PTO/SB/81C (12-08)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REEXAMINATION - THIRD PARTY REQUESTER POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Control Number(s)	
Filing Date(s)	
First Named Inventor	Robert Choi
Title	DRINK BOTTLES
Patent Number	10,676,255
Examiner Name	
Attorney Docket No(s).	Z036-0005RE

I hereby revoke all previous requester powers of attorney given in the above-identified reexamination proceeding control number(s).

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the proceeding(s) identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 29150

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the proceeding(s) identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified reexamination proceeding control number(s) (more than one may be changed **only** if they are merged proceedings) to be:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the *third party* requester.

☐ Proof of authority to act on behalf of requester submitted herewith or filed on _____ .

SIGNATURE of Third Party Requester

Signature	Scott D Meyer	Date	30 November 2022
Name	Scott D. Meyer	Telephone	(509) 244-8663
Title and Company	Vice President & General Counsel, Zak Designs, Inc.		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

US010676255B2

(12) **United States Patent**
Choi et al.

(10) **Patent No.: US 10,676,255 B2**
(45) **Date of Patent: Jun. 9, 2020**

(54) **DRINK BOTTLES**

(71) Applicant: **CamelBak Products, LLC**, Petaluma, CA (US)

(72) Inventors: **Robert Choi**, Ogden, UT (US); **Barley A. Forsman**, Cotati, CA (US); **Jeremy Galten**, Petaluma, CA (US)

(73) Assignee: **CamelBak Products, LLC**, Petaluma, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/035,418**

(22) Filed: **Jul. 13, 2018**

(65) **Prior Publication Data**

US 2018/0327151 A1 Nov. 15, 2018

Related U.S. Application Data

(63) Continuation of application No. 15/287,915, filed on Oct. 7, 2016, now Pat. No. 10,023,365, which is a (Continued)

(51) **Int. Cl.**

B65D 47/06	(2006.01)
A47G 19/22	(2006.01)
A45F 3/20	(2006.01)

(52) **U.S. Cl.**

CPC ***B65D 47/065*** (2013.01); ***A45F 3/20*** (2013.01); ***A47G 19/2266*** (2013.01); ***B65D 47/066*** (2013.01); *A47G 19/2272* (2013.01)

(58) **Field of Classification Search**

CPC A47G 19/2266; A47G 19/2272; B65D 47/066

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,788,795 A 1/1931 Hoban
2,844,267 A 7/1958 Petriccione
(Continued)

OTHER PUBLICATIONS

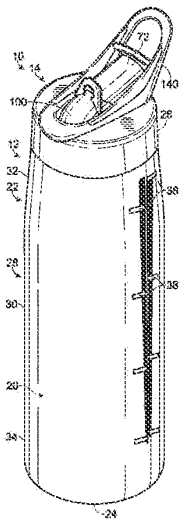
English-language abstract of Chinese Patent No. CN 85106703 A, European Patent Office, May 10, 1986.
(Continued)

Primary Examiner — Shawn M Braden
(74) *Attorney, Agent, or Firm* — Amardeep S. Grewal; Gerard M. Donovan; Reed Smith LLP

(57) **ABSTRACT**

Drink bottles, or drink containers with cap assemblies that include a drink spout. In some embodiments, the drink spout is pivotally coupled to a base of the cap assembly. In some embodiments, the drink spouts include mouthpieces, including self-sealing and/or bite-actuated mouthpieces. In some embodiments, the cap assembly includes a handle, which may include at least one guard for the drink spout and/or mouthpiece. In some embodiments, the drink containers include a manual on/off valve. In some embodiments, the dispensing spout includes a mount for the mouthpiece and/or cooperates with the cap to provide a manual on/off valve to selectively restrict flow of drink fluid from the drink container regardless of the drink spout's and/or mouthpiece's configuration. In some embodiments, the drink containers include a drink tube extending from external of the drink containers and/or an air return system.

19 Claims, 9 Drawing Sheets



Related U.S. Application Data

continuation of application No. 14/329,096, filed on Jul. 11, 2014, now Pat. No. 9,463,911, which is a continuation of application No. 12/133,954, filed on Jun. 5, 2008, now Pat. No. 9,777,048, which is a continuation of application No. 11/588,476, filed on Oct. 26, 2006, now Pat. No. 8,622,237, which is a continuation of application No. 11/313,488, filed on Dec. 20, 2005, now Pat. No. 7,533,783.

(60) Provisional application No. 60/706,700, filed on Aug. 8, 2005, provisional application No. 60/670,828, filed on Apr. 11, 2005.

(58) **Field of Classification Search**
USPC 215/11.4, 11.5; 220/254.3, 704, 705, 220/707, 714
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,936,934	A	5/1960	Kubiliunas	
3,179,301	A	4/1965	Lucht	
3,181,743	A	5/1965	Libit et al.	
3,283,967	A	11/1966	Akers	
3,294,293	A	12/1966	Johns	
3,392,887	A	7/1968	Bross	
3,739,938	A	6/1973	Paz	
3,972,443	A	8/1976	Albert	
4,090,650	A	5/1978	Gotta	
4,212,408	A	7/1980	Valenzona	
4,485,963	A	12/1984	Panicci	
4,607,755	A	8/1986	Andreozzi	
4,836,404	A	6/1989	Coy	
4,852,762	A	8/1989	Coy	
4,860,934	A	8/1989	Komischke	
4,925,042	A	5/1990	Chong	
5,060,833	A	10/1991	Edison et al.	
5,065,909	A	11/1991	Pino et al.	
5,085,336	A	2/1992	Lynd	
5,085,349	A	2/1992	Fawcett	
5,101,991	A	4/1992	Morifuji et al.	
5,125,543	A	6/1992	Rohrabacher et al.	
5,203,468	A	4/1993	Hsu	
5,242,079	A	9/1993	Stephens et al.	
5,273,172	A	12/1993	Rossbach et al.	
5,301,858	A	4/1994	Hollander	
5,307,950	A	5/1994	Li	
5,332,131	A	7/1994	Pehr	
5,392,968	A	2/1995	Dark	
5,433,353	A	7/1995	Flinn	
5,433,535	A	7/1995	Hah	
5,465,866	A	11/1995	Belcastro	
5,518,142	A	5/1996	Lin	
5,520,304	A	5/1996	Lin	
5,553,726	A	9/1996	Park	
5,582,315	A	12/1996	Reid	
5,601,207	A	2/1997	Paczonay	
5,607,087	A	3/1997	Wery et al.	
5,699,933	A	12/1997	Ho et al.	
5,730,336	A	3/1998	Lerner	
5,755,368	A	5/1998	Bekkedahl	
5,791,510	A	8/1998	Paczonay	
5,806,726	A	9/1998	Ho	
5,873,478	A	2/1999	Sullivan et al.	
5,884,793	A	3/1999	Wang	
5,897,013	A	4/1999	Manganiello	
5,911,406	A	6/1999	Winefordner et al.	
6,021,801	A	2/2000	Sheppard	
6,032,831	A	3/2000	Gardner et al.	
6,050,433	A	4/2000	Russell et al.	
6,050,445	A	4/2000	Manganiello	
6,059,154	A	5/2000	Bigotte et al.	
6,070,767	A	6/2000	Gardner et al.	
6,095,382	A	8/2000	Gross	
6,116,458	A	9/2000	Dark	
6,196,413	B1	3/2001	Tung	
6,199,729	B1	3/2001	Drzymkowski	
6,212,959	B1	4/2001	Perkins	
6,264,166	B1	7/2001	Bowland et al.	
6,276,560	B1	8/2001	Belcastro	
6,279,772	B1	8/2001	Bowman	
6,279,773	B1	8/2001	Kiyota	
6,283,344	B1	9/2001	Bradley	
6,290,108	B1	9/2001	Gross	
6,364,168	B1	4/2002	Gardner et al.	
6,390,341	B1	5/2002	Ohmi et al.	
6,422,415	B1	7/2002	Manganiello	
6,446,844	B1	9/2002	Gross	
6,497,348	B2	12/2002	Forsman	
6,513,686	B1	2/2003	Ben-Sasson	
6,523,711	B1	2/2003	Hughes et al.	
6,557,721	B2	5/2003	Yang	
6,607,092	B2	8/2003	Manganiello et al.	
6,609,624	B2	8/2003	Goto et al.	
6,675,998	B2	1/2004	Forsman et al.	
6,698,716	B2	3/2004	Yang	
6,708,950	B2	3/2004	Christensen et al.	
6,719,273	B1	4/2004	Yang	
D489,978	S	5/2004	Brown	
6,742,681	B1	6/2004	Yang	
6,745,915	B2	6/2004	Rees	
6,764,064	B2	7/2004	Sturm et al.	
6,783,115	B1	8/2004	Yang	
6,837,400	B2	1/2005	Leoncavallo et al.	
6,854,888	B1	2/2005	Brown et al.	
6,908,015	B2	6/2005	Choi et al.	
6,915,961	B2	7/2005	Renz et al.	
6,994,225	B2	2/2006	Hakim	
7,014,077	B2	3/2006	Brown	
7,032,764	B2	4/2006	Viggiano	
7,048,137	B2	5/2006	Leoncavallo et al.	
7,059,490	B2	6/2006	Son	
7,073,688	B2	7/2006	Choi et al.	
D547,607	S *	7/2007	Forsman	D7/396.2
8,701,928	B2	4/2014	Samson	
2002/0033399	A1	3/2002	Manganiello et al.	
2002/0040909	A1	4/2002	Goto et al.	
2002/0092858	A1	7/2002	Bowman	
2002/0092877	A1	7/2002	Bowman	
2002/0148806	A1	10/2002	Cheng	
2002/0166990	A1	11/2002	Yang	
2002/0185495	A1	12/2002	Manganiello	
2003/0085232	A1	5/2003	Leinenweber	
2003/0102318	A1	6/2003	Lee	
2003/0116573	A1	6/2003	Clark et al.	
2003/0168462	A1	9/2003	Kiyota	
2003/0173536	A1	9/2003	Christensen et al.	
2003/0218015	A1	11/2003	Randolph et al.	
2003/0222238	A1	12/2003	Getzewich et al.	
2004/0000551	A1	1/2004	Flink et al.	
2004/0069783	A1	4/2004	Chen	
2004/0079775	A1	4/2004	Choi et al.	
2004/0089301	A1	5/2004	Choi et al.	
2004/0159820	A1	8/2004	Yang	
2004/0164043	A1	8/2004	Hakim	
2004/0217139	A1	11/2004	Roth	
2004/0217187	A1	11/2004	Renz et al.	
2004/0222230	A1	11/2004	Samson et al.	
2005/0029271	A1	2/2005	McDonough	
2005/0029313	A1	2/2005	Robins et al.	
2005/0045647	A1	3/2005	Hession et al.	
2005/0056610	A1	3/2005	Randolph et al.	
2005/0056652	A1	3/2005	Cezeaux	
2005/0072788	A1	4/2005	Lieberman et al.	
2005/0072804	A1	4/2005	Brown	
2005/0115966	A1	6/2005	Leoncavallo et al.	
2005/0133505	A1	6/2005	Yoneoka et al.	
2005/0133519	A1	6/2005	McDonough	
2005/0184075	A1	8/2005	Belcastro	

Zak Designs, Inc. Exhibit 1001
2 of 23

IPR 2024-01137
CamelBak - Ex 2001
Page 3 of 857

(56) **References Cited**

U.S. PATENT DOCUMENTS

2005/0205587 A1 9/2005 Samson et al.
2005/0218242 A1 10/2005 Renz et al.

OTHER PUBLICATIONS

English-language abstract of Chinese Patent No. CN 1198083 A, European Patent Office, Nov. 4, 1998.

* cited by examiner

Fig. 1

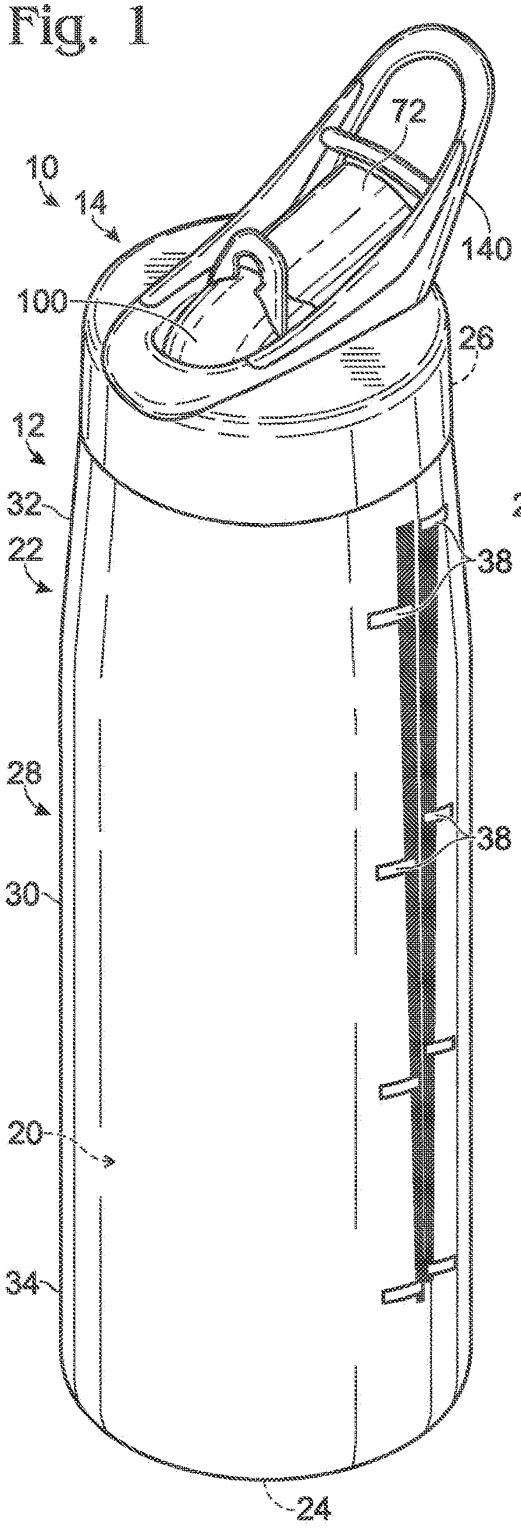

72
10
14
140
100
26
12
32
22
38
28
38
30
20
34
24

Fig. 2

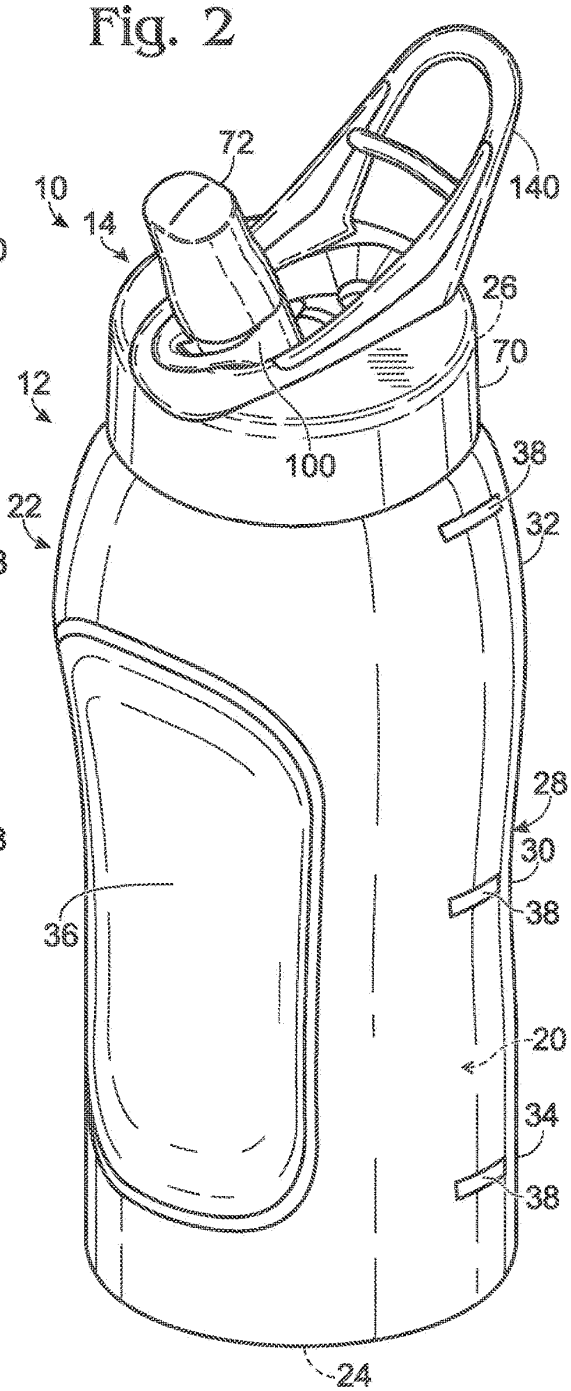

72
140
10
14
26
70
12
100
38
22
32
28
30
36
38
20
34
38
24

Fig. 3

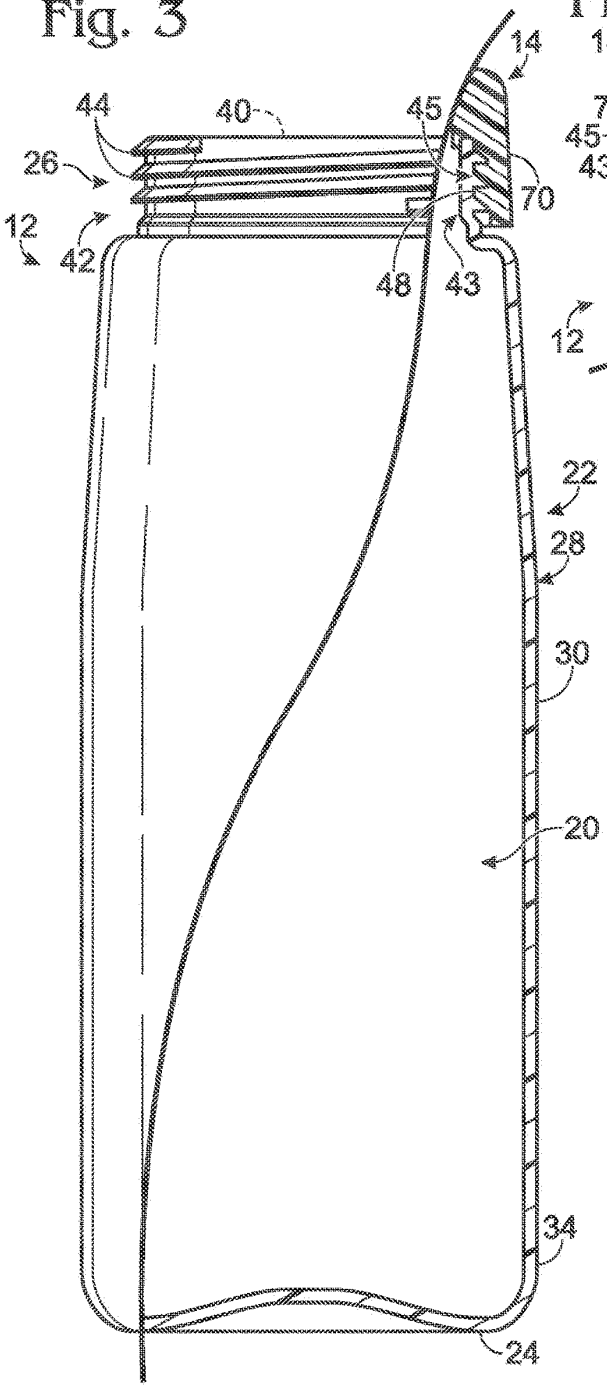
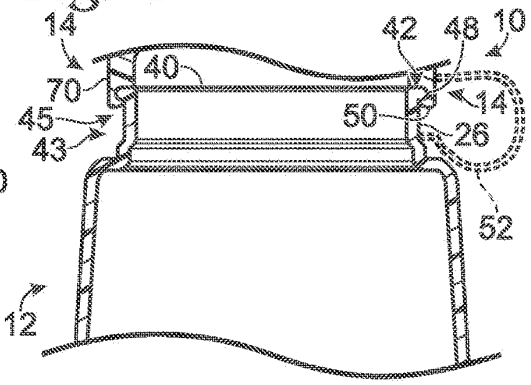


