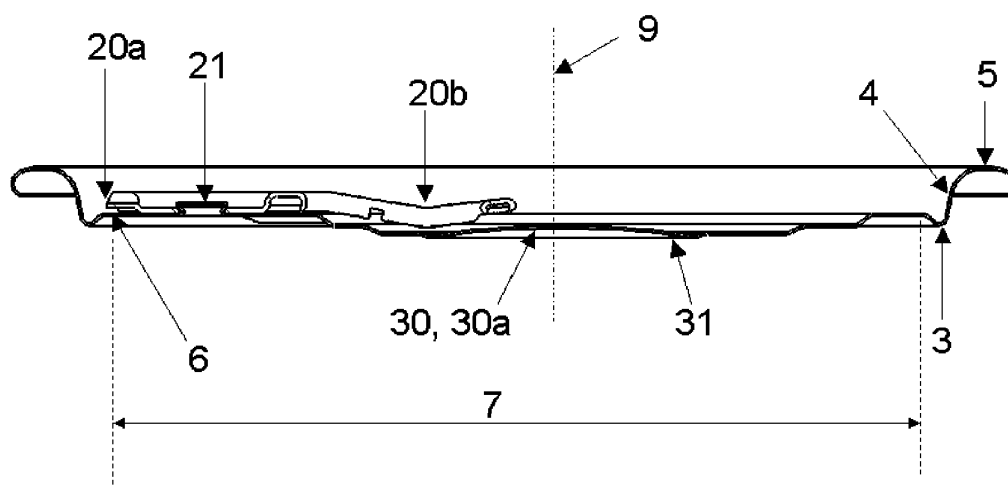
Family 36/100 - FAMPAT - ©Questel

Title

(EP2252522)

Can end

Images



Publication numbers with kind code & date

BRPI0907216	B1	2019-04-02	BR200907216				
HUE026682	T2	2016-07-28	HUE026682				
CA2711387	C	2016-06-07	CA2711387				
US9199763	B2	2015-12-01	US9199763				
ES2550780	T3	2015-11-12	ES2550780				
EP2252522	B1	2015-09-02	EP2252522				
JP5520232	B2	2014-04-11	JP5520232				
AU2009204845	B2	2013-11-21	AU2009204845				
RU2486118	C2	2013-06-27	RU2486118				
UA99944	C2	2012-10-25	UA--99944				
JP2012515118	A	2012-07-05	JP2012515118				
CN101910008	B	2012-05-23	CN101910008B				
RU2010134424	A	2012-02-27	RU2010134424				
BRPI0907216	A2	2011-08-30	BR200907216				
US20110186575	A1	2011-08-04	US20110186575				
ZA201004581	B	2011-03-30	ZA201004581				
MA32079	B1	2011-02-01	MA--32079				
CN101910008	A	2010-12-08	CN101910008				
EP2252522	A1	2010-11-24	EP2252522				
MX2010007834	A	2010-08-11	MX2010007834				
AU2009204845	A1	2009-07-23	AU2009204845				
CA2711387	A1	2009-07-23	CA2711387				
WO2009/090171	A1	2009-07-23	WO200990171				

Abstract

(EP2252522)

This invention relates to a can end (1) providing improved tab access for a consumer. A further aspect of the present invention relates to a container incorporating such a can end (1). The can end (1) includes a moveable portion (30) located beneath all or part of the handle (20b) of the can end, with the moveable portion deformable from an 'up' position (30a) to a 'down' position (30b) to provide increased tab access for a consumer. The can end (1) is provided with one or more downwardly inclined annular steps (31), which has been found to greatly increase the force required to deform the panel from the 'down' to the 'up' position, therefore resulting in a far greater likelihood of the consumer receiving a container (40)

incorporating the can end (1) with the moveable portion (30) in the 'down' position (30b), thereby facilitating tab access.

Inventors

BREHELIN LAURE HÉLÈNE MARIE

DUNWOODY PAUL ROBERT

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 37/100 - FAMPAT - ©Questel

Title

(EP1441957)

Reformed can end and method therefore

Images

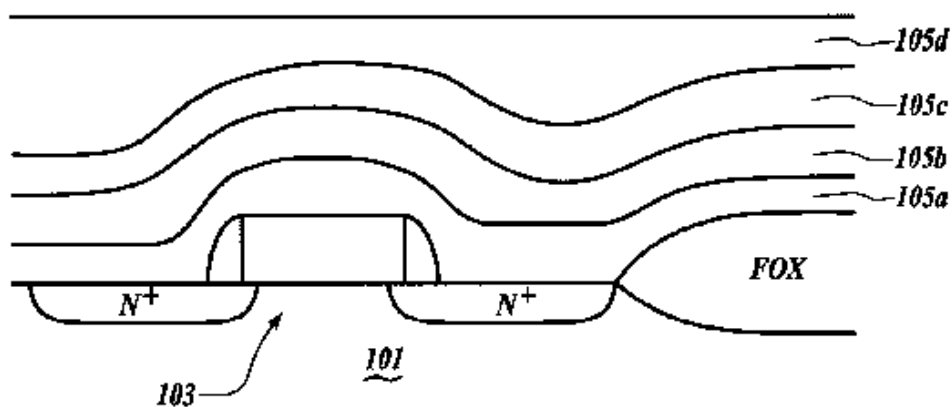


Fig. 1 (PRIOR ART)

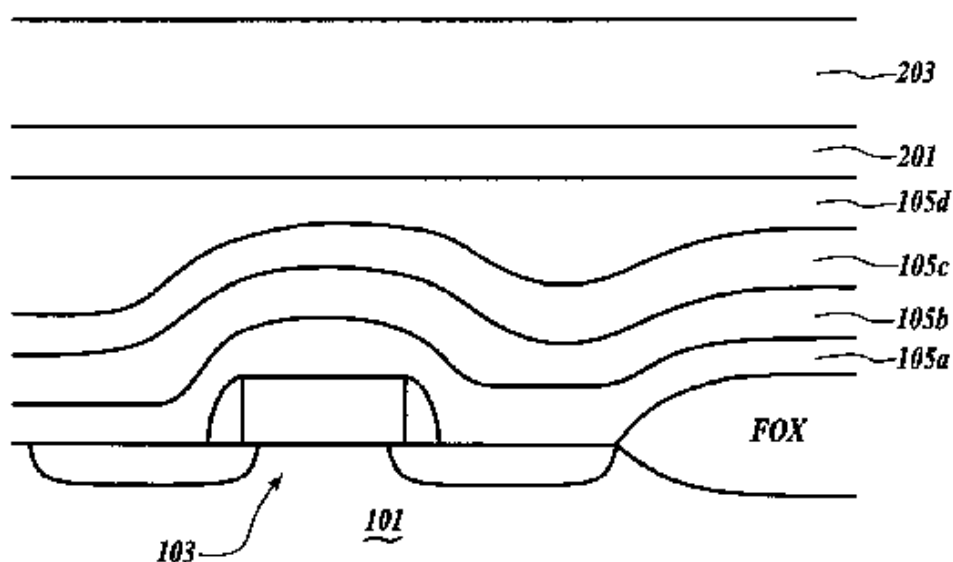


Fig. 2

Publication numbers with kind code & date

BR0213409	B8	2013-02-19	BR200213409
BR0213409	B1	2013-01-08	BR200213409
ES2390121	T3	2012-11-06	ES2390121
EP1441957	B1	2012-06-27	EP1441957
US7748563	B2	2010-07-06	US7748563
AU2002347836	B2	2007-12-20	AU2002347836
RU2307053	C2	2007-09-27	RU2307053
CN1326752	C	2007-07-18	CN1326752C
NZ532329	A	2007-01-26	NZ-532329
CN1228832	C	2005-11-23	CN1228832C



MXPA04003634	A	2005-08-26	MX2004PA003634				
CN1606521	A	2005-04-13	CN1606521				
RU2004111611	A	2005-03-27	RU2004111611				
BR0213409	A	2004-11-03	BR200213409				
US20040211786	A1	2004-10-28	US20040211786				
EP1441957	A1	2004-08-04	EP1441957				
US6748789	B2	2004-06-15	US6748789				
WO03/35494	A1	2003-05-01	WO200335494				
US20030075544	A1	2003-04-24	US20030075544				
US6043131	A	2000-03-28	US6043131				
CN1229276	A	1999-09-22	CN1229276				

Abstract

(EP1441957)

A method for strengthening an end member (10) for a container comprises the steps of providing an end member shell (89) and reforming the end member shell (89). The finished the end member has a central panel wall (12) with a product side and a public side. The public side has a means for opening a frangible panel segment. The end member shell (89) has a central panel (12) extending radially outwardly from a central axis (x, y), a panel radius (102) along a peripheral edge of the central panel (12), a countersink (16) integral with the panel radius (102), a chuckwall (15) extending upwardly from the countersink (16) having a bend (108) with a radius of curvature (Rscwq) and angled axially outwardly, and a seaming curl (14) defining the outer perimeter of the end member shell (89) and integral with the chuckwall (15). The chuckwall (15) of the end member shell (89) is reformed to decrease the radius of curvature(Rscwq) of the bend (108).

Inventors

TURNER TIMOTHY

FORREST RANDY G

GOPALASWAMY RAJESH

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

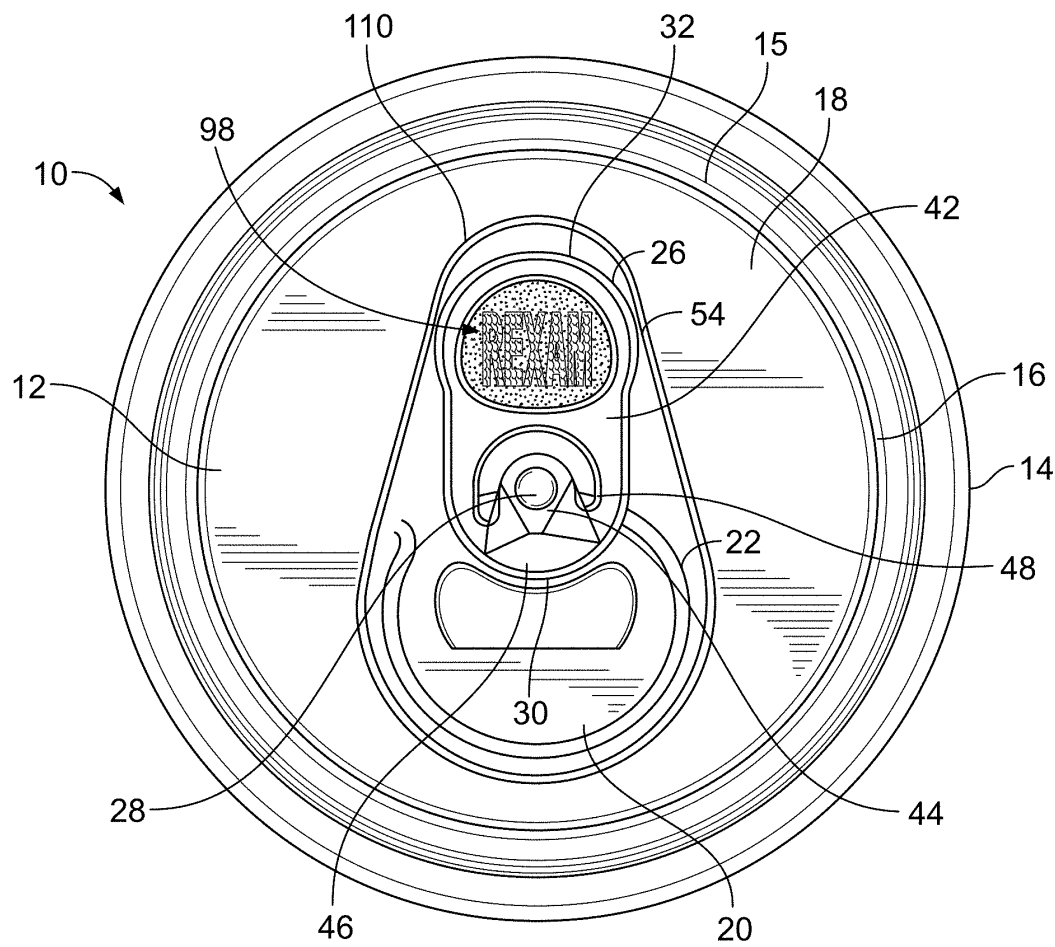
Family 38/100 - FAMPAT - ©Questel

Title

(WO2013158771)

Decorated beverage can tabs

Images



Publication numbers with kind code & date

MX364798	B	2019-05-07	MX-364798
US10118729	B2	2018-11-06	US10118729
BR112014025986	A2	2017-06-27	BR112014025986
US20160137341	A1	2016-05-19	US20160137341
MX2014012457	A	2016-04-04	MX2014012457
US9186924	B2	2015-11-17	US9186924
BR112014025986	A1	2014-12-02	BR112014025986
CA2870727	A1	2013-10-24	CA2870727
WO2013/158771	A1	2013-10-24	WO2013158771
US20130270269	A1	2013-10-17	US20130270269



Abstract

(WO2013/158771)

A decorated tab (26) for a beverage container has a lift end (32), a nose end (30), and central webbing (42). An enclosed portion of the central webbing has a coating. A symbol (98) is located on the enclosed region which is created by selective removal of the coating by a laser ablation. The symbol has a boundary profile defining a perimeter of the symbol generated by a continuous, uninterrupted vectorized laser dot pattern defining regions of ablated coating. The symbol has an interior portion generated by a plurality of pulsed rasterized laser dots defining further regions of ablated coating.

Inventors

LEWIS JEFFREY L

Latest standardized assignees - inventors removed

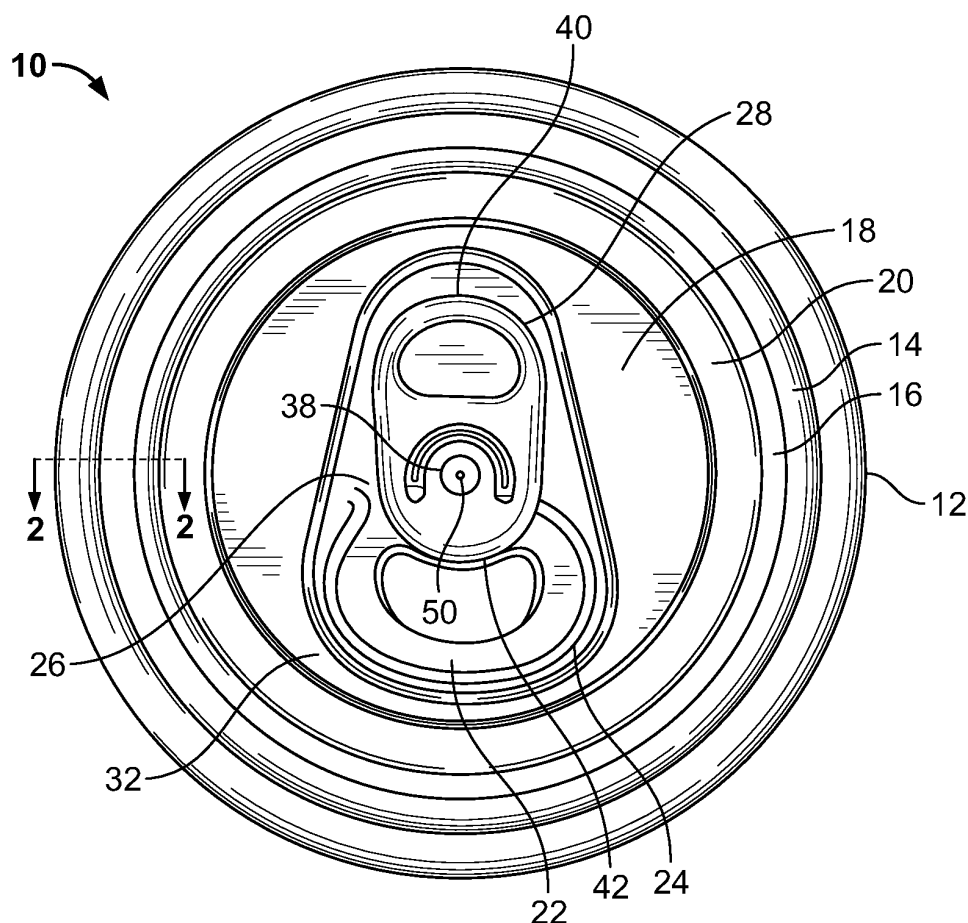
REXAM BEVERAGE CAN

Family 39/100 - FAMPAT - ©Questel

Title

(EP2195247)

Can end with countersink

Images**Publication numbers with kind code & date**

BRPI0816205	B1	2019-09-10	BR200816205
BRPI0816205	A2	2015-04-14	BR200816205
ES2381413	T3	2012-05-28	ES2381413
AT548276	T	2012-03-15	ATE548276
EP2195247	B1	2012-03-07	EP2195247
US8011527	B2	2011-09-06	US8011527
EP2195247	A1	2010-06-16	EP2195247
WO2009/023555	A1	2009-02-19	WO200923555
US20090039091	A1	2009-02-12	US20090039091

**Abstract**

(EP2195247)

A can end (10) for a two-piece beverage can is described. The can end (10) has a center panel (18) positioned about a vertical center axis (50). The center panel (18) has a means for opening the can end (10) located on a public side. A reinforcing bead (16) surrounds the center panel (18). The reinforcing bead (16) has an inner curved portion having a

radius of curvature located radially inwardly from an outer curved portion having a radius of curvature. The radius of curvature of the outer curved portion is greater than the radius of curvature of the inner curved portion.

Inventors

FORREST RANDALL G

TURNER TIMOTHY L

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

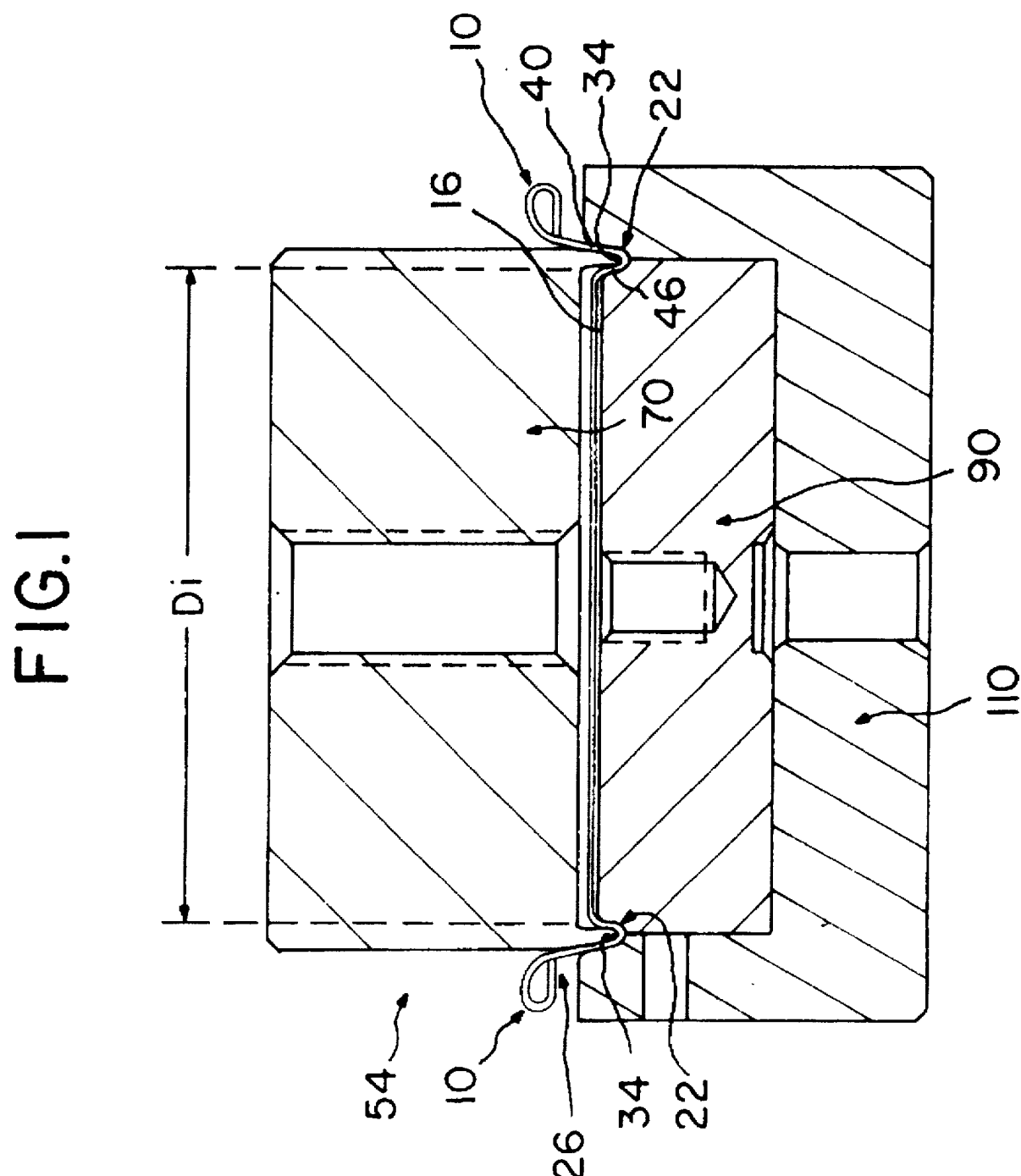
Family 40/100 - FAMPAT - ©Questel

Title

(EP-785037)

Method and apparatus for producing container body end countersink

Images



Publication numbers with kind code & date

IN232113

B 2009-03-27 IN-232113

IN0164/DEL/1997

A 2008-08-01 IN1997DE00164



HK1005230	A1	2004-12-24	HK1005230				
DE69726750	T2	2004-09-23	DE69726750				
ES2212457	T3	2004-07-16	ES2212457				
CN1157267	C	2004-07-14	CN1157267C				
DE69726750	D1	2004-01-22	DE69726750				
AT255970	T	2003-12-15	ATE255970				
EP0936004	B1	2003-12-10	EP-936004				
PL182125	B1	2001-11-30	PL-182125				
BR9700738	A	2001-03-27	BR9700738				
DE69702456	T2	2001-03-08	DE69702456				
GR3034588	T3	2001-01-31	GR3034588				
ES2148902	T3	2000-10-16	ES2148902				
DE69702456	D1	2000-08-17	DE69702456				
AT194524	T	2000-07-15	ATE194524				
EP0785037	B1	2000-07-12	EP-785037				
AU719845	B2	2000-05-18	AU-719845				
EP0936004	A3	2000-04-12	EP-936004				
IL120047	B	1999-12-22	IL-120047				
EP0936004	A2	1999-08-18	EP-936004				
AR005525	A1	1999-06-23	AR---5525				
TW337497	B	1998-08-01	TW-337497				
MX9700556	A	1998-06-30	MX9700556				
NZ314104	A	1998-06-26	NZ-314104				
CZ21097	A3	1997-12-17	CZ9700210				
CN1166390	A	1997-12-03	CN1166390				
US5685189	A	1997-11-11	US5685189				
BRPI9700738	A1	1997-08-19	BR9700738				
PL318052	A1	1997-08-04	PL97318052				
AU1223997	A	1997-07-31	AU9712239				
EP0785037	A1	1997-07-23	EP-785037				
SE9700164	L	1997-07-23	SE9700164				
IL120047	A	1997-04-15	IL-120047				
SE9700164	D0	1997-01-21	SE9700164				

Abstract

(EP0785037)

An annular groove (22) of a can end (10) with a reduced radius (R1') is disclosed. In one embodiment, this is by a method and apparatus which reworks the can end to increase the strength of the can end by reducing the radius (R1) of the annular groove (22) of the can end. This method includes the step of reworking the annular groove of the can end to reduce a magnitude of the annular groove from a first radius (R1) to a second radius (R1') by exerting an inwardly-directed force on at least part of the annular groove and relative to the annular groove and collapsing at least part of the annular groove inwardly relative to the annular groove. The apparatus used in this reworking may include inner and outer die surfaces (90,110), wherein at least one of which engages a lower portion of the annular groove, and a V-shaped punch (70), opposing and axially moveable relative to the annular groove and die surfaces, for engaging the annular groove to exert inwardly-directed forces on the lower portions of the annular groove to collapse the lower portions of the annular groove inwardly, toward the punch. The reduced radius may also be achieved in a blank and form station (400) where an axially-directed force is exerted on a flange (412) such that portions of the blank (434) flex into engagement with a generally concave die surface.

Inventors

NGUYEN TUAN A

FARLEY TODD W

Latest standardized assignees - inventors removed

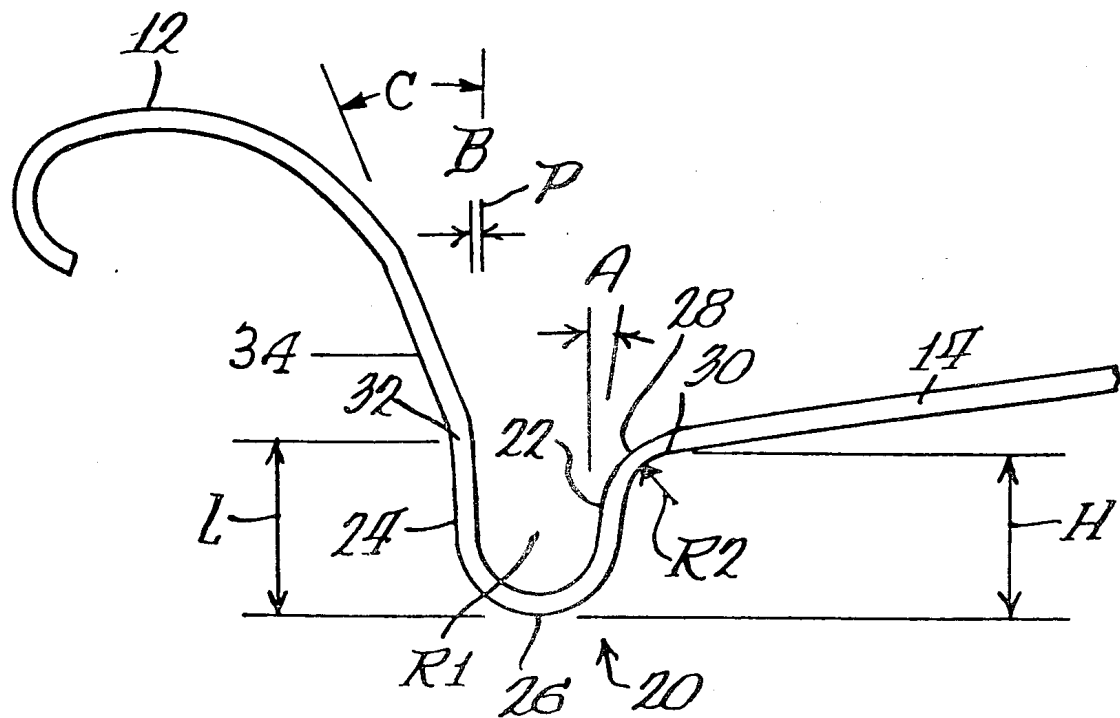
BALL

Family 41/100 - FAMPAT - ©Questel

Title

(US4448322)

Metal container end

Images**Publication numbers with kind code & date**[US4448322](#)

A 1984-05-15 US4448322

**Abstract**

(US4448322)

A container end formed from metal having an approximate thickness of 0.0120 inches which is capable of withstanding at least 90 psi buckle pressure and at least 60 psi rock pressure is disclosed herein. A container end panel includes a peripheral curl surrounding a substantially flat center panel with a countersink therebetween. The countersink has inner and outer substantially flat walls that are interconnected by an arcuate portion that has a radius of approximately 0.030 inches and the inner wall is connected to the periphery of the center panel through an arcuate portion that has a radius of approximately 0.025 inches. The outer flat wall has a length which is greater than the length of the inner flat wall and the outer flat wall defines an angle of less than five degrees with respect to a plane that extends perpendicular through the center flat panel. The inner flat wall has a length to locate the lower edge of the countersink about 0.075 inches or more below the lower edge of the periphery of the center panel and defines a minimum angle with respect to a vertical reference plane.