Fig. 4



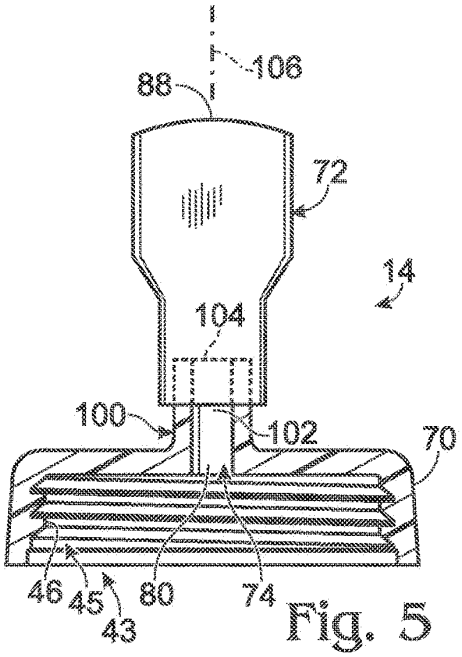


Fig. 5

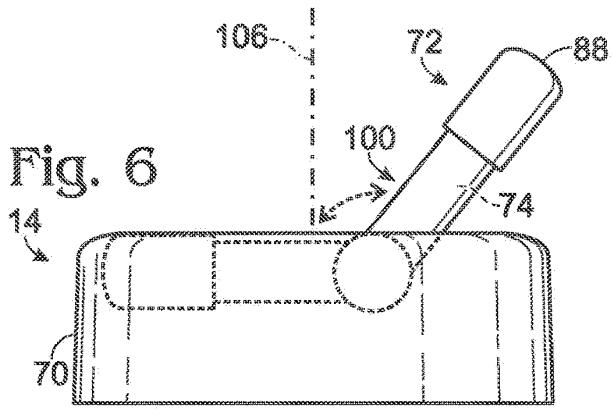


Fig. 6

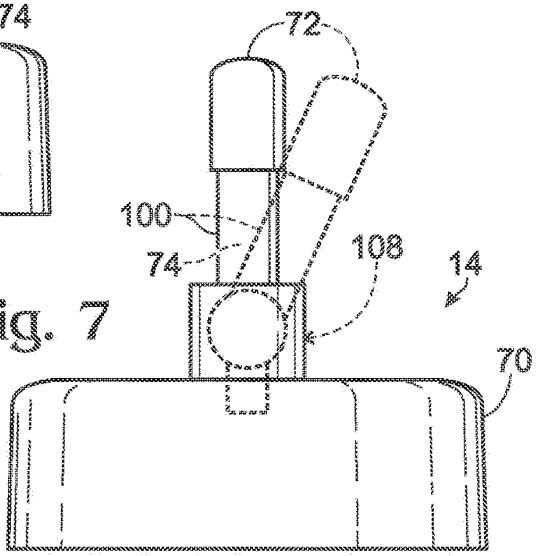


Fig. 7

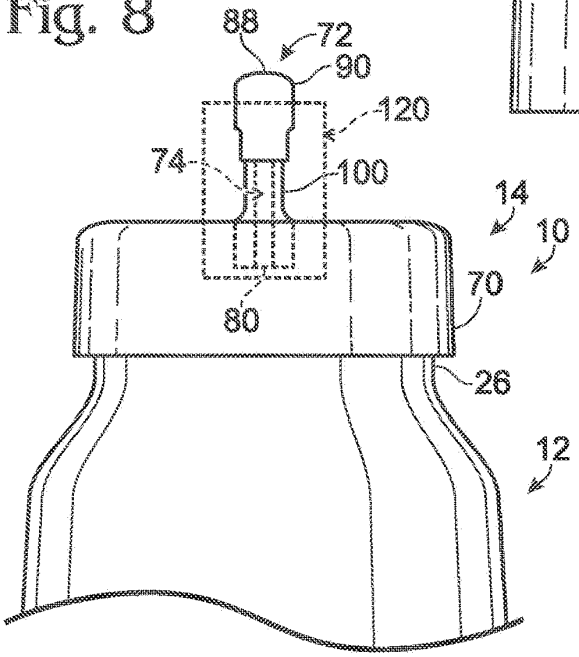


Fig. 8

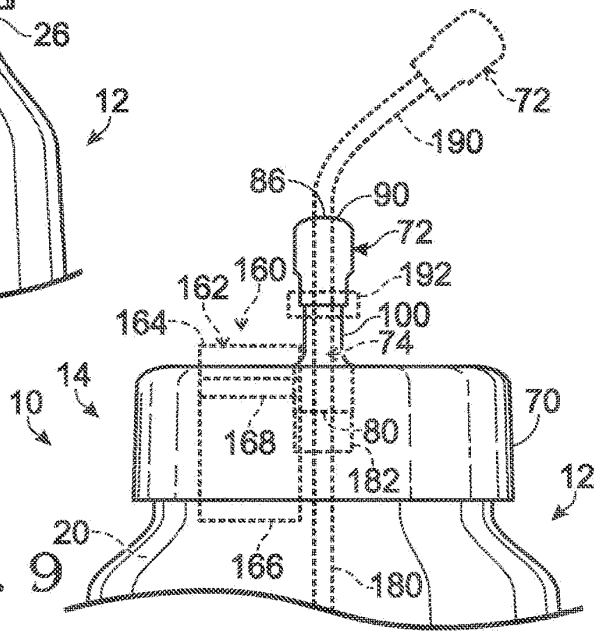


Fig. 9

Fig. 10

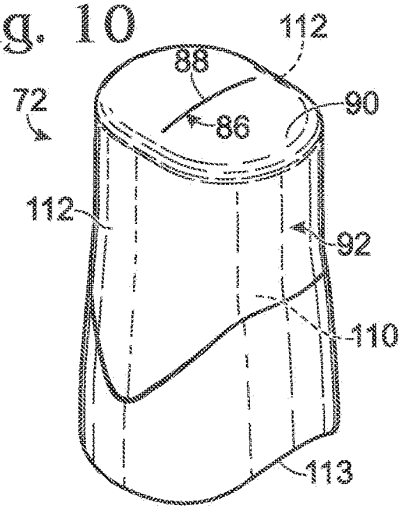


Fig. 11

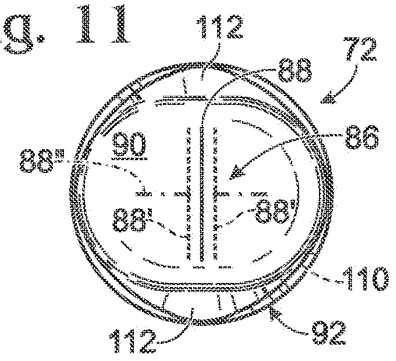


Fig. 12

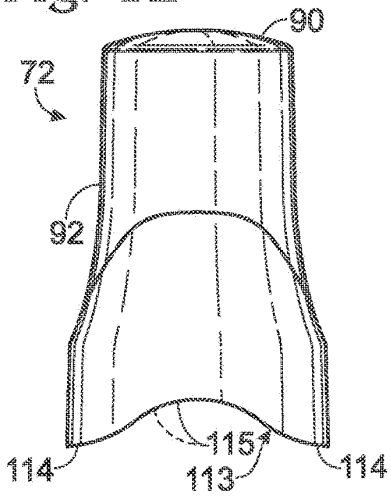


Fig. 13

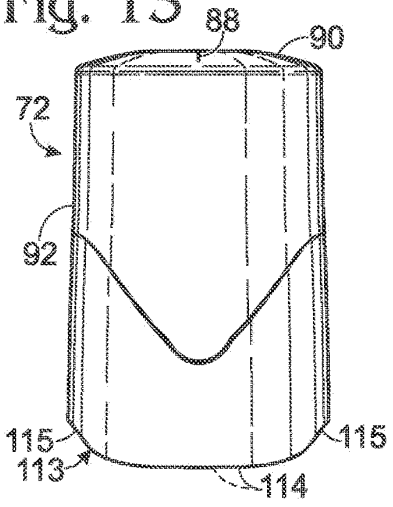


Fig. 14

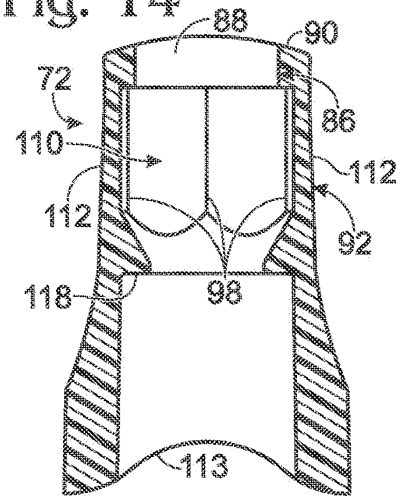


Fig. 15

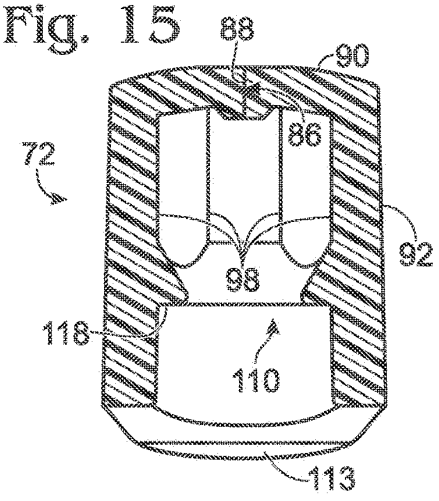


Fig. 16

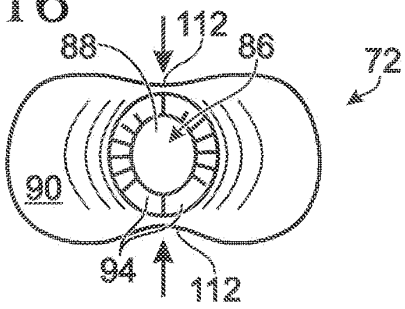


Fig. 17

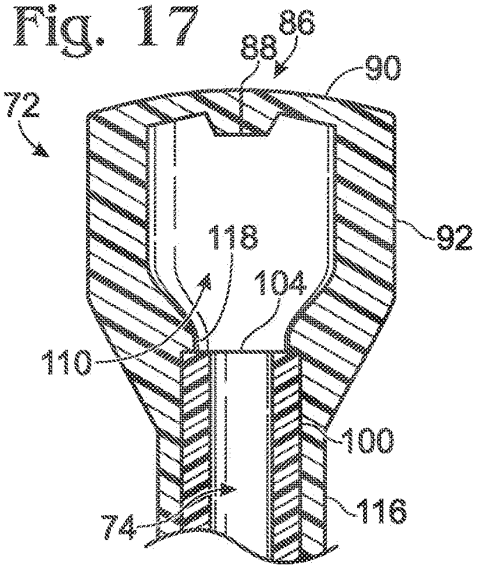


Fig. 18

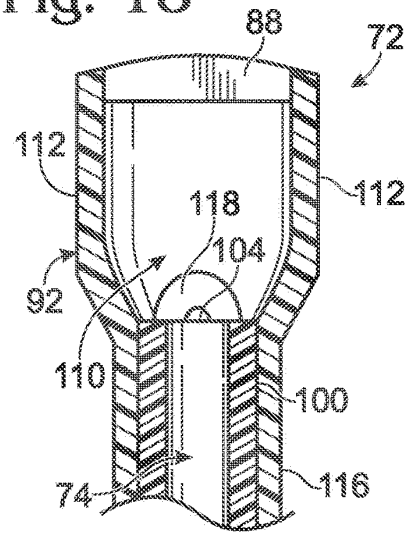


Fig. 19

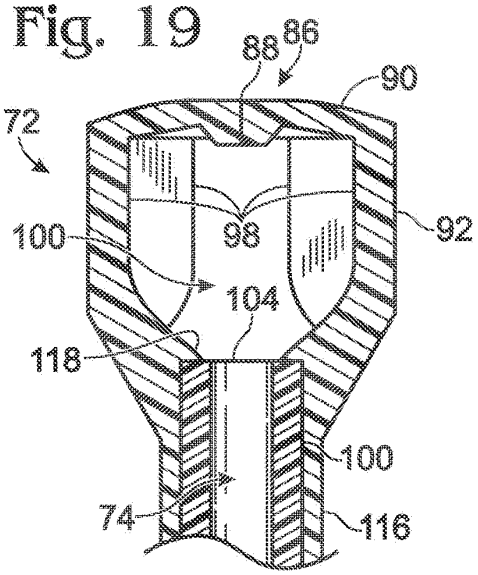


Fig. 20

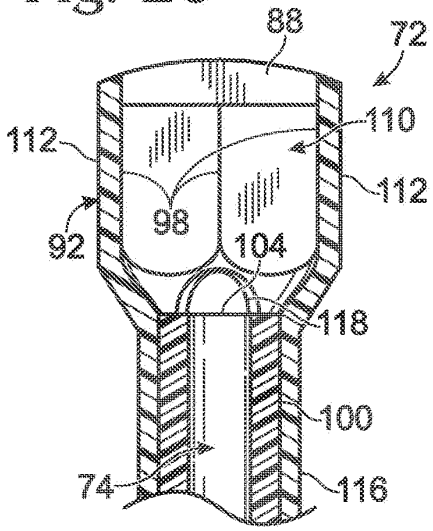


Fig. 21

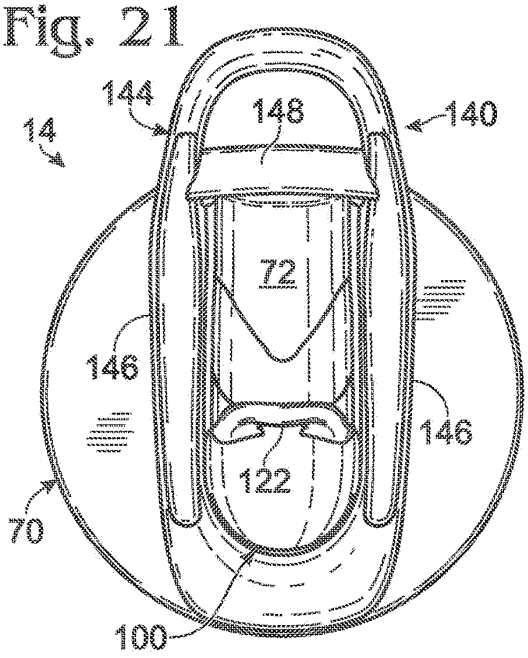


Fig. 22

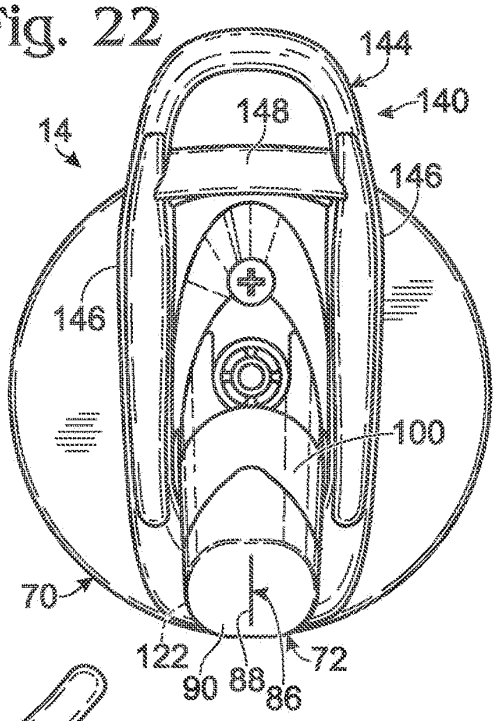
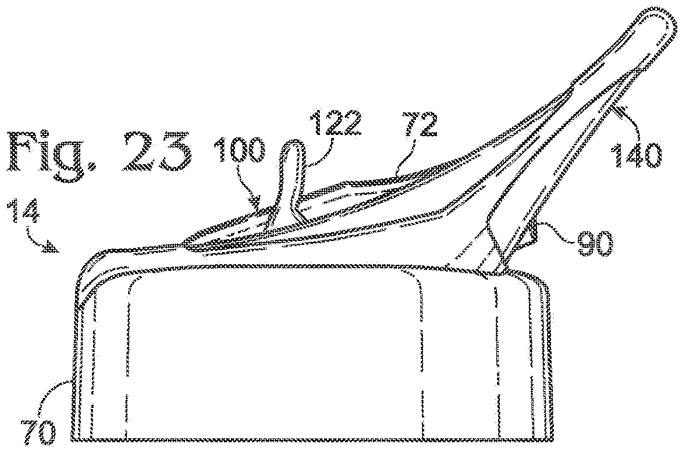


Fig. 23



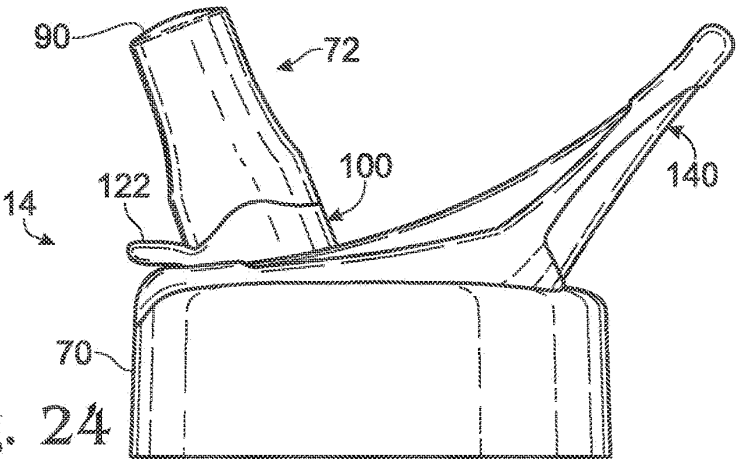
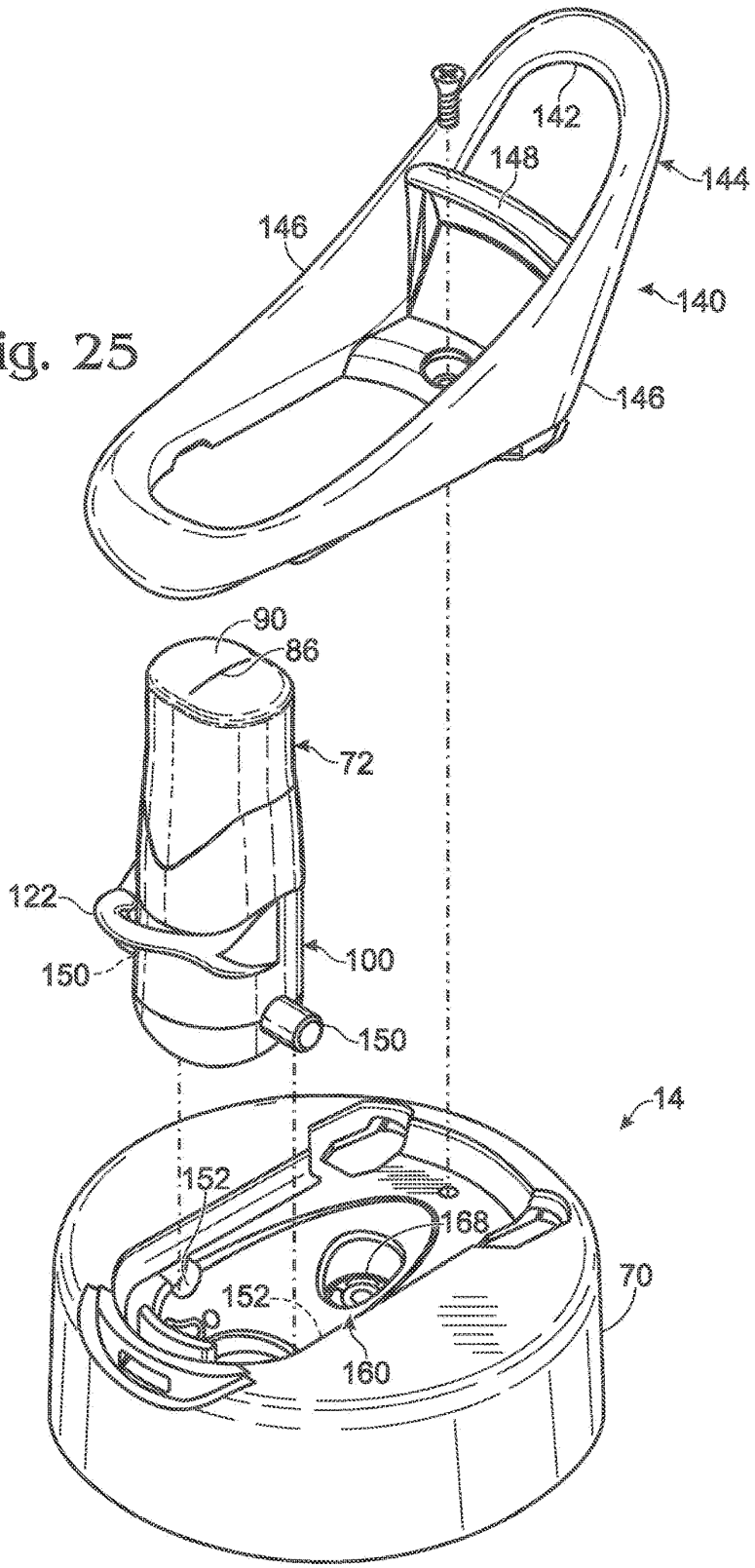


Fig. 24

Fig. 25


142
148
144
146
140
146
90
86
72
122
150
100
150
14
152
168
70
152
160

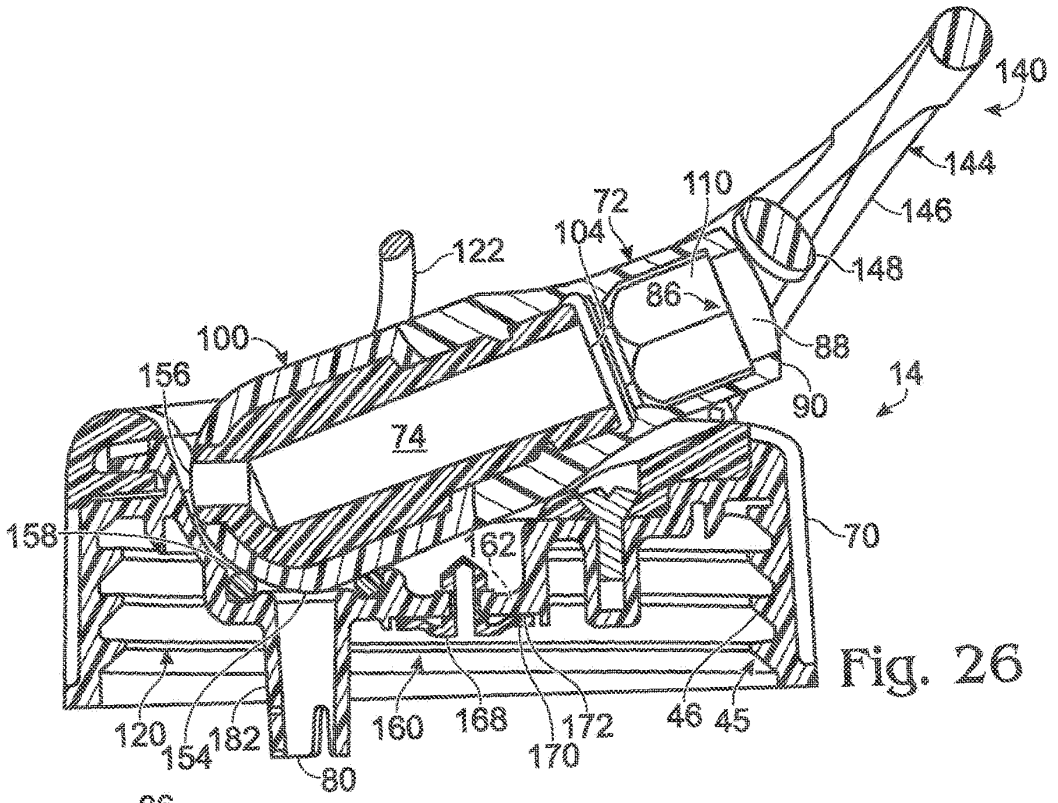

140
144
146
148
110
72
104
122
86
88
100
156
90
14
74
158
162
70
120
154
182
160
168
172
170
46
45
80

Fig. 26

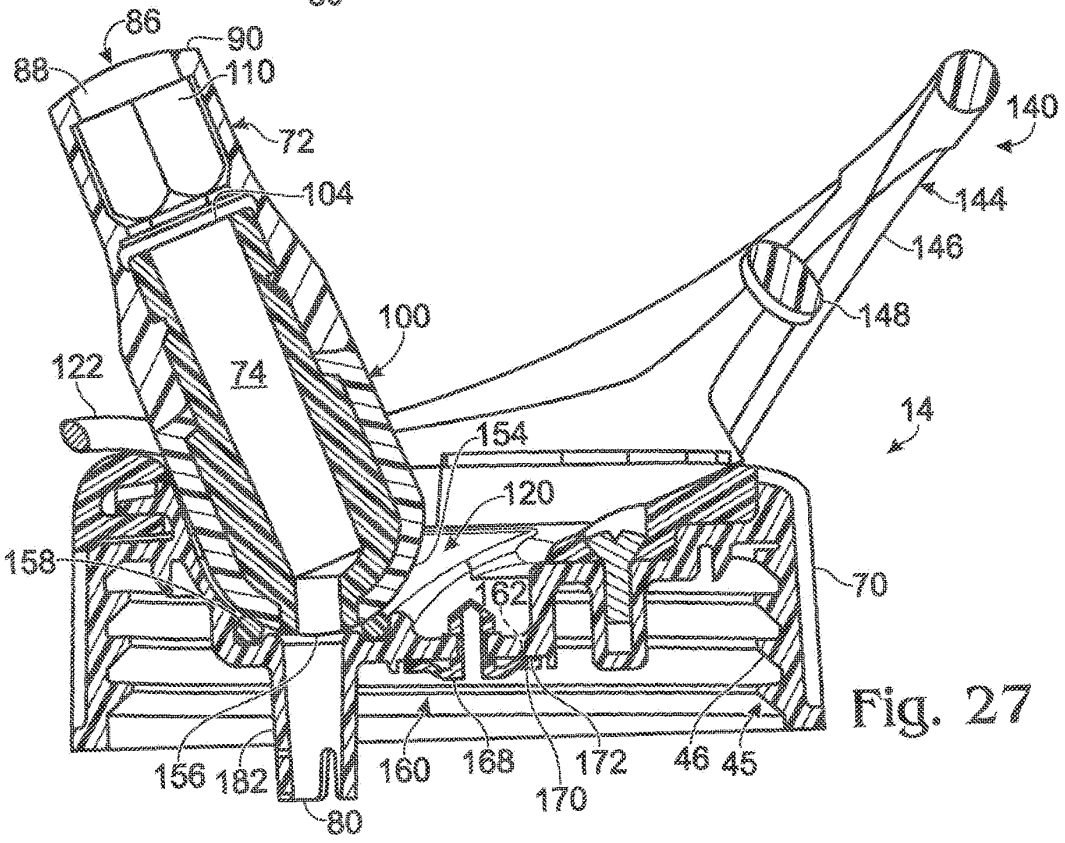

86
90
88
110
72
104
140
144
146
148
100
122
74
14
154
120
158
162
70
156
182
160
168
172
170
46
45
80

Fig. 27

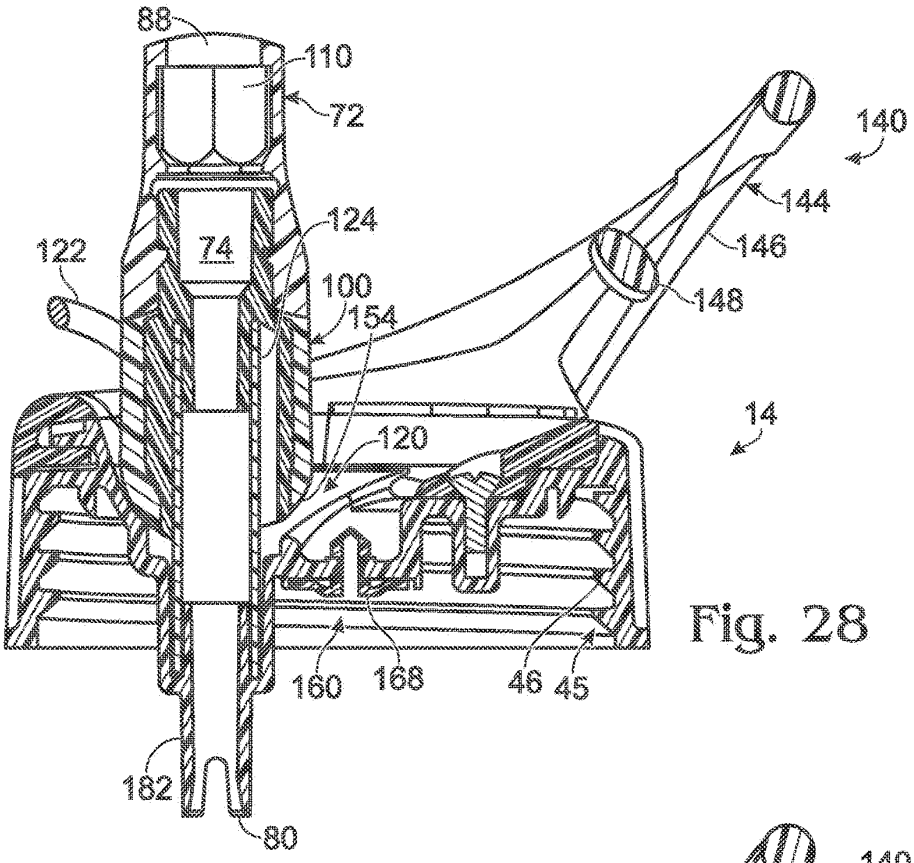

88
110
72
140
144
124
74
122
146
100
148
154
14
120
160
168
46
45
182
80

Fig. 28

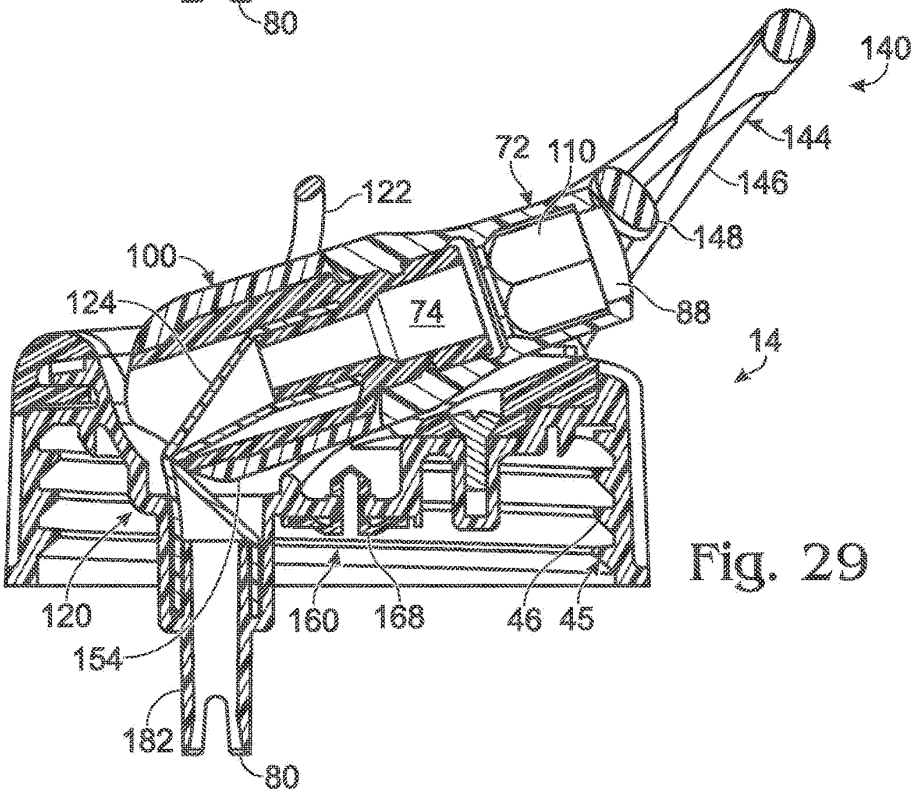

140
144
72
110
122
146
148
100
124
74
88
14
120
154
160
168
46
45
182
80

Fig. 29

DRINK BOTTLES

RELATED APPLICATIONS

The present application is a continuation of, and claims priority under 35 U.S.C. § 120 to, U.S. patent application Ser. No. 15/287,915, which was filed on Oct. 7, 2016, issued on Jul. 17, 2018 as U.S. Pat. No. 10,023,365, and which claims priority to U.S. patent application Ser. No. 14/329,096, which was filed on Jul. 11, 2014, issued on Oct. 11, 2016 as U.S. Pat. No. 9,463,911, and which claims priority to U.S. patent application Ser. No. 12/133,954, which was filed on Jun. 5, 2008, issued on Jul. 15, 2014 as U.S. Pat. No. 8,777,048, and which claims priority to U.S. patent application Ser. No. 11/588,476, which was filed on Oct. 26, 2006, issued on Jan. 7, 2014 as U.S. Pat. No. 8,622,237, and which claims priority to U.S. patent application Ser. No. 11/313,488, which was filed on Dec. 20, 2005, and issued on May 19, 2009 as U.S. Pat. No. 7,533,783. U.S. patent application Ser. No. 11/313,488 claims priority to U.S. Provisional Patent Application Ser. Nos. 60/670,828 and 60/706,700, which were filed on Apr. 11, 2005 and Aug. 8, 2005, respectively. The complete disclosures of the above-identified patents and patent applications are hereby incorporated by reference.

FIELD OF THE DISCLOSURE

The present disclosure relates generally to drink bottles, and more particularly to drink bottles with bite-actuated mouthpieces.

BACKGROUND OF THE DISCLOSURE

For some time people have recognized the need to stay hydrated. Conventionally, many individuals carry drink bottles that contain water or other potable beverages. These bottles are formed from plastic and include a cap. Some conventional drink bottles include a threaded or other neck from which a user drinks fluid contained in the drink bottle after removal of the cap. Some conventional drink bottles include a spout, or nozzle, from which the drink fluid may be drawn from the drink bottle without removing the cap of the drink bottle. Conventional spouts include straws and rigid spouts having an outlet through which drink fluid may flow. Other conventional drink bottles require the cap to be removed to permit drink fluid to be removed from the drink bottle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a bite-actuated drink bottle according to the present disclosure.

FIG. **2** is a perspective view of another bite-actuated drink bottle according to the present disclosure.