Inventors

KRASKA JOHN L

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

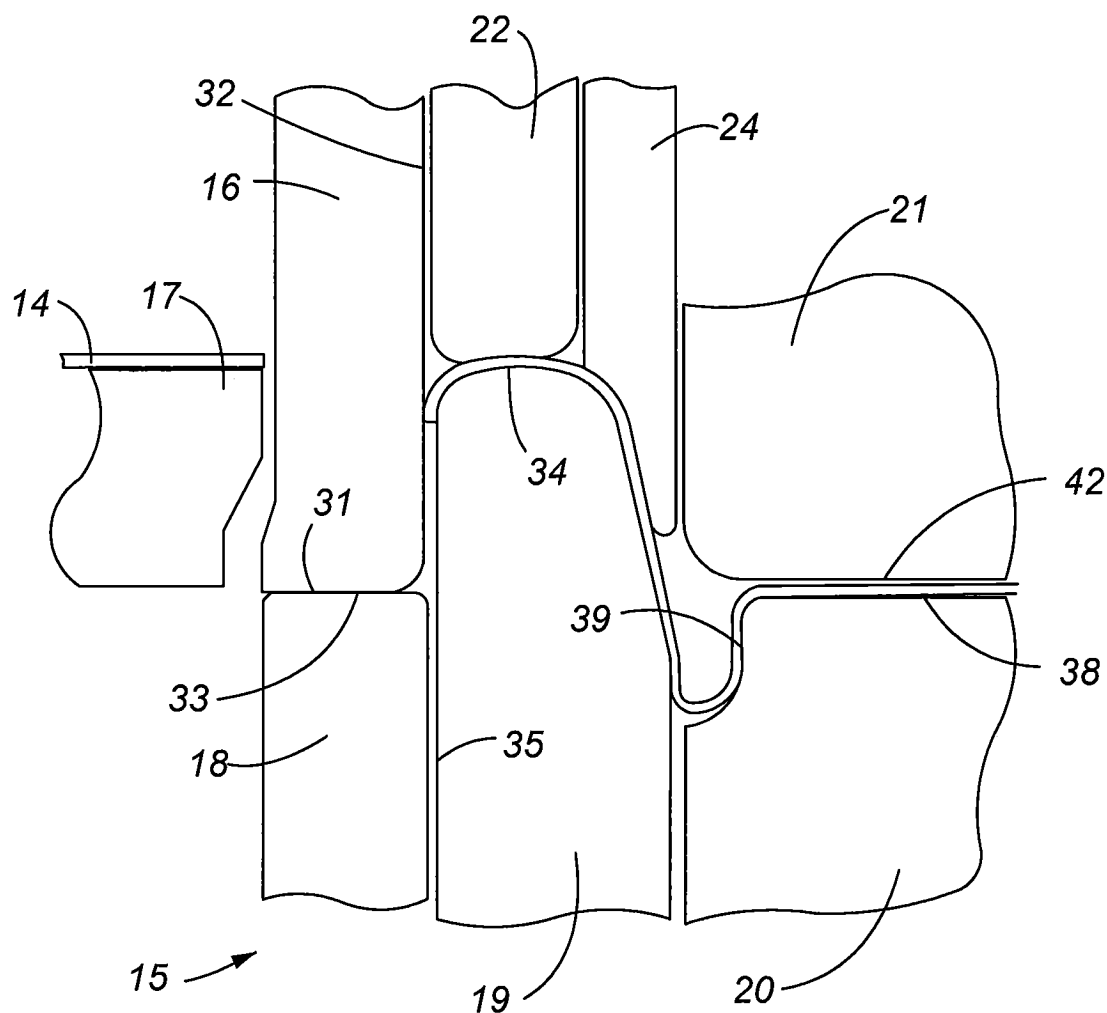
Family 42/100 - FAMPAT - ©Questel

Title

(EP1773522)

Method and apparatus for shaping a metallic container end closure

Images

Free and Compression Forming
Single Action

Publication numbers with kind code & date

BRPI0513611	B1	2019-07-16	BR200513611
CA2574973	C	2014-05-06	CA2574973
CN101060948	B	2013-01-09	CN101060948B
IN254508	B	2012-11-16	IN-254508
PL1773522	T3	2011-04-29	PL1773522
DE602005023470	D1	2010-10-21	DE602005023470
AT480345	T	2010-09-15	ATE480345
EP1773522	B1	2010-09-08	EP1773522
AU2005267900	B2	2010-07-08	AU2005267900
RU2354485	C2	2009-05-10	RU2354485
US7500376	B2	2009-03-10	US7500376
RU2007107367	A	2008-09-10	RU2007107367
EP1773522	A4	2008-08-06	EP1773522
ZA200700611	B	2008-07-30	ZA200700611
BRPI0513611	A	2008-05-13	BR200513611



JP2008508104	A	2008-03-21	JP2008508104				
CN101060948	A	2007-10-24	CN101060948				
IN0842/CHENP/2007	A	2007-08-24	IN2007CN00842				
EP1773522	A2	2007-04-18	EP1773522				
MX2007001125	A	2007-04-17	MX2007001125				
WO2006/015175	A3	2006-11-09	WO200615175				
US20060042344	A1	2006-03-02	US20060042344				
AU2005267900	A1	2006-02-09	AU2005267900				
CA2574973	A1	2006-02-09	CA2574973				
WO2006/015175	A2	2006-02-09	WO200615175				

Abstract

(EP1773522)

The present invention describes an apparatus and forming process to manufacture container end closures with improved internal buckle strength. The present invention provides greater material and dimensional control during the forming process by utilizing a pressure sleeve to provide support to at least a portion of an end closure chuck wall and seaming panel radius while placing an end closure countersink in compression during the forming process.

Inventors

BATHURST JESS N

TRAPHAGEN JAMES D

Latest standardized assignees - inventors removed

BALL

Family 43/100 - FAMPAT - ©Questel

Title

(EP-497346)

Pressure resistant sheet metal end closure

Images

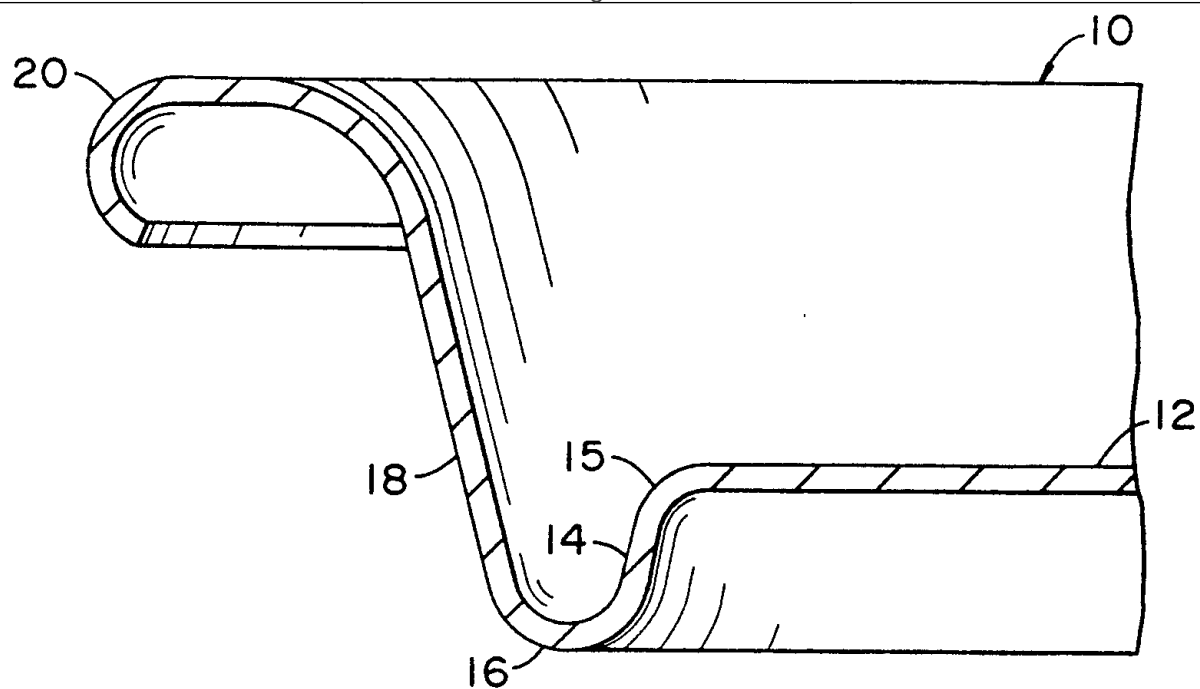
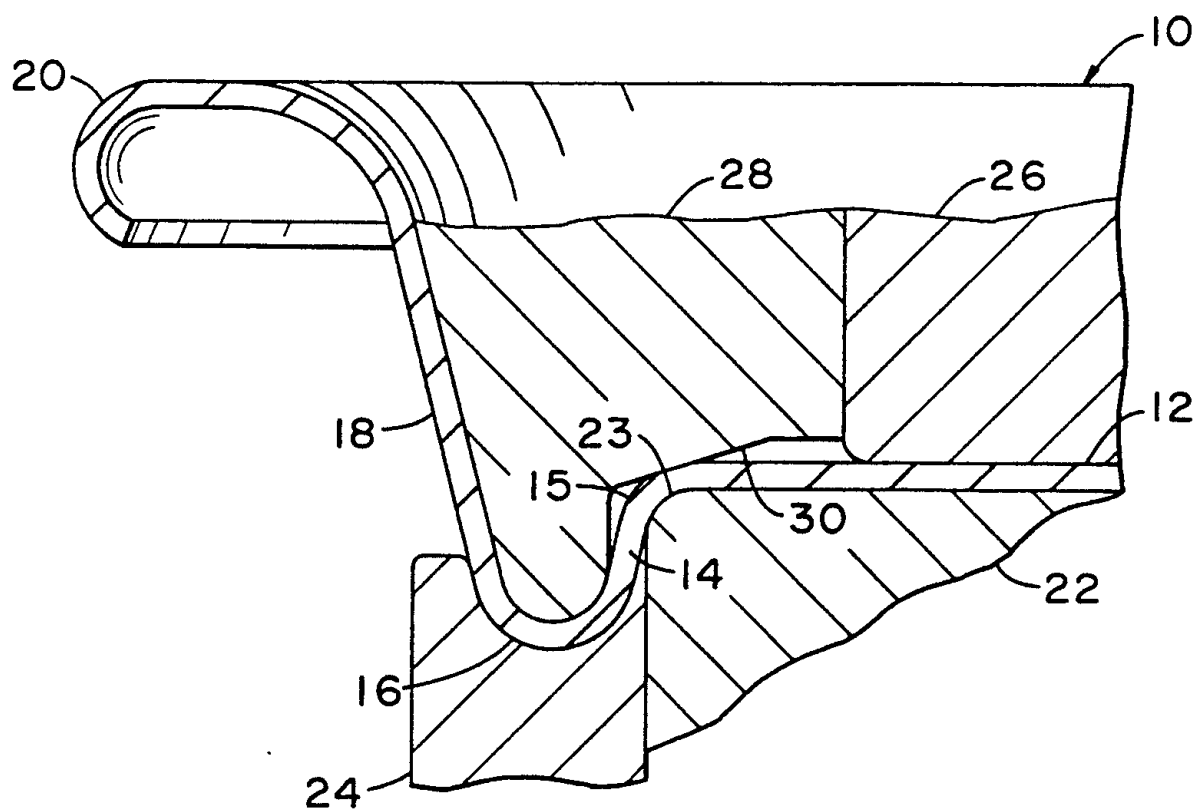


FIG. 1



MA34367	B1	2013-07-03	MA--34367				
VN33784	A	2013-05-27	VN--33784				
EP2580135	A1	2013-04-17	EP2580135				
MX2012014419	A	2013-02-26	MX2012014419				
SG186245	A1	2013-01-30	SG-186245				
AU2011264511	A1	2013-01-24	AU2011264511				
CA2802053	A1	2011-12-15	CA2802053				
US20110303672	A1	2011-12-15	US20110303672				
WO2011/156140	A1	2011-12-15	WO2011156140				

Abstract

(EP2580135)

A vent score lacks features to arrest score propagation. Rather encourages fast score propagation upon initial rupture. Venting is achieved through a flap configuration formed by the vent score.

Inventors

FIELDS BRIAN

KEANE BRENDAN

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 45/100 - FAMPAT - ©Questel

Title

(EP1601580)

Modified score for smooth openability

Images

having a large radius of score curvature (RQT.) in a first outer quadrant (44, 46) of the tear panel (20) to provide low resistance to opening the tear panel (20) at the large radius (RQT).

Inventors

HARTMAN WILLIAM H

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

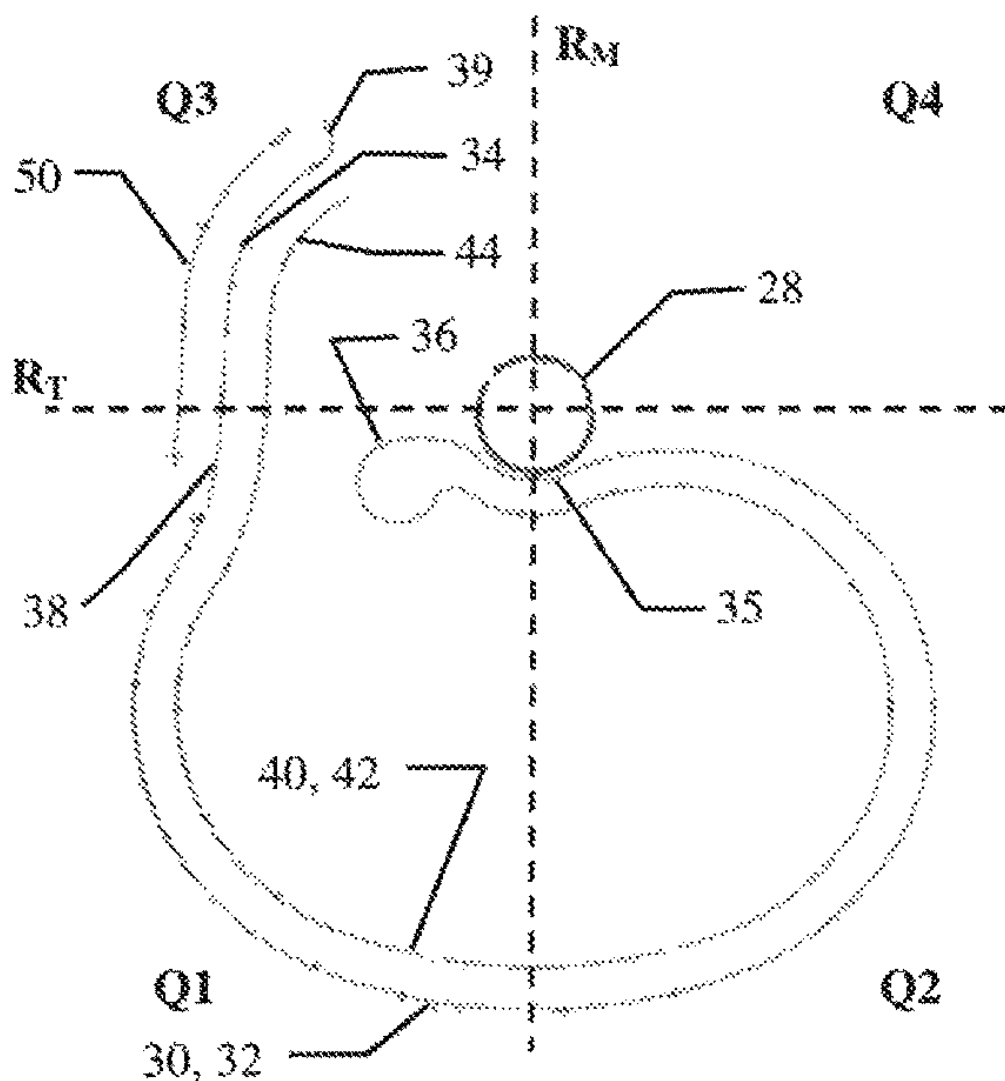
Family 46/100 - FAMPAT - ©Questel

Title

(EP2969798)

Vented beverage can end having an anti-tension score

Images



Publication numbers with kind code & date

PL2969798	T3	2019-06-28	PL2969798
EP2969798	B1	2019-01-16	EP2969798
CN105228911	B	2018-08-28	CN105228911B
US9815590	B2	2017-11-14	US9815590
US20160023801	A1	2016-01-28	US20160023801
EP2969798	A1	2016-01-20	EP2969798
CN105228911	A	2016-01-06	CN105228911



A1 2014-09-25 WO2014150180

(EP2969798)



MXPA03006735	A	2004-05-31	MX2003PA006735
CN1494504	A	2004-05-05	CN1494504
EP1373079	A1	2004-01-02	EP1373079
US6460723	B2	2002-10-08	US6460723
US20020134788	A1	2002-09-26	US20020134788
WO02/57148	A1	2002-07-25	WO200257148

**Abstract**

(EP1373079)

A can end (2) utilizes less material and has an improved internal buckle strength based on the geometric configuration of an upper and lower chuck wall (6), inner panel wall (6) and central panel (14), and having a unit depth to an outwardly concave countersink (12) of at least about 0.215 inches.

Inventors

NGUYEN TUAN A

BATHURST JESS N

Latest standardized assignees - inventors removed

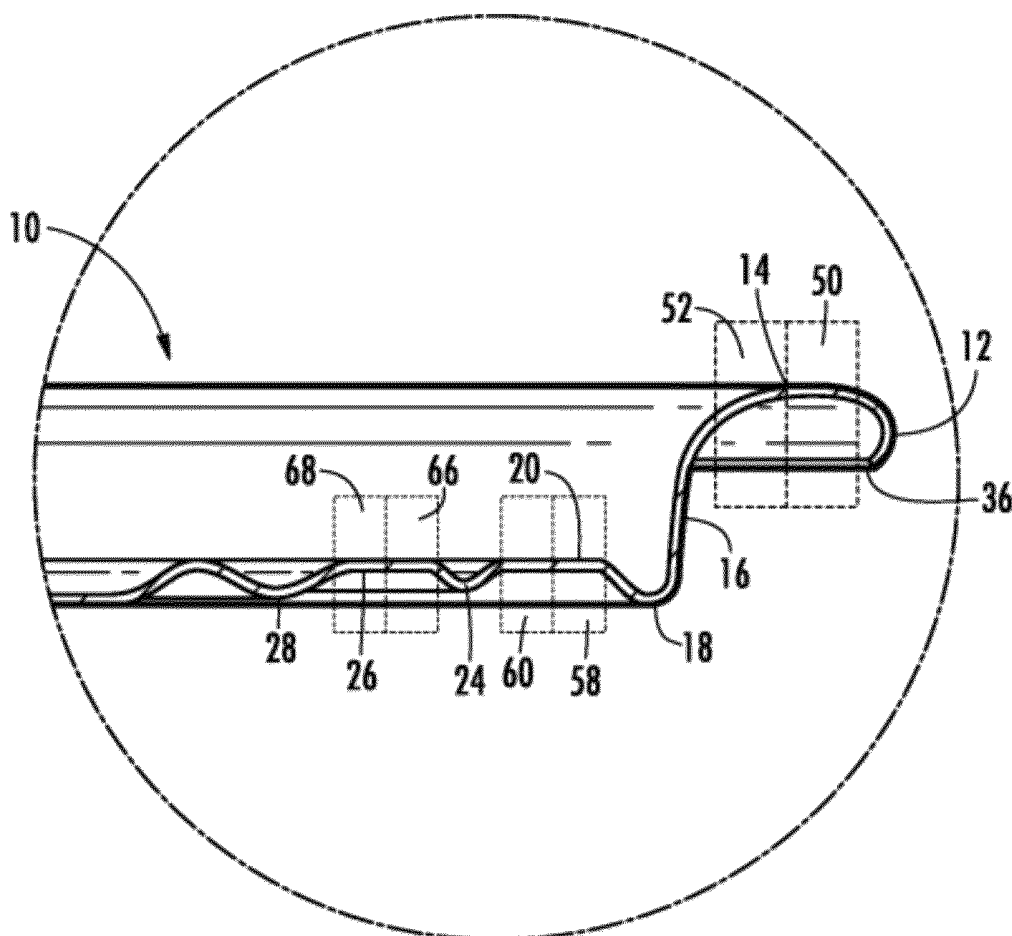
BALL

Family 48/100 - FAMPAT - ©Questel

Title

(USD653109)

Can end

Images

US8978915	B2	2015-03-17	US8978915				
USD685266	S1	2013-07-02	USD685266				
US20120263835	A1	2012-10-18	US20120263835				
USD653109	S1	2012-01-31	USD653109				

Abstract

(USD653109)

A can end that is attached to a metal can body with a bottom end forming a cavity that may be filled with food, liquid, etc. The can end is made of metal with a bead configuration located in the outer circumference of the can end that increases its resistance to deformation when subjected to high pressure cooking environments and assists in preventing the can end from separating along the frangible score.

(From US8978915 B2)

Inventors

STAMMEN DENNIS C

Latest standardized assignees - inventors removed

SILGAN CONTAINERS

Family 49/100 - FAMPAT - ©Questel

Title

(EP1259435)

Vented container end apparatus and method

Images

A container end is provided so that upon opening, a generally triangular vent region (862) is formed with an apex (872) pointing rearwardly (272) toward the head space to vent the container, e.g. during pouring. A container is provided that achieves a fast and smooth pour with a relatively small increase in the opening area (822) relative to previous configurations and achieves a superior pour without increased bursting, buckling or opening failures associated with relatively larger openings.

Inventors

CHASTEEN HOWARD CURTIS

Latest standardized assignees - inventors removed

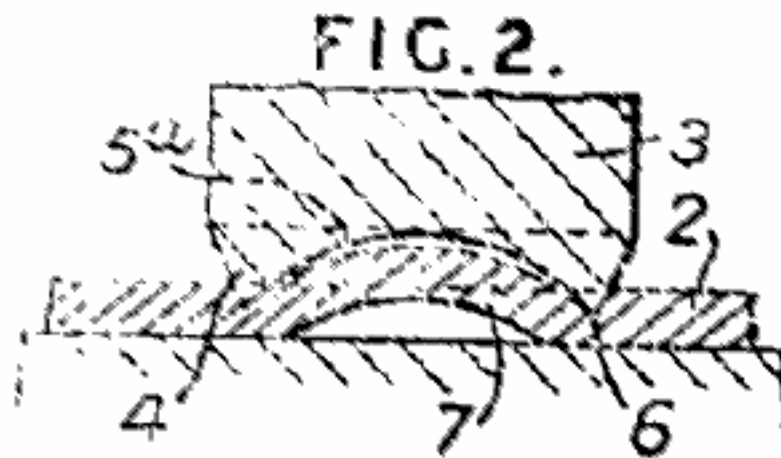
BALL

Family 50/100 - FAMPAT - ©Questel

Title

(GB-422052)

Improvements in or relating to closed tins, jars, or like containers

Images**Publication numbers with kind code & date**[GB422052](#) A 1934-12-31 GB-422052**Abstract**

(GB422052)

422,052. Scoring. BARLOW, R., 28, Kingsway, and STUCHBERY, A. L., Chequers Work, North Circular Road, Palmers Green, both in London. June 29, 1933, No. 18549. [Class 100 (ii)] [See also Groups XXII and XVII] A local bulge or pimple is formed in materials such as those sold under the Registered Trade Marks "Bakelite" and "Cellophane" by applying a compressing force thereto acting only in the intended boundary line of the pimple and serving to constrain the inward flow of the material to produce the pimple. As applied to the formation of breaking-pieces with weakened boundaries in containers or lids therefor, a tool 3 comprising an annular working edge 4 about a central concave portion 5 is pressed against a plane sheet 2 and produces a pimple 7 by inward flow of the material, with a weakened boundary line 6. A clamping-member may surround the tool. The pimple may be formed in a recessed portion to avoid accidental breakage. The boundary line previously or subsequently to the forming operation, may be weakened by scoring. The pimple may be of U-shape so that it is not completely severed when pressure is applied, or of circular, oval, or D-shape.

Latest standardized assignees - inventors removed

ROBERT BARLOW

ARTHUR LESLIE STUCHBERY

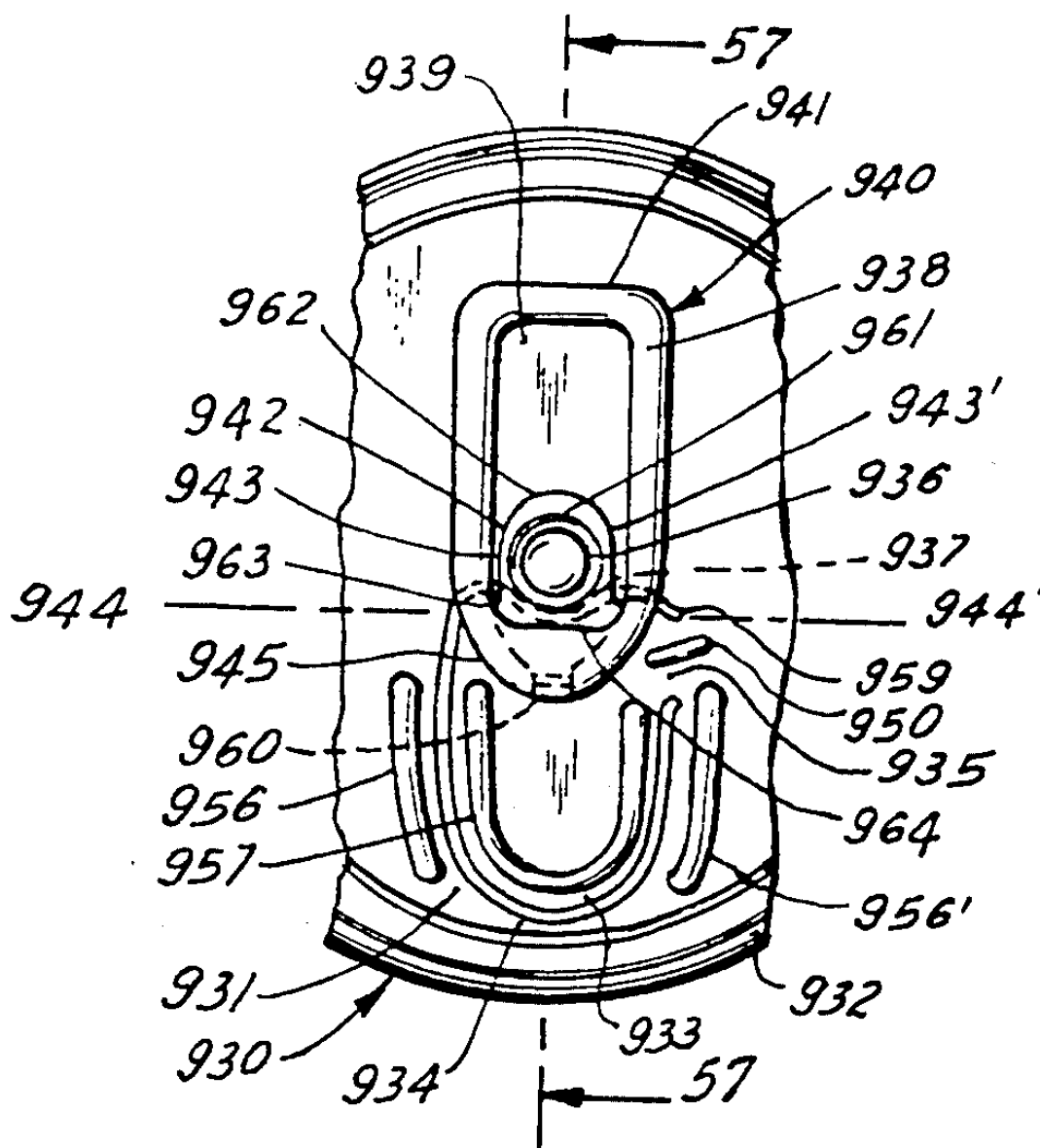
Family 51/100 - FAMPAT - ©Questel

Title

(US4084721)

Container with attached closure

Images



Publication numbers with kind code & date

[US4084721](#)

A 1978-04-18 US4084721



Abstract

(US4084721)

Improved easy open 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. Main feature is an openable segment in the top defined by a score line that extends almost all around its periphery, but interrupted at one point by an unscored section which provides integral hingeable attachment means to secure the segment to the top within the container after opening. Opening of the segment is accomplished by a manually operated elongated leverage lift tab which is hingeably secured to the top by a rivet which is positioned just outside of the segment and close to the score line. The outer longer lift end of the lift tab extends over the container top beyond the segment, and the shorter inner end extends partially over the segment, and comprises a downward pressure exerting extension. When the lift end is raised, the inner end exerts high downward pressure near the score line, thereby rupturing the score line with the rupture starting near the pressure point and extending on around the periphery, and the segment is thereby hinged down into the container where it remains attached to the top by the hingeable unscored section. The lift tab is then folded back out of the way to a position just overlying the container top, and ready for

drinking from the can or pouring out the contents. Other features include various lift tab pressure exerting means, depression in top for lift tab, angular positioning of lift tab for improved rupturing and less obstruction to the user, part of score line replaced by adhesive sealing for easier initial rupture, various means for stiffening segment and top, stronger tab hinge means, separate downward pressure points for start and finish of rupture, supplementary score line groove on underside of top.

Inventors

PERRY WALTER MERTON

Latest standardized assignees - inventors removed

CONTINENTAL

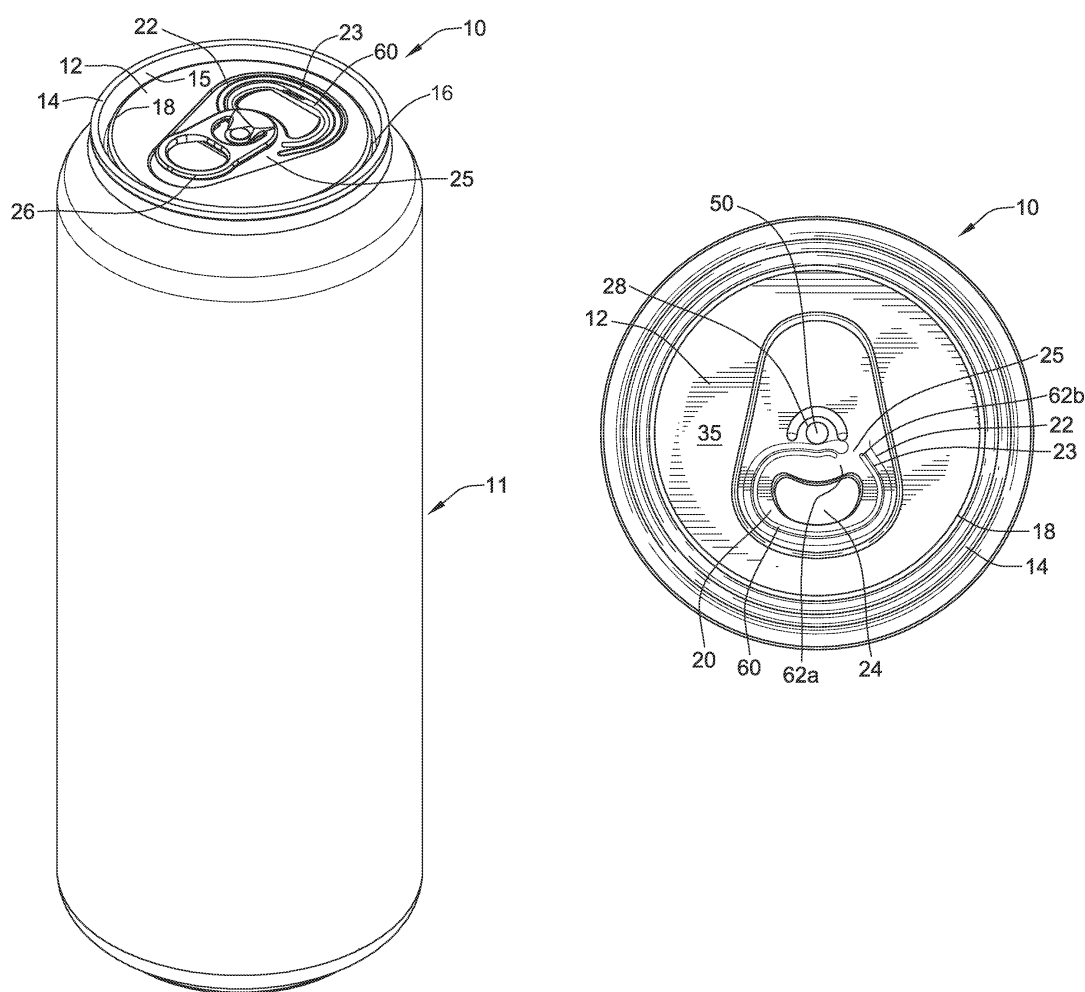
Family 52/100 - FAMPAT - ©Questel

Title

(EP2675717)

Can end

Images



Publication numbers with kind code & date

EP2675717	B1	2017-11-01	EP2675717
US8783495	B2	2014-07-22	US8783495
EP2675717	A1	2013-12-25	EP2675717
WO2012/112487	A1	2012-08-23	WO2012112487
US20120205378	A1	2012-08-16	US20120205378



Abstract

(EP2675717)

A can end (10) for a beverage container (11) has a circumferential curl (14) positioned about a longitudinal axis (50), a wall

(15) extending downwardly from the curl (14), a strengthening member (16) joined to the wall (15), and a center panel (12) joined to the strengthening member (16) and extending radially inwardly relative to longitudinal axis (50). A rivet (28) is located at a center position of the center panel (12). A frangible score (22) has terminal ends located on a common side of the rivet (28). The terminal ends are separated by a non-frangible hinge segment (25). A displaceable tear panel (20) is defined by the frangible score (22) and the non-frangible hinge segment (25). A non-detachable tab (26) has a nose (30) and a lift end (32). The nose (30) overlies a portion of the displaceable tear panel (20). A deboss groove (60) is located on the public side (34) of the center panel (12) and extends downwardly in a direction towards the product side (35). The deboss groove (60) is located adjacent the score line (23).

Inventors

FORREST RANDALL G

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

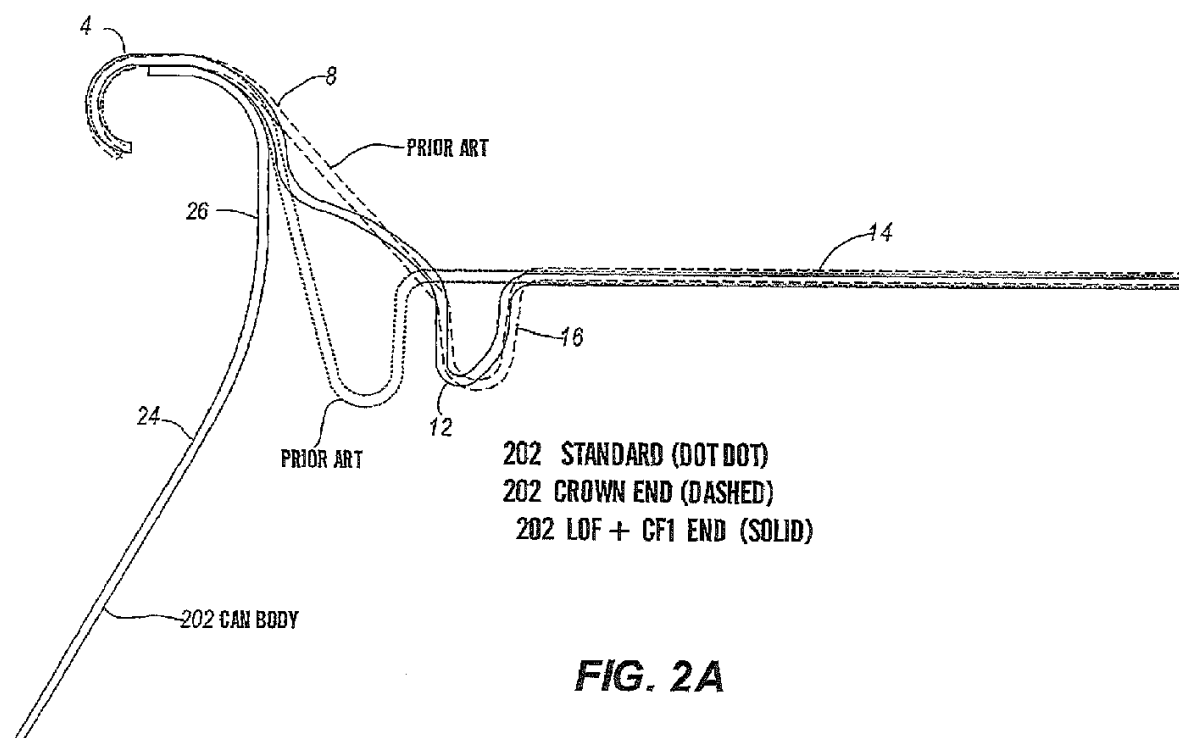
Family 53/100 - FAMPAT - ©Questel

Title

(EP2497717)

Metallic beverage can end with improved chuck wall and countersink

Images



Publication numbers with kind code & date

BR0306682	B1	2014-12-02	BR200306682
ES2400882	T3	2013-04-15	ES2400882
EP1470052	B1	2012-09-19	EP1470052
EP2497717	A1	2012-09-12	EP2497717
CA2472295	C	2011-11-29	CA2472295
JP4388817	B2	2009-10-09	JP4388817
EP1470052	A4	2009-03-04	EP1470052
AU2003207518	B2	2008-12-04	AU2003207518
CN1319813	C	2007-06-06	CN1319813C
YU61204	A	2006-08-17	YU200400612
CN1639016	A	2005-07-13	CN1639016



JP2005515120	A	2005-05-26	JP2005515120
MXPA04006730	A	2005-03-31	MX2004PA006730
BR0306682	A	2005-02-22	BR200306682
EP1470052	A1	2004-10-27	EP1470052
WO03/59764	A9	2004-04-22	WO200359764
AU2003207518	A1	2003-07-30	AU2003207518
CA2472295	A1	2003-07-24	CA2472295
WO03/59764	A1	2003-07-24	WO200359764

**Abstract**

(EP2497717)

A beverage can end (2) which has a circular end wall (4), a chuck wall (6) comprising an upper chuck wall portion (8) and an outwardly extending arch (30), a countersink (12), an inner panel wall (16) and central panel (14). The upper chuck wall portion (8) has a radius of curvature between about 0.070 and 0.090 inches, the outwardly extending arch (30) has a radius of curvature between about 0.020 and 0.220 inches, the countersink has a radius of curvature less than about 0.015 inches, and the central panel (14) is raised above a lowermost portion of the countersink (12) at least about 0.080 inches.

Inventors

REED JAMES A

NEINER CHRISTOPHER G

NGUYEN TUAN A

BATHURST JESS N

Latest standardized assignees - inventors removed

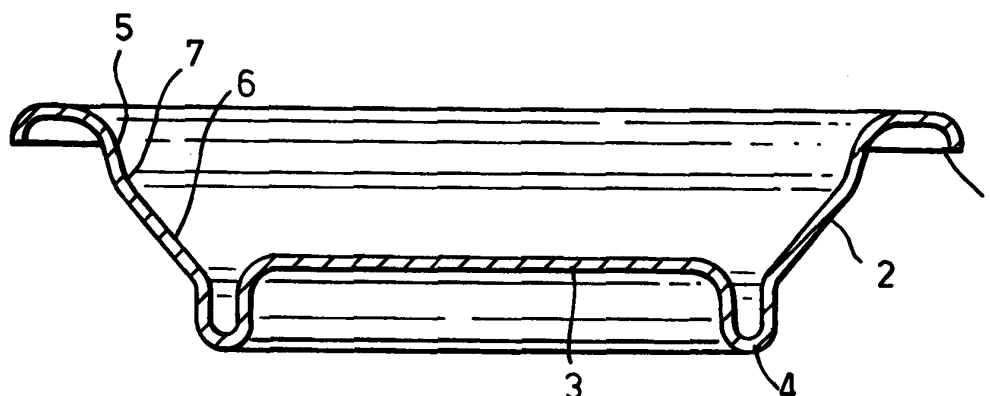
BALL

Family 54/100 - FAMPAT - ©Questel

Title

(WO9834743)

Can ends

Images**Publication numbers with kind code & date**

AR011436	A1	2000-08-16	AR--11436
PE14399	A1	1999-03-18	PE9900143
TW348156	B	1998-12-21	TW-348156
AU5773198	A	1998-08-26	AU9857731
WO98/34743	A1	1998-08-13	WO9834743



ZA9800909

B 1998-08-06 ZA9800909

GB9702475

D0 1997-03-26 GB9702475

**Abstract**

(WO98/34743)

An unseamed can end comprises a cover hook, (1) a chuck wall (2), a reinforcing bead (4) and a central panel (3). The chuck wall is in two parts; an upper part (5) adjacent the cover hook, and a lower part (6) adjacent the reinforcing bead. The upper part is at an angle of approximately 14 DEG to the horizontal, and the lower part is at an angle of approximately 42 DEG to the horizontal. This produces a step (7) between the two parts of the chuck wall. This arrangement maintains the advantages of a shallower than conventional chuck wall, whilst reducing the reforming of the chuck wall during seaming.

Inventors

FIELDS BRIAN

Latest standardized assignees - inventors removed

CROWN CORK & SEAL

METAL BOX

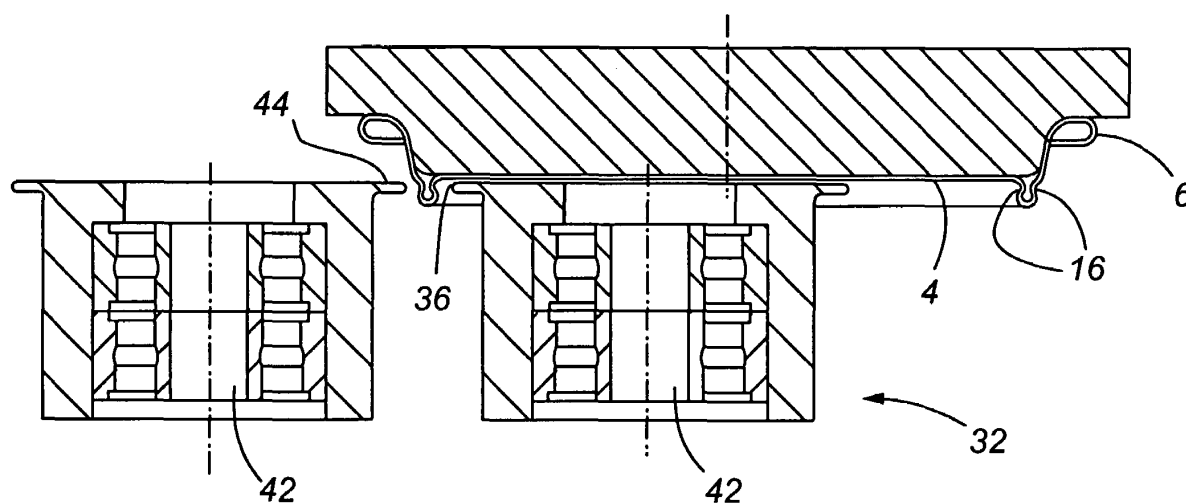
FIELDS BRIAN

Family 55/100 - FAMPAT - ©Questel

Title

(EP1907150)

Method for forming a reinforcing bead in a container end closure

Images**Publication numbers with kind code & date**

EP2392421	B9	2015-10-28	EP2392421
ES2543797	T3	2015-08-21	ES2543797
EP2392421	B1	2015-05-20	EP2392421
BRPI0613792	A2	2012-12-11	BR200613792
JP5097112	B2	2012-09-28	JP5097112
CN101227987	B	2012-08-08	CN101227987B
US8205477	B2	2012-06-26	US8205477
PL1907150	T3	2012-02-29	PL1907150
ES2374425	T3	2012-02-16	ES2374425
EP2392421	A1	2011-12-07	EP2392421
ATE526098	T	2011-10-15	ATE526098
EP1907150	B1	2011-09-28	EP1907150
CA2613527	C	2011-02-01	CA2613527



US20100243663	A1	2010-09-30	US20100243663				
US7743635	B2	2010-06-29	US7743635				
EP1907150	A4	2009-09-23	EP1907150				
RU2361693	C1	2009-07-20	RU2361693				
US20090120943	A1	2009-05-14	US20090120943				
US7506779	B2	2009-03-24	US7506779				
JP2009500175	A	2009-01-08	JP2009500175				
CN101227987	A	2008-07-23	CN101227987				
EP1907150	A2	2008-04-09	EP1907150				
MX2008000174	A	2008-04-02	MX2008000174				
WO2007/005564	A3	2007-08-09	WO200705564				
CA2613527	A1	2007-01-11	CA2613527				
US20070007294	A1	2007-01-11	US20070007294				
WO2007/005564	A2	2007-01-11	WO200705564				

Abstract

(EP1907150)

A metallic container end closure is provided which includes a channel or groove in a predetermined location in at least one of an inner panel wall, outer panel wall, or chuckwall, and which is formed by a shaping tool. An apparatus and method for spin-forming the end closure with the improved geometry is also provided herein.

Inventors

CHASTEEN HOWARD

JENTZSCH KEVIN REED

JACOB MARK A

Latest standardized assignees - inventors removed

BALL

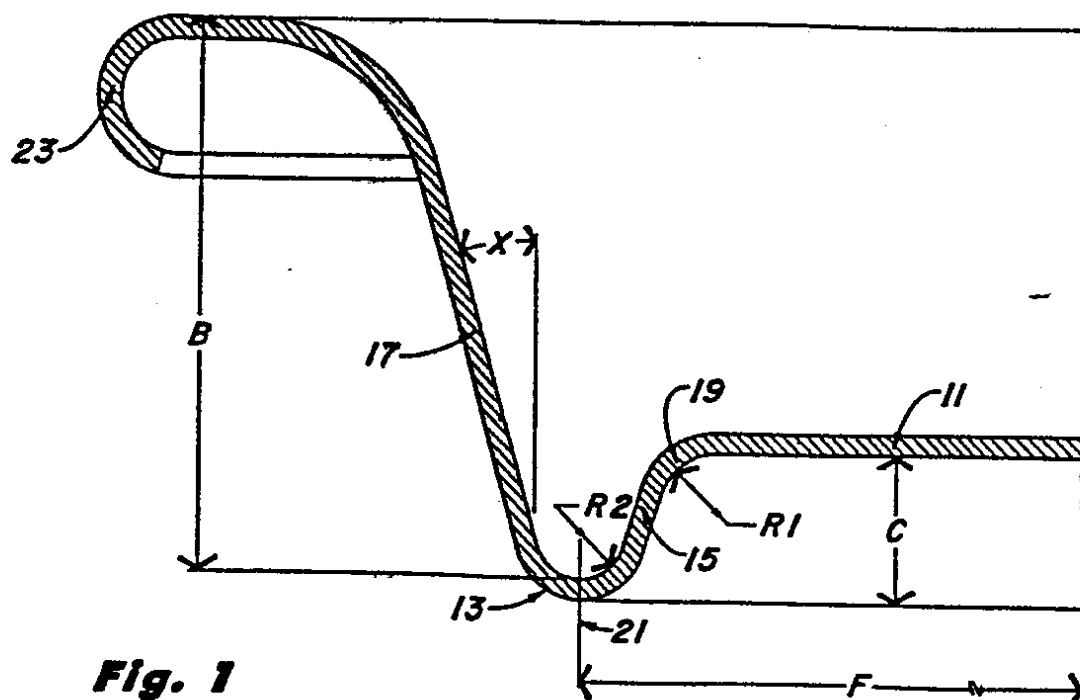
Family 56/100 - FAMPAT - ©Questel

Title

(EP-139282)

Increased strength for metal beverage closure through reforming

Images

**Fig. 1****Publication numbers with kind code & date**

JP1874337	C	1994-09-26	JP1874337
MX162108	A	1991-03-27	MX-162108
JPH0261861	B2	1990-12-21	JP90061861
AU574390	B2	1988-07-07	AU-574390
CA1238873	A	1988-07-05	CA1238873
EP0139282	A3	1987-08-19	EP-139282
US4641761	A	1987-02-10	US4641761
US4559801	A	1985-12-24	US4559801
JPS60183353	A	1985-09-18	JP60183353
AU3386484	A	1985-05-02	AU8433864
EP0139282	A2	1985-05-02	EP-139282

**Abstract**

(EP0139282)

Metal beverage closures of increased strength may be produced by a reform process which requires the initial production of a non-standard shell having a reduced countersink radius and reduced panel height. The shell is reformed, preferably in the conversion process, to industry standard dimensions, with the reduced countersink radius being maintained. To provide adequate material in the curl portion of the closure for seaming, the initial shell is provided with a reduced chuckwall diameter which is then reformed to industry standard dimensions.

Inventors

NGUYEN, TUAN ANH

SMITH, EUGENE FERRY

Latest standardized assignees - inventors removed

BALL

Family 57/100 - FAMPAT - ©Questel

Title

(EP-153115)

Method of and apparatus for forming a reinforced can end

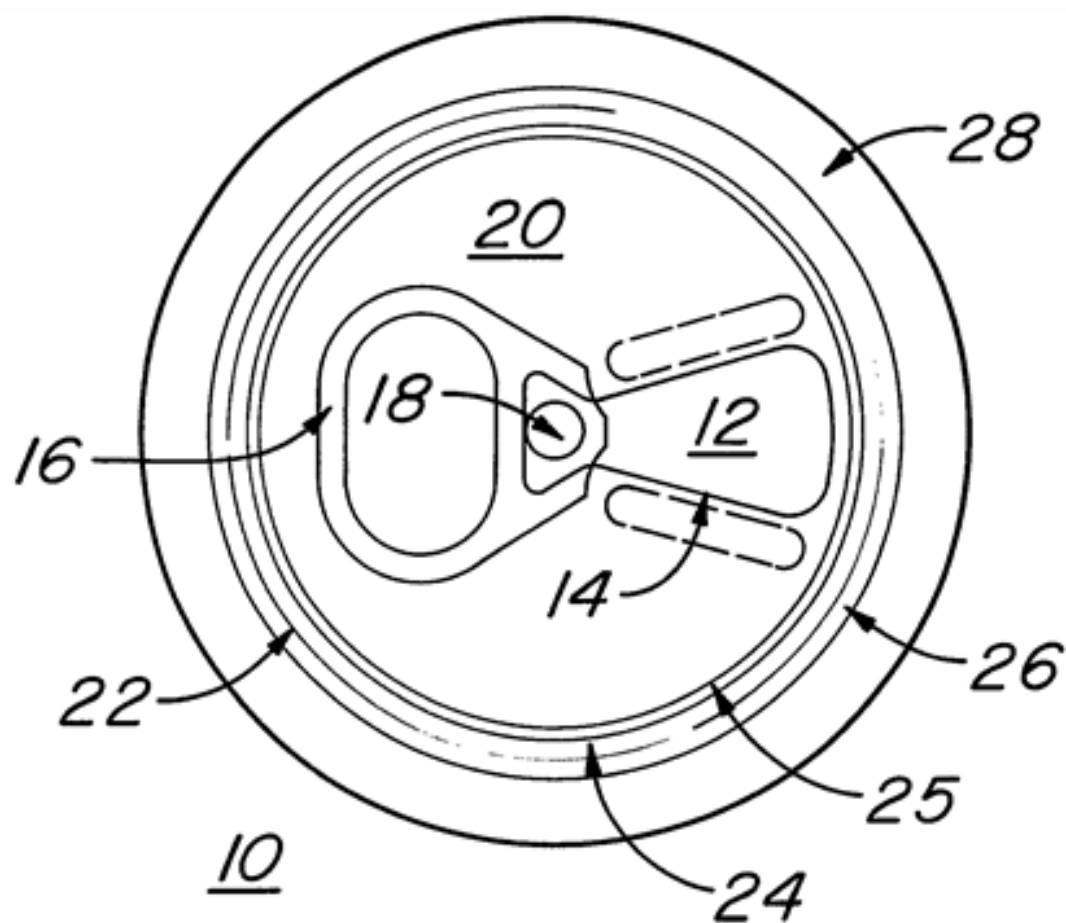
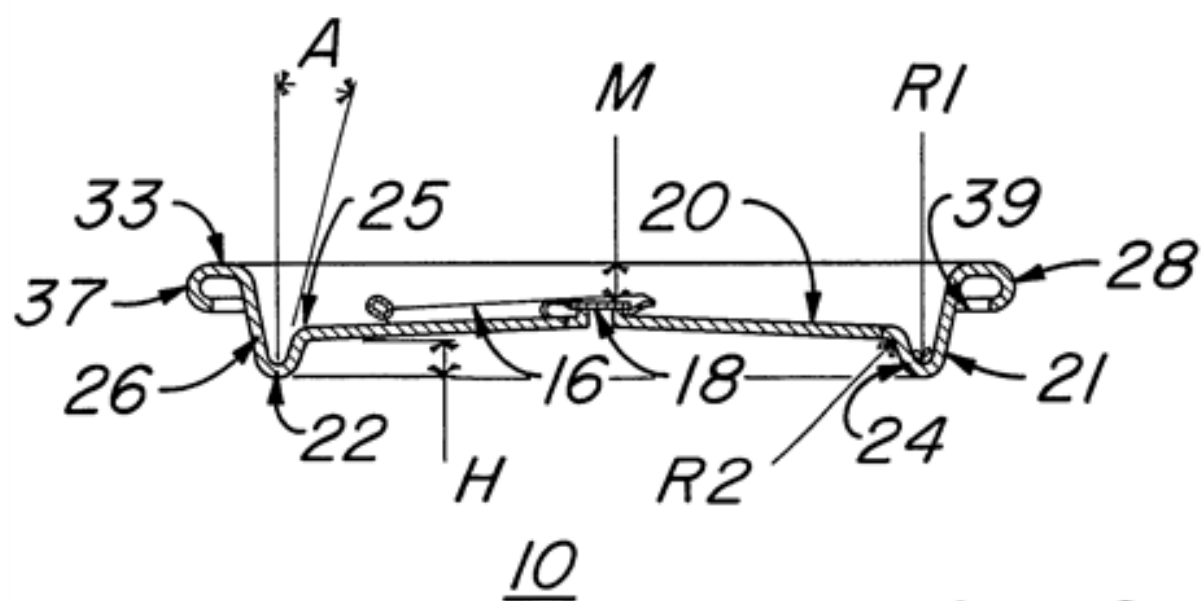
Images

Title

(EP-103074)

Increased strenght for metal closures through reversing curved segments

Images

**Fig. 1****Fig. 2**

Publication numbers with kind code & date

EP0103074	A3	1984-05-23	EP-103074
JPS5962444	A	1984-04-09	JP59062444
EP0103074	A2	1984-03-21	EP-103074
AU1618683	A	1984-03-15	AU8316186

**Abstract**

(EP0103074)

The present invention relates to improvements in the strength of ends used on metal beverage containers. Such ends generally comprise a center panel of a substantially planar character, a surrounding annular grooved portion or countersink made up of an inner panel wall, a chuckwall and a first upwardly bowed arcuate segment integrally joining the inner wall and the chuckwall, and a second downwardly bowed arcuate segment integrally joining the inner wall and the center panel. In accordance with the present invention the second arcuate segment is reversed by herein disclosed tooling to provide the closure with three reversing arcuate segments between the inner wall and the center panel and a reduced center panel diameter. The closure so formed exhibits an increase in buckle resistance between 8 and 10 percent which allows a thinner gauge material to be used in forming the closures. Other than the three reversing arcuate segments the closure formed in accordance with the present invention conforms very closely to standard dimensional characteristics allowing its use on existing customers' fill-and-seal equipment without modification. An additional advantage of the present invention is that it can be easily instituted on many of the existing closure production lines with minor modifications and extremely low additional press tonnage requirements.