FIG. **3** is a fragmentary, partial cross-sectional side elevation view of a fluid container that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **4** is a fragmentary cross-sectional side elevation view of portions of another bite-actuated drink bottle according to the present disclosure.

FIG. **5** is a partial cross-sectional side elevation view of a cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **6** is a side elevation view of another cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **7** is a side elevation view of another cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **8** is a fragmentary somewhat schematic side elevation view of portions of another bite-actuated drink bottle according to the present disclosure.

FIG. **9** is a fragmentary somewhat schematic side elevation view of portions of another bite-actuated drink bottle according to the present disclosure.

FIG. **10** is an isometric view of a bite-actuated mouthpiece that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **11** is a top plan view of the mouthpiece of FIG. **10**.

FIG. **12** is a side elevation view of the mouthpiece of FIG. **10**.

FIG. **13** is a side elevation view of the mouthpiece of FIG. **10**.

FIG. **14** is a cross-sectional view of the mouthpiece of FIG. **12**.

FIG. **15** is a cross-sectional view of the mouthpiece of FIG. **13**.

FIG. **16** is a somewhat schematic top plan view of a bite-actuated mouthpiece in a dispensing configuration.

FIG. **17** is a cross-sectional view of another bite-actuated mouthpiece that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **18** is transverse cross-sectional view of the mouthpiece of FIG. **17**.

FIG. **19** is a cross-sectional view of another bite actuated mouthpiece that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **20** is a transverse cross-sectional view of the mouthpiece of FIG. **19**.

FIG. **21** is a top plan view of another suitable cap assembly for use with bite-actuated drink bottles according to the present disclosure, with the cap assembly's spout in a stowed configuration.

FIG. **22** is a top plan view of the cap assembly of FIG. **21**, with the cap assembly's spout in a dispensing configuration.

FIG. **23** is a side elevation view of the cap assembly of FIG. **21**.

FIG. **24** is a side elevation view of the cap assembly of FIG. **22**.

FIG. **25** is an exploded isometric view of the cap assembly of FIG. **21**.

FIG. **26** is a cross-sectional side elevation view of the cap assembly of FIG. **21**.

FIG. **27** is a cross-sectional side elevation view of the cap assembly of FIG. **22**.

FIG. **28** is a partial cross-sectional side elevation view of another cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

FIG. **29** is a partial cross-sectional side elevation view of the cap assembly of FIG. **28**, with the spout pivoted to a stowed configuration.

DETAILED DESCRIPTION AND BEST MODE OF THE DISCLOSURE

Examples of drink bottles according to the present disclosure are shown in FIGS. **1** and **2** and indicated generally at **10**. Drink bottles **10** according to the present disclosure include a fluid container **12** and a cap, or cap assembly, **14** that includes a mouthpiece **72**. Although referred to herein

Zak Designs, Inc. Exhibit 1001
13 of 23

IPR 2024-01137
CamelBak - Ex 2001
Page 14 of 857

as being "drink bottles," it is within the scope of the present disclosure that the fluid container may have any suitable shape, including shapes that do not resemble conventional bottles, and may be formed from any suitable material. Accordingly, it is within the scope of the present disclosure that drink bottles **10** may additionally or alternatively be referred to as drink containers **10** and/or as beverage containers **10**. As discussed in more detail herein, drink bottles **10** according to the present disclosure will typically include a free-standing fluid container **12**. Drink bottles **10** according to the present disclosure will typically include a cap assembly with a base **70** that is adapted to be coupled to the fluid container and a bite-actuated mouthpiece, or valve assembly, **72** upon which a user may bite to configure the mouthpiece from a closed configuration to a dispensing configuration.

In FIGS. **1** and **2**, the cap assemblies are shown including optional pivotal mounts **100** to which the mouthpieces are mounted, and optional handles **140** that extend from the cap assembly. In FIG. **2**, the cap assembly is shown with the mount in a dispensing configuration in which the mouthpiece is oriented in a suitable position from which a user may draw drink fluid from the drink bottle through mouthpiece **72** when the user bites upon the mouthpiece or otherwise urges the mouthpiece from the illustrated sealed configuration to a dispensing configuration. In FIG. **1**, the illustrative example of a cap assembly **14** is shown with the mount in a stowed configuration, in which the mouthpiece is positioned closer to the base of the cap than in the dispensing configuration, with the stowed configuration typically corresponding to an orientation in which the mouthpiece is not suitably positioned for a user to bite upon the mouthpiece to configure the mouthpiece to a dispensing configuration. The stowed configuration may also be referred to as a retracted configuration, and the dispensing configuration may also be referred to as an extended configuration in which the distal end, or outlet, of the mount is oriented to extend generally away from the base of the cap assembly. The various configurations referred to herein may also be selectively referred to as positions without departing from the scope of the present disclosure.

As indicated in FIGS. **1-2** and perhaps best seen in FIG. **3**, fluid container **12** defines an internal compartment **20** that is sized to hold, or receive, up to a predetermined volume of potable drink fluid, or liquid. Illustrative examples of drink fluids include water, sports drinks, juices, energy drinks, and the like. Typically, container **12** will be sized to hold up to approximately two liters of drink fluid, with many embodiments of container **12** being sized to hold a maximum volume of less than two liters of drink fluid. It is within the scope of the present disclosure that container **12** may have any suitable size and shape, with illustrative, non-exclusive examples being shown in FIGS. **1-3**. Illustrative, non-exclusive examples of suitable sizes (i.e., capacities of drink fluid able to be received into the fluid container at one time) for fluid container **12** include 4 oz., 6 oz., 8 oz., 10 oz., 12 oz., 16 oz., 20 oz., 24 oz., 32 oz., 36 oz., 0.5 liters, 0.7 liters, 1 liter, 1.5 liters, 6-11 oz., 12-19 oz., 19-25 oz., 12-36 oz., 25-36 oz, and 10-70 oz. (with these illustrative examples referring to fluid ounces of drink fluid that may be poured in one filling into an empty fluid container). It is within the scope of the present disclosure that containers having different sizes, including sizes that are smaller than, larger than, or within the illustrative sizes and/or ranges presented above, may be used without departing from the scope of the present disclosure.

Fluid container **12** may be formed from any suitable material or combination of materials. Non-exclusive examples of factors that may be (but are not required to be) considered when selecting material(s) for the fluid container include the durability of the material, the intended potable drink fluid, or types of drink fluids, that will be contained in the fluid container, the intended life, or period of use, of the drink bottle, whether the fluid container is intended to be refilled or otherwise reused, environmental concerns, whether the fluid container is intended to resist being collapsed during use, whether the fluid container is designed to permit a user to collapse the fluid container inwardly when dispensing fluid therefrom, or to dispense drink fluid therefrom, whether the drink container (and optionally the cap assembly) is designed to be washed in a household dishwasher, etc. Illustrative examples of materials that may be used include polycarbonate, polyethylene, polypropylene, glass, metal, and the like. In some embodiments, it may be desirable for the material(s) to be selected so that the fluid container will be transparent, or at least translucent, so that a user may see the contents of the fluid container, or at least the level of drink fluid within the fluid container, through the walls, or wall structure, of the container. In some embodiments, it may be desirable for the material(s) to be selected so that the fluid container is rigid and resists being collapsed when a user drinks from the container. In some embodiments, the material(s) may be selected so that the fluid container is designed to be collapsed (i.e., to permit opposing portions of the wall structure to be urged toward, or even into contact with, each other) during use. However, even fluid containers that are adapted to be collapsed during use, such as by a user squeezing the container, will tend to be at least semi-rigid in their construction and thereby adapted to be self-supporting. In some embodiments, the material(s) may be selected so that the fluid container is not breakable, i.e., will not shatter if dropped. Polyethylene will typically produce a collapsible fluid container that is translucent or opaque, but not transparent. Polycarbonate will typically produce a rigid, or stiff, fluid container that has a clear or glass-like appearance without the fragility of glass. Polypropylene will typically produce a fluid container that is more translucent and stiffer than polyethylene yet still able to be collapsed during use by a user squeezing the wall structure of the fluid container.

As indicated with respect to the illustrated examples of fluid containers shown in FIGS. **1-3**, container **12** includes a body **22** with a base, or bottom surface, **24** and a neck **26**, with the bottom surface and the neck being separated by wall structure **28**. As perhaps best seen in FIG. **3**, bottom surface **24** is adapted to support the drink bottle on a level surface. In other words, in the illustrative example, when the drink bottle is set upon a generally level surface, the bottom surface of the drink bottle will support the drink bottle in an upright configuration upon that surface. FIG. **3** also demonstrates that the bottom surface of the fluid container is not required to have a flat, or planar, configuration, although this configuration is within the scope of the present disclosure.

In the illustrated example shown in FIG. **2**, wall structure **28** has a contoured configuration, with the central region **30** of the wall structure being tapered, or defining a portion of the internal compartment that has a reduced cross-sectional area, relative to the corresponding upper and lower regions **32** and **34** of the wall structure. For example, the central region may be shaped to facilitate easier grasping of the drink bottle by a user. It is within the scope of the present disclosure that other configurations may be utilized. For example, the body may include a handle, or passage, that

extends into, or through, the drink compartment. As another illustrative, non-exclusive example, the body may include a handle that projects outwardly from the wall structure. As yet another example, the wall structure may have a cylindrical or other geometrically shaped configuration. As shown in FIG. **1**, the container's wall structure **28** may have a generally cylindrical configuration. In the illustrated example, the upper region **32** of the wall structure has a tapered configuration relative to the central and lower regions **30** and **34** of the wall structure, and thereby has a smaller internal perimeter.

The cross-sectional configuration of the wall structural may be symmetrical throughout the upper, central, and lower regions, or at least one of the regions may have a cross-sectional configuration that is not symmetrical with the other regions and/or with respect to itself. For example, selectively shaping the cross-sectional configuration, or perimeter, of at least the central region may permit the drink bottle to be rotationally oriented by a user for drinking from the subsequently discussed bite-actuated valve assembly without requiring the user to look at the rotational position of the valve assembly relative to the user's hand that is holding the central region of the fluid container's wall structure. For example, and with reference to FIG. **2**, shaping the wall structure to have a depression or other unsymmetrical portion **36** on the central region of the wall structure generally beneath the bite-actuated mouthpiece may permit a user to grasp and orient the bottle for drinking from the mouthpiece simply by feeling the position of the unsymmetrical portion of the wall structure. However, this is but one of many suitable configurations and is not required. In FIGS. **1** and **2**, the wall structure includes gradations **38** to indicate the volume of fluid present in the container. As shown, the gradations are spaced-apart along the height of the fluid container to indicate or otherwise demarcate volumes of drink fluid. Gradations **38** provide another example of optional structure that may or may not be implemented in a particular embodiment without departing from the scope of the present disclosure.

Neck **26** provides an opening, or portal, through which drink fluid may be poured into the internal compartment of the fluid container and/or removed therefrom. Neck **26** will typically have a reduced cross-sectional area (or smaller perimeter) than the region of the fluid container from which it extends, although this configuration is not required. Neck **26** is adapted to interconnect, typically removably, with the cap assembly via any suitable mechanical interconnection, or coupling structure. In the illustrative example shown in FIG. **3**, neck **26** includes a portal **40** with a coupling structure **42** that includes threads **44** that are configured to be threadingly engaged by corresponding threads **46** on the base **70** of the cap assembly to permit the cap to be screwed, or threaded, onto the neck, such as shown in FIG. **3**. In the illustrative example shown in FIG. **3**, the cap assembly's threads **46** provide the coupling structure **45** of the base. It is within the scope of the present disclosure that coupling assembly **43** may be used to refer collectively to the coupling structures of the base and the neck, such as threads **44** and **46**.

Another example of a suitable coupling assembly **43** for interconnecting the cap assembly and the fluid container is shown in FIG. **4**. As shown, the cap assembly is configured to engage the neck with a coupling assembly **43** in the form of a friction fit assembly, with neck **26** including a coupling structure **42** that includes an external lip, or ledge, **48** over which a corresponding coupling structure **45** in the form of a flange, or internal ledge, **50** of the base of the cap assembly extends to couple the cap assembly onto the neck. Cap assembly **14** and/or neck **26** may form a fluid-tight seal therebetween without requiring the inclusion of gaskets, o-rings or seal-enhancing structure. However, it is also within the scope of the present disclosure that one or more such structures may be utilized.

As discussed, cap assembly **14** is connected, and typically removably connected, to the neck of the fluid container. By "removably connected," it is meant that the cap assembly is designed, or adapted, to be repeatedly connected to and disconnected from the neck of the fluid container without destruction of the cap assembly or the neck. When properly connected to the neck, the cap assembly forms a seal with the neck of the fluid container and thereby selectively seals the internal compartment of the container to prevent drink fluid from being dispensed therefrom through opening **40** except as permitted by the cap assembly. One or more of the cap assembly and the neck may include a compressible gasket or other sealing structure to assist in providing a water-tight seal between the cap assembly and the neck when the cap assembly is properly secured on the neck. When removed or otherwise disconnected from the fluid container, the cap assembly may be retained proximate the fluid container by a tether that interconnects the cap assembly and the fluid container to retain a connection between these components when the base of the cap assembly is not coupled to the neck of the fluid container. An optional tether is schematically illustrated in FIG. **4** at **52**. When present, the tether may be integrally formed with one or both of the cap assembly and the fluid container, or it may be coupled to the cap assembly and/or the fluid container via any suitable mechanism. It is also within the scope of the present disclosure that the cap assembly may not be coupled to the fluid container by a tether.

As discussed, and as somewhat schematically illustrated in FIG. **5**, cap assembly **14** includes a base **70**, which is adapted to interconnect with the neck of the fluid container. Cap assembly **14** further includes a mouthpiece, such as a bite-actuated mouthpiece **72**, which is adapted to selectively permit drink fluid to flow therethrough when the valve assembly is deformed from its closed configuration to a dispensing, or open, configuration. Cap assembly **14** further includes, or defines, a fluid conduit **74** though which drink fluid may selectively flow from the fluid container to the mouthpiece.

As discussed, base **70** is preferably configured to be removably coupled to the neck of the fluid container to seal the portal defined by the neck of the fluid container. In other words, a user may drink directly from the fluid container through opening **40** when the cap assembly is not secured to the neck by a suitable coupling structure. When cap assembly **14** is secured to the neck, then drink fluid may not be withdrawn from fluid container **12** other than as permitted by the cap assembly, such as via bite-actuated mouthpiece **72**. Base **70** forms a portion of coupling assembly **43**, with the base and the neck of the fluid container cooperating to secure the base upon the neck. In FIG. **5**, base **70** is shown including coupling structure **45** in the form of threads **46** that are configured to threadingly engage corresponding threads on the neck of a fluid container. As shown in FIG. **5**, base **70** also includes, or defines, an inlet **80** to the fluid conduit **74** through which drink fluid is selectively drawn from the fluid container and dispensed through bite-actuated mouthpiece **72**.

As discussed, cap assembly **14** defines a fluid conduit **74** that extends from the fluid container to the bite-actuated mouthpiece so that drink fluid from container **12** may be

selectively dispensed through mouthpiece **72**. FIG. **5** graphically depicts that it is within the scope of the present disclosure that cap assembly **14** may include a mount **100** to which the bite-actuated mouthpiece is removably mounted, or secured, with the mount defining at least a portion of fluid conduit **74**, such as which may extend through a hollow passage **102** within the mount to a distal open end region **104** of the mount. When mount **100** includes a fluid passage through which drink fluid may at least selectively flow from the internal compartment of the fluid container to the mouthpiece, the mount may be referred to as a drink spout. In the illustrated example shown in FIG. **5**, mount **100** extends in a fixed orientation relative to base **70**, thereby defining the orientation of the mouthpiece **72** relative to the base (and fluid container) during use of the drink bottle. In FIG. **5**, the mount extends generally parallel to the central, or long, axis **106** of the cap assembly and corresponding drink bottle (i.e., straight away from the cap assembly). However, any suitable orientation may be used without departing from the scope of the present disclosure. This is graphically depicted in FIG. **6**, in which the mount is shown extending at an inclined angle relative to the long, or central, axis **106** of the cap assembly and corresponding drink bottle.

It is also within the scope of the present disclosure that mount **100** may be adjustably positionable relative to the base of the cap assembly, thereby permitting the orientation of the bite-actuated mouthpiece to be adjusted within a range of positions, or configurations, that are defined at least in part by the mount. This adjustable positioning of the mouthpiece, when provided for in a particular embodiment, may permit a user to adjust the orientation of the mouthpiece to a user-selected drinking orientation. An example of an adjustably positionable mount **100** is shown in dashed lines in FIG. **6**, in which the mount and attached mouthpiece are shown pivoted from the dispensing configuration shown in solid lines to a stowed configuration. In the stowed configuration, the mouthpiece is typically not positioned for being received into a user's mouth. As discussed in more detail herein, it is within the scope of the present disclosure that the cap assembly may include an optional valve or other fluid regulator that is adapted to prevent or otherwise restrict the flow of drink fluid to the mouthpiece when the mount is in a stowed configuration. In such an embodiment, when the mount is in the stowed configuration, drink fluid would be prevented from flowing from the fluid container through the mouthpiece regardless of the configuration of the mouthpiece.

Another illustrative example of a cap assembly **14** that includes a mount, or drink spout, **100** that is pivotal within a range of positions, or configurations, relative to the base of the cap assembly is shown in FIG. **7**. As shown, the cap assembly includes an adjustable joint **108**, which is somewhat schematically illustrated. As illustrative examples, the mouthpiece, and at least a portion of the mount, may be coupled to the base of the cap assembly by a joint (and/or valve) **108**, such as may take the form of a pivotal joint, a ball joint, or other suitable structure that provides for adjusting the angular and/or rotational orientation of the mount relative to the base of the cap assembly. When the cap assembly includes such a pivotal joint **108**, it is within the scope of the present disclosure that the joint may form a portion of the cap assembly's fluid conduit **74**, such as with the passage of the fluid conduit extending through the joint. However, this construction is not required to all embodiments. As a variation of this structure, the mount may include a hinged or other flexible region that permits selective adjustment of the orientation of the mount's distal open end region **104** relative to the inlet of the fluid conduit.

It is within the scope of the present disclosure that the mouthpiece is non-removably, or permanently, secured to the base, mount, or other portion of the cap assembly. However, in many embodiments it may be desirable for the mouthpiece to be removably connected to the cap assembly, such as to permit the mouthpiece to be repeatedly removed, such as for cleaning or replacement, and thereafter recoupled to the mount. As non-exclusive, illustrative examples, the mouthpiece may be removably mounted onto mount **100** and/or with mount **100** being designed to be removed from base **70**.

Bite-actuated mouthpiece, or valve, **72** includes at least one opening through which drink fluid may flow when the mouthpiece is in its dispensing, or open configuration. An illustrative, non-exclusive example of a suitable construction for bite-actuated mouthpiece **72** is shown in FIGS. **10-15**. In the illustrated example, and perhaps best seen in FIGS. **10** and **14-15**, the mouthpiece includes a dispensing outlet, or opening, **86** that is defined by a slit **88** that extends through the dispensing face **90** of the mouthpiece. It is within the scope of the present disclosure that other configurations may be used, including two or more slits, intersecting or spaced-apart slits, etc. This range of optional configurations is schematically indicated in FIG. **11**, in which a pair of laterally spaced slits are shown in dashed lines at **88'**, and in which a second slit that intersects with slit **88** is shown in dash-dot lines at **88"**. The mouthpiece defines an internal chamber **110** into which drink fluid flows from the outlet, or end region, of the mount and to the opening formed by slit **88** when the mouthpiece is in a dispensing configuration. The sidewalls, or wall structure, **92** of the mouthpiece may be described as including one or more bite regions **112**, which refer to opposed regions upon which a user may bite or otherwise apply compressive forces to urge the mouthpiece from its closed configuration to a dispensing configuration.

As perhaps best seen in FIG. **10**, the illustrated example of a mouthpiece **72** has a non-symmetrical cross-sectional configuration between opposed regions of the mouthpiece's sidewalls **92**. By this it is meant that the illustrated mouthpiece has different dimensions transverse to the direction of fluid flow, depending upon whether the dimensions are measured transverse or parallel to the illustrated slit. It is within the scope of the present disclosure that other non-symmetrical or symmetrical configurations may be used. For example, mouthpiece **72** may have a circular cross-sectional configuration, amongst others.

Mouthpiece **72** is resilient and biased to its closed configuration, such as is shown in FIGS. **10-15**. In use, the mouthpiece is adapted to be configured to the dispensing configuration by a user placing the mouthpiece in the user's mouth and biting upon or otherwise compressing the appropriate portions of sidewalls **92** of the mouthpiece, such as bite regions **112**, to deform the mouthpiece to a position where the slit or other opening is no longer sealed and instead defines a fluid pathway through which drink fluid may flow. This is somewhat schematically depicted in FIG. **16** with another illustrative example of a suitable bite-actuated mouthpiece. As shown, the opposed lips, or sealing surfaces, **94** that define slit **88** are spread apart from each other to define opening **86**, through which drink fluid may be dispensed from the drink bottle. Mouthpiece **72** may be referred to as a self-sealing valve, or valve assembly, because the mouthpiece is constructed to automatically return to its closed, or sealed, configuration when the

compressive forces, such as may be applied by a user's teeth or mouth, are no longer applied to maintain the mouthpiece in its dispensing configuration. Therefore, unless forces are being exerted to the mouthpiece to deform the mouthpiece to a dispensing configuration, the mouthpiece will be in its closed, or sealed, configuration.

The illustrated example also demonstrates that the region of the mouthpiece distal the dispensing face, which may be referred to as the base, or distal, portion of the mouthpiece and which is generally indicated at **113** in FIGS. **10** and **12-15** may have (but is not required to have) a contoured configuration that does not extend at a constant distance from the dispensing face. In the illustrative, non-exclusive example shown in FIGS. **12** and **13**, the base portion includes a pair of projecting regions **114** separated by a pair of concave regions **115**, although this construction is not required and other irregular base configurations may be utilized without departing from the scope of the present disclosure. Having a contoured or otherwise irregular configuration, when mounting on a dispensing spout or other mount that is complimentarily configured to receive and conform to such a configuration enables the mount to restrict relative rotation of the mouthpiece thereupon due to the engagement of the distal portion **113** of the mouthpiece with the mount, such as shown by referring back to FIGS. **1** and **2**. As discussed, the illustrated example is but a non-exclusive example of a suitable configuration, with it being within the scope of the present disclosure that the distal portion of the mouthpiece and/or the corresponding mount may have any suitable configuration for securing the mouthpiece upon the mount.

Additional illustrative, non-exclusive examples of suitable configurations for bite-actuated, self-sealing mouthpieces **72** for use with drink containers according to the present disclosure are shown in FIGS. **17-20**. In FIGS. **17-20**, the mouthpieces are shown positioned on a mount **100** that extends into a neck region **116** of the mouthpiece and terminates at an end region **104**. Also shown are optional stops, or internal projections, **118** that are adapted to engage the end region **104** of the mount to define the fully inserted position of the mount within the mouthpiece. The illustrative portions of mount **100** define portions of fluid conduit **74** which extends from the end region, or outlet, **104** of the mount and into the internal chamber **110** of the mouthpiece.

Additional illustrative examples of suitable bite-actuated mouthpieces, including external and internal constructions of which that may be selectively utilized (in whole or in part) with mouthpieces **72** according to the present disclosure are disclosed in U.S. Pat. Nos. 6,070,767 and 6,032,831, the complete disclosures of which are hereby incorporated by reference for all purposes. In the illustrated examples, mouthpiece **72** has a narrower head portion than the mouthpieces disclosed in the incorporated patents, but any of the illustrated configurations may be utilized. Similarly, the internal construction of the incorporated mouthpieces may be utilized with mouthpiece **72**, such as the internal configurations for the mouthpiece's face and/or sidewalls. For example, at least FIGS. **14** and **15** illustrate that mouthpieces **72** may, but are not required to, include internal discontinuities, such as internal corners or edges, that extend along the sidewalls away from the dispensing face and which may assist in the mouthpiece deforming to its open configuration and/or returning to a sealed configuration.

In the preceding discussion, mouthpiece **72** has been described as a bite-actuated mouthpiece. As also discussed, in some embodiments, the fluid container will be formed from a material that configures, or permits, the wall structure of the fluid container to be collapsed inwardly as a user squeezes the fluid container. This intentional reduction in the internal volume of the fluid container may urge drink fluid through the fluid conduit and expel the fluid through the bite-actuated mouthpiece. It is within the scope of the present disclosure that mouthpiece **72** may be configured to permit this additional method of dispensing drink fluid from the drink bottle.

A potential benefit of the bite-actuated mouthpiece being biased to its closed configuration is that a user may position the drink bottle (and mouthpiece) to a desired drinking orientation, and even a partially or completely inverted orientation, without drink fluid being dispensed from the mouthpiece. When the user desires to drink from the positioned drink bottle, the user may bite upon the mouthpiece (and/or optionally squeeze a fluid container that is designed to be collapsed during use) to commence the flow of drink fluid through the mouthpiece to the user.

As discussed, bite-actuated mouthpiece **72** is biased to a closed, or sealed, configuration in which the opening that is formed in the dispensing face of the mouthpiece is closed and prevents drink fluid from passing therethrough. Therefore, unless the mouthpiece is reconfigured from its closed configuration to a dispensing configuration, drink fluid is prevented from being dispensed through the cap assembly's fluid conduit. In some embodiments, it may be desirable for the cap assembly to further include a flow-restricting, or on/off, valve in addition to the bite-actuated mouthpiece. For example, because the mouthpiece is designed to be configured to its dispensing configuration when lateral external forces are imparted to the mouthpiece (such as when a user bites upon or otherwise compresses the sidewalls of the mouthpiece toward each other), it is possible that external forces may be inadvertently exerted upon the mouthpiece. Should this occur, drink fluid may be dispensed through the mouthpiece. However, the inclusion of an optional manual on/off valve, which selectively restricts whether drink fluid may flow to the mouthpiece from the fluid container, may prevent this unintentional dispensing of drink fluid regardless of the configuration of the mouthpiece. A graphical example of a drink bottle according to the present disclosure that includes an on/off, or shutoff, valve and a bite-actuated mouthpiece **72** is shown in FIG. **8**. In FIG. **8**, the on/off valve is indicated in dashed lines at **120** to graphically represent that the on/off valve, when present, may be located at any suitable position downstream (i.e., toward the internal compartment of the fluid container) of the mouthpiece's face, and typically proximate or upstream (i.e., toward the mouthpiece's dispensing face) from the inlet of the fluid conduit **74**.

The on/off valve is selectively configured between open and closed configurations independent of the configuration of the bite-actuated mouthpiece. When the on/off valve is in its closed configuration, it is adapted to obstruct at least a portion of the fluid conduit, and optionally to completely obstruct the fluid conduit, thereby preventing drink fluid from passing from the fluid container to the face of the bite-actuated mouthpiece. Therefore, when the on/off valve is in its closed configuration, drink fluid cannot be dispensed from the fluid container through the mouthpiece, regardless of the configuration of the bite-actuated mouthpiece. As such, the on/off valve may also be referred to as a shutoff valve. When the on/off valve is in its open configuration, the drink fluid is selectively dispensed from the fluid container through the mouthpiece depending upon the configuration of the bite-actuated mouthpiece.