Inventors

NGUYEN, TUAN ANH

Latest standardized assignees - inventors removed

BALL

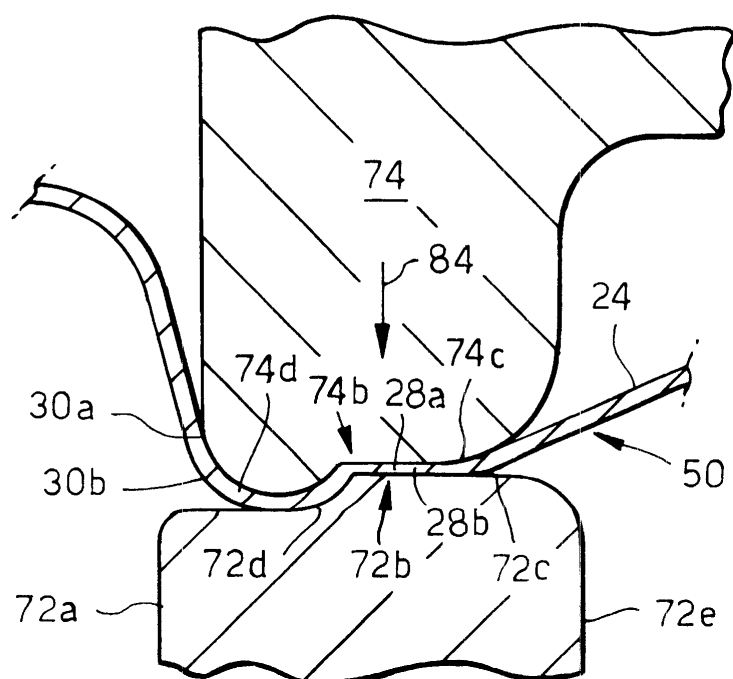
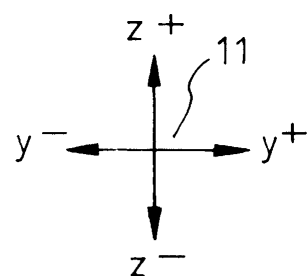
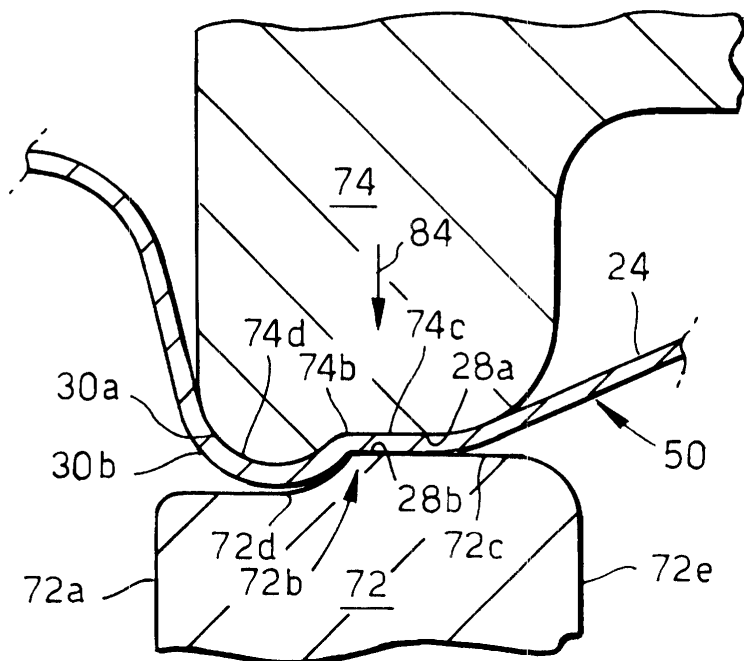
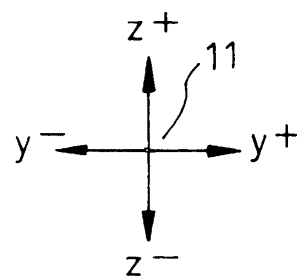
Family 60/100 - FAMPAT - ©Questel

Title

(EP1255622)

Method and apparatus for forming a can end with minimal warping

Images



Publication numbers with kind code & date

CA2409045	C	2007-01-23	CA2409045
DE60101454	T2	2004-10-21	DE60101454
ES2213101	T3	2004-08-16	ES2213101
PT1255622	E	2004-04-30	PT1255622
US6702538	B1	2004-03-09	US6702538
DE60101454			

	D1	2004-01-22	DE60101454				
AT255971	T	2003-12-15	ATE255971				
EP1255622	B1	2003-12-10	EP1255622				
EP1255622	A1	2002-11-13	EP1255622				
AU2697001	A	2001-08-27	AU200126970				
CA2409045	A1	2001-08-23	CA2409045				
WO01/60546	A1	2001-08-23	WO200160546				

Abstract

(EP1255622)

A method of forming a can end (10) comprises the step of forming a substantially circular metal blank having a periphery and a centre panel (16). An annular recessed panel (30) is subsequently formed in the blank. The recessed panel has a first depth relative to a substantially annular portion (28) of the blank contiguously formed with the recessed panel. The substantially annular portion of the blank is then coined while the recessed panel is re-formed to a second depth relative to the substantially annular portion of the blank. The second depth is greater than the first depth. Forming the can end in this manner minimises warping of the can end, and thereby allows the can end to be formed from a relatively thin sheet of metal.

Inventors

HEINICKE PAUL

KIRK WILLIAM

Latest standardized assignees - inventors removed

DEUTSCHE BANK

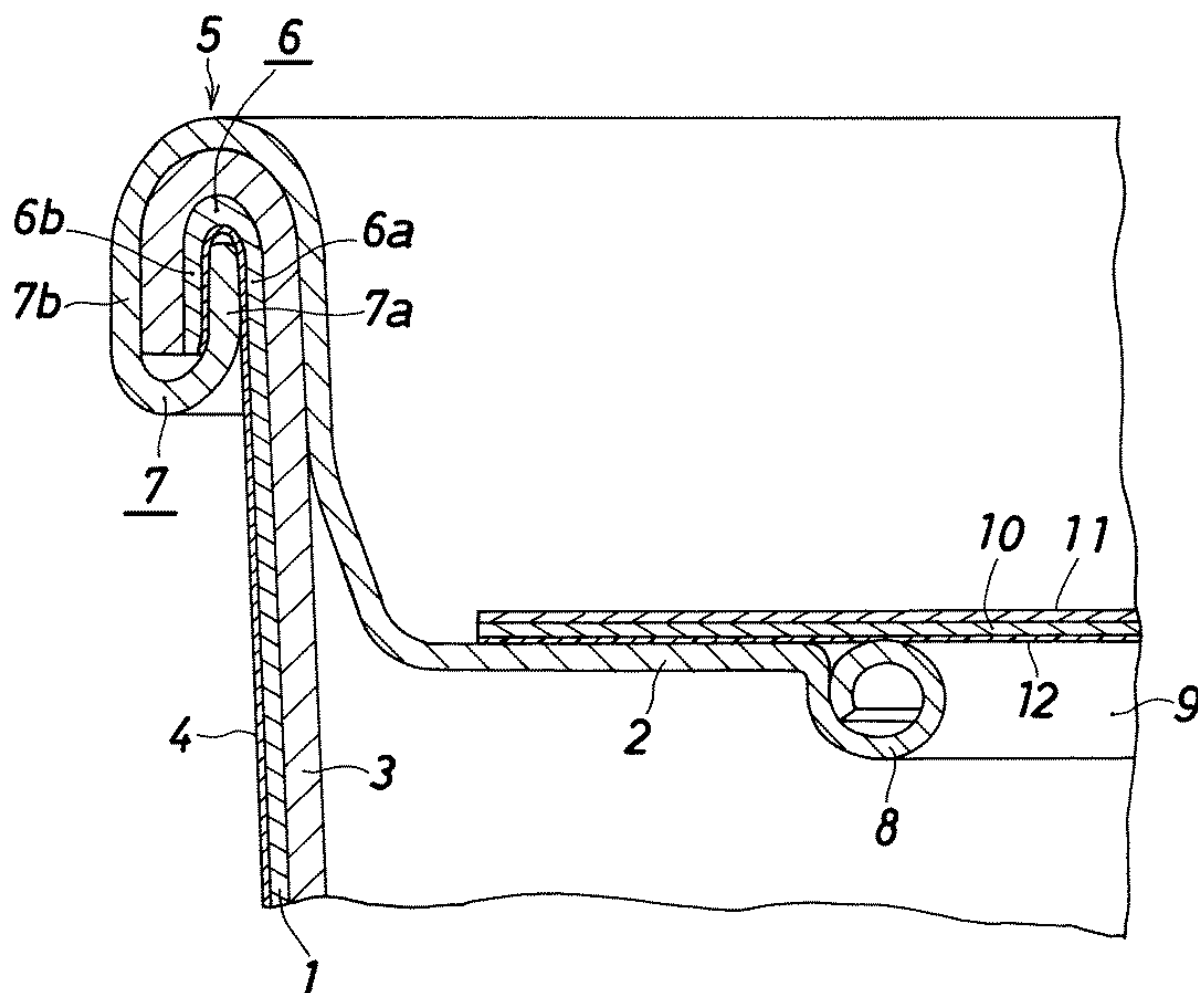
Family 61/100 - FAMPAT - ©Questel

Title

(JP2009286433)

Sealed metal container not requiring sealing compound in seamed section

Images



Publication numbers with kind code & date

[JP2009286433](#)

A 2009-12-10 JP2009286433



Abstract

(JP2009286433)

PROBLEM TO BE SOLVED: To inexpensively provide a seamed sealed metal container by eliminating management, material and machining costs for applying a sealing compound.

SOLUTION: This sealed metal container not requiring a sealing compound in a seamed section has a cover 2 on a container body 1 with a bottom and is sealed by double-seaming. Polypropylene films 34 are joined to cover the inside and outside faces of the body 1. The thickness of the inside film is 3,200 .mu.m and that of the outside film is 4,100 .mu.m. The seamed part 5 has the outside face film 4 tightly adhered between both faces of the inside wall 7a of a U-shaped part 7 formed by folding the top end peripheral edge of the cover 2 and the inside faces of both walls 6a, 6b of an inverted U-shaped part 6 formed by folding the top end peripheral edge of the body 1 and the inside film 3 tightly adhered between both faces of the inside wall 6a of the inverted U-shaped part 6 of the cover 2 and the inside face of the outside wall 7b of the U-shaped part 7 of the body 1.

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Inventors

IKEDA KOJI

Latest standardized assignees - inventors removed

SHOWA DENKO PACKAGING

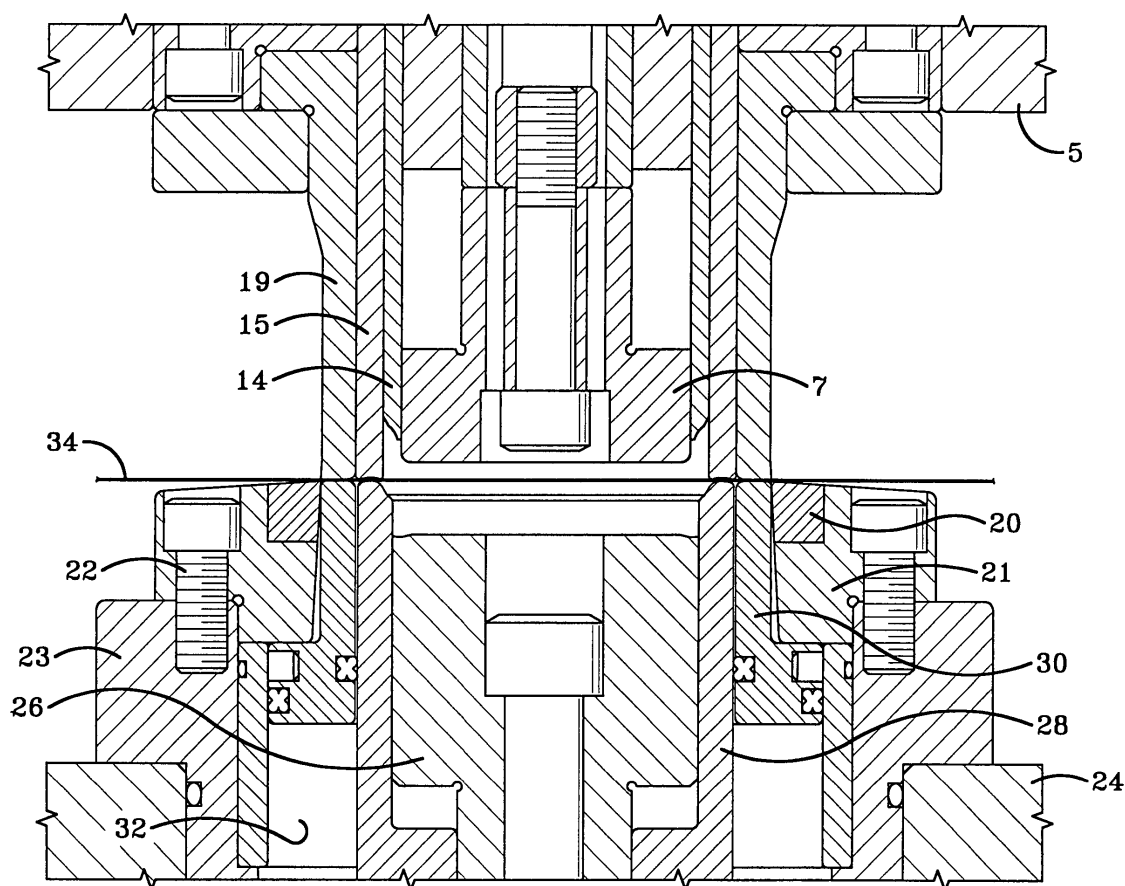
Family 62/100 - FAMPAT - ©Questel

Title

(US7036348)

Method and apparatus for forming container end shells with reinforcing rib

Images



Publication numbers with kind code & date

US7107810	B2	2006-09-19	US7107810
US7036348	B2	2006-05-02	US7036348
US20050044920	A1	2005-03-03	US20050044920
US20050044921	A1	2005-03-03	US20050044921



Abstract

(US20050044920)

A method and apparatus for forming a rolled reinforcing rib in an end shell of a container body in a single stroke and at a single station of a double action press prior to removal of the shell from the press. A blank disc is cut from sheet material by a punch core advanced by an outer ram. A chuckwall is then formed between a central panel and an outer flange. The central panel is clamped against a die core and a portion of the chuckwall is clamped against a die core ring. An unclamped portion of the chuckwall is located in a void formed between the punch core and die core ring and is rolled into the reinforcing rib upon continued advancement of inner and outer pressure sleeve while maintaining a tight clamping engagement of the central panel and outer flange of the blank disc. Simultaneous removal of the clamping force applied by the punch core and inner and outer pressure sleeves retain the rib in its rolled condition.

Inventors

MCCLUNG JAMES A

Latest standardized assignees - inventors removed

STOLLE MACHINERY

REXAM BEVERAGE CAN

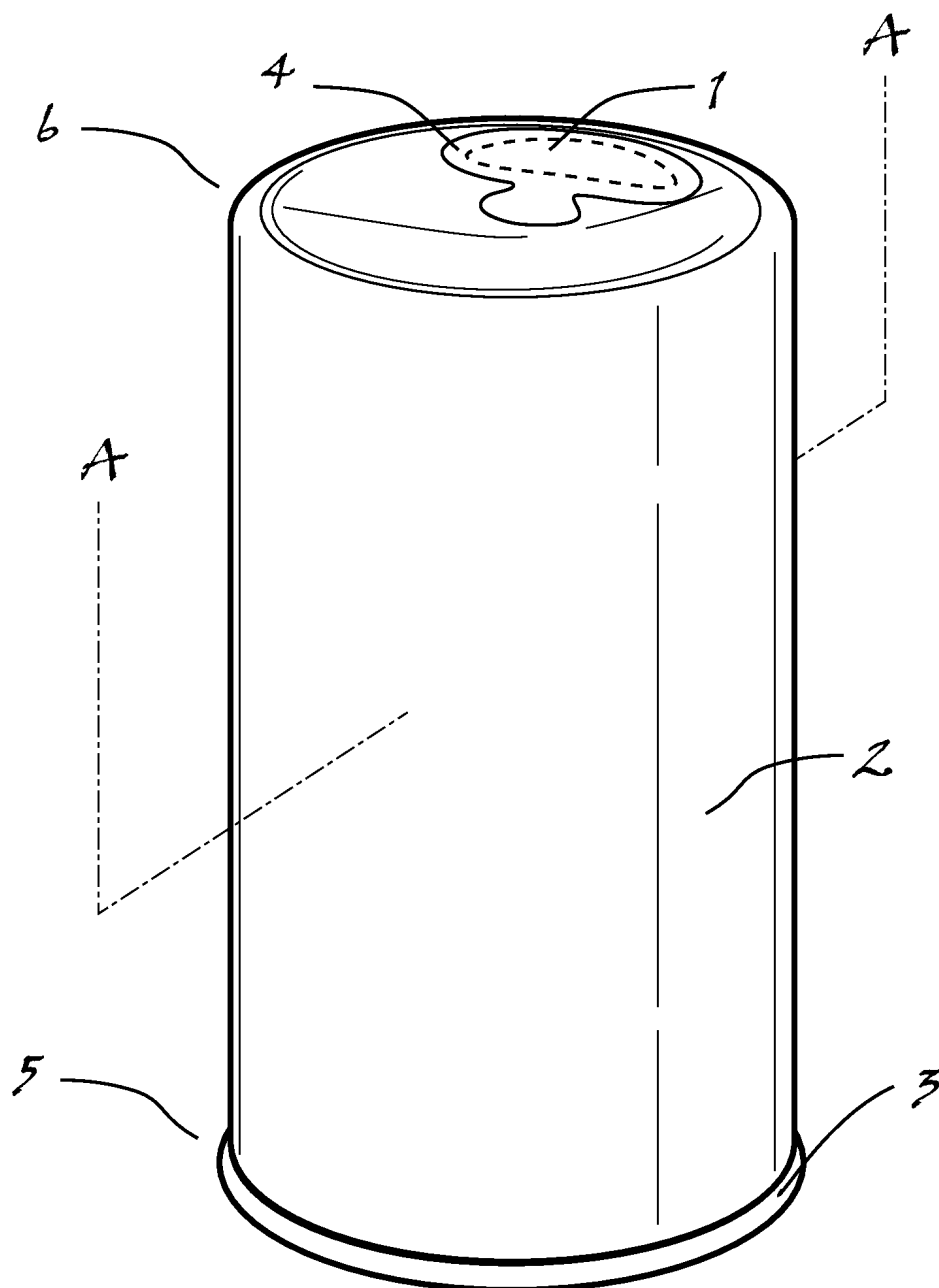
Family 63/100 - FAMPAT - ©Questel

Title

(US9828134)

Canister with dispersing aperture

Images



Publication numbers with kind code & date

[US9828134](#)

B2 2017-11-28 US9828134

[US20150108130](#)

A1 2015-04-23 US20150108130



Abstract

(US20150108130)

A canister with a novel dispensing aperture is described. The aperture is located within a continuous surface opposite the seamed canister end. By thus locating the aperture, canister contents may be dispensed or sipped without the interference of debris-collecting grooves, seam edges, and sharp angles typical of canisters with dispensing apertures located on seamed ends.

Inventors

ZIEGLER ROBERT A

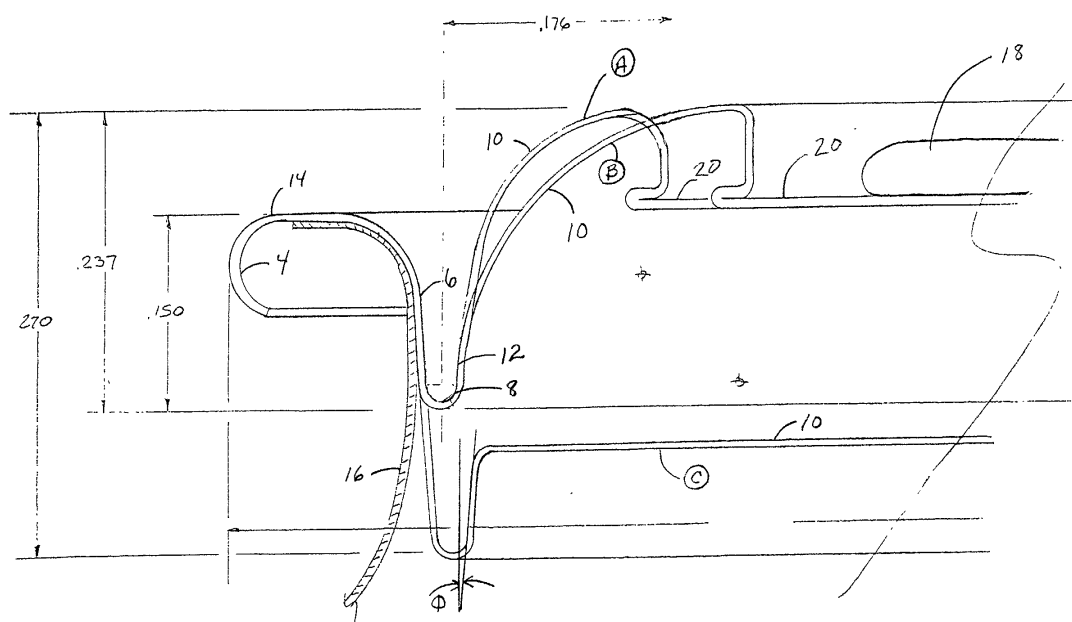
CARPENTER JOEL

Family 64/100 - FAMPAT - ©Questel

Title

(WO200257137)

Beverage can end with reduced countersink

Images**Publication numbers with kind code & date**

WO02/57137	A3	2003-03-13	WO200257137
US20020139805	A1	2002-10-03	US20020139805
AU2002237925	A1	2002-07-30	AU2002237925
WO02/57137	A2	2002-07-25	WO200257137

**Abstract**

(WO02/57137)

The present invention describes an improved beverage can end (2) which utilizes less material and has an improved internal buckle strength based on the geometric configuration of the chuck wall, (6), inner panel wall, (12) central panel (10) and reduced depth between the countersink (18) and crown (14) of a circular end wall (4).

Inventors

CHASTEEN HOWARD C

RAYBURN ROBERT M

SCOTT DANA H

Latest standardized assignees - inventors removed

BALL

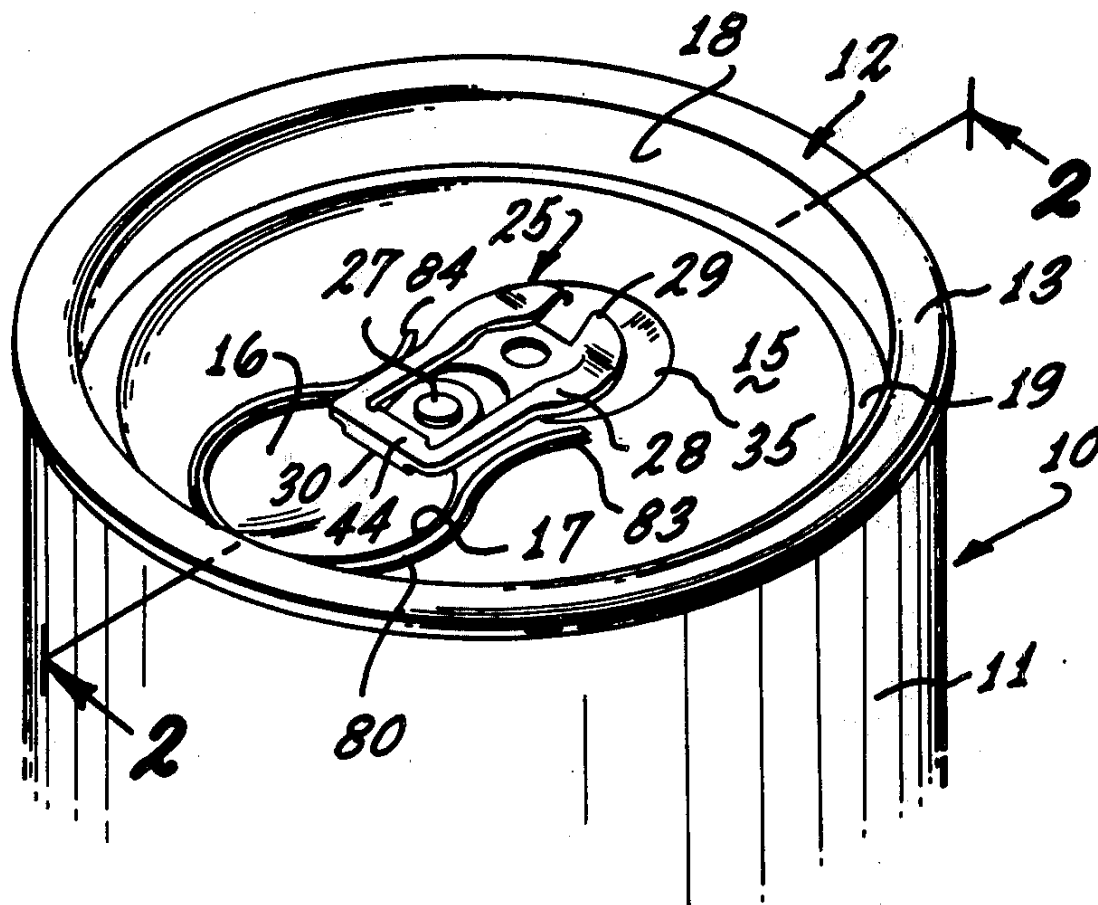
Family 65/100 - FAMPAT - ©Questel

Title

(US4015744)

Easy-open ecology end

Images



Publication numbers with kind code & date

[US4015744](#)

A 1977-04-05 US4015744



Abstract

(US4015744)

An improved easy-opening end structure for use with a container includes a retained tab and a captured panel which is also retained. The end structure includes a scoreline of defining a pour opening formed by fracture of the scoreline to release a downwardly dished panel formed by the scoreline. The tab is affixed to the end, other than to the dished panel and includes an opening end positioned over a bead on the panel, and a lifting end spaced from the panel. As the lifting end is raised, the portion of the scoreline between the opening end of the tab and the attachment is popped and thereafter the opening end bears against the panel as the tab is raised further to complete progressive rupture of the scoreline by essentially a class 1 lever action and to push the panel downwardly and laterally through the formed opening. The panel may be hinged or fall free into the container.

Inventors

BROWN OMAR L

Latest standardized assignees - inventors removed

FRAZE MARTHA L EXECUTRIX

DAYTON RELIABLE TOOL & MANUFACTURING

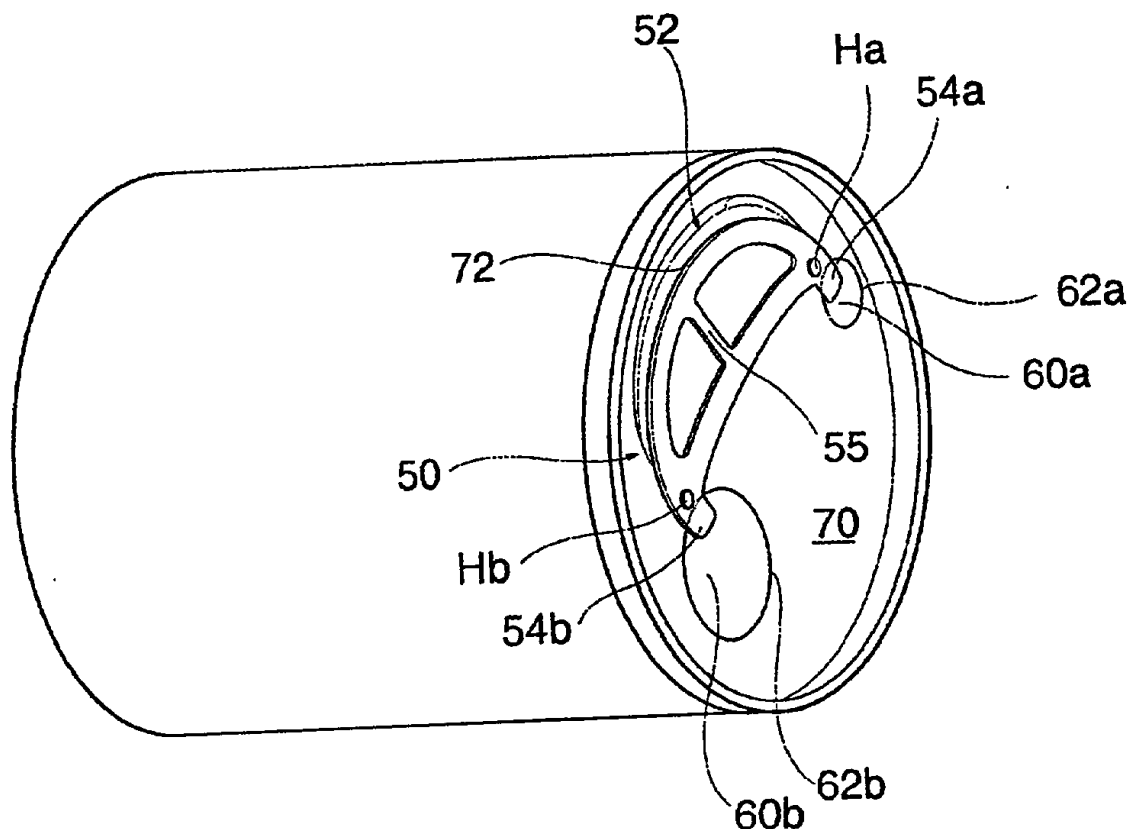
Family 66/100 - FAMPAT - ©Questel

Title

(US20020139800)

Can opening device

Images



Publication numbers with kind code & date

US20020139800	A1	2002-10-03	US20020139800
KR200233702	Y1	2001-10-18	KR200233702U



Abstract

(US20020139800)

The present invention relates to a can opening device for allowing beverage or the like contained within a can to easily flow out. The can opening device of the present invention comprising a pair of opening portions defined by incision lines at positions spaced apart from each other at a predetermined interval on a top surface of the can filled with contents; an opening member including a pair of pressing portions for pressing the pair of opening portions, respectively, and a grip integrally formed with the pressing portions so as to extend in a direction opposite to the pressing portions; and a pair of lever fulcrums which fix the opening member to the top surface and are disposed close to the pressing portions so that the pressing portions press down the opening portions to be spaced apart from the top surface when the grip is pulled up. It is most preferable that the pair of opening portions be formed at marginal positions symmetric to each other on the top surface. Thus, according to the present invention, the pair of opening portions can be easily opened with the single opening member. Therefore, it is expected to obtain an advantage that the contents contained within the can may more easily flow out.

Inventors

HWANG BO YEOUM
CHO MI SUN
HWANG IN JOO
HWANG IN WOOK
CHO SU JUNG

Latest standardized assignees - inventors removed

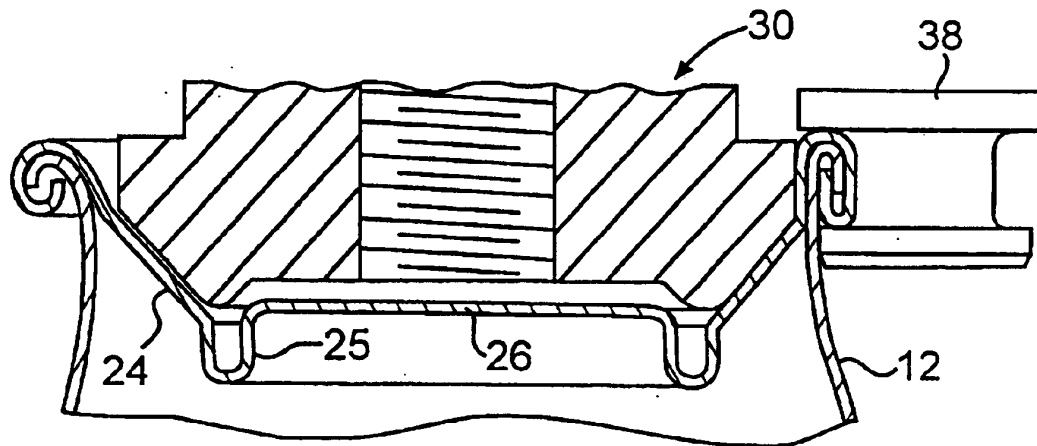
HWANG BO YEOUM
HWANG JOO
HWANG WOOK

Family 67/100 - FAMPAT - ©Questel

Title

(US6848875)

Can end and method for fixing the same to a can body

Images**Publication numbers with kind code & date**

[US6848875](#)

B2 2005-02-01 US6848875

[US20030150866](#)

A1 2003-08-14 US20030150866

**Abstract**

(US20030150866)

A can end comprising a peripheral cover hook, a chuck wall dependent from a first point on the interior of the cover hook, an outwardly concave annular reinforcing bead extending radially inwards from a second point on the interior of the chuck wall, and a central panel supported by an inner portion of the reinforcing bead, characterized in that, a line connecting the first point and the second point is inclined to an axis perpendicular to the exterior of the central panel at an angle between 30° and 60°.

Inventors

BRIFCANI MOUAYED MAMDOOH

HINTON PETER JAMES

KYSH MARK CHRISTOPHER

Latest standardized assignees - inventors removed

DEUTSCHE BANK

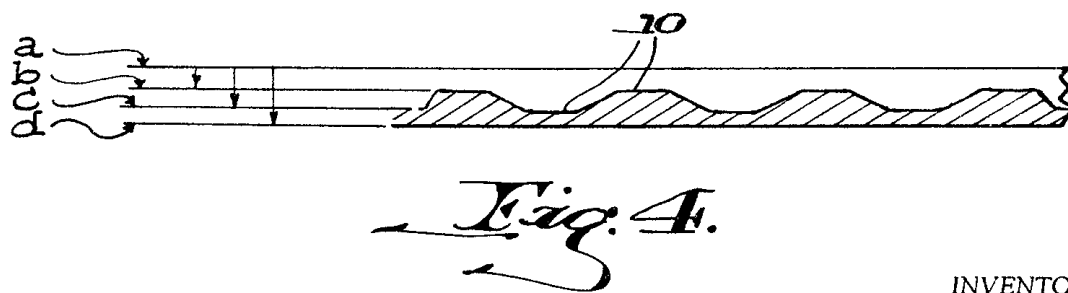
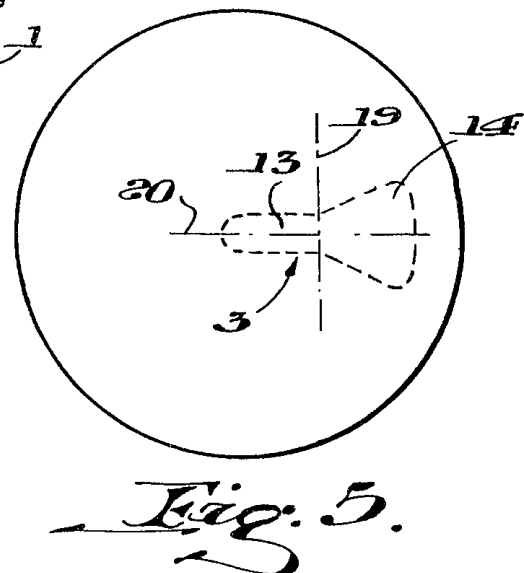
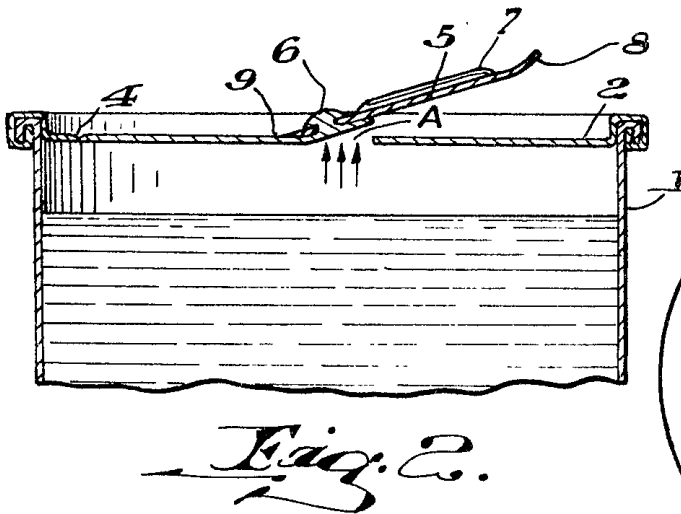
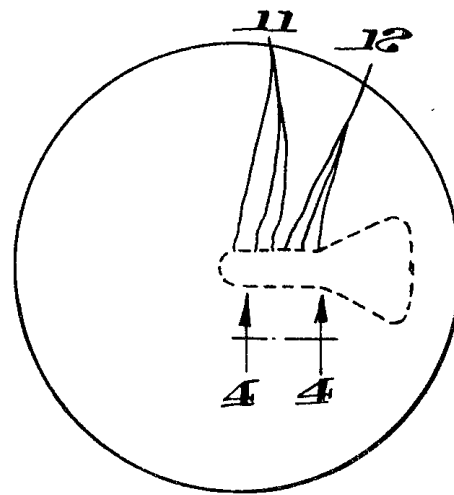
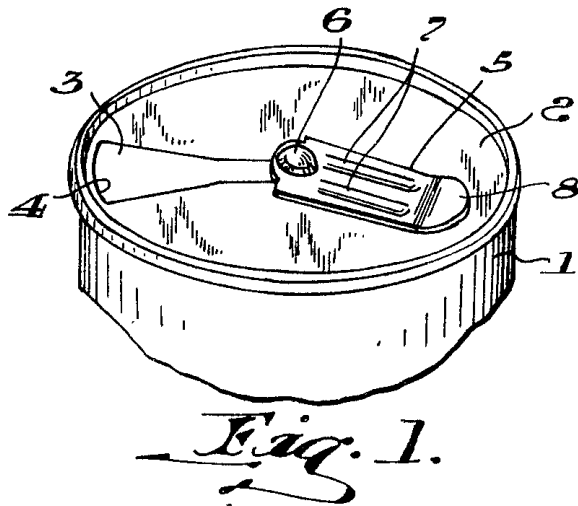
Family 68/100 - FAMPAT - ©Questel

Title

(EP2969800)

Container end closure with buckle control feature

Images



INVENTOR.
S.G. VON STOCKER.
BY *Arnold B. Silverman*
his ATTORNEY

Publication numbers with kind code & date

US3424337

A 1969-01-28 US3424337



Inventors

STOCKER SELMER G VON

Latest standardized assignees - inventors removed

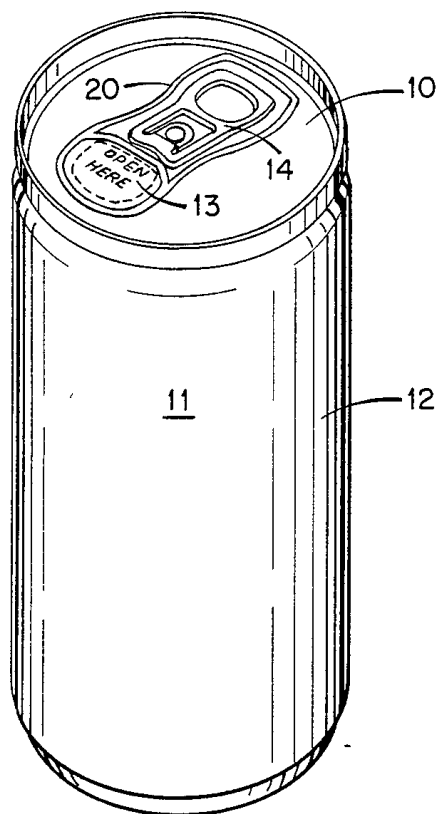
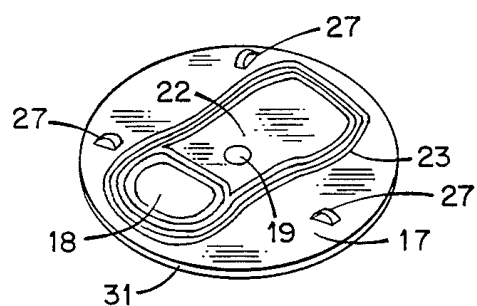
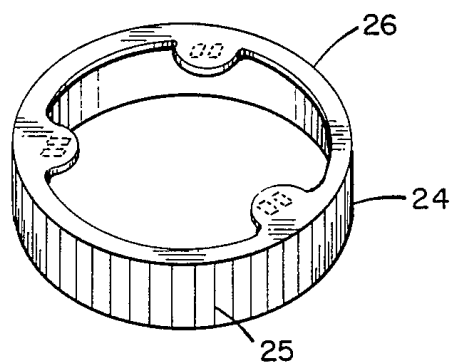
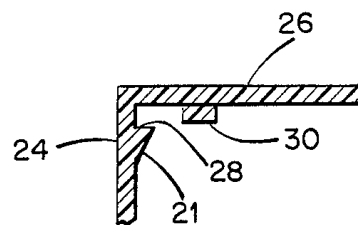
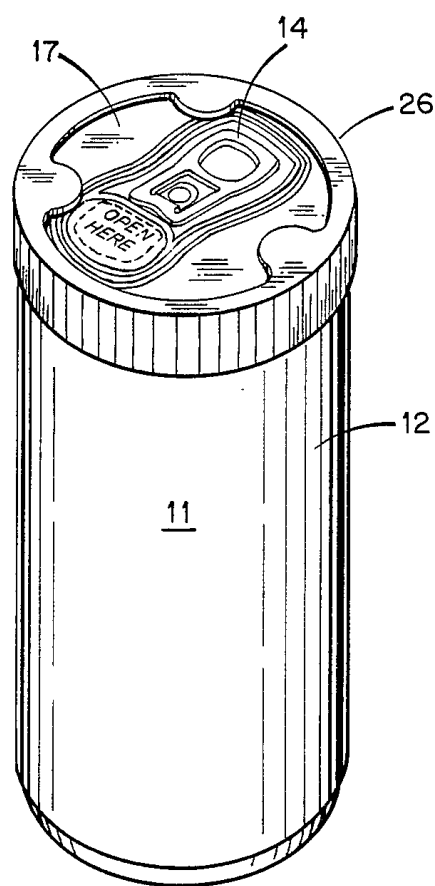
ALCOA

Family 70/100 - FAMPAT - ©Questel

Title

(EP-454889)

Resealable flip-top can and resealable flip-top.

Images*Fig. 1.**Fig. 2.**Fig. 3.**Fig. 4.**Fig. 5.*

Publication numbers with kind code & date

EP0454889	A1	1991-11-06	EP-454889
US4930654	A	1990-06-05	US4930654

**Abstract**

(EP0454889)

What is disclosed is a resealable flip-top beverage can (11) having a rotatable sealing top (17) mounted above the can top of the beverage can, and the sealing top is rotated into a first position to open a hole (15) the top of the beverage can and through which the contents of the can are dispensed, and is rotated into a second position where the sealing top seals the hole. Sealing means (20)22,23 are provided on the top of the can top and on the underside of the sealing top that cooperate to seal the beverage can. A separate actuating means (26) may be snapped onto the top of the beverage can and is coupled to the sealing top so that as the actuating means is rotated the sealing top is rotated. Alternatively, the sealing top may have a downturned, knurled edge extending over the side of the beverage can, and the edge is grasped and rotated to open and close the beverage can.

Inventors

THIBEAULT DEBORAH

THIBEAULT RICHARD

Latest standardized assignees - inventors removed

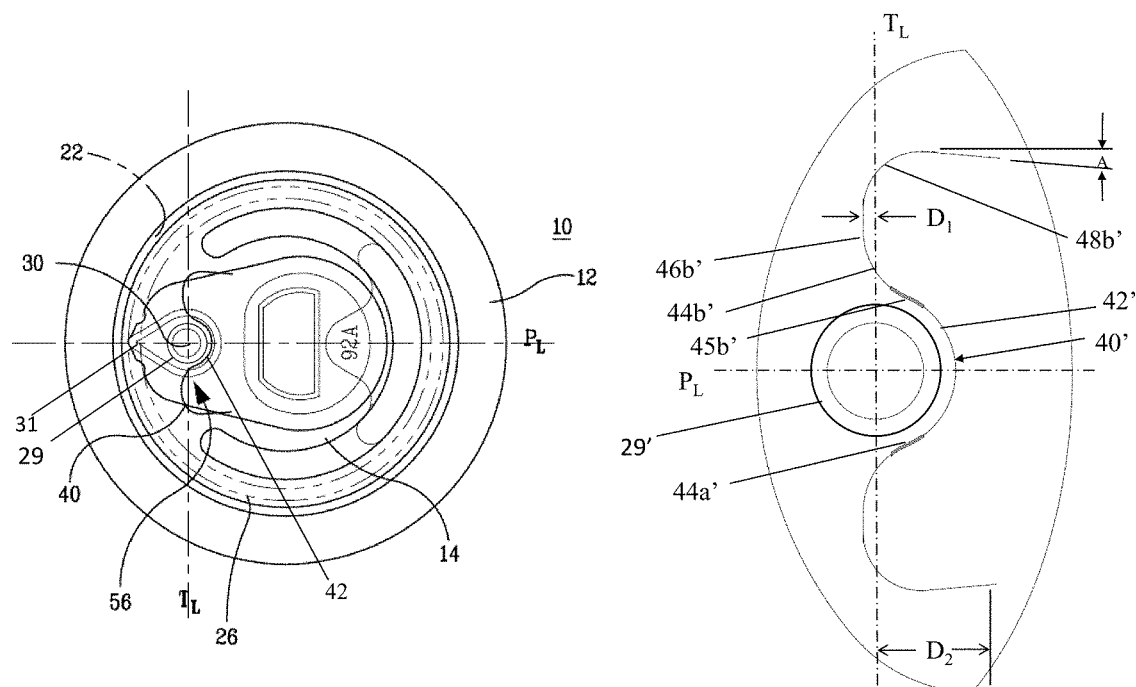
DAGIANIS JOHN J

Family 71/100 - FAMPAT - ©Questel

Title

(EP3066015)

Full aperture end

Images**Publication numbers with kind code & date**

PL3066015	T3	2019-03-29	PL3066015
JP6480927	B2	2019-03-13	JP6480927
RS57902	B1	2019-01-31	RS--57902
ES2694136	T3	2018-12-18	ES2694136
DK3066015	T3	2018-11-26	DK3066015T
TR201815565	T4	2018-11-21	TR201815565



CN105873830	B	2018-09-21	CN105873830B				
RU2666677	C2	2018-09-11	RU2666677				
EP3066015	B1	2018-08-08	EP3066015				
AU2014346528	B2	2018-05-10	AU2014346528				
RU2016122459	A	2017-12-13	RU2016122459				
TN2016000144	A1	2017-10-06	TN2016000144				
ZA201602924	B	2017-07-26	ZA201602924				
US9714114	B2	2017-07-25	US9714114				
TH160899	A	2017-03-23	TH-160899				
JP2016539866	A	2016-12-22	JP2016539866				
EP3066015	A1	2016-09-14	EP3066015				
VN48296	A	2016-08-25	VN--48296				
CN105873830	A	2016-08-17	CN105873830				
KR20160086352	A	2016-07-19	KR20160086352				
MX2016005812	A	2016-07-18	MX2016005812				
AU2014346528	A1	2016-05-19	AU2014346528				
BR112016010339	A1	2016-05-17	BR112016010339				
CA2930010	A1	2015-05-14	CA2930010				
US20150129595	A1	2015-05-14	US20150129595				
WO2015/070051	A1	2015-05-14	WO201570051				

Abstract

(EP3066015)

A full aperture unseamed can end having a vent test rating of at least 90 psi comprising a center panel (24) having an periphery and including a coined portion proximate a rivet (30), a first score (26) defining a removable panel (34), a tab (32), including a nose (31), mounted to the removable panel (34), and a second score (40) disposed on the removable panel, the second score having (i) a central portion (42) spaced apart from the coined portion; (ii) a pair of check slots (45a, 45b) disposed on either side of the central portion; (iii) a pair of lateral portions that extend from the check slots; and (iv) a pair of side portions (50a, 50b) that extend from the lateral portions, respectively.

Inventors

KITTLER MICHAEL PATRICK

CHANT GARRY RICHARD

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 72/100 - FAMPAT - ©Questel

Title

(US3291336)

Can top

Images

Fig. 1

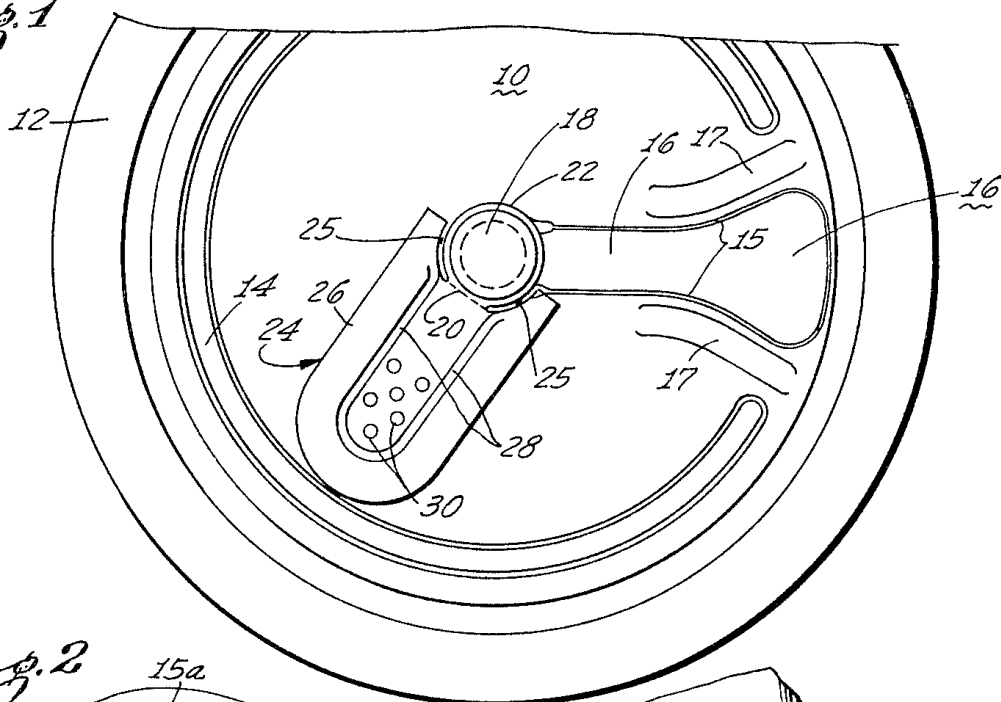


Fig. 2

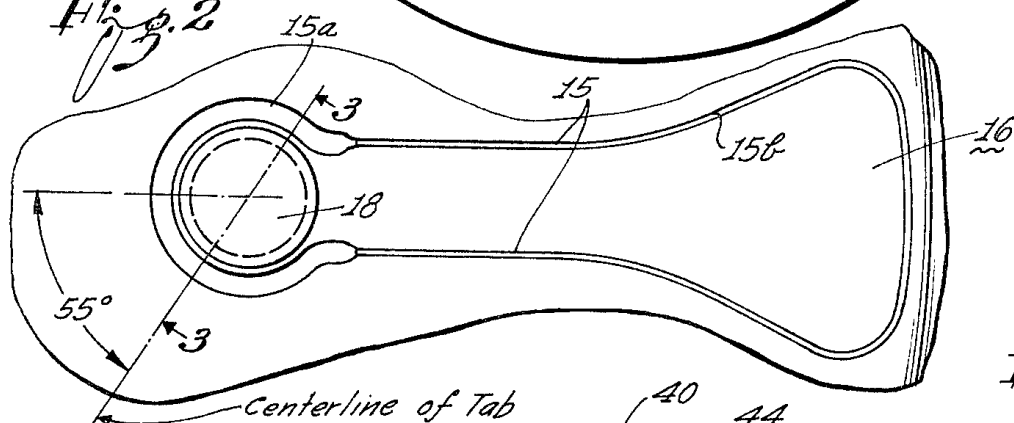


Fig. 3

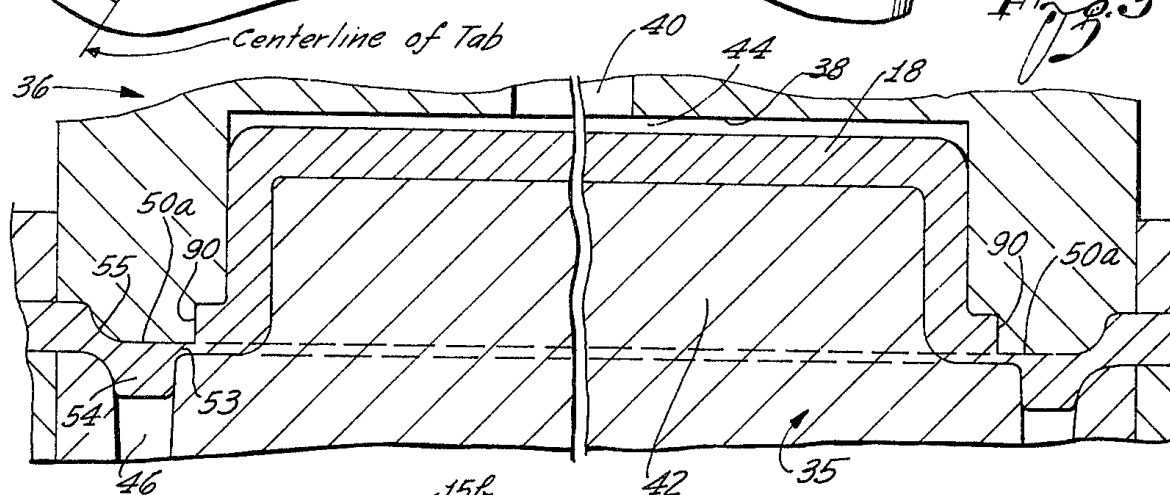
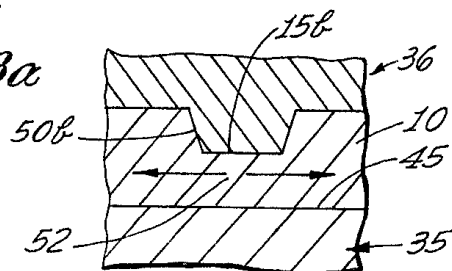


Fig. 3a



INVENTOR:
Ermal C. Frazee

By Amyth, Roston & Smith
Attorneys

Publication numbers with kind code & date

US3411470

A 1968-11-19 US3411470

US3291336

A 1966-12-13 US3291336



Inventors

FRAZE ERMAL C

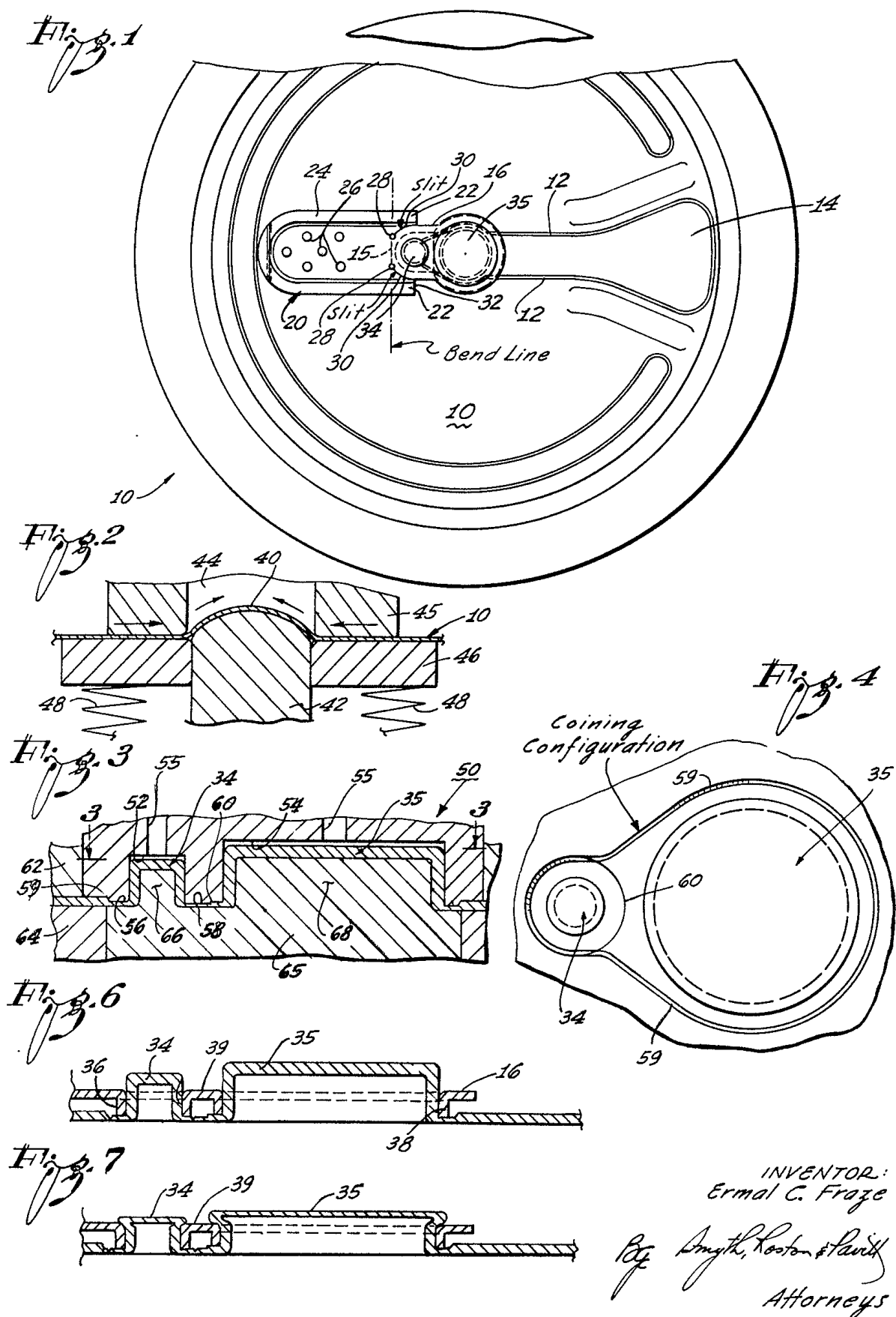
Family 73/100 - FAMPAT - ©Questel

Title

(US3326405)