Unlike bite-actuated mouthpiece **72**, the on/off valve will typically not be biased to return automatically to a particular configuration. Instead, the on/off valve may be configured to remain in a user-selected orientation until reconfigured to a different orientation by a user. In such an embodiment, the on/off valve may be referred to as being a static valve, in that it only restricts flow of drink fluid through the fluid conduit when positively configured to do so by a user. The on/off valve may utilize any suitable actuation mechanism to selectively configure the valve between its open and closed configurations.

As an illustrative, non-exclusive example, the joint **108** illustrated in FIG. **7** may be configured to provide an on/off valve **120** when pivoting of the mount relative to the cap assembly selectively causes the fluid conduit through the cap assembly to mouthpiece **72** to be obstructed. For example, at least a portion of the fluid conduit may be obstructed as the distal end of the mount is pivoted toward the cap assembly. In some embodiments, such as when the fluid conduit extends through the joint, the degree to which the corresponding portion of the fluid conduit is obstructed may vary depending upon the degree to which the mount is pivoted or otherwise moved toward the cap assembly. In such an embodiment, the fluid conduit may not be obstructed by the joint or other on/off valve in at least one position (and optionally a sub-range of positions) within the range of positions within which the mount may be oriented relative to the cap assembly, the portion of the fluid conduit may be partially obstructed during another sub-range of the range of positions, and the portion of the fluid conduit may be completely obstructed in at least one (and optionally a third sub-range of positions) within the range of positions. It is also within the scope of the present disclosure that a similar range and sub-ranges may be provided by other embodiments of on/off valve **120**. However, this construction is not required to all drink bottles according to the present disclosure.

An illustrative, non-exclusive example of a suitable configuration for an on/off, or shutoff, valve is shown in FIGS. **26** and **27**, in which the on/off valve is generally indicated at **120**. As shown, mount **100** is pivotally coupled to base **70** of the cap assembly to selectively restrict and permit drink fluid to flow from the fluid container to the fluid conduit. In at least FIGS. **26** and **27**, mount **100** may be described as providing a drink spout that is pivotally coupled to the base of the cap assembly. The drink spout is selectively pivoted between a stowed, or closed, configuration (such as shown in FIG. **26**) and a dispensing, or extended, configuration (such as shown in FIG. **27**), in which the drink spout is pivoted generally away from the base of the cap assembly relative to the closed configuration. In the closed configuration, the drink spout is pivoted toward or even against the base of the cap assembly relative to the dispensing configuration. In the illustrated example, the fluid conduit between the internal compartment of the drink container and the mouthpiece of the cap assembly is blocked by the drink spout when the drink spout is in its closed configuration, thereby restricting (or preventing) drink fluid from being dispensed through the drink spout regardless of the configuration of the mouthpiece when the drink spout is in the closed configuration. In the dispensing configuration, pivoting of the drink spout away from the base aligns an aperture in the drink spout to establish a continuous fluid conduit from the internal compartment to the mouthpiece.

Another example of a suitable actuation mechanism for an on/off valve **120** that may be used with drink bottles **10** according to the present disclosure is a push-pull mechanism, in which the bite-actuated mouthpiece and typically at least a portion of the mount and/or fluid conduit is urged away from a baffle or other obstruction that selectively prevents drink fluid from passing through the mount or other portion of the fluid conduit to the internal chamber of the mouthpiece. For example the push-pull mechanism may, in its closed configuration, prevent drink fluid from entering the inlet of the fluid conduit until the mouthpiece and other corresponding structure is drawn away from the obstruction. As another example, the push-pull mechanism that provides an on/off valve may selectively restrict drink fluid from passing through an intermediate portion of the fluid conduit (such as within the mount), and/or from exiting the mount into the internal compartment of the mouthpiece. In a variant of this push-pull mechanism, the obstruction is selectively pushed or otherwise urged away from the inlet or other suitable portion of the fluid conduit to permit drink fluid to flow therethrough.

Yet another illustrative example of a suitable construction for a static on/off valve **120** is a rotatable mechanism, in which a portion of the fluid conduit upstream from the internal chamber of the mouthpiece (such as the inlet, outlet, or an intermediate portion of the mount) is selectively obstructed until the mouthpiece (and typically at least a portion of the mount and/or fluid conduit) is rotated to a position in which the obstruction no longer prevents drink fluid from passing through the fluid conduit. Yet another illustrative, non-exclusive example of a suitable actuation mechanism for a static on/off valve **120** utilizes a fluid conduit having a foldable, collapsible, resiliently deformable, and/or crimpable region and suitable structure for selectively folding, flattening, resiliently deforming, and/or crimping that region of the fluid conduit to block, obstruct, or otherwise restrict the flow of drink fluid therethrough. This region may define a portion of the fluid conduit through which drink fluid may selectively flow from the inlet to the mouthpiece. An illustrative, non-exclusive example of a suitable material for such a portion of the fluid conduit is silicone or another material that does not readily take a compression set and therefore may be repeatedly folded, flattened, crimped, and the like without leaking or otherwise being permanently deformed or failing.

The schematic example of an on/off, or shutoff, valve **120** that is depicted in FIG. **8** is intended to graphically represent these and any other suitable constructions for a static on/off valve that selectively prevents drink fluid from being dispensed from the drink bottle through the opening of the mouthpiece regardless of the configuration of the mouthpiece. Additional examples are presented in the provisional patent applications that are incorporated by reference herein.

Drink bottles **10** according to the present disclosure may, but are not required to, additionally or alternatively include an air return, or pressure relief, assembly that is adapted to selectively permit air from external the drink bottle to enter the drink bottle's internal compartment other than through the dispensing opening of the mouthpiece. When present, the air return assembly is preferably positioned sufficiently away from the dispensing face of the mouthpiece that the air return valve is not obstructed when a user is drawing drink fluid from the fluid container through the opening of the mouthpiece. Especially when the fluid container has a rigid construction that is not adapted to readily collapse as drink fluid is drawn therefrom, a vacuum will tend to be drawn within the fluid container as drink fluid is withdrawn therefrom through the mouthpiece. As this vacuum, or pressure-differential, increases, it will become more difficult for a user

to draw additional drink fluid through the mouthpiece until this pressure differential is reduced.

A schematic example of a drink bottle **10** according to the present disclosure that includes an air return assembly is shown in FIG. **9**, with the air return assembly generally indicated at **160**. Air return assembly **160** is adapted to permit air from external the drink bottle to enter the internal compartment **20** of fluid container **12** without having to pass through the drink bottle's mouthpiece **72** (or least the dispensing face **90** or opening **86** of the mouthpiece). It is within the scope of the present disclosure that the air return assembly may be implemented on the cap assembly, such as on base **70** of the cap assembly. It is also within the scope of the present disclosure that the air return assembly, when present, may be implemented on the fluid container and/or that the drink bottle may be formed without an air return assembly that is separate from the bite-actuated mouthpiece. It is also within the scope of the present disclosure that an air return valve may be integrally formed with the bite-actuated mouthpiece or that it may be separately formed from the mouthpiece. When separately formed from the mouthpiece, the air return assembly may be positioned in a spaced-apart relationship to the mouthpiece on the cap assembly, on a dispensing mount (or nozzle) **100**, on the fluid container, etc.

Air return assembly **160** may define an air conduit **162** through which air may flow at least from external the drink bottle to the internal compartment of the drink container. In FIG. **9**, the conduit is schematically illustrated including an inlet **164**, through which air may enter the conduit from external the drink container, and an outlet **166**, through which air in the conduit may pass to the interior of the drink bottle, such as to the internal compartment of the drink container.

In embodiments of drink bottles **10** that include an air return assembly **160**, the air return assembly may, but is not required to, include at least one air return valve, such as is schematically illustrated in FIG. **9** at **168** and which is less schematically illustrated in the subsequently discussed FIGS. **25-29**. Air return valve **168** is adapted to selectively restrict the flow of air through the air conduit from external the drink bottle and/or to restrict the flow of drink fluid through the air conduit from internal the drink bottle. Air return valve **168** is adapted to be selectively configured between a closed, or sealed, configuration in which the flow of air into the internal compartment through the air return assembly from external the drink bottle is restricted, and an open, or actuated, configuration, in which the air return valve is at least partially displaced from its sealed configuration and in which air may flow through the air return assembly, such as from external the drink bottle into the internal compartment of the fluid container. This flow of air may be through an air conduit, such as conduit **162**, or may be simply through an opening in the drink bottle that is selectively obstructed by the air return valve. Air return valve **168** preferably has a relatively low actuation pressure for permitting air to be drawn from external the drink bottle into the drink bottle's internal compartment, while also having a relatively high resistance to drink fluid being able to pass through the valve from within the internal compartment. In other words, the air return valve is preferably constructed to resist fluid flow through the valve from internal the compartment. Similar to bite-actuated mouthpiece **72**, the air return valve is preferably a resilient valve that is biased to a closed configuration in which the valve is sealed and thereby prevents air or other fluid from passing therethrough. As discussed, the air return valve may be designed to be configured to an actuated, or open, configuration responsive to more than a predetermined pressure differential existing between the drink bottle's internal compartment and the environment external the drink bottle.

Air return valve **168** may include any suitable structure for selectively permitting air to enter the internal compartment of the drink bottle, preferably while also restricting drink fluid from exiting the internal compartment through the air return valve. As an illustrative, non-exclusive example, the air return valve may be a pressure-differential valve that is adapted to selectively permit air to flow into the drink container's internal compartment while restricting the flow of fluid through the air conduit from the internal compartment to exterior of the drink bottle. An illustrative, non-exclusive example of a suitable construction for air return valve **168** is an umbrella, or diaphragm valve, although other suitable valves may be used, including other suitable self-sealing valves. Another illustrative example of a suitable structure is a "duck bill" configuration, in which the valve assembly projects internally into the internal compartment and includes lips that are adapted to spread apart from each other to define a passage through which air may be returned into the internal compartment of the drink bottle, but which are biased together to resist drink fluid passing from the internal compartment through the passage. Further examples include valves having one or more slits, including intersecting slits. When a self-sealing valve (i.e., a valve that is biased to a sealed configuration) is utilized, the seal may be provided by abutting surfaces of the valve itself and/or by the valve sealing against a portion of the drink bottle.

It is within the scope of the present disclosure that drink containers that include an air return assembly **160** may alternatively not include any form of physical valve that restricts the flow of fluid through the air conduit. In some embodiments, the air return assembly may include an air conduit that is obstructed on at least one of its ends (internal the fluid container or external the fluid container) when the drink bottle is not being used, such as when a pivotal dispensing nozzle is pivoted to a closed configuration. Air return assembly **160** is preferably positioned so that its air conduit is not obstructed by a user's mouth when the drink bottle is used to dispense drink fluid to a user.

FIG. **9** also graphically depicts that drink bottles **10** according to the present disclosure may, but are not required to, include an optional straw **180** that extends from the cap assembly into the fluid container, such as to (or at least proximate) the lower region of the fluid container. Straw **180** enables a user to draw drink fluid from the drink container via mouthpiece **72** without having to tip the drink bottle so that drink fluid may flow into the fluid conduit **74**. For example, as the size of the fluid container increases, users may be more likely to want to draw drink fluid from the drink bottle without having to lift and tilt the drink bottle to the generally horizontal or even inverted configuration that would be used if straw **180** was not present. Straw **180** may be removably (or permanently) coupled to a corresponding mount **182** on the cap assembly, such as at or proximate the inlet **80** of fluid conduit **74**. A benefit of a removable straw structure **180** is that a user may selectively attach or remove the straw structure from the cap assembly, such as depending upon the desired use of the drink bottle at a given time. As discussed, it is also within the scope of the present disclosure that the straw may be fixedly, or permanently, attached to the cap assembly. As used herein, "removably," "removably coupled," and "removably attached" refer to structures that are designed to be repeatedly connected and disconnected

without destruction of the corresponding structures. Similarly, fixedly connected or permanently coupled structures refer to structures that are not designed to be separated without destruction of at least a portion of the structures and/or the mechanism that joins the structures.

FIG. **9** also illustrates that drink bottles **10** according to the present disclosure may, but are not required to, include (or be selectively used with) elongate, flexible drink tubes, or external straw structures, **190** that fluidly interconnect the bite-actuated mouthpiece with mount **100** or another suitable receiver on cap assembly **14**. It is within the scope of the present disclosure that any of the drink bottles disclosed, illustrated, and/or incorporated herein may be selectively utilized with an elongate drink tube **190**. A potential benefit of this optional construction is that a user may draw drink fluid from the drink bottle without having to hold the drink bottle. Although it is within the scope of the present disclosure that the drink tube may be integrated with or otherwise permanently secured to one or both of the cap assembly or the bite-actuated mouthpiece, it may be desirable for each of these components to be removably coupled to the drink tube. For example, this permits the drink bottle to be used with the mouthpiece connected directly to the cap assembly (such as to mount **100**) or to be connected to the cap assembly by drink tube **190**. In FIG. **9**, an optional mount **192** is shown interconnecting the drink tube with mount **100**, such as with the end region thereof), although it is within the scope of the present disclosure that the drink tube may be coupled directly to an end of the mount, such as by extending the corresponding end of the drink tube within or over an end of the mount. After attachment to the mount, the drink tube may optionally be described as forming an extension of the fluid conduit **74** of the drink bottle. When drink bottles according to the present disclosure include an elongate drink tube, such as tube **190**, it is also within the scope of the present disclosure that the downstream assembly defined by the drink tube and mouthpiece may optionally include one or more quick-connect assemblies and/or flow-regulating devices and accessories, such as disclosed in U.S. Pat. Nos. 6,908,015, 7,073,688, and U.S. Patent Application Publication No. 2004/0089301, the complete disclosures of which are hereby incorporated by reference herein for all purposes.

The previously discussed FIGS. **7-9** schematically illustrate a variety of components and structures that may (but are not required to be) incorporated into drink bottles according to the present disclosure. It is within the scope of the present disclosure that these components and structures, when present, may have any suitable structure meeting the functional criteria set forth herein and may be implemented individually or in combination with others of these or other components and structures.

FIGS. **21-27** show a less schematic example of a suitable cap assembly **14** that may be used with drink bottles **10** according to the present disclosure. The example shown in FIGS. **21-27** includes non-exclusive examples of various ones of the previously discussed components and structures. However, it is with the scope of the present disclosure that other components and/or structures may be utilized in place of or in addition to the illustrated components and structures. Accordingly, the depicted example is not intended to require the selected examples and combination of components and structures. Instead, it is intended to provide an illustrative, non-exclusive example of a suitable construction for cap assemblies according to the present disclosure. The other components, structures, and variants thereof that are illustrated, described and/or incorporated herein may be selectively utilized with the illustrated cap assembly without departing from the scope of the present disclosure. Similarly, the illustrated cap assembly may be used with any of the drink bottles described, illustrated, and/or incorporated herein, as may the other cap assemblies and/or mouthpieces described, illustrated and/or incorporated herein.

In the example shown in FIGS. **21-27**, the cap assembly includes a base **70** from which a mount, or drink spout, **100** extends. The mount is pivotally coupled to the base of the cap assembly and is selectively pivoted within a range of positions relative to the base of the cap assembly. In FIGS. **21**, **23**, and **26**, the mount is shown in a stowed configuration, while in FIGS. **22**, **24-25** and **27**, the mount is shown in illustrative dispensing configurations within the range of positions. The dispensing configurations of the mount may also be described as deployed and/or ready-to-drink configurations. The cap assembly includes a bite-actuated mouthpiece **72** that is mounted on mount **100** and is in fluid communication therewith. The illustrative mouthpiece includes a dispensing face **90** having a self-sealing opening **86** through which drink fluid may be selectively dispensed when the mount and mouthpiece are both in dispensing configurations.

In the illustrative example shown in FIGS. **21-27**, the mount includes an optional flange, or lever arm, **122** that projects from the mount and provides a surface that may be grasped or otherwise suitably engaged by a user, such as by a user's finger or thumb, to draw the mouthpiece and its mount from the stowed configuration toward, or to, a ready-to-drink configuration. Flange **122** may optionally be utilized with any of the other pivotal (or otherwise selectively stowable) mounts that are described, illustrated and/or incorporated herein.

The illustrative example of a cap assembly **14** shown in FIGS. **21-27** also includes a handle **140** that extends from the base of the cap assembly. Handle **140** may take any other suitable form, may have a rigid or flexible construction, and may be (but is not required to be) used with any of the other cap assemblies that are disclosed, illustrated and/or incorporated herein. When present, handle **140** may, but is not required to, define a closed perimeter, or boundary, **142** through which a lanyard, karabineer, belt, strap, user's finger, or other structure may extend to hold and/or retain the drink bottle in a selected position. It is within the scope of the present disclosure that this closed boundary is perhaps best seen in FIG. **25**. The closed boundary may be defined entirely by the handle or that it may be defined by the handle and the base of the cap assembly. Regardless, the closed boundary refers to a closed perimeter around an opening through which an object may be inserted, such as to position or coupled to the drink container. Additionally or alternatively, when the drink bottle includes a tether than interconnects the cap assembly and the fluid container, the tether may also define (when the cap assembly is properly mounted on the fluid container) a (or another) closed boundary through which a strap or other securing or positioning structure may extend.

FIG. **25** also illustrates a non-exclusive example for a suitable pivotal mounting mechanism for mount **100**, with the mount including lateral projections **150** that are received into sockets **152** defined by portions of the base **70** and handle **140** of the cap assembly. The projections are rotatable within the sockets, and thereby function as rotatable supports, or axles, upon which the mount and any attached mouthpiece may be pivotally moved relative to the base of the cap assembly, such as between stowed and dispensing configurations and/or otherwise within the previously discussed range of positions. This illustrative mounting con-

figuration is intended to provide a non-exclusive example of a suitable configuration, and it is within the scope of the present disclosure that other configurations may be utilized.

In the illustrated example, and as indicated in FIGS. **21-22** and **25**, the handle also provides guards **144** that are positioned to protect the bite-actuated mouthpiece from unintentional contact and/or exposure at least when the mouthpiece is in its stowed configuration. In the illustrated example, handle **140** provides a pair of lateral guards **146** that extend on opposing sides of the mouthpiece, as well as a dispensing face guard, or cover, **148** that is adapted to protect the dispensing face of the bite-actuated mouthpiece when the mouthpiece is in its stowed configuration. For example, guard **148** may provide a form of dust cover that protects the dispensing face, and thus the slit or other opening formed therein, from being contacted by dirt, grime, and other substances when the mouthpiece is in its stowed configuration. As handle **140** is itself optional and thereby not required to all embodiments of drink bottles according to the present disclosure, it follows that handle **140**, when present, may be formed with only one or more of the illustrated guards, with one or more additional guards, and/or without any guards.

In FIGS. **26** and **27**, the internal structure of the cap assembly shown in FIGS. **21-25** is shown in more detail. For example, the illustrated cap assembly includes a coupling structure **45** in the form of threads **46**. As discussed, any other suitable coupling structures may be utilized without departing from the scope of the present disclosure. FIGS. **26** and **27** provide a graphical illustration of a pivotal mount **100** that defines a portion of fluid conduit **74** and therefore may be referred to as a drink spout through which drink fluid may selectively flow from the drink container, through an inlet **80** of the fluid conduit defined by the cap assembly, and thereafter through an outlet **104** of the mount into the internal chamber **110** of the bite-actuated mouthpiece **72**. When the mouthpiece is urged to a dispensing configuration, such as by a user biting upon the mouthpiece, the drink fluid may be dispensed through the self-sealing opening **86** in the mouthpiece.

The illustrated example of a cap assembly **14** includes a manual on/off valve, or shutoff valve, **120** that is defined at least in part by the mount. As shown in FIG. **26**, fluid conduit **74** is obstructed by a portion of the body **154** of the mount when the mount is in a stowed configuration. As shown with consideration of FIGS. **26** and **27**, the mount's body includes an inlet **156** that is selectively aligned in fluid communication with the inlet **80** of the fluid conduit. In FIG. **26**, the mount is in a stowed configuration and the fluid inlet to the mount is not aligned in fluid communication with the inlet of the fluid conduit. As such, drink fluid is prevented from flowing from the fluid container and through the fluid conduit to the mouthpiece. Therefore, drink fluid from the fluid container will not be dispensed through the fluid conduit and mouthpiece regardless of the configuration of the mouthpiece. When the mount is pivoted to a dispensing configuration, such as shown in FIG. **27**, drink fluid may flow through the entire fluid conduit. FIGS. **26** and **27** include an optional gasket, or sealing member, **158**. As illustrated, the gasket takes the form of a compressible o-ring, but any other suitable structure may be utilized when sealing member **158** is included in cap assembly **14**.

In FIGS. **26** and **27**, the inlet **80** of the fluid conduit is defined by an optional mount **182** for an internal straw that may be selectively attached to the mount. When attached, the inlet for the fluid conduit would be defined by the distal end of the straw. When mount **182** is not present, the inlet to the fluid conduit may be defined by a portion of the cap assembly beneath the mount, or optionally, by the fluid inlet to the mount itself.

FIGS. **26** and **27** also provide a graphical example of a cap assembly **14** that includes an air return assembly **160**. In the illustrative, non-exclusive example, the air return assembly includes an air return valve **168** that has an umbrella valve configuration, in which the valve assembly includes an internally deflectable flap or perimeter region **170** that is biased to seal against a region **172** of the underside (or other suitable portion) of the cap assembly that contains an aperture or other passage or conduit **162** through which air may selectively flow when the air return valve is in a open, or deflected configuration.

FIGS. **28** and **29** generally correspond to the cap assembly shown in FIGS. **26** and **27**. FIGS. **28** and **29** provide a graphical demonstration that cap assemblies **14** that include an on/off valve **120** may implement the shutoff mechanism with structure other than the structure shown in FIGS. **26** and **27**. For example, in FIGS. **28** and **29**, the on/off valve includes a flexible tube, or conduit **124** that in FIG. **28** fluidly interconnects the inlet **80** of the fluid conduit with the internal chamber **110** of the mouthpiece. However, when the mount is pivoted to a stowed configuration, such as shown in FIG. **29**, the body **154** of the mount engages the tube and collapses or otherwise compresses or crimps the tube to obstruct the fluid conduit, thereby preventing the flow of drink fluid from the fluid container, through the fluid conduit, and out of the mouthpiece, regardless of the configuration of the mouthpiece. As the mount is pivoted from the stowed configuration shown in FIG. **29** to a dispensing configuration, such as the illustrative configuration shown in FIG. **28**, the constrictive pressure applied by the body of the mount is correspondingly reduced, and a fluid flow path through the fluid conduit is reestablished.

INDUSTRIAL APPLICABILITY

The drink bottles and drink containers of the present disclosure are applicable to the hydration fields, and are specifically applicable to portable bottles and similar containers from which users may selectively drink potable drink fluid.

It is believed that the disclosure set forth above encompasses multiple distinct inventions with independent utility. While each of these inventions has been disclosed in its preferred form, the specific embodiments thereof as disclosed and illustrated herein are not to be considered in a limiting sense as numerous variations are possible. The subject matter of the inventions includes all novel and non-obvious combinations and subcombinations of the various elements, features, functions and/or properties disclosed herein. Similarly, where the claims recite "a" or "a first" element or the equivalent thereof, such claims should be understood to include incorporation of one or more such elements, neither requiring nor excluding two or more such elements.

It is believed that the following claims particularly point out certain combinations and subcombinations that are directed to one of the disclosed inventions and are novel and non-obvious. Inventions embodied in other combinations and subcombinations of features, functions, elements and/or properties may be claimed through amendment of the present claims or presentation of new claims in this or a related application. Such amended or new claims, whether they are directed to a different invention or directed to the same invention, whether different, broader, narrower, or equal in

scope to the original claims, are also regarded as included within the subject matter of the inventions of the present disclosure.

The invention claimed is:

1. A drink container, comprising:

a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes an inlet through which drink fluid from the fluid container may enter the fluid conduit, and a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base, wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet; wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;

wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and

wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

2. The drink container of claim 1, wherein the cap assembly base further comprises a handle that extends from the cap assembly base, and further wherein the handle is secured to the cap assembly base in a position that obstructs removal of the pair of lateral projections from the pair of sockets.

3. The drink container of claim 1, wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position, and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

4. The drink container of claim 3, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

5. The drink container of claim 3, wherein the dust cover projects above an upper surface of the cap assembly base.

6. The drink container of claim 3, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

7. The drink container of claim 1, wherein the cap assembly further comprises a handle that extends in a fixed orientation from the cap assembly base and which defines at least a portion of a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

8. The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

9. The drink container of claim 1, wherein the resilient mouthpiece includes projections that extend generally transverse to the portion of the fluid conduit that extends through the resilient mouthpiece, and further wherein the projections engage an end region of the pivotal mount.

10. The drink container of claim 9, wherein the projections are internal projections.

11. The drink container of claim 1, wherein the resilient mouthpiece is configured to be selectively removed from and recoupled to the pivotal mount.

12. The drink container of claim 11, wherein the resilient mouthpiece includes a mouthpiece base with an end distal the dispensing outlet that has a contoured configuration that does not extend at a constant distance from the dispensing outlet, wherein the end of the resilient mouthpiece base includes a projecting region and a concave region, wherein the projecting region of the end of the mouthpiece base extends a greater distance away from the dispensing outlet than the concave region of the end of the mouthpiece base, and further wherein the pivotal mount is configured to engage the projecting region and the concave region of the mouthpiece base to restrict rotation of the resilient mouthpiece relative to the pivotal mount.

13. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

14. The drink container of claim 13, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

15. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face that defines the dispensing outlet, wherein the resilient mouthpiece includes opposed bite regions, wherein the dispensing face includes opposed lips between which the dispensing outlet is defined, and further wherein when a user applies compressive forces

to the opposed bite regions, the lips are urged away from each other to enlarge the dispensing outlet.

16. The drink container of claim **15**, wherein the opposed lips seal against each other when the opposed bite regions are not urged toward each other.

17. The drink container of claim **1**, wherein the pivotal mount further includes a projecting flange that extends away from a portion of the fluid conduit that extends through the pivotal mount, wherein the projecting flange provides a lever arm that is configured to be engaged by a user's finger to pivot the pivotal mount from the stowed position to the dispensing position.