Can top and method of making same

Images



Publication numbers with kind code & date[US3326405](#)

A 1967-06-20 US3326405

**Inventors**

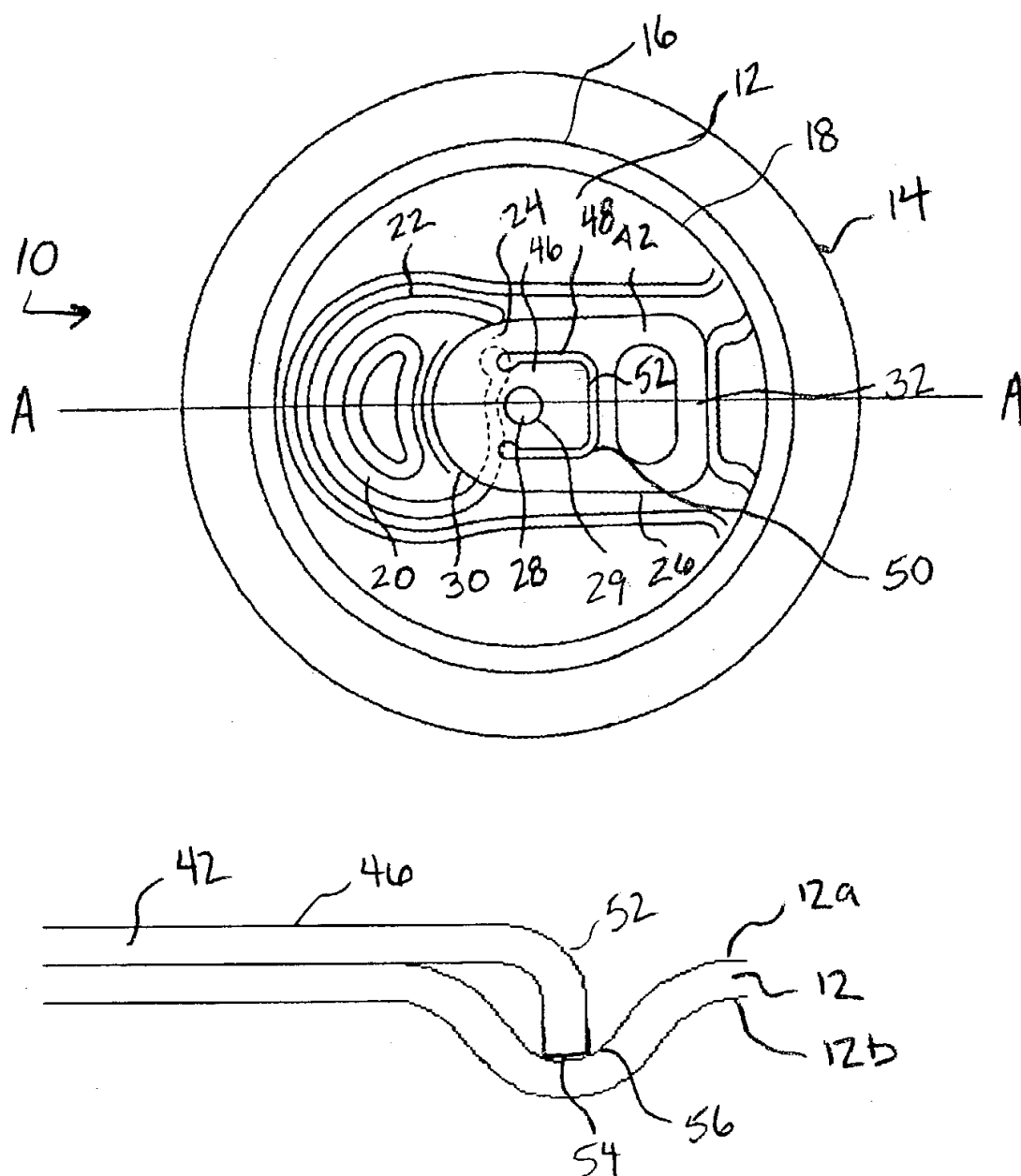
FRAZE ERMAL C

Family 74/100 - FAMPAT - ©Questel

Title

(WO200465236)

End closure with anti-rotation tab

Images**Publication numbers with kind code & date**[US6951293](#)

B2 2005-10-04 US6951293

[WO2004/065236](#)

A1 2004-08-05 WO200465236

[US20040140309](#)

A1 2004-07-22 US20040140309

**Abstract**

(WO2004/065236)

An end closure (10) for a container providing a tab (26) with increased resistance to rotation upon a rivet (28) is disclosed.

TNSN08410	A1	2010-04-14	TN0800410				
JP2010502519	A	2010-01-28	JP2010502519				
ZA200809395	B	2009-12-30	ZA200809395				
US20090179033	A1	2009-07-16	US20090179033				
CN101479159	A	2009-07-08	CN101479159				
VN20076	A	2009-06-25	VN--20076				
MA30493	B1	2009-06-01	MA--30493				
AU2007247102	A2	2009-03-19	AU2007247102				
EP2021255	A1	2009-02-11	EP2021255				
AP200804668	A0	2008-12-31	AP200804668				
AP200804668	D0	2008-12-31	AP200804668				
MX2008014334	A	2008-11-27	MX2008014334				
AR060868	A1	2008-07-16	AR--60868				
TH89797	A	2008-05-21	TH--89797				
AU2007247102	A1	2007-11-15	AU2007247102				
CA2651771	A1	2007-11-15	CA2651771				
US20070262079	A1	2007-11-15	US20070262079				
WO2007/128810	A1	2007-11-15	WO2007128810				

Abstract

(EP2021255)

An opening device of plastics material, which is suitable for closing and re-closing of a metal can end, for example. The opening device has two distinct parts: a base plate (10) and a tab (1), which are joined together by an integral rivet (14, 15). The opening device is used to close an aperture in the metal panel of a can end by fitting the base plate to the underside of the panel and connecting this to the tab on the top of the panel. A sliding action by pulling or retaining the tab actuates movement of the base plate for opening and reclosing of the closure panel.

Inventors

PARIS ALEXANDRE

RAMSEY CHRISTOPHER PAUL

LE FEUVRE MARK JAMES

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 76/100 - FAMPAT - ©Questel

Title

(US3434325)

Apparatus for the manufacture of caps from sheet material

Images

NL6515381	A	1966-05-31	NL6515381
BE672907	A	1966-05-26	BE-672907
LU49931	A1	1966-05-25	LU--49931
FR1423973	A	1966-01-07	FR1423973



Abstract

(US3434325)

1,122,197. Stamping. L.ALUMINIUM FRANCAIS. 26 Nov., 1965 [27 Nov., 1964], No. 50415/65. Heading B3Q. [Also in Division B8] Apparatus for producing caps with inwardly rolled edges for containers comprises a pair of pushers 110, 200 between which the cap is gripped and a punch 400 which forces the edges of the cap around the pusher 110 as it grips the cap and around: a toroidal forming surface 304. The caps are formed from blanks 1 and placed between spaced pushers 110, 200. The pusher 200 and the punch 400 are then in their lowest positions. The pusher 110 is lowered so that a portion 12 of the cap is held against the pusher 200 and the punch 400 is moved upwards, compressing a spring 401, and causing the pusher 200 to rise, forcing the pusher 110 up with it. The pusher 110 slides within a sleeve 120 until a stop 111 engages a stop 121. The spring 401 is stronger than a spring 122 between the sleeve 120 and a fixed shoulder 311 on a housing 300. Accordingly the pair of pushers 110, 200 and the sleeve 120 rise together until a stop 123 on the sleeve engages the fixed shoulder 311. The upward movement of the pushers 110, 200 and the sleeve 120 is then arrested. The spring 401 is compressed as the punch 400 continues to move upwards, until a stop 402 on the punch contacts the pusher 200, Fig. 5 (not shown). During this time, the punch 400 has turned down a zone 13 of the cap, Fig. 1 (not shown), against the sleeve 120 and also forced the edge of the cap to be rolled inwards against the toroidal surface 304 of a fixed guide member 302, to form a rolled edge (24), Fig. 3 (not shown). The cap is then complete. The proceedings are then reversed, the punch 400 being withdrawn, first by decompression of the spring 401, until the pushers 200, 110 are returned to their initial position, Fig. 6 (not shown). The completed cap can then be removed and a further blank inserted between the pushers 110, 200. The sleeve 120 can be arranged with respect to the pusher 110 to have a recess 125, Fig. 6 (not shown), so that an S-shaped zone 25, Figs. 10-13 (not shown), is formed in the cap. In a diagrammatic illustration of the apparatus, Figs. 1, 2 (not shown), a fixed guide member (300) contains a toroidal surface (304) which forms the inwardly rolled portion of the cap. The pushers (100), (200) and the punch (400) act similarly to the pushers 110, 200 and the punch 400 described above. The guide (300) may be in two parts (301), (300) with the portion (301) secured to the punch 400. The pushers 100, 200 may be of any desired shape, and may carry advertising for imprinting on the cap. The punch 400 may have incisions (404), Fig. 7, 8 (not shown), on its upper edges in order to form serrations on the cap.

(From GB1122197 A)

Inventors

PODESTA ARMANDO

VIGNATI CARLO

BEREZIAT ANDRE

Latest standardized assignees - inventors removed

ALUMINIUM FRANCAIS

Family 77/100 - FAMPAT - ©Questel

Title

(EP2969799)

End closure with tab guidance features

Images

BR9916803	A	2001-10-23	BR9916803
US6260728	B1	2001-07-17	US6260728
US6129230	A	2000-10-10	US6129230
AU4311599	A	2000-07-12	AU9943115
WO00/37323	A1	2000-06-29	WO200037323

**Abstract**

(EP1165384)

A stay-on-tab container end (10) having a panel wall (12) with a tab (42) attached by a rivet (44) and having a tear panel (20). The tear panel (20) being defined by a frangible score (22) with a first end (28) and a second end (30) and a non-frangible hinge segment (26). A second groove (24) is formed in the panel wall with a tail portion (25) extending from the tear panel through the hinge segment (26). The second groove tail portion (25) has a reduced residual differential compared to the frangible score residual (38). Also, the tail portion (25) includes a curved terminal end (60) that partially surrounds the second end (30) of the score.

Inventors

TURNER TIMOTHY L

FORREST RANDALL G

Latest standardized assignees - inventors removed

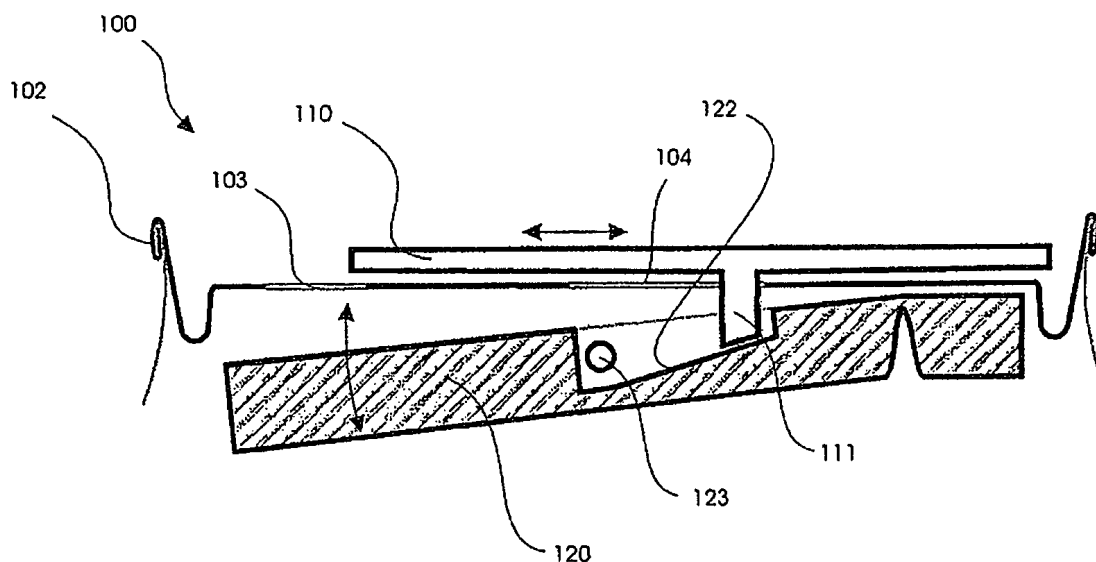
REXAM BEVERAGE CAN

Family 79/100 - FAMPAT - ©Questel

Title

(EP2475583)

Container lid having a pressure equalizing device

Images**Publication numbers with kind code & date**

BR112012005052	A2	2016-05-03	BR112012005052
BR112012005053	A2	2016-05-03	BR112012005053
CA2772798	C	2016-03-15	CA2772798
ES2553863	T3	2015-12-14	ES2553863
EP2475587	B1	2015-11-04	EP2475587
IN1500DEN2012	A	2015-06-05	IN2012DN01500
IN1635DEN2012	A	2015-06-05	IN2012DN01635
CN102574617	B	2015-01-14	CN102574617B



CN102574616	B	2014-09-24	CN102574616B				
US8794469	B2	2014-08-05	US8794469				
KR101406056	B1	2014-06-11	KR101406056				
AU2010291112	B2	2014-04-17	AU2010291112				
RU2511325	C2	2014-04-10	RU2511325				
KR101372969	B1	2014-03-13	KR101372969				
ES2445025	T3	2014-02-27	ES2445025				
JP5449557	B2	2014-01-10	JP5449557				
JP5449558	B2	2014-01-10	JP5449558				
RU2503602	C2	2014-01-10	RU2503602				
AU2010291114	B2	2013-12-05	AU2010291114				
EP2475583	B1	2013-11-06	EP2475583				
RU2012113564	A	2013-10-20	RU2012113564				
RU2012113742	A	2013-10-20	RU2012113742				
TH121545	A	2013-02-28	TH-121545				
TH121546	A	2013-02-28	TH-121546				
JP2013503791	A	2013-02-04	JP2013503791				
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BR112012005052	A1	2012-11-06	BR112012005052				
BR112012005053	A1	2012-11-06	BR112012005053				
EP2475583	A1	2012-07-18	EP2475583				
EP2475587	A1	2012-07-18	EP2475587				
CN102574616	A	2012-07-11	CN102574616				
CN102574617	A	2012-07-11	CN102574617				
US20120152949	A1	2012-06-21	US20120152949				
US20120145712	A1	2012-06-14	US20120145712				
KR20120058607	A	2012-06-07	KR20120058607				
KR20120046794	A	2012-05-10	KR20120046794				
MX2012002790	A	2012-04-19	MX2012002790				
MX2012002764	A	2012-04-10	MX2012002764				
AU2010291112	A1	2012-03-22	AU2010291112				
AU2010291114	A1	2012-03-15	AU2010291114				
AT508717	B1	2011-06-15	AT-508717				
AT508717	A1	2011-03-15	AT-508717				
CA2772717	A1	2011-03-10	CA2772717				
CA2772798	A1	2011-03-10	CA2772798				
WO2011/026991	A1	2011-03-10	WO201126991				
WO2011/026993	A1	2011-03-10	WO201126993				

Abstract

(EP2475583)

The invention relates to a lid (100) of a container, in particular a beverage can, comprising a pouring opening (103), which can be closed by means of a closure element (120) arranged in the region of the underside of the lid (100) facing the container inside, which element can be moved from a closed position into an open position by way of an actuating element (110). A pressure equalizing device interacts with the at least one actuating element (110), and the at least one pressure equalizing device comprises at least one closing element (112, 113). When the actuating element (110) is in the closed position, a pressure equalizing opening (123) can be closed by means of the closing element (112, 113, 124) and can be entirely reversibly exposed when moving the actuating element (110) from the closed position into the open position.

Inventors

BRATSCH CHRISTIAN

Latest standardized assignees - inventors removed

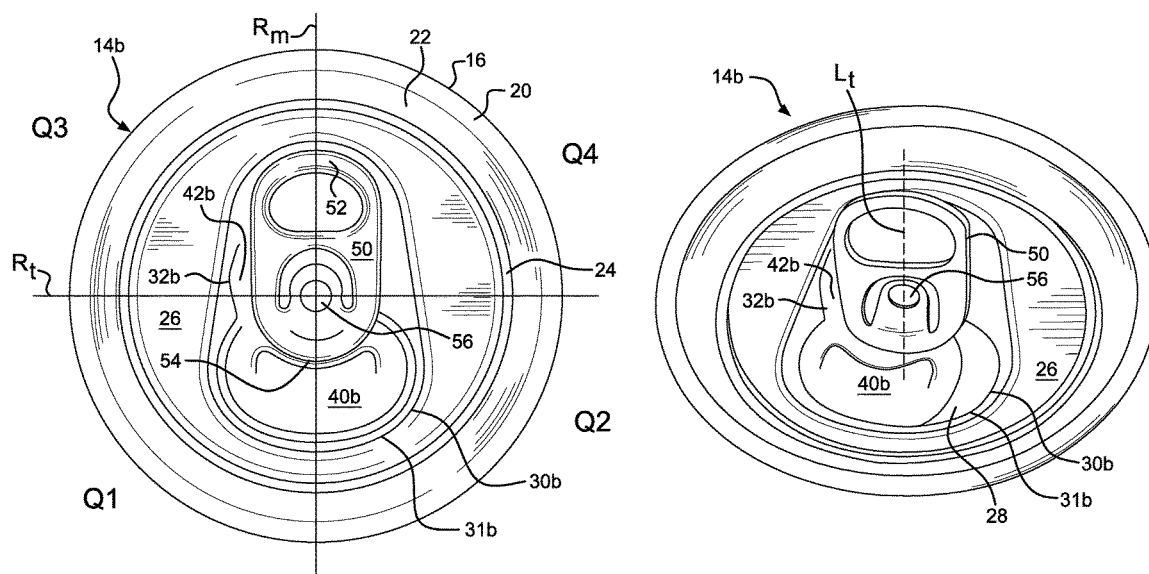
XOLUTION

Family 80/100 - FAMPAT - ©Questel

Title

(EP2493776)

Vented beverage can end

Images**Publication numbers with kind code & date**

JO3303	B1	2018-09-16	JO---3303
ES2645111	T3	2017-12-04	ES2645111
PL2493776	T3	2017-11-30	PL2493776
CA2777915	C	2017-11-07	CA2777915
EP2493776	B1	2017-08-02	EP2493776
US9561888	B2	2017-02-07	US9561888
BR112012010300	A2	2016-03-29	BR112012010300
BR112012010300	A1	2014-01-07	BR112012010300
US20130126529	A1	2013-05-23	US20130126529
EP2493776	A1	2012-09-05	EP2493776
USD650276	S1	2011-12-13	USD650276
USD650277	S1	2011-12-13	USD650277
USD650278	S1	2011-12-13	USD650278
CA2777915	A1	2011-05-05	CA2777915
WO2011/053776	A1	2011-05-05	WO201153776

**Abstract**

(EP2493776)

A beverage can end for seaming onto a can body may include a peripheral wall, a center panel, a tab attached to the center panel by a rivet (56), a tear panel (41b), a main reference line (RM), a transverse reference line (RT), and a score (31b). The score may include arcuate main score (31b) that defines a main portion of the tear panel (41b) and a score extension (32b) that defines a vent portion. The score may be configured such that actuation of the tab from its horizontal rest position to an intermediate position ruptures the main score portion (31b) to pivot the tear panel main portion (40b) about the hinge and further actuation of the tab by twisting from the intermediate position ruptures the score extension (32b).

Inventors

NESLING EMILY

JOHNSON EZEKIEL

KEANE BRENDAN

DVORAK JAN

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 81/100 - FAMPAT - ©Questel

Title

(EP2908964)

End closure with coined panel radius and reform step

Images**Publication numbers with kind code & date**

JP6320398	B2	2018-05-09	JP6320398
US20180050379	A1	2018-02-22	US20180050379
CN104822472	B	2017-06-16	CN104822472B
EP2908964	A4	2016-06-22	EP2908964
JP2015533345	A	2015-11-24	JP2015533345
EP2908964	A1	2015-08-26	EP2908964
CN104822472	A	2015-08-05	CN104822472
US20140110408	A1	2014-04-24	US20140110408
WO2014/062873	A1	2014-04-24	WO201462873

**Abstract**

(EP2908964)

A method of forming a can end shell is provided which includes providing a can end shell having a central panel portion, a first panel radius around the central panel portion, a chamfer extending from the first panel radius, and a second panel radius around the chamfer, coining the can end shell to form a coined section in the first panel radius around at least a

[EP2240375](#)

A1 2010-10-20 EP2240375

[WO2009/095672](#)

A1 2009-08-06 WO200995672

[EP2085319](#)

A1 2009-08-05 EP2085319

**Abstract**

(EP2085319)

A can end (10) having an end panel (12), an openable non-removable panel (15) defined by a score line (14) in the end panel (12) and a non-removable tab (13) attached to the end for acting on the openable panel (15) to cause it to pivot out of the plane of the end panel (12) to provide an opening, the opening being generally oblate with its minor axis passing through the tab characterised in that the ratio of the dimension of the opening on its major axis to the dimension of the opening on its minor axis is greater than 1.7 and the opening area is greater than 350mm².

Inventors

THIBAUT MICHEL

CANDILLON STEPHANE

ROHR RAINER

Latest standardized assignees - inventors removed

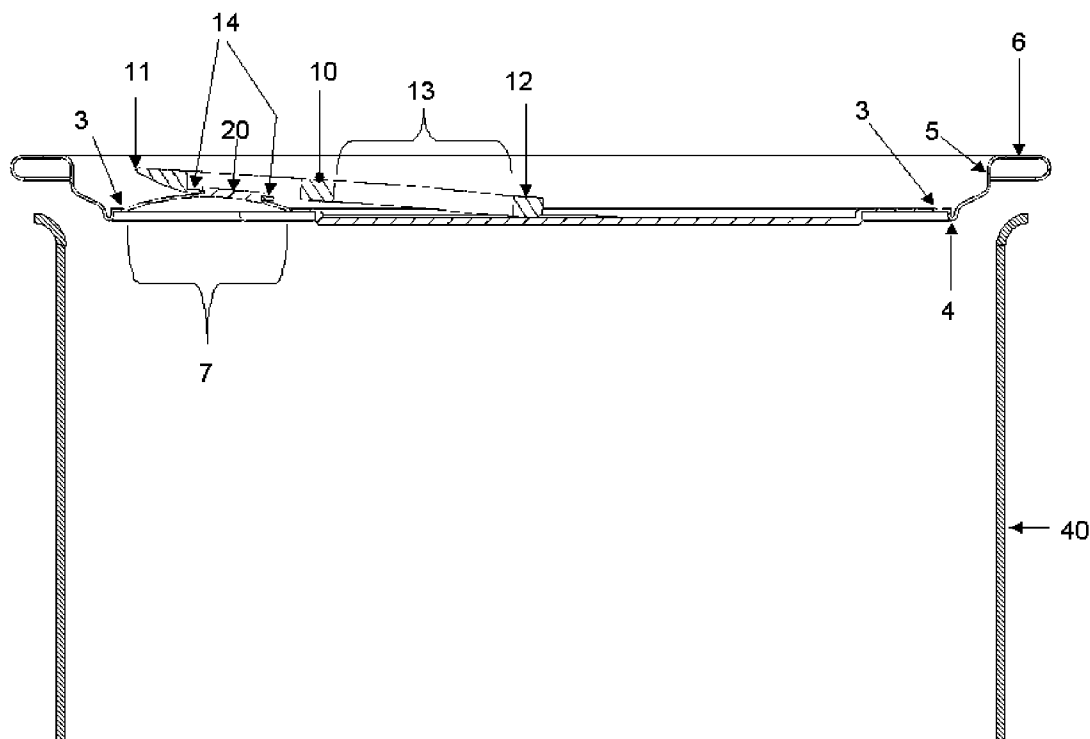
REXAM BEVERAGE CAN EUROPE

Family 83/100 - FAMPAT - ©Questel

Title

(EP2253552)

Can end

Images**Publication numbers with kind code & date**[BRPI1015397](#)

A2 2016-04-19 BR201015397

[TH141513](#)

A 2015-06-29 TH-141513

[JP5727461](#)

B2 2015-04-10 JP5727461

[US8998015](#)

B2 2015-04-07 US8998015

[CN102428010](#)

B 2014-02-26 CN102428010B



ES2411463	T3	2013-07-05	ES2411463				
EP2421763	B1	2013-04-03	EP2421763				
BRPI1015397	A1	2012-12-04	BR201015397				
JP2012524699	A	2012-10-18	JP2012524699				
CN102428010	A	2012-04-25	CN102428010				
CO6400130	A2	2012-03-15	CO6400130				
EP2421763	A1	2012-02-29	EP2421763				
US20120043325	A1	2012-02-23	US20120043325				
EP2253552	A1	2010-11-24	EP2253552				
WO2010/122111	A1	2010-10-28	WO2010122111				

Abstract

(EP2253552)

The invention is an easily openable can end (1) which provides an improved way of providing finger access under the tab for a consumer. A can end is disclosed having an end panel (2), the end panel including a moveable portion (7) on which the tab is mounted. Finger access is provided by the moveable portion being moveable from a predetermined first state to a predetermined second state to thereby displace the handle of the tab away from the end panel and define a gap between the handle of the tab and the end panel suitable for finger access by a user.