18. The drink container of claim **1**, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

19. The drink container of claim **1**, wherein the flexible tube is secured to the pivotal mount.

* * * * *

IP Office	Application	Applicant	Title	Application Date	Priority Number	Publication Number	Publication Date
US	11313488			12/20/2005	US 60670828 US 60706700 US 11313488	US 20060226110 A1 US 7533783 B2	10/12/2006 05/19/2009
TW	95112378			04/07/2006	US 60670828 US 60706700 US 11313488	TW 200706461 A TW I297317 B	02/16/2007 06/01/2008
CN	201210118993			04/10/2006	US 60670828 US 60706700 US 11313488	CN 102670022 A CN 102670022 B	09/19/2012 11/05/2014
EP	06749713			04/10/2006	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	EP 1874646 A2 EP 1874646 A4 EP 1874646 B1	01/09/2008 10/16/2013 08/10/2016
ES	06749713			04/10/2006	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	ES 2599861 T3	02/03/2017
AU	2006235383			04/10/2006	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	AU 2006235383 A1 AU 2006235383 B2	10/19/2006 04/14/2011
US	PCT/US06/13410			04/10/2006	US 60670828 US 60706700 US 11313488	WO 2006110707 A2 WO 2006110707 A8 WO 2006110707 A3	10/19/2006 07/26/2007 04/16/2009
CA	2643788			04/10/2006	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	CA 2643788 A1 CA 2643788 C	10/19/2006 03/05/2013

IPR 2024-01137
CamelBak - Ex 2001
Page 25 of 857

IP Office	Application	Applicant	Title	Application Date	Priority Number	Publication Number	Publication Date
GB	0722018			04/10/2006	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	GB 0722018 D0 GB 2439905 A GB 2439905 B	12/19/2007 01/09/2008 09/30/2009
CA	2791377			04/10/2006	US 60670828 CA 2643788 US 60706700 US 11313488	CA 2791377 A1 CA 2791377 C	10/19/2006 01/27/2015
CN	200680020859			04/10/2006	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	CN 101355896 A CN 101355896 B	01/28/2009 06/27/2012
GB	0907359			04/10/2006	US 60670828 US 60706700 GB 0722018 US 11313488	GB 0907359 D0 GB 2457608 A GB 2457608 B	06/10/2009 08/26/2009 01/13/2010
US	11588476			10/26/2006	US 60670828 US 60706700 US 11313488 US 11588476	US 20070039959 A1 US 8622237 B2	02/22/2007 01/07/2014
US	12133954			06/05/2008	US 60670828 US 60706700 US 12133954 US 11313488 US 11588476	US 20080237233 A1 US 8777048 B2	10/02/2008 07/15/2014
HK	09105486			06/18/2009	US 60670828 US 60706700 US PCT/US06/13410 US 11313488	HK 1126636 A1	09/11/2009
AU	2011201183			03/16/2011	AU 2006235383 US 60670828 US 60706700 US PCT/US06/13410 US 11313488 AU 2011201183	AU 2011201183 A1 AU 2011201183 B2	04/07/2011 02/09/2012
AU	2012202351			04/20/2012	AU 2011201183 AU 2012202351	AU 2012202351 A1 AU 2012202351 B2	05/10/2012 10/30/2014

IPR 2024-01137
CamelBak - Ex 2001
Page 26 of 857

Zak Designs, Inc. Exhibit 1002

IP Office	Application	Applicant	Title	Application Date	Priority Number	Publication Number	Publication Date
HK	13103113			03/12/2013	US 60670828 US 60706700 US 11313488	HK 1176254 A1	07/26/2013
US	14329096			07/11/2014	US 60670828 US 60706700 US 14329096 US 12133954 US 11313488 US 11588476	US 20140319183 A1 US 9463911 B2	10/30/2014 10/11/2016
US	15287915			10/07/2016	US 12133954 US 11588476 US 60670828 US 15287915 US 60706700 US 14329096 US 11313488	US 20170021982 A1 US 10023365 B2	01/26/2017 07/17/2018
US	16035418			07/13/2018	US 12133954 US 11588476 US 60670828 US 15287915 US 60706700 US 14329096 US 16035418 US 11313488	US 20180327151 A1 US 10676255 B2	11/15/2018 06/09/2020
US	16862105			04/29/2020	US 12133954 US 16862105 US 11588476 US 60670828 US 15287915 US 60706700 US 14329096 US 16035418 US 11313488	US 20200255192 A1 US 11242178 B2	08/13/2020 02/08/2022
US	17565354			12/29/2021	US 12133954 US 16862105 US 11588476 US 17565354 US 60670828 US 15287915 US 60706700 US 14329096 US 16035418 US 11313488	US 20220119168 A1	04/21/2022

IPR 2024-01137
CamelBak - Ex 2001
Page 27 of 857

US006116458A

United States Patent [19]

Dark

[11] Patent Number: 6,116,458

[45] Date of Patent: Sep. 12, 2000

[54] **SPORT DRINKING CUP WITH VALVED STRAW CAP**

[76] Inventor: **Richard C. G. Dark**, 2248 Gum Tree La., Fallbrook, Calif. 92028

[21] Appl. No.: **09/257,355**

[22] Filed: **Feb. 25, 1999**

[51] **Int. Cl.**[7] **A47G 21/18**

[52] **U.S. Cl.** **220/709**; 220/708

[58] **Field of Search** 220/709, 708, 220/707, 711, 714, 715, 717, 719

[56] **References Cited**

U.S. PATENT DOCUMENTS

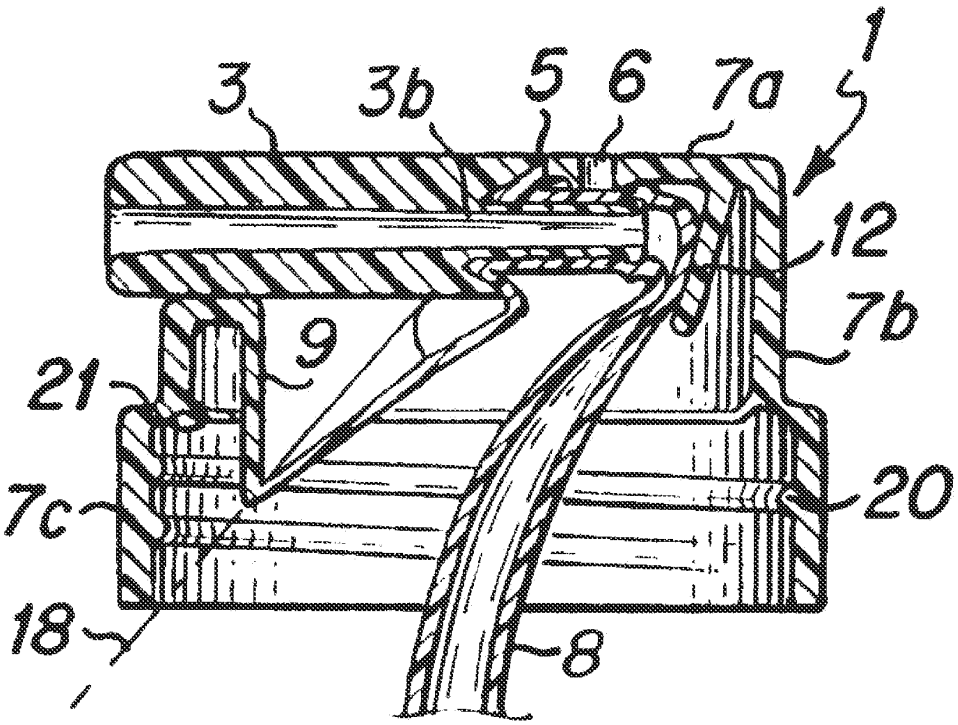
5,203,468	4/1993	Hsu	220/254
5,242,079	9/1993	Stephens et al.	220/705
5,339,982	8/1994	Tardie	220/708
5,346,081	9/1994	Lin	215/229
5,361,934	11/1994	Spence, Jr.	220/707
5,392,968	2/1995	Dark	222/529
5,465,866	11/1995	Belcastro	220/709
5,520,304	5/1996	Lin	220/707
5,897,013	4/1999	Manganiello	220/252

Primary Examiner—Stephen Castellano
Attorney, Agent, or Firm—Ronald M. Goldman

[57] **ABSTRACT**

An easy-to-operate vented leak-proof drinking cup cap for a bottle is formed by a pivotable drinking spout (**3**) and diaphragm arrangement (**4**) in the cap base (**7**). The drinking spout that forms the mouthpiece on the upper side of the diaphragm through which the user sucks liquid, contains a portion (**3***b*) on the underside the diaphragm. That lower spout portion carries an elastic hose or tube (**8**) for immersion in the bottle's liquid when the drinking spout is in the open position, whereby the series of passages through the elastic tube and drinking spout serves as a straw. When the spout is pivoted to its closed position and latched, in one movement, the lower portion of the spout swings a portion of the elastic tube against the vent (**6**), closing the vent, and forces another portion of that hose into an interference surface (**12**), creating a bend or kink in the hose that prevents liquid passage.

17 Claims, 1 Drawing Sheet



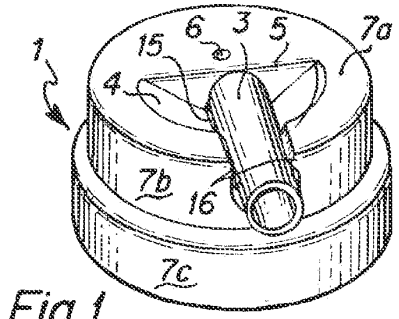


Fig.1

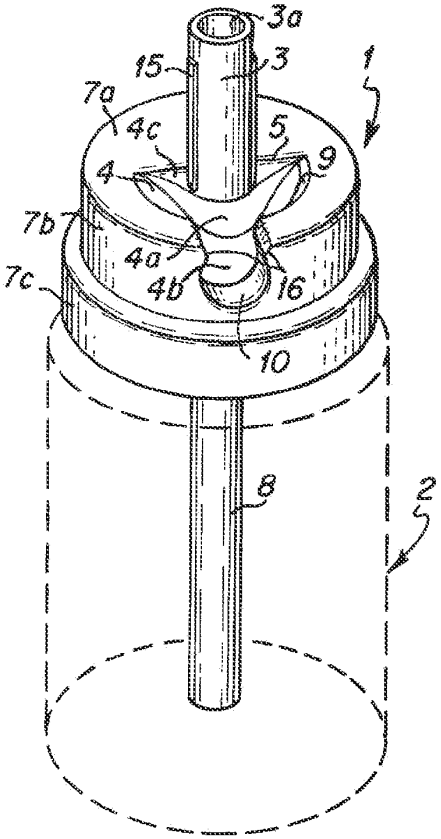


Fig.2

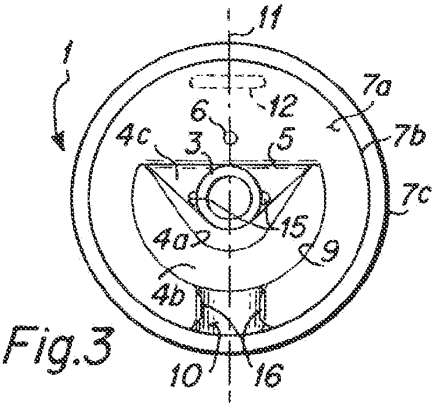


Fig.3

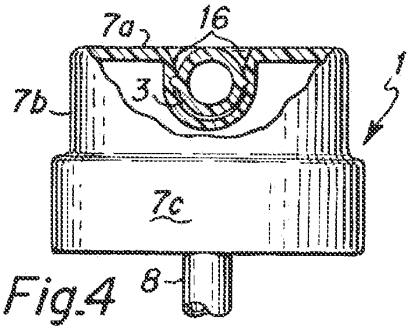


Fig.4

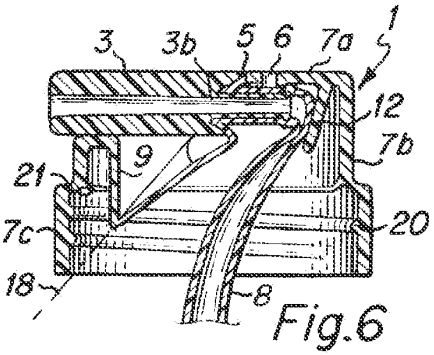


Fig.6

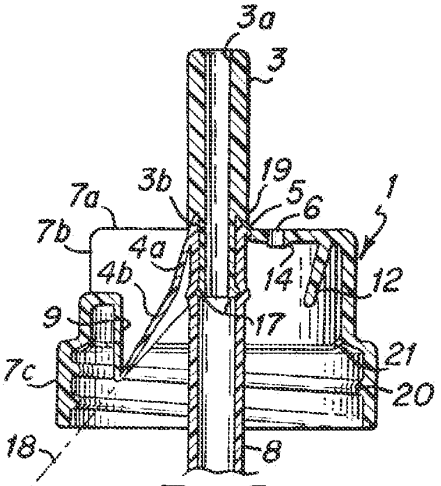


Fig.5

SPORT DRINKING CUP WITH VALVED STRAW CAP

FIELD OF THE INVENTION

This invention relates to sport drinking cups and, more particularly, to a sport drinking cup that contains a resealable straw-like member.

BACKGROUND

Sports enthusiasts, particularly bicyclists, are accustomed to carrying a container of water along which they are able to efficiently access "on the run" to quench a thirst. One common form for the container is a flexible plastic bottle with a drinking spout that is manually opened and closed. Conveniently, the drinking spout serves as a mouthpiece for the drinker. Moving the spout to the open position, the cyclist inserts the spout into the mouth and squeezes the bottle, expressing drinking water. Another form is a plastic bottle having a plastic drinking straw. Being always open, the cyclists grips the bottle and, with the straw's end in the mouth, squeezes to express the drinking water.

Further, in my patent U.S. Pat. No. 5,392,968 granted Feb. 28, 1995, entitled Dispensing Closure and Method, hereafter referred to as the "Dark '968 patent", a one-piece molded plastic closure for fluids is described that contains a pivotable spout and a compound diaphragm, the disclosure of which is incorporated herein by reference in its entirety. Among other things evident from inspection of the patent there is also described adaptations to that novel closure structure to enable the closure to serve as such a sport drinking cup cap. The structure illustrated in FIGS. 20 and 21 of that patent employs a flexible thin-walled tubular extension integrally formed on the underside of a more rigid thick walled tubular fluid dispensing spout that lies on the underside of the closure base. With the spout in its open position upstanding fluid confined within the associated container or bottle is dispensed through the spout. When the spout is pivoted down to the closed or sealed position and latched, the flexible tubular extension is pressed against a seal member, a plastic member that depends from the underside of the closure base, collapsing and flattening a portion of the tube to close the fluid passage therethrough.

An alternative embodiment described in the patent combines the one-piece closure with a separate flexible straw to form a two-piece structure. As illustrated in FIGS. 22 and 23 of that patent, a flexible plastic straw is inserted through the rigid spout and extends through the closure base and into the liquid confined in the container. When the pivotable spout is pivoted down to the closed or sealed position and latched, the pivoting spout swings the straw around and bends it, pressing a portion of the straw against a seal member, a plastic member that depends from the underside of the closure base, and, as in the preceding structure, collapses and flattens a portion of the straw to block the fluid passage. Although not specifically illustrated, the foregoing drinking cup caps may include a conventional air vent that extends through the closure base to permit liquids to be more easily sucked from the bottle. The vent allows air to enter the bottle as the liquid is sucked out.

Although novel, the foregoing drinking cup cap structures illustrated did not achieve market acceptance for reasons not herein fully described. The soft tube extending out of the mouthpiece was not acceptable and the lack of a vent in the cap made the drinking cup difficult to use.

Preferably air vents employed in the foregoing drinking cup caps are made sufficiently small in size so that the surface tension of the confined liquid alone would prevent any leakage when the cap was closed. One problem with small sized vents in rigid caps is that the liquid can only be sucked from the container as fast as the exterior air can enter, which is an annoyance to some. Further, because of the varied nature of liquids held in the bottle, such as beverages, juices and water, and to minimize the potential for clogging that vent, wherein operation would be more difficult, particularly for uninformed users who may not understand the purpose of the air vent, the approach taken is to use a much wider vent than would otherwise be necessary. As a consequence, the drinking cup cap would allow some minor leakage, and could not be characterized as leak-proof.

Good hygiene is a concern that is sometimes overlooked. To ensure that the drinking cup is sanitary it should be frequently disassembled and washed. The most widely available drinking cup cap uses a push-pull valve, which is formed of two components. That valve is not designed to be dismantled for cleaning. Therefore, even when the drinking cup and cap are washed in a normal manner, particles of juice or other liquids may remain between the two valve components inside the valve, causing contamination. Other drinking caps, such as those imported from China, are manufactured and assembled from an even larger number of components. One such drinking cup product consists of a cap, a straw, an a rubber tube joining the straw to the spout, and an over cap that, when twisted, closes the valve and encapsulates the spout. That product is not designed for cleaning and is almost impossible to sterilize.

A principal object of my invention is to provide a leak-proof drinking cup cap.

Another object of my invention is to provide a leak proof drinking cup that takes advantage of some elements of my prior designs while being more easily manufactured and used.

A further object of my invention is to provide a drinking cup cap that requires less force to unlatch and open making it easier for user's to use a drinking cup "on the run".

And a still further object of my invention is to provide a drinking cup cap that may be easily dissassembled for cleaning.

SUMMARY OF THE INVENTION

In accordance with the foregoing objects and advantages, the drinking cup cap includes a pivotally mounted drinking spout that is manually pivoted, swivelled, about a pivot hinge on the base of the cap, moving between an open position, with the spout upstanding vertically, and a closed position, with the spout oriented horizontal on the upper side of the cap base. The spout includes an extended portion, the lower spout portion, which is located on the under side of the cap base. With the drinking spout being pivoted to the closed position along the upper side surface the lower spout portion simultaneously pivots toward the underside surface of the cap base. The lower spout portion is attached to an elastic tube, a portion of which ensleeves the lower spout portion and the remainder of which extends from the lower spout portion for immersion into liquid within a bottle to which the cap is attached. With the drinking spout open, a user may suck liquid through the mouthpiece, which is aided by a vent passage also contained in the cap base.

When the spout is pivoted to the closed position, the lower spout portion swings the elastic tube about and presses one portion of the elastic tube over the vent passage, and, simultaneously, pinches closed another portion of the elastic tube, thereby sealing the cap. With a single action the cap

openings are closed. With both cap openings closed the confined liquid cannot leak or escape from the bottle, nor can external contaminants enter.

Appropriately the drinking cup includes a diaphragm that permits the drinking spout to pivot and a releasible latch to latch the drinking spout in the closed position. In accordance with another feature to the invention, except for the elastic tube, all of the foregoing elements are suitably an integral assembly formed of one-piece of plastic material, suitably polypropylene.

As an advantage, the preferred embodiment contains only two components, the elastic tube and the cap, the latter containing the integrally formed diaphragm and spout. The components may be easily separated and washed. The cap may be washed on the top shelf of the dishwasher, and the elastic tube can be thoroughly flushed out and cleaned. Reassembly is simple and requires no special tools or training.

The foregoing and additional objects and advantages of the invention together with the structure characteristic thereof, which was only briefly summarized in the foregoing passages, becomes more apparent to those skilled in the art upon reading the detailed description of a preferred embodiment, which follows in this specification, taken together with the illustration thereof presented in the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. **1** is a front perspective view of a preferred embodiment of the cap to the drinking cup, illustrated in the closed condition;

FIG. **2** is an embodiment of the drinking cup containing the drinking cup cap of FIG. **1**, illustrated in an open condition, and an associated bottle, partially illustrated;

FIG. **3** is a top view of the drinking cup cap of FIG. **2**;

FIG. **4** is a front partial section view of FIG. **1**, illustrating the integrally formed latch.

FIG. **5** is a side section view of the drinking cup cap as illustrated in FIG. **2**; and

FIG. **6** is a side section view of the drinking cup cap in the closed condition as illustrated in FIG. **1**.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Concurrent reference is made to FIG. **1** which illustrates my drinking cup cap **1** in a closed position and to FIG. **2** which illustrates the foregoing elements in an open position and, in dash lines, the associated liquid container **2**, which, with the foregoing cap, forms a drinking cup. As shown in FIG. **1**, the cap includes a pivotable drinking spout **3**, diaphragm **4**, hinge **5**, vent passage **6**, located behind the lower or base end of spout **3**, all formed on a cap base. In the illustrated embodiment the cap base is formed of a relatively planar upper surface **7***a*, located on the top of cylindrical wall **7***b*, and a cylindrical walled collar **7***c*, slightly larger in diameter than and supporting wall **7***b*. The foregoing configuration of the cap base is preferred, although as those skilled in the art recognize from study of this specification, in other embodiments alternative geometries may be employed.

As illustrated in FIG. **2**, cap **1** is attached to the top of container **2**, a bottle. Since the drinking cap is intended for use with any conventional screw top plastic or glass bottle, the details of which are not necessary to an understanding of the invention, the bottle need not be further illustrated or described. An elastic tube **8**, later herein more fully described, is partially illustrated, extending from the underside of drinking cap **1** and into the bottom region of that bottle.

In FIG. **1**, drinking spout **3** is illustrated in its closed position, extending horizontally, pivoted down into a U-shaped recess in the cap base that extends radially through the side. The spout extends slightly beyond the side wall to the cap base, allowing a protruding portion for the user to grip or push against in order to unlatch and pivot the spout up to the open position. In FIG. **2** the drinking spout **3** is illustrated in in the open position, in which the drinking spout is vertically upstanding. The drinking spout is connected to hinge **5**, as later herein discussed in greater detail. The hinge is a living hinge integrally formed in the upper surface of the cap base. That hinge defines the pivot axis on which the spout pivots, or more appropriately, swivels, between the spout's open and closed positions and vice-versa.

As in my prior patent, U.S. Pat. No. 5,392,968, pivotable movement of the drinking spout **2** is possible due to the function of diaphragm **4**, which is attached to both spout **3** and to the support surfaces of the more rigid cap base. The diaphragm's flexure permits the drinking spout to be pivoted and maintains the continuity of the cap's surfaces in the face of that spout movement.

As later herein described, spout **3**, when in the open position, together with elasteic tube **8**, forms a straw by means of which the user may suck liquid from bottle **2**. Vent passage **6** extends through the upper surface **7***a* and serves as an air vent. When sucking on the end of the drinking spout **3** to draw up liquid, the vent permits external air to pass into the confined region on the underside of the cap base and the liquid confined in bottle **2** which aids in sucking up the liquid.

Reference is made to FIG. **3** which illustrates the embodiment in a top view with the drinking spout **3** in the open condition as in FIG. **2**. The full expanse of diaphragm **4** is visible in this view. Diaphragm **4** consists of an upper or top portion **4***c*, which is relatively rigid, a top flexible portion **4***a* and a lower flexible portion **4***b*. A semi-circular region, recessed from planar top surface **7***a* in the cap base, is bordered on one side by a depending circular wall **9**, only partially visible in FIGS. **1** and **2**, to which diaphragm **4** is attached. The diaphragm essentially serves as part of the border or surface to that recess.

Circular wall **9** extends in a semi-circle about the base end of spout **3** and is symmetric therewith. The wall's length varies and is determined by the downward slope of diaphragm **4**; the wall need be only deep enough to reach and attach the outer edges or border of the diaphragm **4**. That wall's depth varies from a maximum at the center to a minimum at each end at hinge **5**. Circular wall **9** is relatively rigid and provides a firm support for the diaphragm. In turn the juncture between the diaphragm and that wall permits the diaphragm to flex in the manner described in the Dark '968 patent, during the opening and closing operation of the spout.

The upper planar surface **7***a* is interrupted also by a walled U-shaped recessed portion **10**, recessed from the top planar surface, and forms a passage or trench from the aforementioned recessed region, through both the depending circular wall **9** and the outer cylindrical wall **7***b*. The U-shaped region permits the spout to be pivoted to and held down in

a horizontal position, as shown, when closed. The U-shaped recess **10** extends radially in line with the plane of rotation of spout **2**, represented by line **11**, and is wide enough and deep enough to receive the spout. As shown that plane of rotation extends through the axis of spout **3**, vent passage **6** and, illustrated in hidden lines, an interference rib **12**, the latter located on the underside of the cap's upper surface *7a*.

The outer edges of lower flexible diaphragm portion *4b* are attached to the semi-circular wall **9**. Upper diaphragm portion *4c*, specifically two triangular shaped portions, which are integral with of the flexible foldable portion *4a* of the diaphragm, latter herein more fully described, one of which is located on each side of drinking spout **3**. The triangular shaped upper diaphragm portions, being formed with a greater thickness of material and being relatively small in size than diaphragm portions *4a* and *4b*, are relatively rigid, relative to those other diaphragm portions. Upper portion *4c* connect to the cap base along hinge **5** and also connect to spout **3**. As shown diaphragm **4** serves also as a barrier to fluid. The only passages through the cap are the fluid passage through spout **3** and vent passage **7**.

A pair of axially extending splines **15** are located on diametrically opposite positions on the outer tubular wall at the front end of drinking spout **2**. Those splines protrude radially outwardly sideways a short extent. A pair of elongated barbs **16** formed in the opposed side walls to U-shaped region **10**, together with splines **15** form a releasible latch that holds spout **3** in the closed position illustrated in FIG. **1**, until manually released by the user by pushing up on the distal end of the spout.

Returning to FIG. **2**, splines **15**, only one of which is fully visible in this view, extend axially along the length of the spout. The spline's length is sufficient to engage barbs **16**, molded within the side walls of U-shaped recess **10**, when the spout is pivoted down.

Reference is made to FIG. **4**, which is a partial front section view of FIG. **1**, and better illustrates the position of the latch member when the spout is latched. As shown, the upper surface of each barb **16** is tapered downward for a short vertical distance, forming a cam surface, and then drops off horizontally. The ends of splines **15** on the spout are spaced apart horizontally a greater distance that the distance between the sloped portions of those barbs, but is spaced about the same distance as the ends of the horizontal portion of those barbs, located at the supporting walls.

To latch spout **3** closed, the user presses down on the spout to force the spout in its closed and latched position. In being pivoted down for closing, splines **15** encounter the cam or sloped surface of barbs **16**, which initially provides an obstruction. The downward force exerted by the user must be sufficient to outwardly flex the side walls of the U-shaped cap portion **10** supporting barbs **16**, and/or, through the splines, inwardly resiliently compress the spout, in order to move the spout down past the horizontal portion of barbs **16** and latch it in place.

Once splines **15** have moved past the tapered portion of the barbs, the flexed surfaces elastically return to their original shape and the barbs overlie the splines. Splines **15** catch and are held by the horizontally oriented surface of barbs **16**, which now hold the spout down against any upward force that may be exerted by resiliency in diaphragm **3** and, as later herein described, by the elastic force in tube **8**.

Referring next to the section view of FIG. **5**, the drinking cap **1** is seen as essentially being a hollow body, formed of relatively thin walls that provides a cavity region on the underside of the upper surface *7a*, bounded by cylindrical walls *7b* and *7c*, the diaphragm and spout. An edge of vertical circular wall **9** to the recessed region is visible in this view. The height of circular wall **9** at any angular position about the axis of the spout **3** varies with the location of the position of outer edge of diaphragm portion *4b*, which extends upwardly at a steep angle relative to horizontal surface *7a*. Vent passage **6** is radially displaced in position from the axis of spout **3**, and from the pivot axis at hinge **5**. The underside of the vent passage is also preferably surrounded by a seal **14**, formed as a circular protruding portion of the underside of cap surface *7a*.

Interference rib **12** is formed integral with the underside of the closure's horizontal planar surface *7a* and is positioned a greater distance away from the axis of the spout **3** and hinge **5**, and is positioned along a radial line **11**, illustrated in FIG. **3**, that intersects both the spout's axis and vent passage **6**. Suitably Interference rib **12** extends down into the underside cavity region to provide a radially inwardly inclined surface oriented at an angle to the vertical, of between about five and ten degrees in a practical embodiment, angled toward and facing spout **3**. As later herein described the slight angle allows the interference rib to serve a second spout latching function in combination with elastic tube **8**.

Continuing with FIG. **5**, drinking spout **3** contains an integral extension or, as variously termed, lower spout portion *3b*, located on the underside of diaphragm **4** beneath upper surface *7a* to complete the fluid passage through the spout, from the upper side of the cap base to the under side. The foot end of the lower spout portion supports a retainer ring **17**, an enlarged outer diameter portion or ring that radially outwardly protrudes from the tubular wall of the spout.

In this embodiment the lower spout portion *3b* is of a restricted outer diameter relative to the upper portion. The length of the lower spout portion is great enough to span at least the radial distance to vent passage **6**, when spout **3** is pivoted about hinge **5** to the closed position, but not so great in length as to contact interference rib **12**. Elastic tube **8** fits over and ensleeves that lower spout portion, frictionally engaging the lower portion's outer cylindrical wall and is secured in place on that spout portion by the frictional force of retaining ring **17**, which elastically expands a small portion of the tube wall. The remaining portion of the elastic tube is suspended from the spout. The elastic tube, only partially illustrated in the figure, is of sufficient length to extend to the bottom region of the associated bottle and, like a straw, is intended to be immersed within any liquid confined in that bottle when the spout is in the open position.

When spout **3** is pivoted down to the closed position, as illustrated in the section view of FIG. **6** to which reference is next made, the lower end of the spout swings elastic tube **8** up against the underside of the closure's upper surface *7a*, pressing the tube's elastic material against seal **14** on the underside of that surface and covering vent passage **6**. It also presses another portion of that elastic tube against interference rib **12**, producing a bend in the tube, and collapsing the tube walls between the lower spout portion's foot end and the confronting surface of the interference rib. The collapsed or "kinked" tube walls thereby block the fluid passage through the tube.

As noted earlier, interference rib **12** is inclined at a five to ten degree angle to the vertical (or ninety to ninety five degrees to the horizontal) toward the spout. The angle creates a second latch method that helps elastic tube **8** to stay

in a sealed position when the spout is in the closed position. As spout **3** is pivoted to the sealed position, shown in FIG. **6**, the elastic tube first engages the lower end of interference rib **12**. With the user exerting downward force on the spout, a portion of that tube, located below the end of tube extension **3***b*, is squeezed past that rib, temporarily compressing the tube at that portion. As that portion is moved upward above the end of the interference rib into the laterally wider region close to the underside of top surface **7***a*, the portion resiliently expands slightly, as the other portion of the tube engages the vent seal. That expansion allows the resilient force of the tube walls to assist in holding the bottom end of the spout in the horizontal, closed position illustrated in the figure. To move the spout end out of the closed position, thus, the force must be sufficient to re-squeeze that portion of the elastic tube. By contributing to the latching function in the foregoing way, it is possible to reduce the strength of the earlier described latch at the front end of the spout.

The portion of the elastic tube **8** sealing the air vent is supported by the rigid walls of the lower spout portion, while the tube portion carried into the bend is a suspended portion. It is appreciated that the foot end of the lower spout portion is sufficiently distant from interference rib **12** so that the kink is preferably positioned slightly below the foot end when the spout is pivoted down as illustrated. That positioning minimizes the force necessary to pivot the spout down and maintain it latched in place.

Reference is again made to FIG. **5**. Diaphragm **4** is preferably a compound diaphragm described in the Dark '968 patent to which reference may be made for a more detailed description and which is incorporated herein by reference. Essentially the diaphragm is formed of two types of diaphragms that are serially connected together in between the cap base and the spout **3**, comprising an invertible diaphragm **4***a* and a flexible foldable diaphragm **4***b* the edges of which are illustrated in the figure.

In the specific embodiments illustrated in that prior patent, a bi-sector plane is illustrated oriented at an angle of forty five degrees to the plane of the planar upper surface of the cap base, such as the horizontal plane of the upper surface **7***a*, illustrated in FIG. **5**. Plane line **18** represents a bisector plane in drinking cap **1** that contains the border of the diaphragm **4** and extends through hinge **5**. In the present invention, that angle between bi-sector plane **18** and the horizontal is made more shallow, specifically forty degrees. When swiveling spout **3** from the vertically upstanding open position to the closed position, the spout pushes on flexible diaphragm **4***b*, which in turn pulls or swivels the invertible diaphragm **4***a* down through the bi-sector plane.

With the forty degree angle the invertible diaphragm **4***a* component of the compound diaphragm inverts, that is, passes through the top dead center position, the bi-sector plane **18**, but does not invert as fully, as occurs in the design shown in the Dark '968 patent in which the forty five degree angle is employed, before a fold over action of foldable diaphragm **4***b* component occurs. The description of the diaphragm's movement during closing, and opening of the spout, is adequately described in the prior Dark '968 patent, which is incorporated herein by reference, and not here repeated.

With full invertible diaphragm inversion it was found that a residual propensity for the diaphragm to pull up slightly occurs, pivoting the spout back by up to five degrees of arc, from the position in which the spout is closed, assuming the spout latch is removed or disabled. Such residual force appears to be due to the fact that the polypropylene material of which the diaphragm is preferably constructed, unlike rubber, does not completely "relax" in the inverted position, and the diaphragm material is distorted along the outer edges. That return or spring back force is small, and much much smaller than the force required to move the diaphragm back through the top dead center position of the invertible plane.

For the most part the invertible diaphragm's residual spring back force is of little or no concern, since the closure's spout latch holds the spout down tightly sealed, and, accordingly, so is the attached diaphragm. Due to the nature of a sport drinking bottle's use, however, one desires to make the drinking bottle as easy to open as possible. To achieve that ease, a latch for the spout should be designed to be less strong than in the foregoing closures of the Dark '968 patent. Since the latch **15** and **16** must handle the described residual spring back force created by the diaphragm's inversion, the problem addressed was to reduce or divert that force. The present invention accomplishes that by reducing the angle of the diaphragm from forty-five degrees to forty degrees. Such change is found to reduce that spring back force to a lower level. The invertible diaphragm portion is no longer required to fully invert when the spout is sealed closed. The spout latch may now be of a weaker design and, hence, is easier to release.

As illustrated in FIG. **5**, drinking spout **3** is attached to the diaphragm **4** by a connecting portion at a position slightly above the horizontal surface **7***a* of the cap base to enable the drinking spout to swivel about the pivot axis of hinge **5**. The smaller diameter lower spout portion **3***b* therefore extends up to a position slightly above surface **7***a*. That permits diaphragm **4** to be slightly greater in size, which facilitates pivoting of the spout between its open and closed positions.

As shown in FIGS. **5** and **6**, cylindrical wall **7***c* serves as a collar for connecting drinking cap **1** to bottle **2**. The internal side of that wall contains an appropriate screw thread **20** molded into the wall for attaching the drinking cap to screw-type container or bottle **2**, earlier illustrated in FIG. **2**, and a flexible annulus **21** that extends from an inner cylindrical wall and is integral therewith. That annulus is radially inwardly directed and is downwardly sloped and is oriented to engage the top edge of the associated drinking bottle and serves as a liquid seal. It is recognized that other conventional side wall configurations may be substituted to connect the cap to the bottle, all of which come within the scope of my invention.

As those skilled in the art appreciate from the side section view of FIG. **5**, all of the foregoing elements of the drinking cup cap, excepting the elastic tube **10**, may be molded from one piece of plastic material, suitably polypropylene, as example, in the manner described in the Dark '968 patent, and forms an integral unitary one-piece structure. Preferably elastic tube **8** is formed of rubber. Less preferred embodiments may use a tube formed of polypropylene material. However, polypropylene creeps, a disadvantage, while rubber is easier to repeatedly stretch and compress, which makes it prefereable.

The foregoing provides a leakproof drinking cup cap that is easy to open and close. It is formed of only two component pieces which are easily assembled together. It is easy to disassemble and clean. One need only remove the cap from the bottle and open the spout, pull off the elastic tube **8**, which is only frictionally held in place. The cap may be washed by hand or in the top shelf of the dishwasher, and the tube can be flushed and cleaned, leaving no trace of any

beverage. The bottle may be separately cleaned. Reassembly is equally simple. The end of elastic tube **8** is simply forced onto the lower spout portion **3***b*, elastically expanding the tube end over the ring **17**. As is apparent, no special tools or training is required.

It is believed that the foregoing description of the preferred embodiments of the invention is sufficient in detail to enable one skilled in the art to make and use the invention. However, it is expressly understood that the detail of the elements presented for the foregoing purpose is not intended to limit the scope of the invention, in as much as equivalents to those elements and other modifications thereof, all of which come within the scope of the invention, will become apparent to those skilled in the art upon reading this specification. Thus the invention is to be broadly construed within the full scope of the appended claims.

What is claimed is:

1. A leakproof vented drinking cup cap comprising a base having top and bottom surfaces, and a vent passage through said base; a pivotable spout extending through said base, said spout having first and second ends and a fluid passage therethrough, said spout being pivotable between a closed position in which said spout is oriented alongside said base and an open position in which said spout is oriented upstanding from said base; said pivotable spout and said base comprising a unitary assembly formed of one piece of plastic material; an elastic tube coupled to said second end of said spout to define with said spout a straw for passing fluid there through; said spout for carrying said elastic tube to a position covering said vent passage to prevent fluid leakage through said vent passage and for kinking said elastic tube to block fluid passage there through, when said spout is moved to said closed position.

2. A resealable drinking cup cap comprising:

a cap base;

a drinking spout and a diaphragm moved by said drinking spout mounted on said cap base;

said drinking spout being pivotally mounted to said cap base for swiveling movement between an open position and a closed position and said diaphragm being connected between said cap base and said spout, wherein said diaphragm at least in part swivels responsive to said drinking spout moving between said open position and said closed position;

said drinking spout including an upper spout portion located on an upperside of said cap base and a lower spout portion located principally on an underside surface of said cap base;

an interference surface protruding downwardly from said underside surface of said cap base, said interference surface facing and being angularly inclined toward said lower spout portion;

a vent passage through said cap base for normally venting the underside of said cap base when said drinking spout is in said open position, said vent passage being located in said cap base between and radially aligned with said upper spout portion and said interference surface; and

latch means for releasibly latching said drinking spout in the closed position; and, further comprising:

an elastic tube, said elastic tube having elastically collapsible tubular walls, said elastic tube having an upper end portion attached to and ensleeving said lower spout portion and a suspended portion suspended from said lower spout portion;

said lower spout portion for swinging said upper end portion of said elastic tube along said underside of said cap surface to cover said vent passage, responsive to said spout being moved into said closed position, and, simultaneously, swinging said suspended portion of said elastic tube into contact with said interference surface to bend and squeeze closed said suspended portion of said elastic tube between a bottom end of said lower spout portion and said seal surface, to thereby close said drinking cup cap.

3. The invention as defined in claim **2**, further comprising: a liquid container for confining liquid, said liquid container including an open top; and wherein said drinking cup cap further includes: a collar; fastening means carried by said collar for fastening said drinking cup cap to said open top; and a seal for providing a liquid tight seal between said drinking cup cap and said open top when said drinking cup cap is fastened thereto.

4. The invention as defined in claim **3** wherein said diaphragm is a compound diaphragm and comprises:

a flexible diaphragm and an invertible diaphragm serially connected between a lower end of said upper spout portion and said cap base;

said invertible diaphragm providing an over dead center arrangement that pre-loads said drinking spout in the direction of said open position, responsive to said drinking spout being in the dispensing position, and pre-loads said drinking spout in the direction of said closed position, responsive to said drinking spout being moved from said open position toward said closed position;

said flexible diaphragm and said invertible diaphragm being angularly inclined relative to one another to define a crease there between responsive to said drinking spout being in said open position;

said flexible diaphragm including a top end connected to said lower end of said upper spout portion and defining a bend line therewith at said top end, said flexible diaphragm being bendable relative to said drinking spout at said connection with said lower end;

said lower end of said drinking spout being movable in an arcuate path to push said flexible diaphragm during the initial course of travel of said drinking spout from said open position to said closed position and, through said flexible diaphragm, to invert said invertible diaphragm and, during additional movement to said closed position, to place said flexible diaphragm in a position underlying said upper spout portion;

said flexible diaphragm being adapted to swivel about and be pushed and then be pulled by said arcuately moving lower end of said upper spout portion, whereby said flexible diaphragm is temporarily wrapped over and forms a bend therein at said lower end of said upper spout portion and is placed in a position underlying said upper spout portion responsive to said drinking spout attaining the closed latched position.

5. The invention as defined in claim **2**, wherein said lower spout portion is of a predetermined length, said length being greater than the distance between said vent passage and said upper spout portion and less than the distance between said upper spout portion and said interference surface, when said spout is in the open position.

6. The invention as defined in claim **4**, wherein said lower spout portion is of a predetermined length, said length being greater than the distance between said vent passage and said upper spout portion and less than the distance between said upper spout portion and said interference surface, when said spout is in the open position.

7. The invention as defined in claim 2, wherein said cap base, said diaphragm, said spout, said interference surface and said latch means comprise an integral assembly formed in one-piece of plastic material.

8. The invention as defined in claim 2, wherein said cap base further includes a hinge for pivotally mounting said drinking spout to said cap base, said hinge being integrally formed in said cap base and defining a pivot axis.

9. The invention as defined in claim 7, wherein said cap base further includes a hinge for pivotally mounting said drinking spout to said cap base, said hinge being integrally formed in said cap base and defining a pivot axis.

10. The invention as defined in claim 9, wherein said plastic material comprises polypropylene, and wherein a distal edge of said diaphragm, most remote from said drinking spout, and said pivot axis define a bi-sector plane, said plane being oriented at an angle of 40 degrees relative to a reference plane, said reference plane being oriented normal to the axis of said drinking spout when said drinking spout is in the open position.

11. The invention as defined in claim 5, wherein said angular incline of said interference surface is a predetermined angle in the range of from five degrees to no greater than ten degrees from the vertical, said vertical being defined by the axis of said spout when said spout is in the open position.

12. The invention as defined in claim 7, wherein said elastic tube consists of rubber.

13. The invention as defined in claims 9, wherein said angular incline of said interference surface is a predetermined angle in the range of from five degrees to no greater than ten degrees from the vertical, said vertical being defined by the axis of said spout when said spout is in the open position.

14. The invention as defined in claim 13, wherein said cap base includes a radially extending U-shaped recessed portion for receiving said spout, when said spout is in the closed position, said U-shaped recessed portion including side walls; and wherein said latch means comprises:

a pair of splines located on diametrically opposite sides of and extending in parallel to the axis of said spout; and

a pair of barbs located on respective ones of said side walls of said radially extending U-shaped recessed portion, said barbs containing a cam surface.

15. The invention as defined in claim 2, wherein said spout is of a length sufficient to extend beyond and overhang the side of the upper surface of said cap base, when said spout is latched in said closed position, for providing a gripping surface.

16. A resealable drinking cup cap comprising:

a cap base;

a drinking spout and a diaphragm moved by said spout mounted on said cap base;

said spout being pivotally mounted to said cap base for swiveling movement between an open position and a closed position and said diaphragm being connected between said cap base and said spout, wherein said diaphragm at least in part swivels responsive to said drinking spout moving between said open position and said closed position;

a living hinge connected between said cap base and said drinking spout for pivotally mounting said drinking spout to said cap base, said hinge being integrally formed in said cap base and defining a pivot axis;

said drinking spout including an upper spout portion located on an upperside of said cap base and a lower spout portion located principally on an underside surface of said cap base;

said diaphragm further comprising:

a flexible diaphragm and an invertible diaphragm serially connected between a lower end of said upper spout portion and said cap base;

said invertible diaphragm providing an over dead center arrangement that pre-loads said drinking spout in the direction of said open position, responsive to said drinking spout being in the dispensing position, and pre-loads said drinking spout in the direction of said closed position, responsive to said drinking spout being moved from said open position toward said closed position;

said flexible diaphragm and said invertible diaphragm being angularly inclined relative to one another to define a crease therebetween responsive to said drinking spout being in said open position;

said flexible diaphragm including a top end connected to said lower end of said upper spout portion and defining a bend line therewith at said top end, said flexible diaphragm being bendable relative to said drinking spout at said connection with said lower end;

said lower end of said drinking spout being movable in an arcuate path to push said flexible diaphragm during the initial course of travel of said drinking spout from said open position to said closed position and, through said flexible diaphragm, to invert said invertible diaphragm and, during additional movement to said closed position, to place said flexible diaphragm in a position underlying said upper spout portion;

said flexible diaphragm being adapted to swivel about and be pushed and then be pulled by said arcuately moving lower end of said upper spout portion, whereby said flexible diaphragm is temporarily wrapped over and forms a bend therein at said lower end of said upper spout portion and is placed in a position underlying said upper spout portion responsive to said drinking spout attaining the closed latched position;

wherein a distal edge of said diaphragm, most remote from said drinking spout, and said pivot axis define a bi-sector plane, said plane being oriented at an angle of forty degrees relative to a reference plane, said reference plane being oriented normal to the axis of said drinking spout when said drinking spout is in the open position;

an interference surface protruding downwardly from said underside surface of said cap base, said interference surface facing and being angularly inclined toward said lower spout portion;

a vent passage through said cap base for normally venting the underside of said cap base when said spout is in said open position, said vent passage being located in said cap base between and radially aligned with said upper spout portion and said interference surface, a seal for said vent passage on said underside of said cap base, said seal bordering said vent passage and protruding from said underside;

said lower spout portion being of a predetermined length, said predetermined length being greater than the distance between said vent passage and said upper spout portion and less than the distance between said upper spout portion and said interference surface when said spout is in the open position; and

latch means for releasibly latching said spout in the closed position, said latch means including a pair of splines, said splines axially extending and radially outwardly protruding from diametrically opposite sides of said upper spout portion, and a pair of latch barbs located in said cap base for engagement with said splines;

said cap base, said diaphragm, said drinking spout, said interference surface and said latch means comprising an integral assembly formed in one-piece of polypropylene plastic material and, further comprising:

an elastic tube, said elastic tube having elastically collapsible tubular walls, said elastic tube having an upper end portion attached to and ensleeving said lower spout portion and a suspended portion suspended from said lower spout portion;

said lower spout portion for swinging said upper end portion of said elastic tube into contact said vent seal along said underside of said cap surface to cover said vent passage, responsive to said drinking spout being moved into said closed position, and, simultaneously, swinging said suspended portion of said elastic tube into contact with said interference surface to bend and squeeze closed said suspended portion of said elastic tube between a bottom end of said lower spout portion and said seal surface, to thereby close said drinking cup cap.

17. The invention as defined in claim 16, wherein said elastic tube comprises rubber; and wherein said angular incline of said interference surface is a predetermined angle in the range of from five degrees to no greater than ten degrees from the vertical, said vertical being defined by the axis of said spout when said spout is in the open position.

* * * * *

US00D547607S

(12) **United States Design Patent** (10) **Patent No.: US D547,607 S**
Forsman (45) **Date of Patent: ** Jul. 31, 2007**

(54) **DRINK BOTTLE CAP**

(75) Inventor: **Barley A. Forsman**, San Rafael, CA (US)

(73) Assignee: **CamelBak Products, LLC**, Petaluma, CA (US)

(**) Term: **14 Years**

(21) Appl. No.: **29/236,005**

(22) Filed: **Aug. 9, 2005**

(51) **LOC (8) Cl.** **07-01**
(52) **U.S. Cl.** **D7/396.2**; D9/449
(58) **Field of Classification Search** 220/203.04, 220/203.05–203.06, 203.09, 203.13, 203.19, 220/203.21, 212.5, 253, 592.16, 592.17, 220/703; 215/387; 222/521, 566; D24/197; D28/76; D7/202, 300, 300.1, 312, 317, 319, D7/394, 396.1, 396.2, 397, 398, 608, 510–512, D7/624.3; D3/202; D9/435, 440, 448, 449, D9/523, 525, 527–529, 531, 535, 537; D23/255
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,588,218	A *	6/1926	Wiswell	222/536
1,788,795	A	1/1931	Hoban	
D182,556	S *	4/1958	Werry	D7/313
2,844,267	A	7/1958	Petriccione	
3,023,939	A *	3/1962	Gustafson	222/536
3,179,301	A	4/1965	Lucht	
3,972,443	A	8/1976	Albert	
4,282,991	A *	8/1981	Hazard	222/531
4,485,963	A	12/1984	Panicci	
4,607,755	A	8/1986	Andreozzi	
4,836,404	A	6/1989	Coy	
4,852,762	A	8/1989	Chou-Sheng	
4,925,042	A	5/1990	Chong	
5,060,833	A	10/1991	Edison et al.	
5,065,909	A	11/1991	Pino et al.	
5,085,336	A	2/1992	Lynd	
5,085,349	A	2/1992	Fawcett	
5,101,991	A	4/1992	Morifuji et al.	

(Continued)

Primary Examiner—Philip S. Hyder
Assistant Examiner—Cynthia Underwood
(74) *Attorney, Agent, or Firm*—Kolisch Hartwell, PC

(57) **CLAIM**

I claim the ornamental design for a drink bottle cap, as shown and described.

DESCRIPTION

FIG. **1** is a perspective view of a drink bottle cap showing the design of the present disclosure with the cap's drink spout in a stowed configuration.

FIG. **2** is a perspective view of a drink bottle cap showing the design of the present disclosure with the cap's drink spout in a dispensing configuration.

FIG. **3** is a top plan view of the cap of FIG. **1**.

FIG. **4** is a top plan view of the cap of FIG. **2**.

FIG. **5** is a side elevation view of the cap of FIG. **1**, with the other side view being a mirror image thereof.

FIG. **6** is a side elevation view of the cap of FIG. **2**, with the other side view being a mirror image thereof.

FIG. **7** is a front elevation view of the cap of FIG. **1**.

FIG. **8** is a front elevation view of the cap of FIG. **2**.

FIG. **9** is a rear elevation view of the cap of FIG. **1**; and.

FIG. **10** is a rear elevation view of the cap of FIG. **2**.

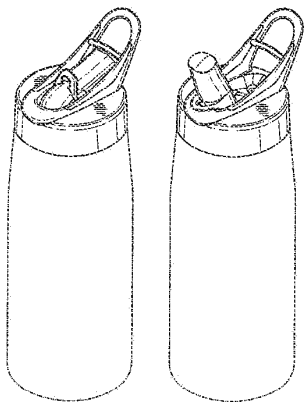
The broken line(s) shown in the drawings are for illustrative purposes only and form no part of the claimed design.

The bottom and internal construction of the cap form no part of the claimed design.

The shading lines shown in the drawings represent the three-dimensional contour of the design, and are not intended to indicate surface decoration.

Portions of the cap that are not shown in the drawings form no part of the claimed design.

1 Claim, 3 Drawing Sheets



U.S. PATENT DOCUMENTS

D334,341	S *	3/1993	Brown et al.	D9/447
5,242,079	A	9/1993	Stephens et al.	
5,273,172	A	12/1993	Rossbach et al.	
D370,828	S *	6/1996	Green	D7/510
5,601,207	A	2/1997	Paczonay	
D387,621	S *	12/1997	Sullivan et al.	D7/510
5,699,933	A	12/1997	Ho et al.	
5,730,336	A	3/1998	Lerner	
5,755,368	A	5/1998	Bekkedahl	
5,791,510	A	8/1998	Paczonay	
5,806,726	A	9/1998	Ho	
5,873,478	A	2/1999	Sullivan et al.	
5,897,013	A	4/1999	Manganiello	
5,911,406	A	6/1999	Winefordner et al.	
D416,755	S *	11/1999	Trombly	D7/392.1
6,021,801	A	2/2000	Sheppard	
6,050,433	A	4/2000	Russell et al.	
6,116,458	A	9/2000	Dark	
6,196,413	B1	3/2001	Tung	
6,199,729	B1	3/2001	Drzymkowski	
6,264,166	B1	7/2001	Bowland et al.	
6,279,772	B1	8/2001	Bowman	
6,364,168	B1	4/2002	Gardner et al.	
6,390,341	B1	5/2002	Ohmi et al.	
6,513,686	B1	2/2003	Ben-Sasson	
6,523,711	B1	2/2003	Hughes et al.	
6,557,721	B2	5/2003	Yang	
6,598,768	B2 *	7/2003	Celli	222/400.7
6,698,716	B2	3/2004	Yang	
6,708,950	B2	3/2004	Christensen et al.	
6,719,273	B1	4/2004	Yang	
6,742,681	B1	6/2004	Yang	
6,745,915	B2	6/2004	Rees	
6,764,064	B2	7/2004	Sturm et al.	
6,783,115	B1	8/2004	Yang	
6,854,888	B1	2/2005	Brown et al.	
D533,061	S *	12/2006	Li et al.	D9/443
2002/0092858	A1	7/2002	Bowman	
2002/0092877	A1	7/2002	Bowman	
2002/0148806	A1	10/2002	Cheng	
2002/0166990	A1	11/2002	Yang	
2003/0168462	A1	9/2003	Kiyota	
2003/0173536	A1	9/2003	Christensen et al.	
2003/0222238	A1	12/2003	Getzewich et al.	
2004/0000551	A1	1/2004	Flink et al.	
2004/0069783	A1	4/2004	Chen	
2004/0159820	A1	8/2004	Yang	
2004/0164043	A1	8/2004	Hakim	
2005/0029313	A1	2/2005	Robins et al.	
2005/0045647	A1	3/2005	Hession et al.	
2005/0056652	A1	3/2005	Cezeaux	
2005/0115966	A1	6/2005	Leoncavallo et al.	