Inventors

KEANE BRENDAN

FIELDS BRIAN

WILLIAMS ANDREW RICHARD

Latest standardized assignees - inventors removed

CROWN PACKAGING

Family 84/100 - FAMPAT - ©Questel

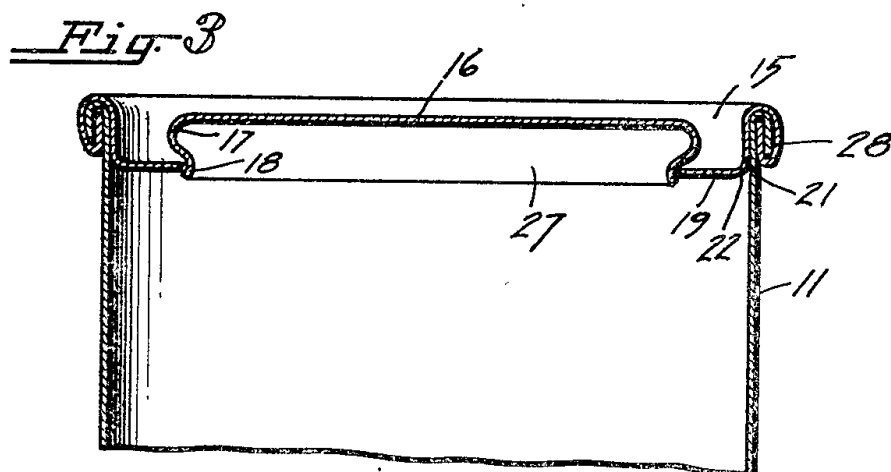
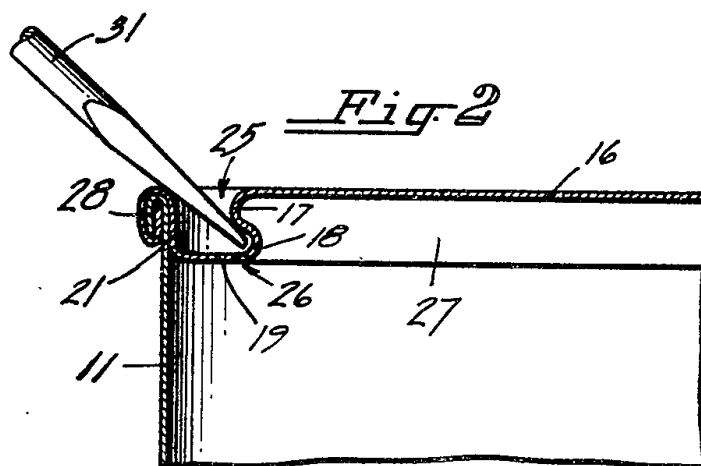
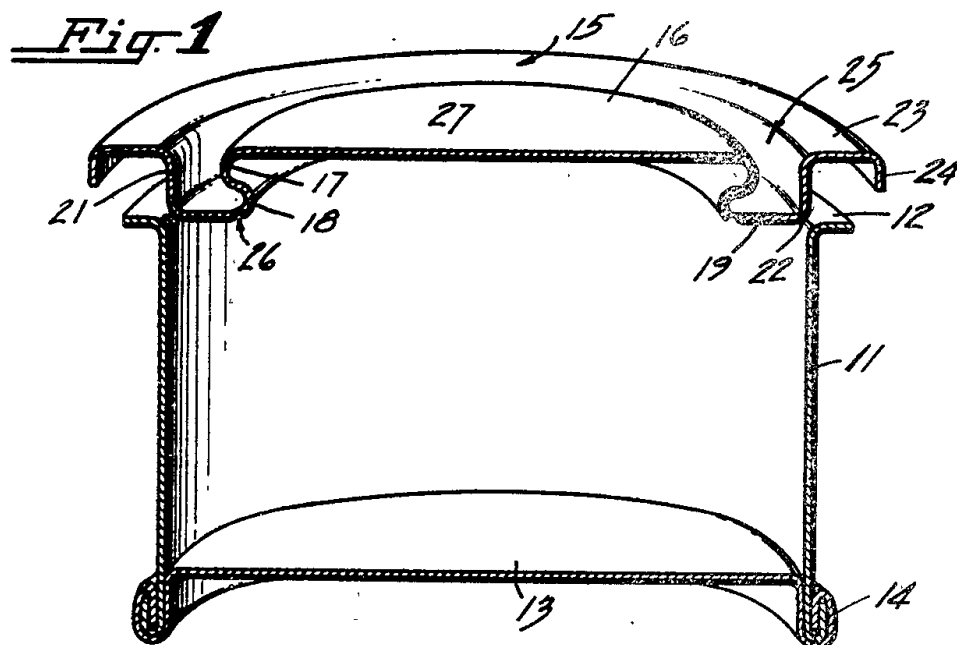
Title

(US2004946)

Container

Images

Original Filed Aug. 22, 1931



INVENTOR
John W. Hottel
 BY *Dean D. Thompson*
Charles H. Eyer
 ATTORNEYS

Publication numbers with kind code & date

US2017460

A 1935-10-15 US2017460

US2004946

A 1935-06-18 US2004946



Inventors

HOTHERSALL JOHN M

Latest standardized assignees - inventors removed

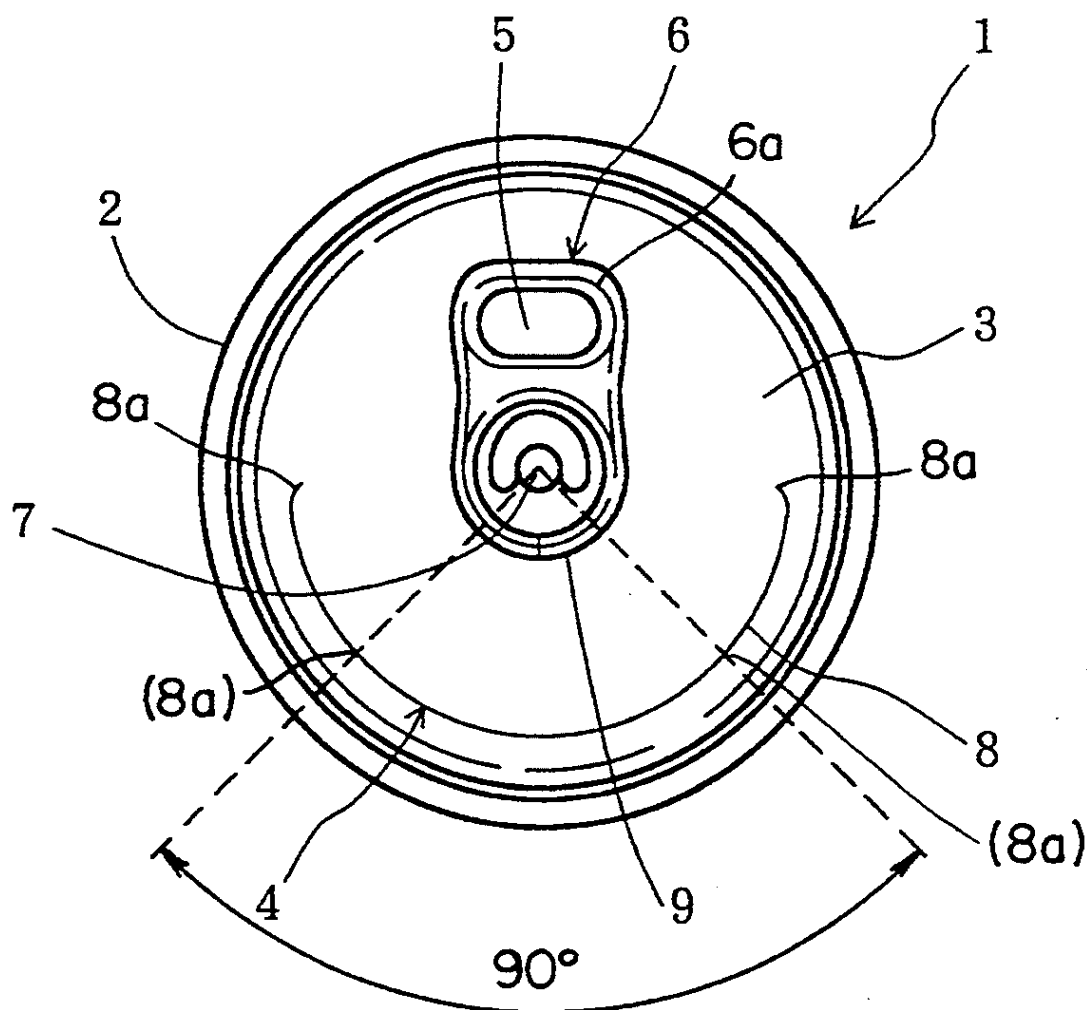
AMERICAN CAN

Family 85/100 - FAMPAT - ©Questel

Title

(US5405039)

Can for beverage

Images**Publication numbers with kind code & date**

JP2607100	Y2	2001-03-19	JP2607100Y
US5405039	A	1995-04-11	US5405039
JP6035125	U	1994-05-10	JP06035125U

**Abstract**

(US5405039)

A can for containing a beverage has a cylindrical body, a top lid for forming an opening through which the beverage can be drunk from the can, a small tab having a finger-receiving hole staked to a central portion of the top lid with a staking member, and a line of weakness defining the opening. This line is in the form of a segment of a circle centered about the staking member. This segment is between an approximately semicircular segment and a 90 degree segment.

Inventors

KOMURA MASAHIRO

Latest standardized assignees - inventors removed

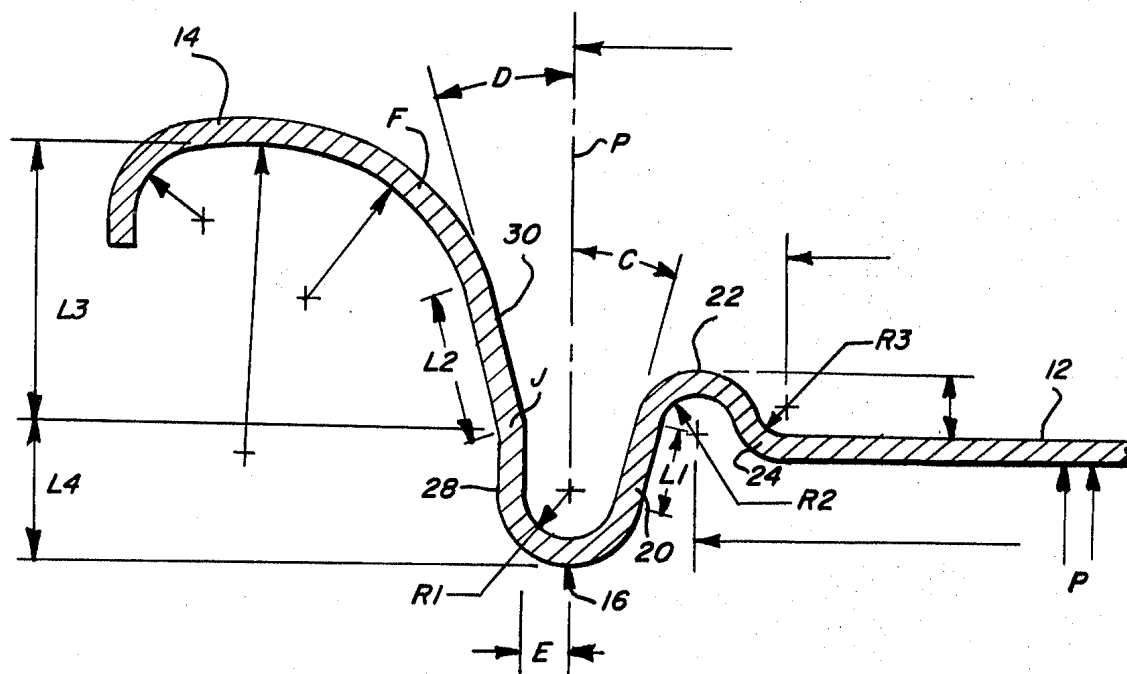
KOMURA

Family 86/100 - FAMPAT - ©Questel

Title

(US4093102)

End panel for containers

Images**Publication numbers with kind code & date**

US4093102	A	1978-06-06	US4093102
JPS5146272	A	1976-04-20	JP51046272

**Abstract**

(US4093102)

An end panel for a container is specifically configured to be able to substantially reduce the metal thickness without sacrificing resistance to bulging and buckling of the panel when subjected to high internal pressures. The end panel consists of a central portion that has an outwardly directed annular bead around the periphery thereof which is connected to a countersink or inwardly directed bead along a flat first wall portion. The outer end of the countersink or inwardly directed bead has a second flat wall portion, the outer end of which is connected to a peripheral curl by a third flat wall portion and the curl is adapted for seaming the end panel to a container body. The first and third flat wall portions of the panel define small acute angles with respect to a vertical plane that extends perpendicular to the central panel portion while the second flat wall portion defines an angle of less than 4.degree. with respect to the vertical plane.

Inventors

KRASKA JOHN L

Latest standardized assignees - inventors removed

AMERICAN NATIONAL CAN CHICAGO

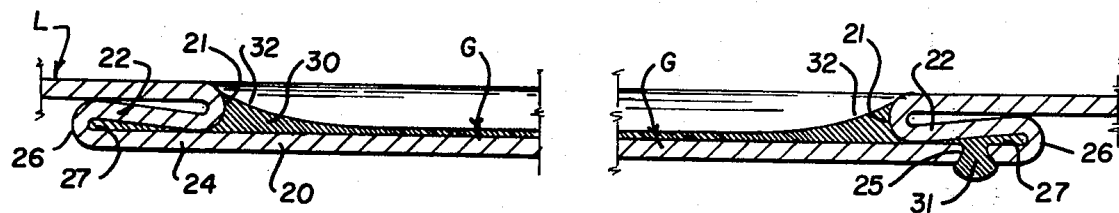
Family 87/100 - FAMPAT - ©Questel

Title

(US3905513)

Sealant for pushdown gate in a can lid

Images

**Publication numbers with kind code & date**

US3980200	A	1976-09-14	US3980200
US3905513	A	1975-09-16	US3905513

**Abstract**

(US3905513)

A sealing arrangement for a pushdown gate in a can lid of the type where the gate is defined by a score line in the face of the lid which is torn and severed when the gate is pushed into the can. This score line outline of the gate is located in an indentation in the surface of the can and at one point, the score line is lanced to facilitate its tearing action. The gate structure in the can lid further includes a lapping portion between the gate itself and the can lid, either with the gate underlying an aperture in the lid or forming an underlying tab which surrounds the lanced opening. A settable sealer-filler may be applied to the lid at the indentation as a liquid to flow between the lap and into the lanced opening. Thereafter, when the sealer-filler sets, it will effectively harden to produce a positive seal at the lanced opening.

Inventors

KLEIN GERALD B

Family 88/100 - FAMPAT - ©Questel

Title

(EP2888172)

Easy pour spout

Images

Latest standardized assignees - inventors removed

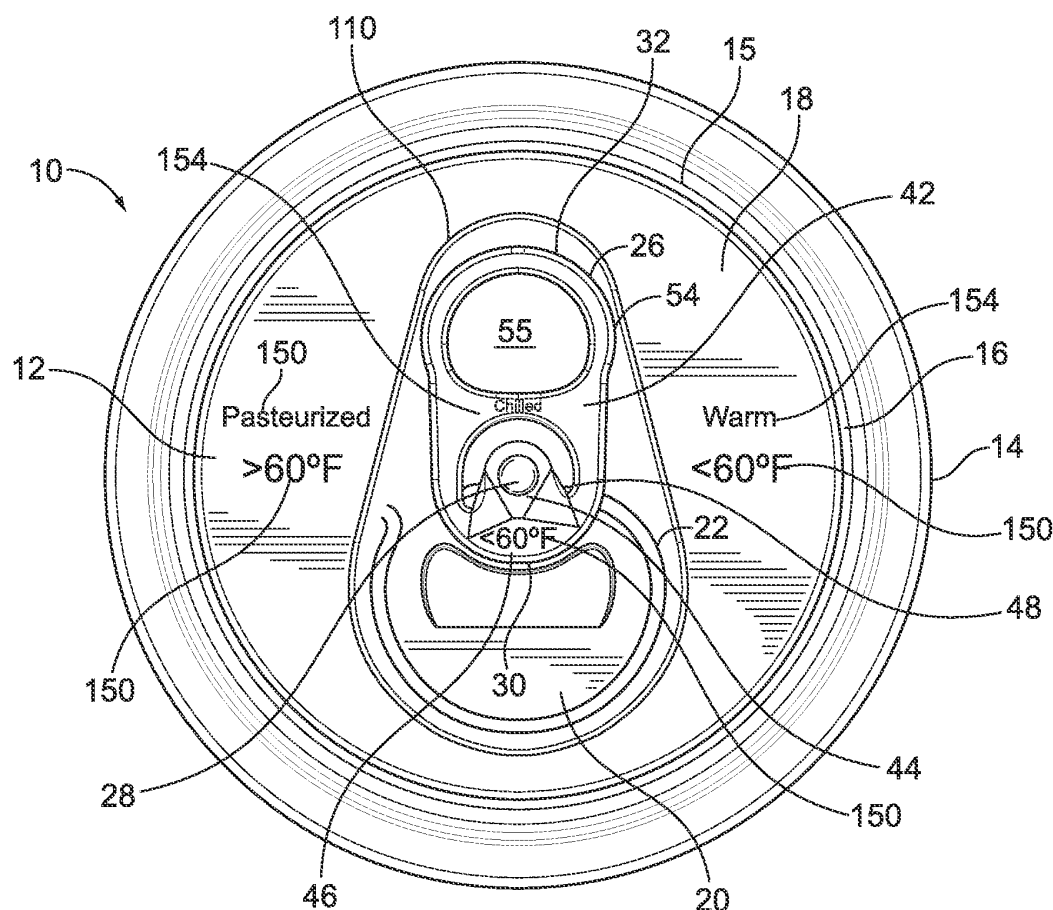
STOLLE MACHINERY

Family 89/100 - FAMPAT - ©Questel

Title

(WO2011115815)

Ornamental and temperature indicating can ends and tabs

Images**Publication numbers with kind code & date**

US8844747	B2	2014-09-30	US8844747
US20110226636	A1	2011-09-22	US20110226636
WO2011/115815	A1	2011-09-22	WO2011115815

**Abstract**

(WO2011/115815)

A metallic can end 10 for a container is described. A center panel 12 of the metallic can end 10 has a product side and a public side. A non-detachable tab 26 is staked to the center panel 12 by a rivet 28. The non-detachable tab 26 has a nose end 30 extending over a portion of a tear panel 20, a lift end 32 opposite the nose end 30, and a central webbing between the nose 30 and lift 32 ends. The webbing has a hinge region and a rivet island surrounding the rivet 28. The rivet island is at least partially surrounded by a first void region to provide a first exposed area of the center panel. A first temperature indicator 150 located on the non-detachable tab 26 has a first thermochromic material which undergoes a color change upon reaching a first predetermined temperature.

Inventors

PETTI MICHAEL A

WENCKUS TIMOTHY

Latest standardized assignees - inventors removed

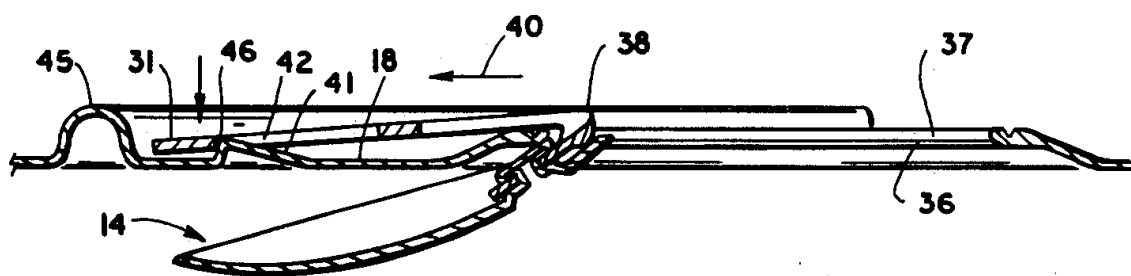
REXAM BEVERAGE CAN

Family 90/100 - FAMPAT - ©Questel

Title

(US4039100)

Container having non-removable opening member with attached opening lever

Images**Publication numbers with kind code & date**[US4039100](#)

A

1977-08-02

US4039100

**Abstract**

(US4039100)

Easy-opening container wall structure having a non-removable and selectively separable openable member to which is attached an opening tab member. A portion of the opening tab member can be manually displaced outwardly from the container wall, thereby forcing another portion of the opening tab member against the container wall to initiate separation of the openable member. The opening tab member thereafter transmits inwardly-directed manual pressure to complete separation of the openable member, and to retain the opening tab member from unrestricted movement into the container. The periphery of the separated openable member co-acts with the periphery of the opening in the container wall to retain the separated openable member on the container.

Inventors

WELLS ROBERT A

Latest standardized assignees - inventors removed

WELLS VERA T

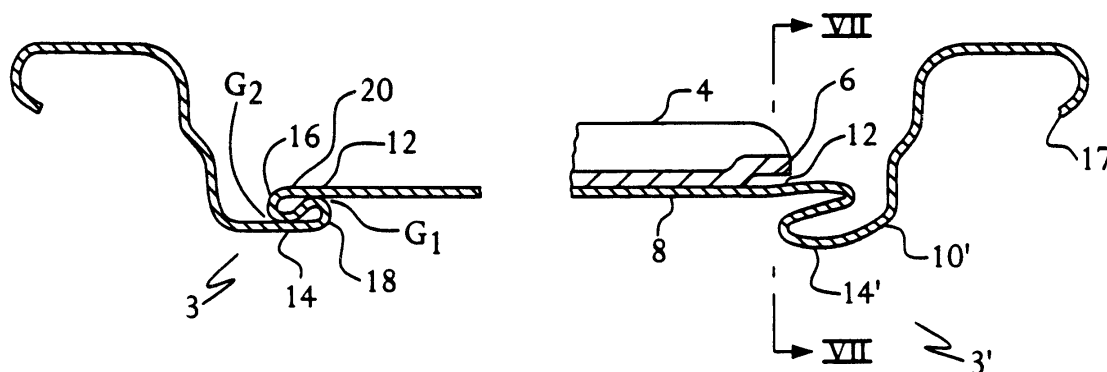
Family 91/100 - FAMPAT - ©Questel

Title

(EP1214251)

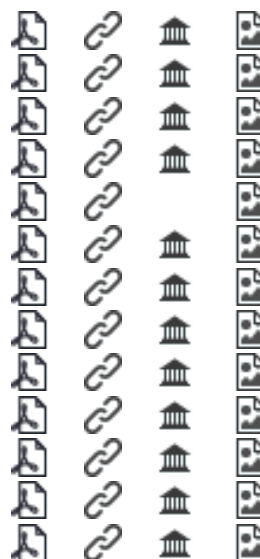
Safety container end having improved opening characteristics

Images



Publication numbers with kind code & date

JP4624620	B2	2010-11-12	JP4624620
ES2228535	T3	2005-04-16	ES2228535
DE60013862	T2	2005-01-27	DE60013862
DE60013862	D1	2004-10-21	DE60013862
AT276147	T	2004-10-15	ATE276147
EP1214251	B1	2004-09-15	EP1214251
US6685417	B2	2004-02-03	US6685417
JP2003509306	A	2003-03-11	JP2003509306
US20020172578	A1	2002-11-21	US20020172578
EP1214251	A1	2002-06-19	EP1214251
US6401956	B1	2002-06-11	US6401956
AU5164800	A	2001-04-24	AU200051648
WO01/21493	A1	2001-03-29	WO200121493



Abstract

(EP1214251)

An easy open safety end (2) having a central portion (8) and a rim portion (10) separated by a score line (12). A tab (4) applies a force to the end adjacent the score line so as to shear the score line at opening. A circumferentially extending fold (14) is formed in either the central portion or the rim portion, or both, to protect the user from being cut by the sharp edge the results upon shearing the score line. A first circumferential portion of the fold (W1) is tight, whereas a second portion (W1), which is preferably proximate the tab is loose. The fold is displaced below a portion of the end adjacent the score line by a circumferentially extending gap (G1). In the tight portion of the fold, the width of the gap is less than the thickness of the end, and preferably less than one half the thickness, whereas in the loose portion of the fold, the width of the gap is greater than the thickness of the end, and is preferably at least twice the thickness of the end.

Inventors

HEINCKE PAUL R

KIRK WILLIAM A

Latest standardized assignees - inventors removed

DEUTSCHE BANK

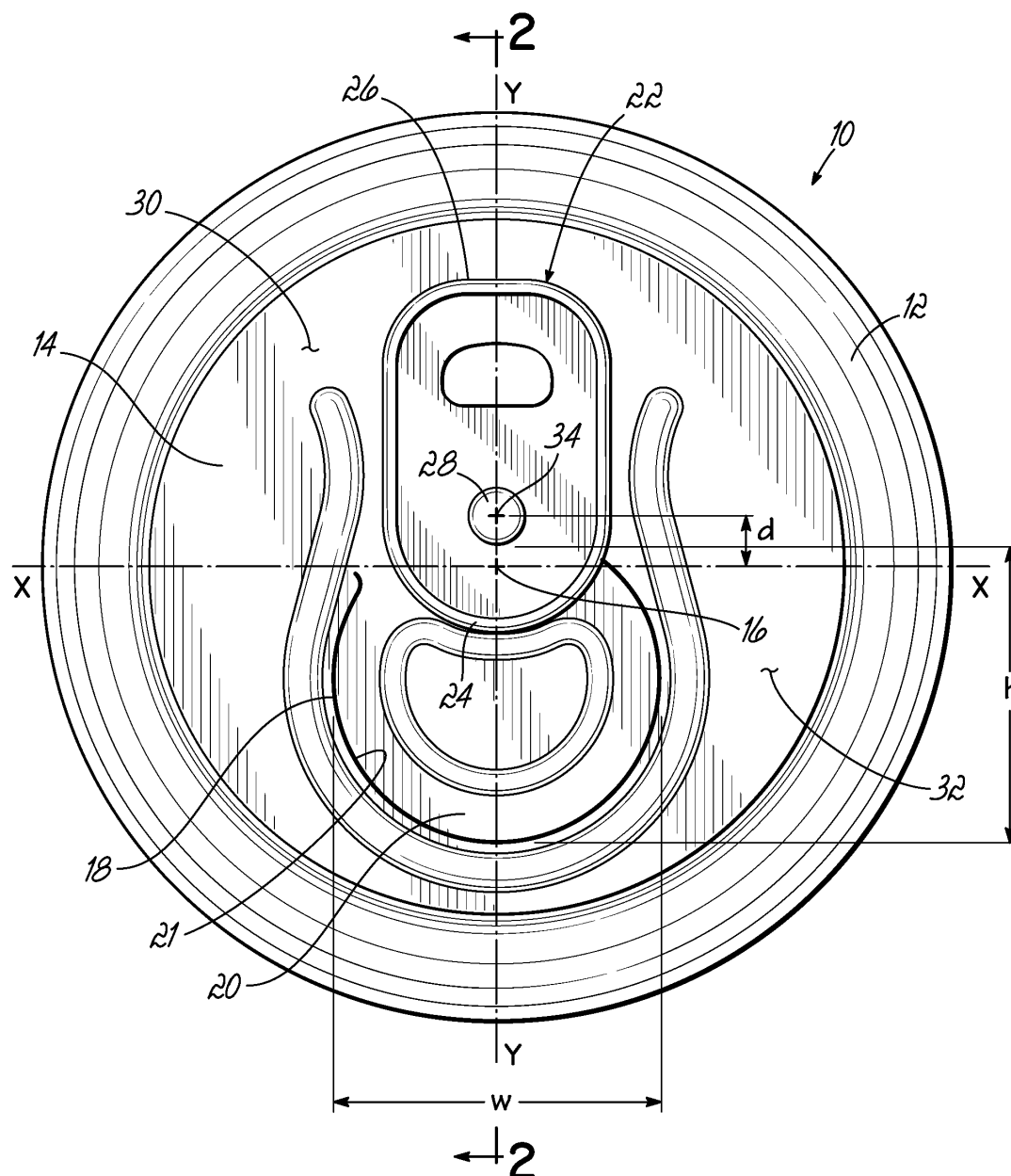
Family 92/100 - FAMPAT - ©Questel

Title

(EP2557051)

Can end

Images



Publication numbers with kind code & date

CN102951343	A	2013-03-06	CN102951343
US20130037542	A1	2013-02-14	US20130037542
EP2557051	A1	2013-02-13	EP2557051



Abstract

(EP2557051)

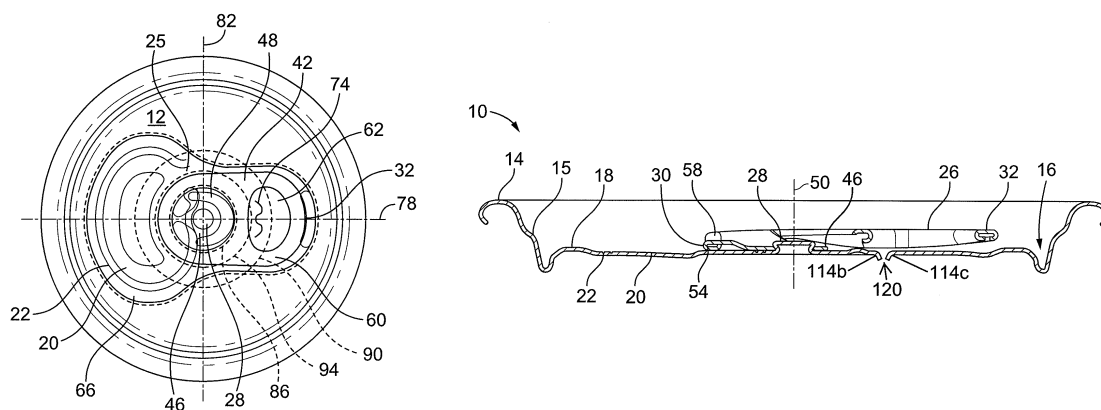
A can end (10) comprises a center panel (14) having a diameter, a geometric center (16) lying on a transverse axis of symmetry (X-X) of the center panel (14), a score line (18) defining a periphery of a tear panel (20), a lift tab (22), and a rivet (28) attaching the lift tab (22) to the center panel (14) and permitting a nose portion (24) and lift (26) portion of the lift tab (22) to pivot out of the plane of the center panel (14), the rivet (28) located on a first side (30) of the transverse axis of symmetry (X-X) and the tear panel (20) located substantially on a second side (31) of the transverse axis of symmetry (X-X) opposite the first side (30).

Inventors

CROTHERS THOMAS GLENN

Latest standardized assignees - inventors removed

DRT MANUFACTURING



Publication numbers with kind code & date

EP3248897	B1	2019-05-08	EP3248897
PL2969797	T3	2018-02-28	PL2969797
EP3248897	A1	2017-11-29	EP3248897
ES2644356	T3	2017-11-28	ES2644356
EP2969797	B1	2017-07-19	EP2969797
BR112015021412	A2	2017-07-18	BR112015021412
EP2969797	A1	2016-01-20	EP2969797
BR112015021412	A1	2015-12-15	BR112015021412
US9181007	B2	2015-11-10	US9181007
WO2014/165209	A1	2014-10-09	WO2014165209
US20140263320	A1	2014-09-18	US20140263320



Abstract

(EP2969797)

A can end (10) for a beverage container has a center panel (12) with a stay-on tab opening system. A tear panel (20) is defined by a first frangible score (22) and a non-frangible hinge segment (25). A tab (26) is attached to the center panel by a rivet (28). The tab has a void region (48) partially surrounding a rivet island (46). A first circle (86) has a first center point located at a center of the rivet (28) and a first radius equal to a distance from the center of the rivet (28) to a radially outermost point of the void region (48) on a first axis (78) running through the nose (30) and lift ends (32) of the tab (26) and a center of the rivet (28). A second circle (90) has a coincident center and a second radius less than 2.5 times the first radius. A second frangible score (74, 174) is spaced completely radially outwardly from the rivet island (46) and between the first and second circles (86, 90).