* cited by examiner

Fig. 1

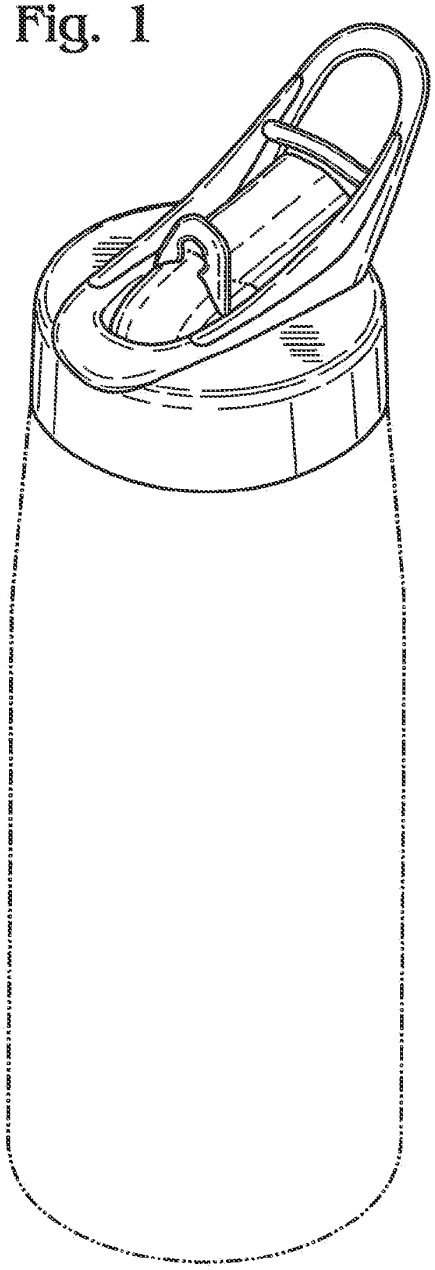


Fig. 2

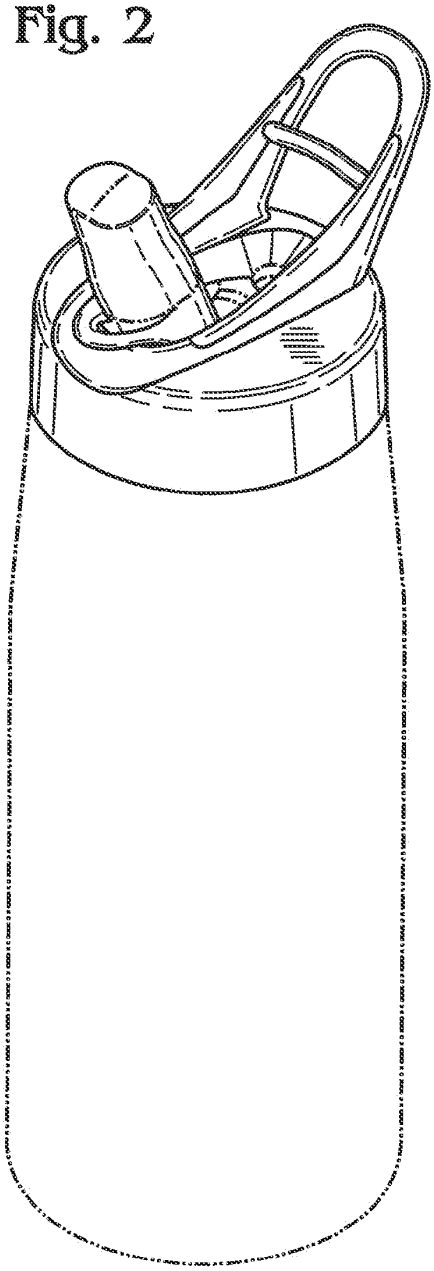


Fig. 3

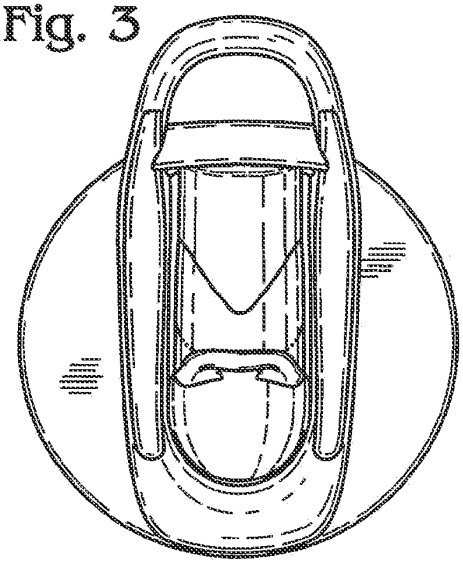


Fig. 4

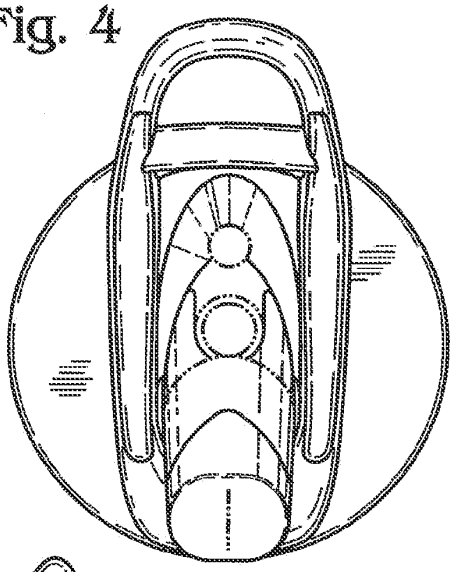


Fig. 5

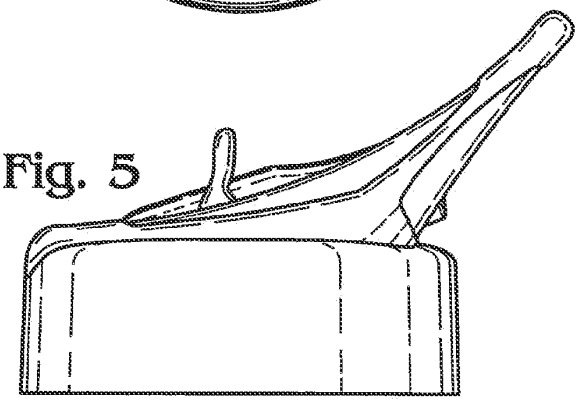
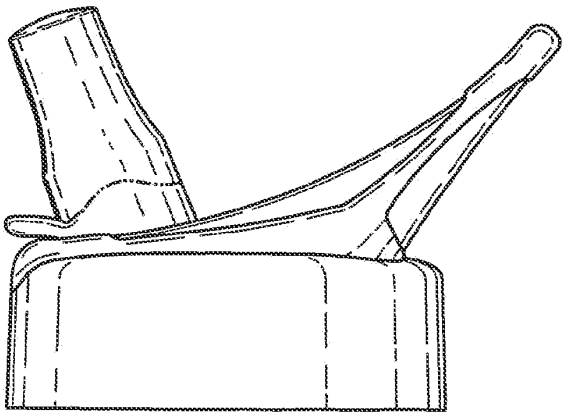


Fig. 6



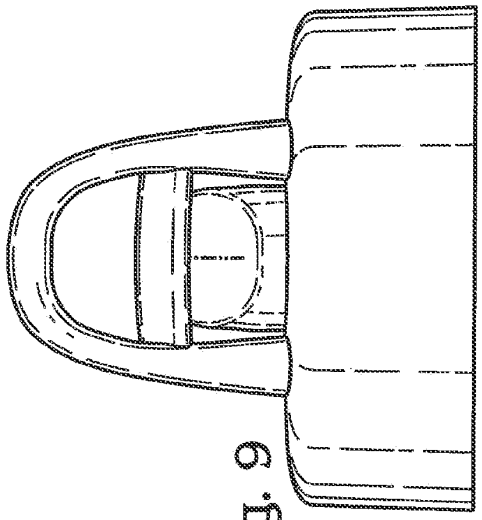


Fig. 9

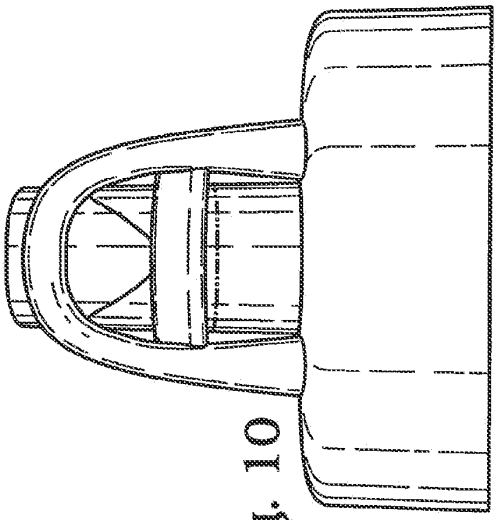


Fig. 10

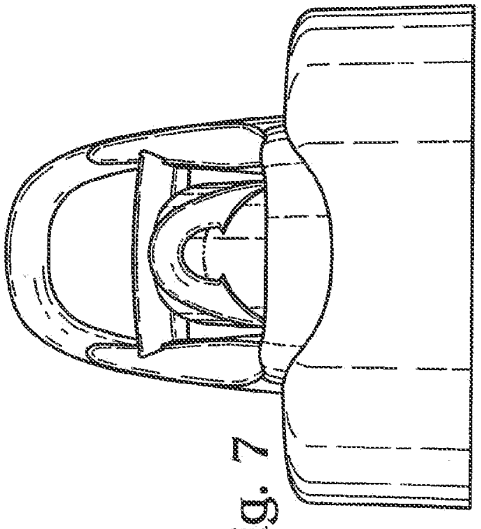


Fig. 7

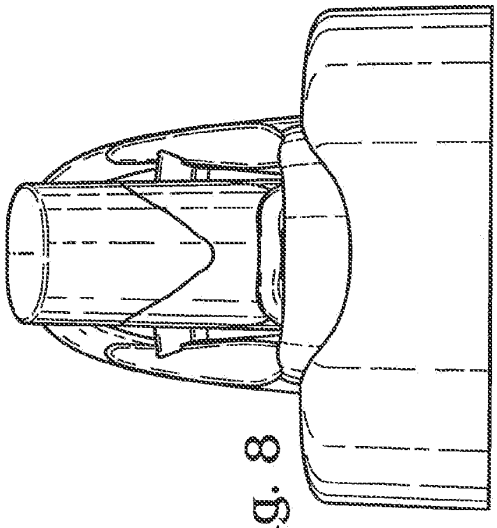


Fig. 8

US 20050029271A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2005/0029271 A1

McDonough (43) Pub. Date: Feb. 10, 2005

(54) STRAW DRINKING CUP

(76) Inventor: **Justin E. McDonough**, Hillsborough, NJ (US)

Correspondence Address:
KNOBLE & YOSHIDA, LLC
Suite 1350
Eight Penn Center
1628 John F. Kennedy Blvd.
Philadelphia, PA 19103 (US)

(21) Appl. No.: **10/637,228**

(22) Filed: **Aug. 8, 2003**

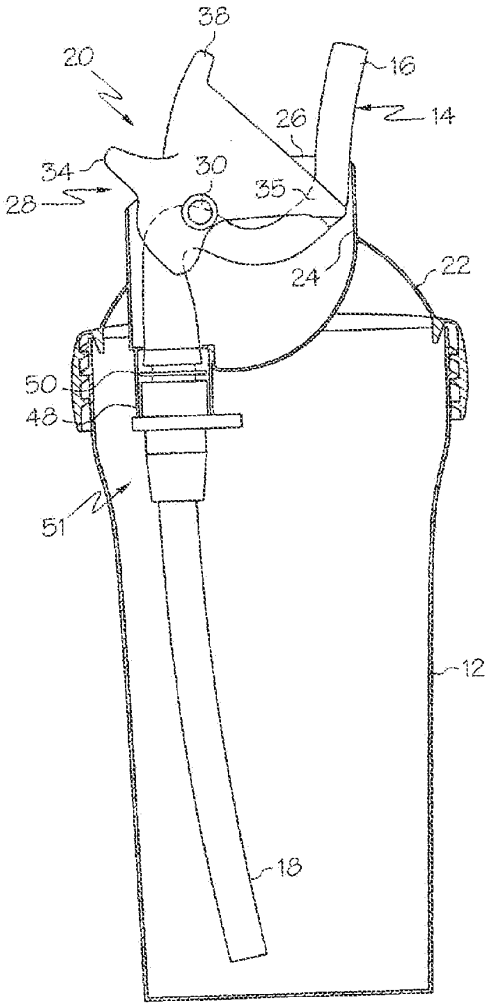
Publication Classification

(51) **Int. Cl.**[7] **A47G 19/22**

(52) **U.S. Cl.** **220/709**; 220/705; 239/33

(57) **ABSTRACT**

A straw drinking cup includes a container and a flexible straw having a first, drinking, end and a second and that is disposed within the container. Advantageously, the cup includes a straw positioning mechanism that ensures that the first, drinking end of the flexible straw will remain upwardly oriented to minimize the possibility of leakage, regardless of whether the straw positioning mechanism is in the open position, the closed position, or in transit between the two positions. The straw drinking cup further includes an advantageous venting mechanism that includes a flexible membrane that permits air to flow into the container only when a sufficient pressure differential is developed across the membrane, such as will occur when a consumer is sucking on the flexible straw. The venting mechanism further operates so as to prevent leakage from the container, as sufficient pressure will not exist to draw any liquid across the flexible membrane.



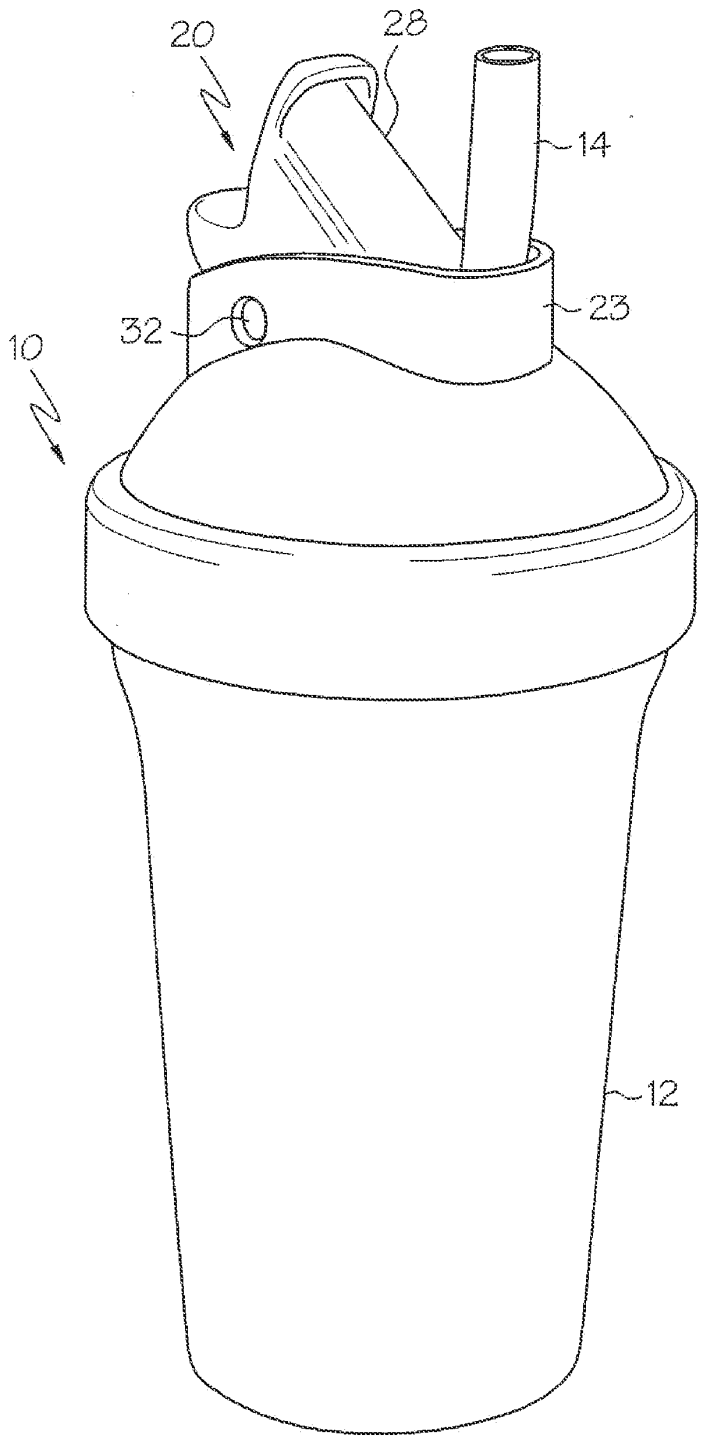


FIG. 1

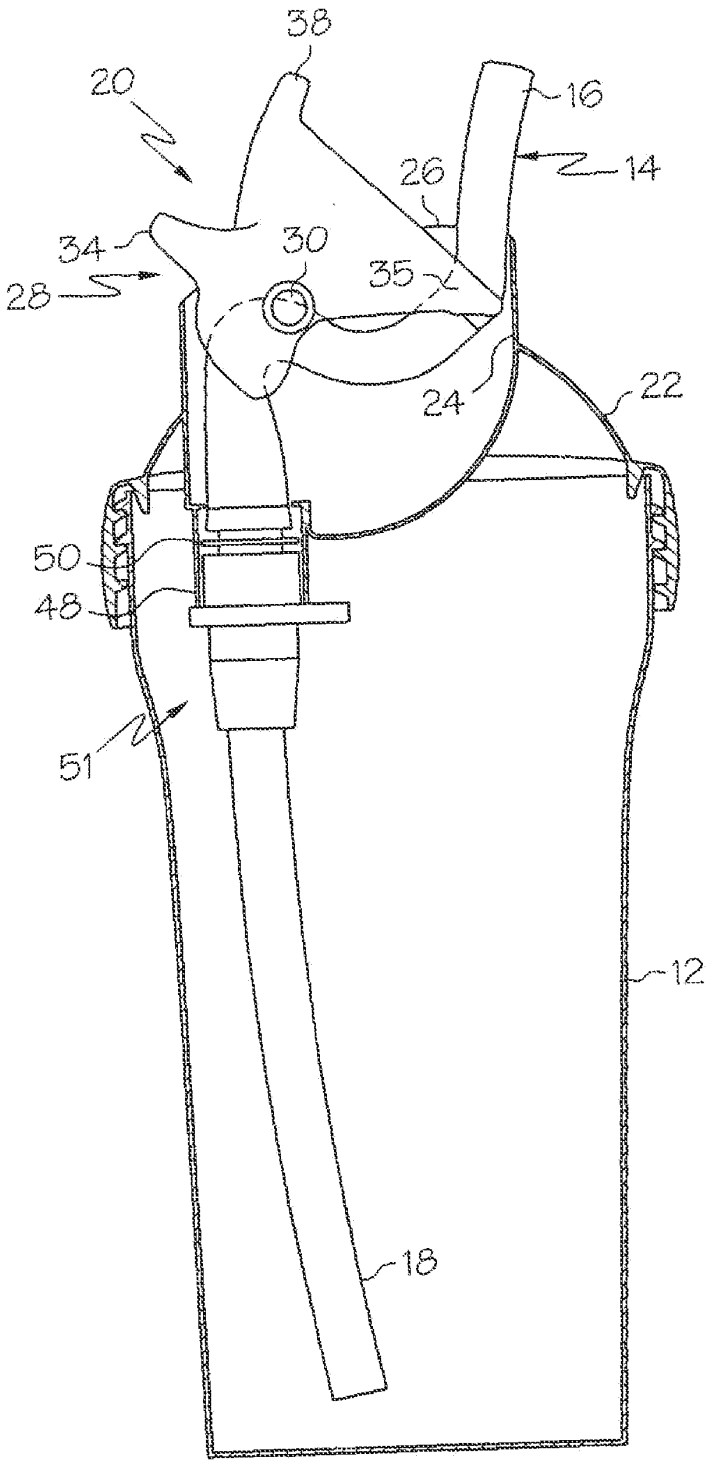


FIG. 2

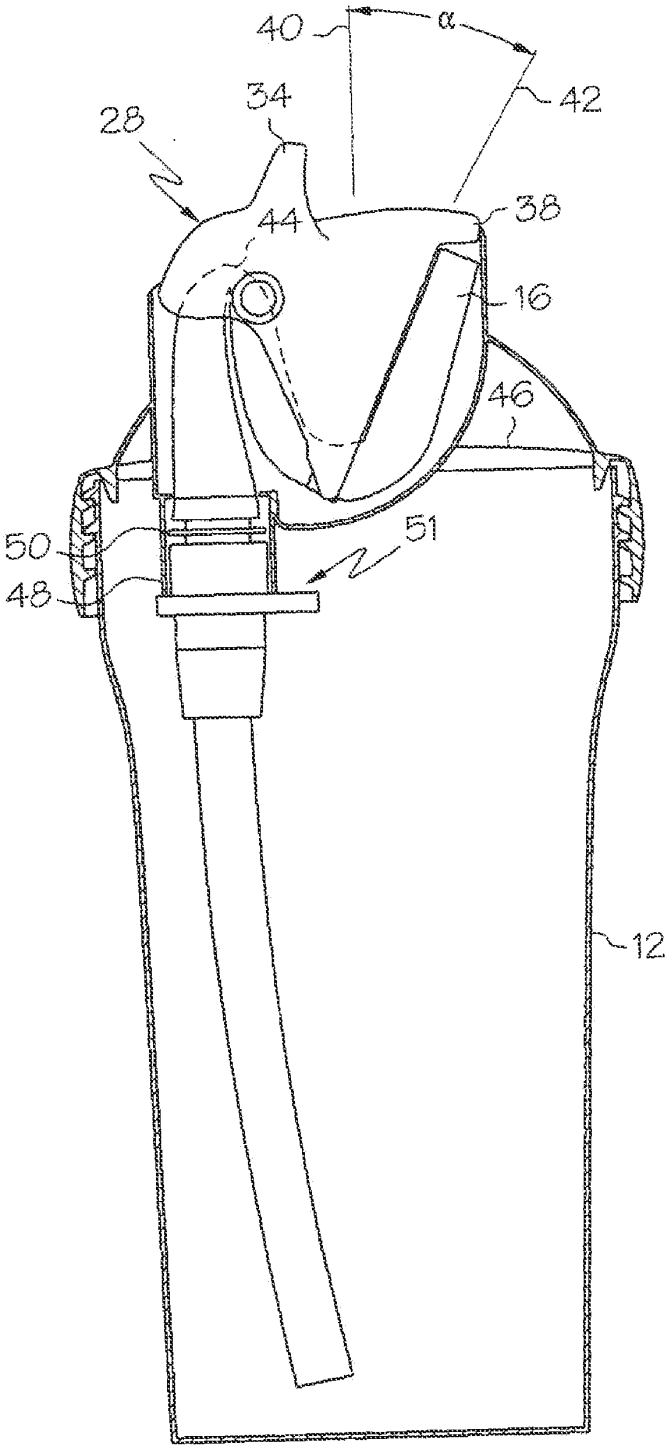


FIG. 3

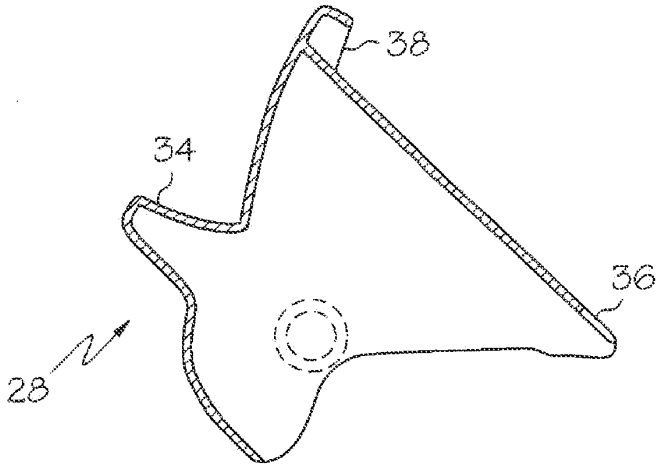


FIG. 4

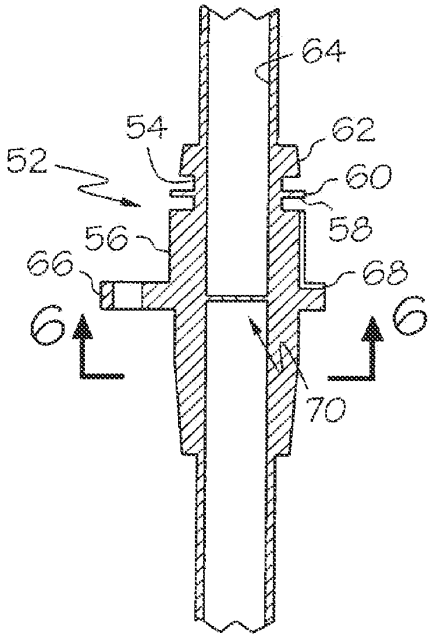


FIG. 5

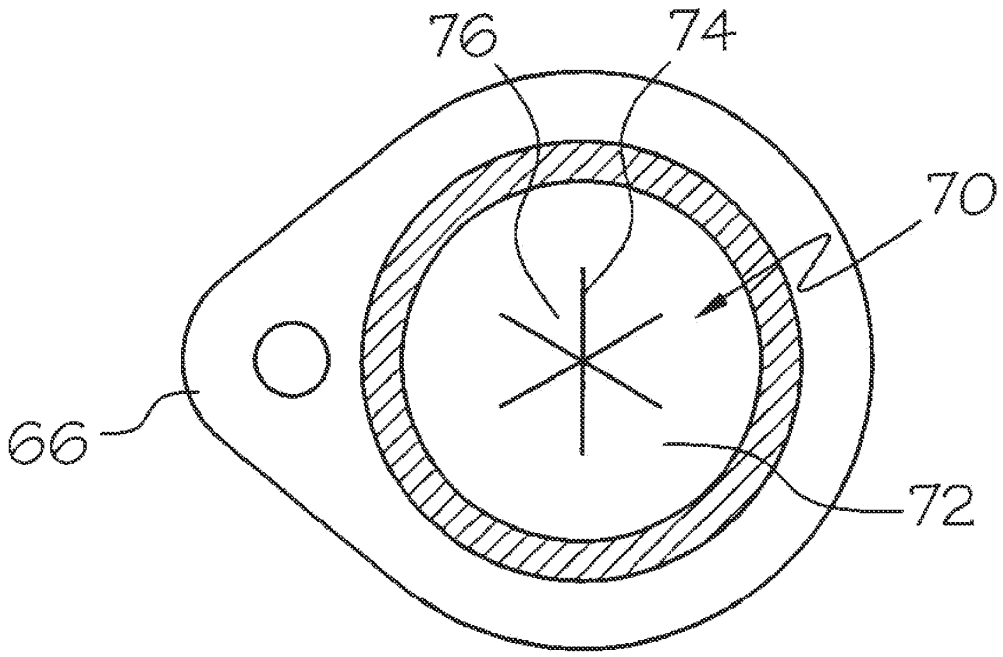


FIG. 6

STRAW DRINKING CUP

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] This invention relates broadly to sealed drinking containers for serving beverages, especially to small children and individuals who are disabled. More specifically, this invention relates to an improved straw drinking cup of the type including a closed container and a flexible straw that is in communication with an interior of the container.

[0003] 2. Description of the Related Technology

[0004] A number of straw drinking cups are commercially available and described in the patent literature. For example, U.S. Pat. No. 5,273,172 to Rossbach et al. describes a straw drinking cup that includes a pivotally movable cap that will contact, deflect, bend and cover a flexible drinking straw when it is closed. In order to permit replacement air to enter the cup during drinking, a separate borehole is defined in the cap of the Rossbach et al. design. A similar design is disclosed in U.S. Pat. No. 5,897,013 to Manganiello, which includes supplemental structure for correctly orienting the rotational position of the flexible drinking straw.

[0005] One problem that tends to afflict conventional straw drinking cups is leakage of the beverage that commonly occurs from the flexible draining straw and from the container itself. Leakage from the container typically occurs through the venting holes that are provided to allow replacement air into the container during draining. Leakage from the flexible draining straw typically will occur as the straw is bent over during the closing of the cap. As the drinking end of the straw becomes inverted and points downwardly, residual liquid that is in the straw will of course tend to flow downwardly and leak onto the cap structure. Besides being messy and unsightly, such leakage may contribute to bacterial colonization in the affected area.

[0006] A need exists for an improved straw drinking cup design that is less susceptible to leakage during use.

SUMMARY OF THE INVENTION

[0007] Accordingly, it is an object of the invention to provide an improved straw drinking cup design that is less susceptible to leakage during use.

[0008] In order to achieve the above and other objects of the invention, a straw drinking cup that is constructed according to a first aspect of the invention includes a container; a flexible straw having a first end and a second end; and a straw positioning mechanism for positioning the flexible straw with respect to the container, the straw positioning mechanism being movable between a first operative position wherein the first end of said flexible straw is presented for sipping by a consumer and a second storage position, and wherein the straw positioning mechanism is constructed and arranged so that the first end of the flexible straw is upwardly oriented when in the second storage position, whereby spillage from the first end of the flexible straw is minimized.

[0009] According to a second aspect of the invention, an apparatus for serving a beverage includes a container, a first passage in communication with the container for serving a beverage from the container; a second, venting, passage that is in communication with the container; and a flexible membrane interposed in the second passage, the flexible membrane being constructed and arranged to permit air to flow through the second passage when a predetermined pressure differential is developed across the flexible membrane.

[0010] According to a third aspect of the invention, a straw drinking cup includes a container; a flexible straw having a first end and a second end, the flexible straw having an integral valve defined therein; and a straw positioning mechanism for positioning the flexible straw with respect to the container, the straw positioning mechanism being movable between a first operative position wherein the first end of the flexible straw is presented for sipping by a consumer and a second storage position.

[0011] According to a fourth aspect of the invention, a flexible straw assembly includes a flexible straw having a first end and a second end, an outer wall and an inner wall defining a lumen; and an integral valve positioned within said flexible straw for impeding fluid flow through said lumen unless a pressure differential is applied thereto.