Inventors

FORREST RANDALL
GOGOLA MICHAEL
SIEGAL DEREK

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN

Family 95/100 - FAMPAT - ©Questel

Title

(EP--88968)

A method for further forming a metal closure and a metal container end

Images

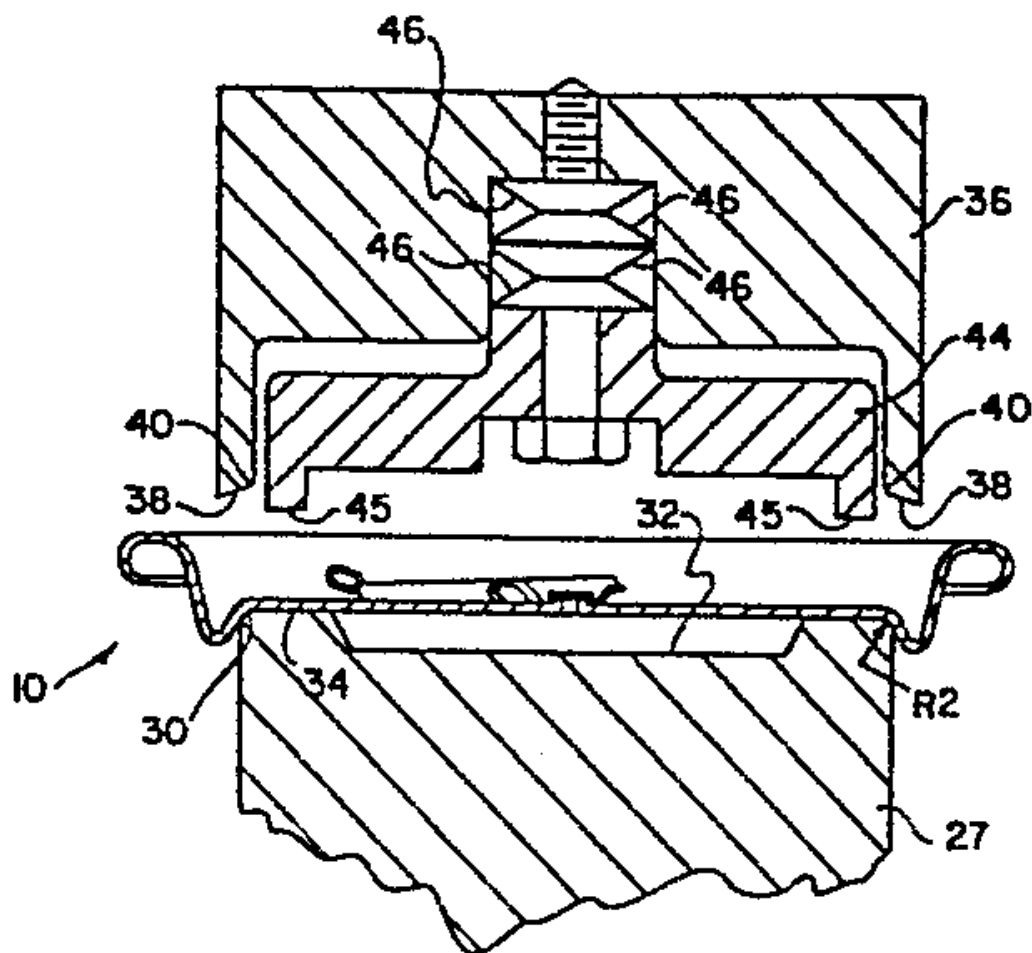
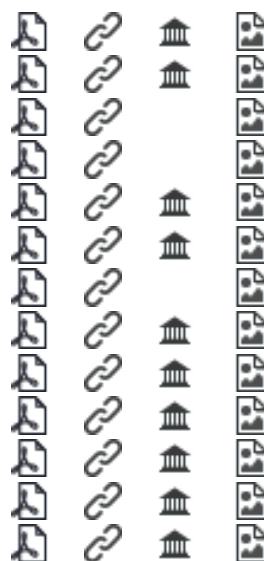


FIG. 3.

Publication numbers with kind code & date

JP1764163	C	1993-05-28	JP1764163
JPH0446817	B2	1992-07-31	JP92046817
HK55591	A	1991-07-26	HK9100555
MX157372	A	1988-11-18	MX-157372
AU569465	B2	1988-02-04	AU-569465
DE3364601	D1	1986-08-28	DE3364601
AT20836	T	1986-08-15	ATE020836
EP0088968	B1	1986-07-23	EP--88968
US4577774	A	1986-03-25	US4577774
US4434641	A	1984-03-06	US4434641
JPS58171339	A	1983-10-08	JP58171339
EP0088968	A1	1983-09-21	EP--88968
AU1162683	A	1983-09-15	AU8311626



Abstract

(EP0088968)

The disclosure relates the strength of ends (10) used on metal beverage containers. ...<??>Such ends generally comprise a central panel portion of a substantially planar character, a surrounding U-shaped sidewall having inner and outer legs, a curved intermediate portion integrally joining the inner leg to the U-shaped sidewall, and the peripheral curl extending from

the outer leg for double seaming the end onto a can body. ...<??>The intermediate portion and adjacent central panel portion are firmly supported by a die (27) while a clamping force is placed on an annular band of the upper surface (45) of the end at the intermediate portion. The clamping force is increased until metal flows inwardly and outwardly from the contact point (34) resulting in a free compression doming of the center panel and an outward deflection of the inner leg. An end of increased buckle resistance is thereby produced which end is approximately within standard dimensions such that customers can use the end of the existing seaming equipment without alteration. An optional feature is provided to minimize the compression doming by clamping a peripheral band of the end with a hold-down pad (44) while the metal flowing is accomplished. This reduces the dome depth and results in a strengthened end having a dome depth very close to standard specifications.

Inventors

NGUYEN, TUAN ANH

Latest standardized assignees - inventors removed

BALL

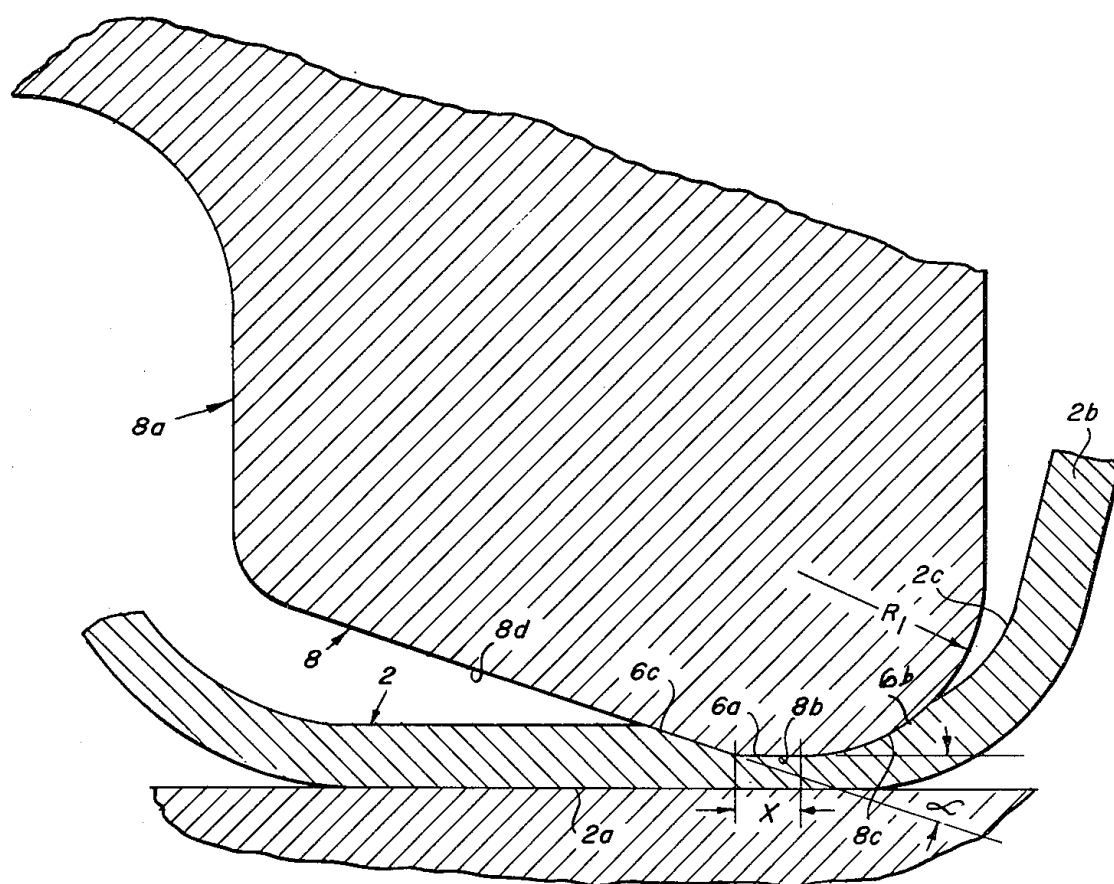
Family 96/100 - FAMPAT - ©Questel

Title

(US4254890)

Non-sliver scored metal end

Images



Publication numbers with kind code & date

US4354784	A	1982-10-19	US4354784
US4254890	A	1981-03-10	US4254890



Abstract

(US4254890)

A non-sliver scored metal end closure member, and an apparatus and method for forming the same, are disclosed, characterized by the provision of a continuous scoreline between the radius and central panel portions of the end. The

scoreline includes, in cross-sectional profile, a horizontal flat bottom wall, and outwardly divergent outer and inner side walls. In the preferred embodiment of the invention, the scoreline is contained in the upper horizontal surface of the metal end, the outer side wall of the scoreline being concave and having a radius less than that of the radius portion of the metal end, the bottom wall being tangent to the outer side wall. The inner side wall comprises either a flat surface arranged at an obtuse angle of about 165.degree. relative to the bottom wall, or a concave surface tangent to the bottom wall. In another modification, the inner side wall is concave and tangent to the bottom wall, the radius of the inner side wall being at least as great as that of the outer side wall. In a further embodiment, the outer and inner side walls are flat and are arranged to subtend an angle greater than 90.degree. . The scoreline is formed by a scoring die having an annular downwardly depending projection the cross-sectional profile of which corresponds with that of the scoreline.

Inventors

WESTPHAL TEDDY M

Latest standardized assignees - inventors removed

SONOCO DEVELOPMENT

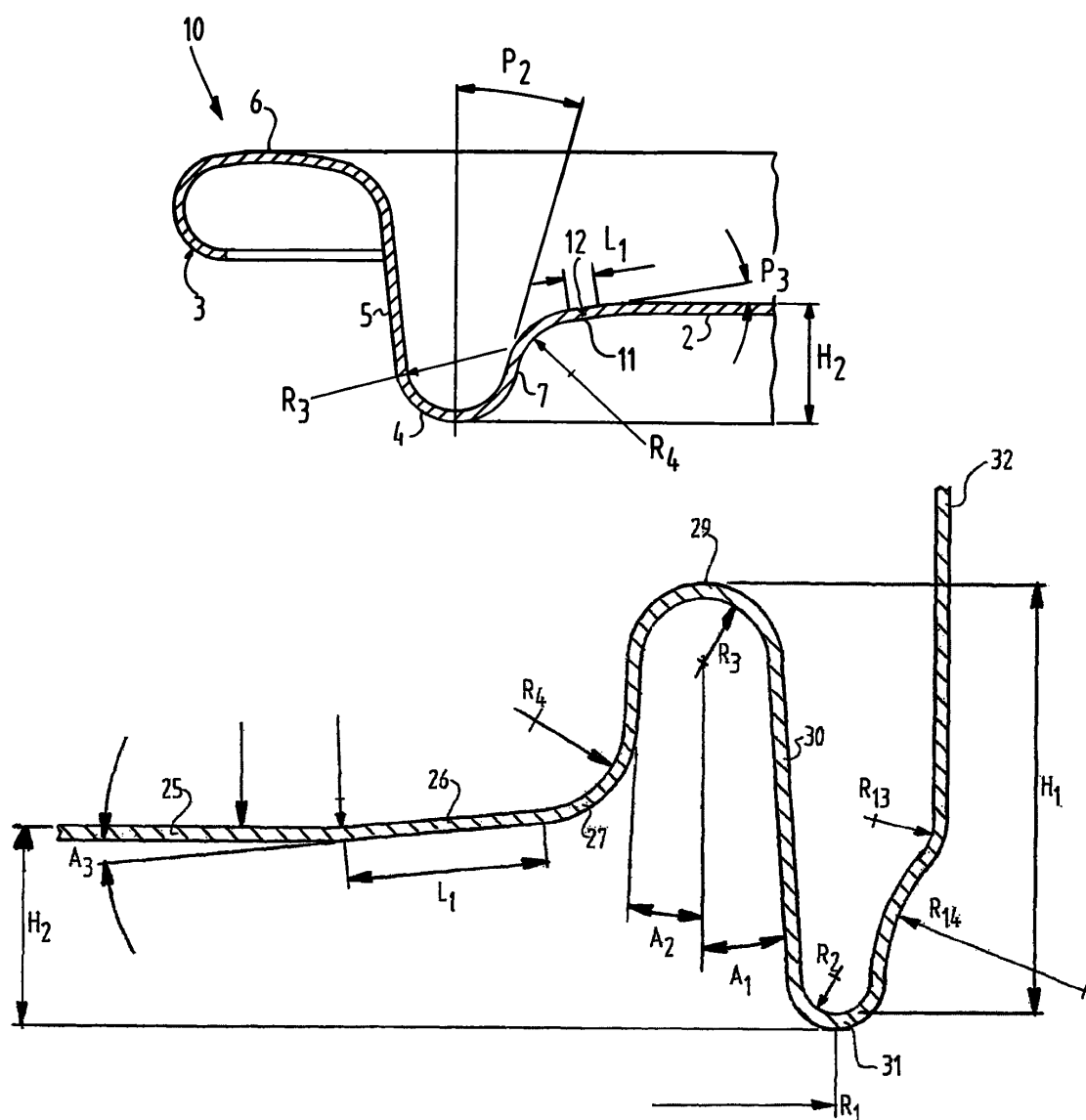
Family 97/100 - FAMPAT - ©Questel

Title

(EP1813540)

Can end for a can and such can

Images



Publication numbers with kind code & date

US9260217

B2 2016-02-16 US9260217



JP5706068	B2	2015-03-06	JP5706068				
MY153239	A	2015-01-29	MY-153239				
EA019950	B1	2014-07-30	EA--19950				
KR101386770	B1	2014-04-21	KR101386770				
AP2807	A	2013-11-30	AP---2807				
CA2637078	C	2013-09-17	CA2637078				
AU2007209495	B2	2013-05-23	AU2007209495				
CN101374730	B	2011-12-14	CN101374730B				
PL1984265	T3	2011-10-31	PL1984265				
ES2366658	T3	2011-10-24	ES2366658				
GEP20115281	B	2011-09-12	GE201105281				
DK1984265	T3	2011-09-05	DK1984265T				
PT1984265	E	2011-08-24	PT1984265				
NZ569865	A	2011-06-30	NZ-569865				
AT509842	T	2011-06-15	ATE509842				
EP1984265	B1	2011-05-18	EP1984265				
BRPI0706668	A2	2011-04-05	BR200706668				
UA92779	C2	2010-12-10	UA--92779				
US20100059530	A1	2010-03-11	US20100059530				
ZA200806314	B	2009-11-25	ZA200806314				
JP2009525231	A	2009-07-09	JP2009525231				
CN101374730	A	2009-02-25	CN101374730				
IN3075/KOLNP/2008	A	2009-02-06	IN2008KN03075				
MA30223	B1	2009-02-02	MA--30223				
EA200801788	A1	2008-12-30	EA200801788				
EP1984265	A1	2008-10-29	EP1984265				
KR20080087149	A	2008-09-30	KR20080087149				
AP200804552	A0	2008-08-31	AP200804552				
AU2007209495	A1	2007-08-02	AU2007209495				
CA2637078	A1	2007-08-02	CA2637078				
WO2007/085499	A1	2007-08-02	WO200785499				
EP1813540	A1	2007-08-01	EP1813540				

Abstract

(EP1813540)

The invention relates to a can end for a can, such as an easy opening can, comprising - a central panel, - a can end radius for connection to a body of the can; and - a countersink connected via a transition wall to the can end radius and via a panel wall to the panel, wherein - a panel wall angle (A_2, P_2) is $2^\circ - 45^\circ$, - a panel radius (R_4) is larger than 0.5 mm - a panel depth (H_2) is 1 mm - 7 mm, and - a counter sink radius (R_3) is less than 5 mm, and to cans provided with at least one such a can end.

Inventors

NIEC PHILIPPE GERARD STANISLAS

LEGRESY JEAN-MARC NICOLAS

DATHY FRANCK PHILIPPE

Latest standardized assignees - inventors removed

ARDAGH MP NETHERLANDS

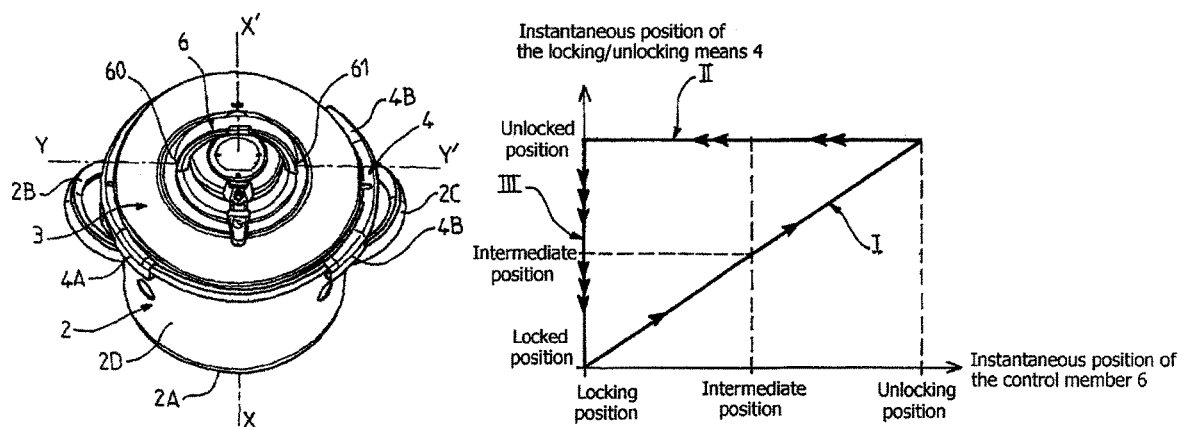
Family 98/100 - FAMPAT - ©Questel

Title

(EP2204112)

Pressure cooker foreseen with a control device for locking and unlocking having an asymmetric functioning

Images



Publication numbers with kind code & date

US10362891	B2	2019-07-30	US10362891
BRPI0923739	A2	2018-10-09	BR200923739
CN101779918	B	2014-01-15	CN101779918B
CN103211491	A	2013-07-24	CN103211491
JP5148591	B2	2012-12-07	JP5148591
BRPI0923739	A1	2012-11-20	BR200923739
DE202009018599	U1	2012-07-19	DE202009018599
ES2381068	T3	2012-05-22	ES2381068
AT548950	T	2012-03-15	ATE548950
EP2204112	B1	2012-03-14	EP2204112
US20120012584	A1	2012-01-19	US20120012584
FR2940603	B1	2011-01-28	FR2940603
JP2010246892	A	2010-11-04	JP2010246892
CN101779918	A	2010-07-21	CN101779918
WO2010/076507	A1	2010-07-08	WO201076507
EP2204112	A1	2010-07-07	EP2204112
FR2940603	A1	2010-07-02	FR2940603



Abstract

(EP2204112)

The apparatus has a locking/unlocking unit moved between a locked position in which the unlocking unit locks a lid with respect to a vessel and an unlocked position in which the lid is free relative to the vessel. A single control unit (6) controls the movement of the unlocking unit, where the units cooperate with each other such that instantaneous position of the unlocking unit varies based on the instantaneous position of the control unit according to two laws different from a third law, when the control unit is moved from its unlocking position towards its locking position.

Inventors

CHAMEROY ERIC

CARTIGNY MICHEL PIERRE

Latest standardized assignees - inventors removed

SEB

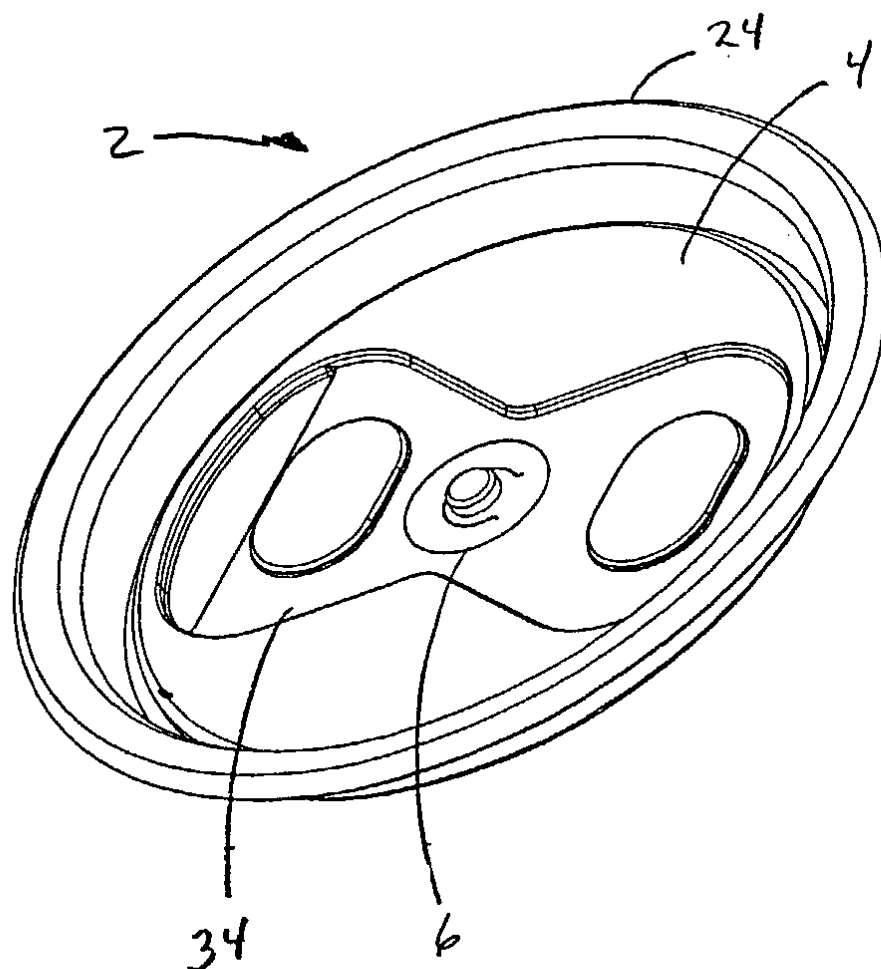
Family 99/100 - FAMPAT - ©Questel

Title

(EP1358111)

Small opening beverage can end adapted for receiving a straw

Images



Publication numbers with kind code & date

AU2002234229	B2	2006-03-16	AU2002234229
EP1358111	A1	2003-11-05	EP1358111
US20030038134	A1	2003-02-27	US20030038134
WO02/053468	A1	2002-07-11	WO200253468



Abstract

(EP1358111)

A beverage can end (2) is provided herein which has a small opening (6) preferably centrally disposed which is adapted for receiving a straw (28). Preferably, the small opening end (6) is opened with a conventional pull tab (8), but which establishes a vent area (20) positioned adjacent the small opening end which provides sufficient venting during use of the straw. It is further preferred that the pull tab be slightly elevated with rounded corners (48) to provide a smooth, easily accessible pulling surface for the user of the beverage can.

Inventors

CHASTEEN HOWARD C

LEE GENE

Latest standardized assignees - inventors removed

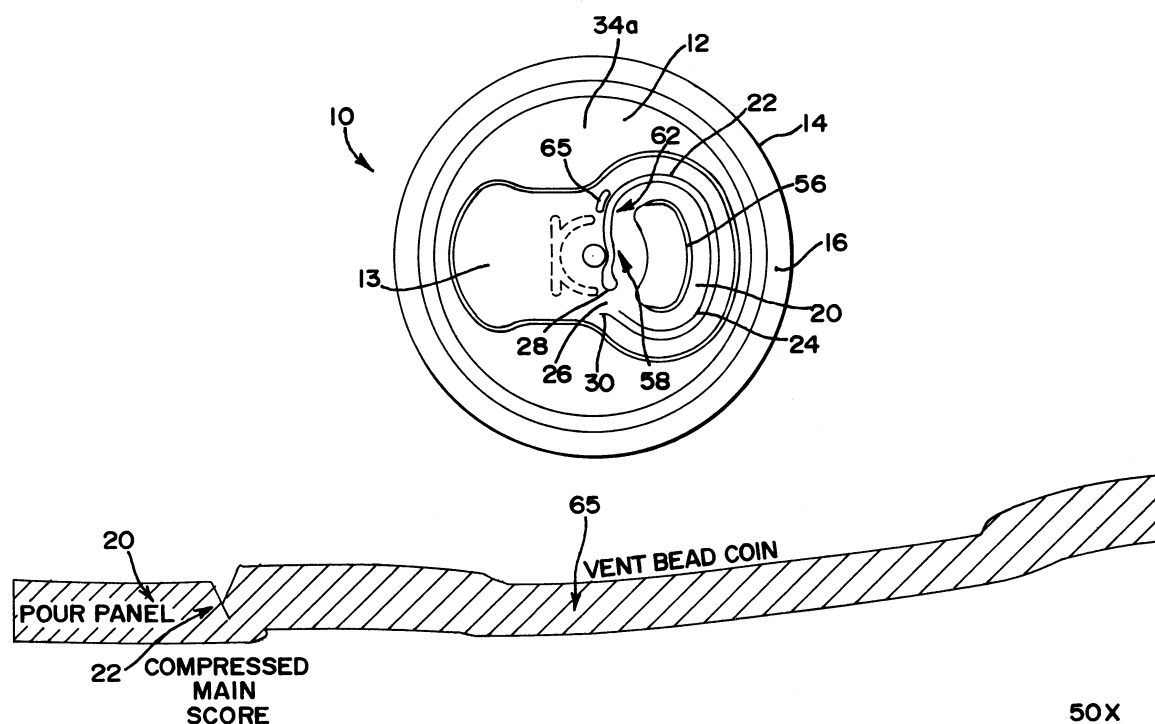
BALL

Family 100/100 - FAMPAT - ©Questel

Title

(EP1456091)

Can end for a container

Images**Publication numbers with kind code & date**

BRPI0215196	B1	2015-06-30	BR200215196
CN1326751	C	2007-07-18	CN1326751C
DE60209807	T2	2006-10-19	DE60209807
ES2257594	T3	2006-08-01	ES2257594
RU2278062	C2	2006-06-20	RU2278062
DE60209807	D1	2006-05-04	DE60209807
AT319623	T	2006-03-15	ATE319623
EP1456091	B1	2006-03-08	EP1456091
MXPA04006009	A	2005-07-13	MX2004PA006009
CN1620389	A	2005-05-25	CN1620389
RU2004118420	A	2005-03-27	RU2004118420
BR0215196	A	2004-11-16	BR200215196
EP1456091	A1	2004-09-15	EP1456091
US6715629	B2	2004-04-06	US6715629
AU2002361722	A1	2003-07-09	AU2002361722
WO03/53800	A1	2003-07-03	WO200353800
US20030111469	A1	2003-06-19	US20030111469

**Abstract**

(EP1456091)

An end member (10) for a container. The end member has a central panel (12) wall with a public side and an opposing product side. The public side includes a means for opening a frangible panel segment (20). The member also has a score groove (22) and a coin segment. The score groove is located on the public side of the end member and defines an outer perimeter of the frangible panel segment and separates the frangible panel segment from a non-frangible portion of the

public side. The coin segment (65) is adjacent the score groove (22) and places a compressive stress on a portion of the end member located between the coin segment and the score groove wherein an upper plane and a lower plane are formed and separated by the score groove. The lower plane comprises a portion of the frangible panel segment adjacent the score groove.

Inventors

HARTMAN WILLIAM H

TURNER TIMOTHY L

Latest standardized assignees - inventors removed

REXAM BEVERAGE CAN