[0012] These and various other advantages and features of novelty that characterize the invention are pointed out with particularity in the claims annexed hereto and forming a part hereof However, for a better understanding of the invention, its advantages, and the objects obtained by its use, reference should be made to the drawings which form a further part hereof, and to the accompanying descriptive matter, in which there is illustrated and described a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] **FIG. 1** is a perspective view of a straw drinking cup that is constructed according to a preferred embodiment of the invention;

[0014] **FIG. 2** is a partial cross-sectional view of the straw drinking cup shown in **FIG. 1**, shown in a first operational position;

[0015] **FIG. 3** is a partial cross-sectional view depicting a second operational position;

[0016] **FIG. 4** is a cross-sectional view through one component of the straw drinking cup;

[0017] **FIG. 5** is a fragmentary cross-sectional view through another component of the straw drinking cup; and

[0018] **FIG. 6** is a cross-sectional view taken along lines **6-6** in **FIG. 5**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT(S)

[0019] Referring now to the drawings, wherein like reference numerals designate corresponding structure throughout the views, and referring in particular to **FIG. 1**, a straw drinking cup **10** that is constructed according to a preferred embodiment of the invention includes a container **12** and a flexible elastomeric straw **14** having a first, drinking end **16** and a second end **18** that is positioned within the container **12**, as shown in **FIG. 2**. Straw drinking cup **10** further includes a straw positioning mechanism **20** for positioning the flexible straw **14** with respect to the container **12**

between a first drinking position, shown in **FIG. 2**, and a second storage position, shown in **FIG. 3**. Most advantageously, and as will be described in greater detail below, the straw positioning mechanism **20** is constructed and arranged so that the first end **16** of the flexible straw **14** is upwardly oriented in the second storage position, and furthermore remains upwardly oriented during the entire range of movement between the first drinking position and the second storage position. Accordingly, liquid within the flexible straw **14** will not at any point be induced to flow downwardly out of the drinking end **16** to become trapped at any location in the drinking cup **10**.

[0020] Referring now to **FIG. 2**, it will be seen that container **12** is constructed so as to including a lid **22** that is screwable onto the main body portion of the container **12** and that has an upstanding wall **23** defining a space for receiving the straw positioning mechanism **20**. Upstanding wall **23** has an inner surface **24** that is positioned, as may be seen in **FIG. 2**, to be frictionally engaged by the outer surface of the flexible straw **14** as the straw positioning mechanism **20** is moved between the first and second positions. This frictional engagement provides a controlled feel to the consumer during movement of the straw positioning mechanism **20**. Upstanding wall **23** defines a portion of an opening **26** that is provided in the lid **22**. Opening **26** is further defined by a downwardly extending, tube-like projection **48** having an inner surface **50** that defines a passage through which the flexible straw **14** extends, as will be described in greater detail below.

[0021] As may best be seen in **FIGS. 2 and 3**, straw positioning mechanism **20** is preferably embodied as a straw positioning member **28** that is pivotally mounted to the lid **22** and is substantially positioned within the opening **26** that is defined by the upstanding wall **23**. Straw positioning member **28** includes a pair of axle projections **30** that are journaled into a corresponding pair of holes **32** that are defined in the upstanding wall **23**, as shown in **FIG. 1**. Straw positioning member **28** preferably includes finger-gripping structure **34** for facilitating movement of the straw positioning member **28** by a consumer. In the preferred embodiment, finger-gripping structure **34** is an upstanding projection that may be contacted and pushed one way or another by a finger or a thumb of a consumer. Straw positioning member **28** preferably includes a downwardly extending arm **35** that has a recess **36** defined at its distal end for receiving the flexible straw **14**. When the straw positioning mechanism **20** is in the second, closed position shown in **FIG. 3**, the flexible straw **14** will be bent into a horizontal S-shaped configuration by the downwardly extending arm **35** so as to be crimped in a first location **44** and also in a second location **46** that is adjacent to the recess **36**. This minimizes the potential for leakage through the flexible straw **16** in the storage position, especially in conjunction with the venting mechanism **51** that will be described in greater detail below.

[0022] The inner surface **64** of the flexible straw **14** defines a first passage that is in communication with the container **12** for serving a beverage from the container **12**. In operation, a consumer will suck on the draining end **16** of the flexible straw **14**, which will induce a pressure differential between the drinking end **16** and the second end **18** of the flexible straw **14**. This, in turn, will draw the beverage upwardly through the flexible straw **14** into the mouth of the consumer. As may be seen in **FIG. 5**, which is a cross-sectional depiction of a portion of the flexible straw **14** that is part of the venting mechanism **51**, the flexible straw **14** is circumferentially enlarged for a portion of its length into a plug portion **52** that has an outer surface **56** that is shaped and sized to fit snugly against the inner surface **50** of the tube-like projection **48** that partly defines the opening **26** in the lid **22** of the container **12**. A number of longitudinal grooves **62** are defined in the plug portion **52** and together define a second, venting passage that is also in communication with the interior of the container **12**. In the preferred embodiment, three longitudinal grooves **62** are provided in the plug portion **52** and are spaced evenly about the periphery of the plug portion **52**. In the preferred embodiment, the lower end of the plug portion **52** is formed as a flange that includes a pull tab **66** for removing the flexible straw **14** from the lid **22**. One or more radial grooves **68** are preferably defined in the upper face of the flange to insure adequate communication of the longitudinal grooves **62** with the interior of the container **12**.

[0023] As may be seen in **FIG. 5**, an annular recess **54** is defined in the plug portion **52**, and a radially extending flexible membrane **58** is disposed in the annular recess **54**. Flexible membrane **58** is sized so that its outer edge **60** will contact the inner surface **50** of the tube-like projection **48**, thereby forming a seal that will, in the absence of a sufficient pressure differential to deflect the flexible membrane **58**, prevent passage of air or liquid through the second passage or the individual longitudinal grooves **62**. The flexible membrane **58** is engineered so that when a pressure differential of the magnitude that would be developed by a consumer sucking on the drinking end **16** of the flexible straw **14** is developed across the flexible membrane **58**, the flexible membrane **58** will deflect, permitting replacement air to flow through the longitudinal grooves **62** and into the container **12**. However, when the straw drinking cup **10** is not in use the flexible membrane **58** will act as a closed valve to prevent both air and liquid from escaping from the container **12**.

[0024] Referring now to **FIGS. 5 and 6**, it will be seen that an integral internal valve **70** is further positioned within the flexible straw **14** for impeding fluid flow through the flexible straw **14** until a pressure differential of the magnitude that would be developed by a consumer sucking on the drinking end **16** of the flexible straw **14** is developed across the internal valve **70**. As is best shown in **FIG. 6**, integral internal valve **70** is preferably constructed as an internal membrane **72** that is positioned across the lumen that is defined within the flexible straw **14**. Internal membrane **72** is preferably molded with the flexible straw **14** so as to be unitary therewith. A plurality of slits **74** is defined within the internal membrane **72** in order to define a corresponding plurality of flap members **76**. Flap members **76** are sized and shaped so as to deflect when a pressure differential of sufficient magnitude is applied across the internal membrane **72**, thereby permitting fluid to flow through the internal valve **70**.

[0025] The entire flexible straw **14**, including the venting mechanism structure that is depicted in **FIG. 5** and the internal valve **70**, is preferably of unitary construction, and is preferably fabricated from a resilient elastomeric material such as silicone.

[0026] By crimping the flexible straw **14** in two different positions and through the provision of the flexible mem-

brane **58** in the venting structure, straw drinking cup **10** is provided with triple redundancy against leakage when the straw positioning mechanism **20** is in the closed position. The flexible straw **14** will also tend to function as a toggle spring as the straw positioning mechanism **20** is moved between the two operative positions, as may be visualized in **FIGS. 2 and 3**. Because of the symmetrical construction of the flexible drinking straw **14**, there is further no need to orient the flexible drinking straw **14** relative to the lid **22** during assembly.

[0027] When the straw drinking cup **10** is in the opening, drinking position, the unique orientation of the flexible straw **14** creates a flowpath that never allows both ends of the flowpath to be below the water level at any cup orientation. This, therefore, minimizes the potential of static leakage through the straw **14** in the open position, even in the event of valve failure. The flexible straw **14** in conjunction with the pivotal straw positioning structure **28** further provides a positive interlocking arrangement for positioning the straw **14**, while minimizing the complexity of assembly with the other components.

[0028] It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

1. A straw drinking cup, comprising:

a container;

a flexible straw having a first end and a second end; and

a straw positioning mechanism for positioning said flexible straw with respect to said container, said straw positioning mechanism being movable between a first operative position wherein said first end of said flexible straw is presented for sipping by a consumer and a second storage position, and wherein said straw positioning mechanism is constructed and arranged so that said first end of said flexible straw is upwardly oriented when in said second storage position, whereby spillage from said first end of said flexible straw is minimized.

2. A straw drinking cup according to claim 1, wherein said straw positioning mechanism is further constructed and arranged so that said first end of said flexible straw remains continuously upwardly oriented when said straw positioning mechanism is moved between said first and second storage positions.

3. A straw drinking cup according to claim 1, wherein said first end of said flexible straw is upwardly oriented when in said second storage position at an angle that is 60 degrees or less divergent from a longitudinal axis of said container.

4. A straw drinking cup according to claim 3, wherein said first end of said flexible straw is upwardly oriented when in said second storage position at an angle that is 45 degrees or less divergent from a longitudinal axis of said container.

5. A straw drinking cup according to claim 1, wherein said container comprises a lid having an opening defined therein, and said straw positioning mechanism comprises a straw positioning member that is pivotally mounted to said lid and is disposed in said opening.

6. A straw drinking cup according to claim 5,wherein said straw positioning member includes finger gripping structure for facilitating movement of said straw positioning member by a consumer.

7. A straw drinking cup according to claim 5,wherein said straw positioning member has a recess defined therein for receiving said flexible straw.

8. A straw drinking cup according to claim 5,wherein said straw positioning member further includes a protective shelf portion for precluding external contact with said first end of said flexible straw when said straw positioning mechanism is in the second storage position.

9. A straw drinking cup according to claim 5, wherein said lid comprises an internal sidewall that at least partially defines said opening, and wherein said straw positioning mechanism is constructed and arranged to slide a portion of said flexible straw over said internal sidewall when said straw positioning mechanism is moved between said first and second storage positions.

10. A straw drinking cup according to claim 5, wherein said straw positioning member has a recess defined therein for receiving a bent portion of said flexible straw when said straw positioning mechanism is in said second storage position.

11. A straw drinking cup according to claim 1, wherein said straw positioning mechanism is constructed and arranged so as to crimp said flexible straw in at least two places when said straw positioning mechanism is in the second, closed position.

12. A straw drinking cup according to claim 1, wherein said straw positioning mechanism is constructed and arranged so as to be biased for movement in at least one direction by elastic deformation of said flexible straw.

13. A straw drinking cup according to claim 12, further comprising a venting mechanism, said venting mechanism being constructed and arranged to permit air to flow into the container without permitting liquid to escape therethrough.

14. An apparatus for serving a beverage, comprising:

a container;

a first passage in communication with said container for serving a beverage from said container;

a second, venting, passage that is in communication with said container; and

a flexible membrane interposed in said second passage, said flexible membrane being constructed and arranged to permit air to flow through said second passage when a predetermined pressure differential is developed across said flexible membrane.

15. An apparatus for serving a beverage according to claim 14, wherein said first passage comprises a flexible straw that is inserted into the container through an opening that is defined in the container.

16. An apparatus according to claim 15, wherein said flexible membrane is integral with said flexible straw.

17. An apparatus according to claim 15, wherein said second, venting passage comprises a space that is defined between an outer surface of said flexible straw and said opening that is defined in the container.

18. An apparatus according to claim 17, wherein said flexible straw comprises a circumferentially enlarged plug portion for securely fitting within said opening that is defined in said container, and wherein said second, venting passage comprises at least one longitudinal groove that is defined in an outer surface of said plug portion.

19. An apparatus according to claim 18, further comprising an annular recess that is defined in said circumferentially enlarged plug portion, and wherein said flexible membrane is positioned as a radially extending projection within said annular recess, said flexible membrane having a radially outer edge that is sized so as to contact a sidewall defined in said opening in said container.

20. An apparatus according to claim 18, wherein said second, venting passage comprises a plurality of said longitudinal grooves.

21. A straw drinking cup, comprising:

a container;

a flexible straw having a first end and a second end, said flexible straw having an integral valve defined therein; and

a straw positioning mechanism for positioning said flexible straw with respect to said container, said straw positioning mechanism being movable between a first operative position wherein said first end of said flexible straw is presented for sipping by a consumer and a second storage position.

22. A straw drinking cup according to claim 21, wherein said flexible straw and said integral valve are fabricated from a single, unitary piece.

23. A straw drinking cup according to claim 22, wherein said single, unitary piece is fabricated from a material comprising silicone.

24. A straw drinking cup according to claim 22, wherein said integral valve comprises a membrane that is positioned within said straw so as to normally occlude fluid flow through said straw, and a plurality of slits that are defined in said membrane so as to define a plurality of flaps, said flaps being displaceable when a pressure differential is applied across said membrane in order to permit fluid flow therethrough.

25. A flexible straw assembly, comprising:

a flexible straw having a first end and a second end, an outer wall and an inner wall defining a lumen; and

an integral valve positioned within said flexible straw for impeding fluid flow through said lumen unless a pressure differential is applied thereto.

26. A straw drinking cup according to claim 25, wherein said flexible straw and said integral valve are fabricated from a single, unitary piece.

27. A straw drinking cup according to claim 26, wherein said single, unitary piece is fabricated from a material comprising silicone.

28. A straw drinking cup according to claim 26, wherein said integral valve comprises a membrane that is positioned within said straw so as to normally occlude fluid flow through said straw, and a plurality of slits that are defined in said membrane so as to define a plurality of flaps, said flaps being displaceable when a pressure differential is applied across said membrane in order to permit fluid flow therethrough.

* * * * *

(19)日本国特許庁（ＪＰ）　(12)公開特許公報（Ａ）　(11)特許出願公開番号
特開2001－294252
（P2001－294252A）
(43)公開日　平成13年10月23日(2001.10.23)

(51)Int.Cl.[7]	識別記号	ＦＩ		テーマコード（参考）
Ｂ６５Ｄ　47/06		Ｂ６５Ｄ　47/06		Ｈ　３Ｅ０８４
43/16		43/16		Ｚ　４Ｆ０３３
47/26		47/26		Ｔ
// Ｂ０５Ｂ　1/06		Ｂ０５Ｂ　1/06		

審査請求　未請求　請求項の数９　ＯＬ　（全 16 頁）

(21)出願番号　特願2000－114501(P2000－114501)

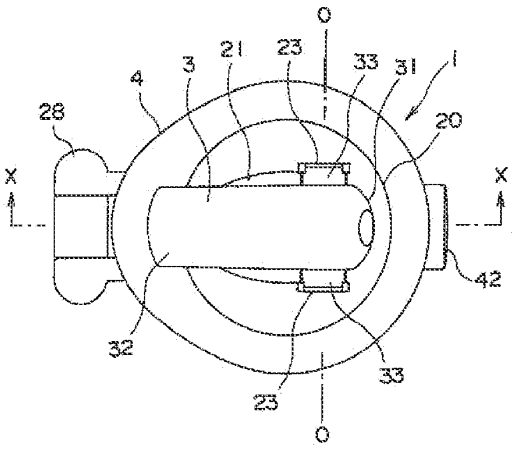
(22)出願日　平成12年４月17日(2000.4.17)

(71)出願人　000107066
株式会社リッチェル
富山県富山市水橋桜木136番地
(72)発明者　藤堂　徹
富山県富山市水橋桜木136番地　株式会社リッチェル内
(72)発明者　丸谷　明子
富山県富山市水橋桜木136番地　株式会社リッチェル内
(74)代理人　100061273
弁理士　佐々木　宗治　（外３名）

最終頁に続く

(54)【発明の名称】　ノズル付きのボトルキャップ

(57)【要約】
【課題】　本発明は、ノズルを適度な角度に傾けて飲み易くし、簡単な構成で部品点数を少なくしてコストアップを押さえると共に、取り扱いが便利でコンパクトなノズル付きのボトルキャップをを実現する。
【解決手段】　本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に通液筒を設けた本体と、本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う蓋部材とを備え、ノズルの回転に伴う起伏動作に関連して内液の流路を開閉するノズル付きのボトルキャップを構成した。



【特許請求の範囲】
【請求項１】　ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、
先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、
外面側に前記ノズルを回転可能に収容する収容部と該収容部を介在させた支持部を併設し、該支持部の対向面に前記回動軸の押入可能な軸受けを形成すると共に、前記雌ネジを螺設した内面側に通液筒を設けた本体と、
該本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、
前記本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う蓋部材とを備え、
前記ノズルの回転に伴う起伏動作に関連して前記内液の流路を開閉することを特徴とするノズル付きのボトルキャップ。
【請求項２】　前記ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したことを特徴とする請求項１記載のノズル付きのボトルキャップ。
【請求項３】　前記収容部に開口する流路を包囲するシーリング部材を設けたことを特徴とする請求項１または２記載のノズル付きのボトルキャップ。
【請求項４】　前記ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したことを特徴とする請求項１乃至３の何れかに記載のノズル付きのボトルキャップ。
【請求項５】　ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、
先端に吸い口が設けられて基部の端部に接続部を設けたノズルと、
外面側に前記ノズルを往復動可能に収容する収容部を設けると共に、前記雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、
前記ノズルの基部に着脱自在に接続されて前記挿通孔を介して先端を内液に浸漬されるストローと、
前記本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時に前記ノズルを押圧する蓋部材とを備え、
該蓋部材の開閉に伴うノズルの後退動作に関連して前記ストローを屈曲させて内液の流路を遮断することを特徴とするノズル付きのボトルキャップ。
【請求項６】　前記ストローに弾性を有する軟質材を用いたことを特徴とする請求項５記載のノズル付きのボトルキャップ。
【請求項７】　前記挿通孔にストローの移動を抑制する抑制手段を設けたことを特徴とする請求項５または６記載のノズル付きのボトルキャップ。
【請求項８】　ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、
先端に吸い口が設けられて基部の両側と端部にそれぞれ回動軸と接続部を設けたノズルと、
外面側に前記ノズルを回転可能に収容する収容部と該収容部を介在させた支持部を併設し、該支持部の対向面に前記回動軸の押入可能な軸受けを形成すると共に、前記雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、
前記ノズルの基部に着脱自在に接続されて前記挿通孔を介して先端を内液に浸漬されるストローと、
前記本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時に前記ノズルを押圧する蓋部材とを備え、
該蓋部材の開閉に伴うノズルの回転による起伏動作に関連して前記ストローをノズルの一部で押さえて内液の流路を遮断することを特徴とするノズル付きのボトルキャップ。
【請求項９】　前記ススストローに弾性を有する軟質材を用いたことを特徴とする請求項８記載のノズル付きのボトルキャップ。
【請求項１０】　前記挿通孔にストローの移動を抑制する抑制手段を設けたことを特徴とする請求項８または９記載のノズル付きのボトルキャップ。
【請求項１１】　前記ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したことを特徴とする請求項１記載のノズル付きのボトルキャップ。
【請求項１２】　前記ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したことを特徴とする請求項８乃至１１の何れかに記載のノズル付きのボトルキャップ。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】近時、ペットボトル等のボトル内に詰められた自然水や清涼飲料等の中味を、ストローで飲む，所謂ゆる“ストロー飲み”を可能にするノズル付きのボトルキャップが開発されている。ノズル付きのボトルキャップを利用すればコップが不要で、しかも何回にも飲み分ける際に都度キャップの蓋を開閉することなく詰められた中身を飲むことができて極めて都合がよい。本発明は上述したようなノズル付きのボトルキャップに関するものである。
【０００２】
【従来の技術】従来のこの種の類似キャップを用いた物品として、例えば実公平３－８０９０号公報と実公平３－１８３６２号記載の容器が知られている。両容器の構成を図９と図１０に記載するが、図９の説明では公報記載の符号に数値１００を付加し、図１０には２００を付加して説明する。図９は実公平３－８０９０号公報記載の容器の構成を示す分解斜視図である。図９において、

１０１は容器本体、１０２は注入注出用口部、１０４は注入注出用口部１０２の閉塞部材、１０５は閉塞部材１０４に設けられたストロー導出用の小口部、１０６は小栓、１０６ｂはその嵌合部、１０９は保持筒である。また、１１０は螺着手段、１１１はストロー、１１２はストッパー、１１３はスプリングである。

【０００３】容器本体１０１の内部の飲料を飲むときは、閉塞部材１０４の小口部１０５に嵌着した小栓１０６の嵌合部１０６ｂを外せば、小口部１０５の筒状縁１０５ａに螺着手段１１０で固着した保持筒１０９内のスプリング１１３の弾発力によりストロー１１１がストッパー１１２と小口部１０５の下端との当接位置まで持ち上げられる。そして、ストロー上端部が小口部１０５から突出することになり、突出したストロー１１１により内部飲料を吸飲することができる。また、スプリング１１３の弾発力に抗してストロー１１１を押し込むようにして小栓１０６を小口部１０５に嵌着すれば、ストロー１１１を容器本体１０１内に保持した元の状態に戻るようになっている。

【０００４】図１０は上記した実公平３－１８３６２号公報に掲載の図面で、（ａ）は全体の縦断面図、（ｂ）はキャップ部分の分解斜視図である。図１０において、２０１は液体容器、２０２はキャップ、２０３はストロー、２０４はキャップ２０２の突出口、２０５はストロー２０３を突出させるバネ、２０６はレバー、２０７は開閉部材、２０８は内蓋、２０９は筒部、２１０はバネ２０３の下端部が嵌着された凹部である。また、２１１はストロー２０３に嵌めたパッキング、２１２は内蓋２０８と容器２０１との間のパッキング、２１３はキャップ２０２の側面に形成した凹部、２１４はレバー２０６が凹部２１０に飛び出す上下方向の孔、２１６は押しばねである。

【０００５】図１０に示した液体容器２０１の構成において、開閉部材２０７はストロー２０３の突出方向と交叉方向へスライドし、その先端部でストロー２０３の上端を抑えているので、ストロー２０３は突出口２０４から直ちに突出し、飲用後は押下げレバー２０６を押下げれば自動的に開閉部材２０７が突出口２０４を閉じる。また、ストロー２０３の上端に当接する開閉部材２０７は、漏液も防止する。また、開閉部材２０７をスライド操作すれば突出ばね２０５によりストロー２０３が突出口２０４から直ちに突出し、飲用後は押下げレバー２０６を押下れば自動的に突出口２０４が閉じられるようになっている。

【０００６】

【発明が解決しようとする課題】しかしながら、図９と図１０の従来の容器は何れもストロー１１１と２０３が、垂直上方に突出するように構成されている。したがって、ストロー１１１と２０３で内液を吸飲するときには、上体と一緒に頭部を傾けて無理な姿勢を取らなければならず極めて不便である。姿勢の傾きを怠って直立したまま吸飲すると、容器１０１や２０１側が傾いて内容液を零す恐れがある。また、樹脂と異なる金属のスプリング１１３やバネ２０５，２１６を利用しているので、部品点数と資材の手配先の業種が増えるばかりが設計に当たって腐食対策を配慮しなければならない等の問題点があった。

【０００７】本発明は、上述のような従来の問題点を解消するためになされたもので、ノズルを適度な角度に傾けて飲み易くし、簡単な構成で部品点数を少なくしてコストアップを押さえると共に、取り扱いが便利でコンパクトなノズル付きのボトルキャップを実現することを目的とするものである。

【０００８】

【課題を解決するための手段】本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に通液筒を設けた本体と、本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う蓋部材とを備え、ノズルの回転に伴う起伏動作に関連して内液の流路を開閉するノズル付きのボトルキャップを構成したものである。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成したものである。また、上記において、収容部に開口する流路を包囲するシーリング部材を設けたノズル付きのボトルキャップを構成したものである。また、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成したものである。

【０００９】また、本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の端部に接続部を設けたノズルと、外面側にノズルを往復動可能に収容する収容部を設けると共に、雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、ノズルの基部に着脱自在に接続されて挿通孔を介して先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時にノズルを押圧する蓋部材とを備え、蓋部材の開閉に伴うノズルによる押圧動作に関連してストローを屈曲させて内液の流路を遮断するノズル付きのボトルキャップを構成したものである。また、上記において、ストローに弾性を有する軟質材を用いたノズル付きのボトルキャップを構成したものである。また、上記において、挿通孔

にストローの移動を抑制する抑制手段を設けたノズル付きのボトルキャップを構成したものである。

【００１０】また、本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側と端部にそれぞれ回動軸と接続部を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、ノズルの基部に着脱自在に接続されて挿通孔を介して先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時にノズルを押圧する蓋部材とを備え、蓋部材の開閉に伴うノズルによる押圧動作に関連してストローをノズルの一部で押さえて内液の流路を遮断するノズル付きのボトルキャップを構成したものである。また、上記において、ストローに弾性を有する軟質材を用いたノズル付きのボトルキャップを構成したものである。また、上記において、挿通孔にストローの移動を抑制する抑制手段を設けたノズル付きのボトルキャップを構成したものである。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成したものである。さらに、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成したものである。

【００１１】

【発明の実施の形態】実施の形態１．図１は本発明実施の形態１の構成を示す上面図、図２は図１のＸ－Ｘ断面図、図３は本体の断面図、図４は実施の形態１の動作を示す断面図である。図１乃至図４において、１はボトルキャップである。ボトルキャップ１の素材にはポリプロピレン等が用いられ、破損し難いやや軟質な樹脂材で成型されている。２はボトルキャップ１の本体、３はノズル、４は蓋である。また、１１はシリコーンチューブのようなゴム状の弾性樹脂を用いたストロー、１２はペットボトル、１３はペットボトル１２に詰められた内液である。

【００１２】２ａはキャップ型の本体２の内面側、２ｂは外面側である。２ｃは内面側２ａに設けられた雌ネジ、２ｄは貫通する内液１３の流路を設けて下方に突出した垂直方向の通液筒、２ｅはリング状の平パッキンである。雌ネジ２ｃは垂直方向のキャップ軸Ｙ０－Ｙ０を中心に螺設され、通液筒２ｄはキャップ軸Ｙ０－Ｙ０からδだけずれた並行方向の中心軸Ｙ１－Ｙ１上に設けられている。通液筒２ｄにはストロー１１が取り外し自在に接続されて、その先端は内液１３に浸漬される。２０は外面側２ｂの上面の丸ドーム状の支持部、２１は支持部２０の頂部を左右方向に水平にカットした円弧状の収納溝である。収納溝２１のカットにより、支持部２０に前後方向の対向壁面が併設されている。

【００１３】２２は中心軸Ｙ１－Ｙ１上の点を球心Ｏとする半球状に穿設した収容部で、収納溝２１内に開口している。２３は収納溝２１の上端から収容部２２の側壁にかけて水平方向（図３の前後方向）に対向して形成されたほぼＵ字溝状の軸受けである。軸受け２３の下端の円弧の中心を結ぶ直線は球心Ｏを通って中心軸Ｙ１－Ｙ１に直交していて、次に説明するノズル３の回動軸の軸心Ｏ－Ｏを構成する。図３に示すように、収容部２２の最深部の中心には通液筒２ｄの流路が開口している。２４は通液筒２ｄの開口を囲む環状溝、２５は環状溝２４に介装されたＯリングである。２６は収容部２２の凹球面に形成されクリック用の小さな窪み、２７は本体２の内外面を貫通した通気孔である。２８はキャップ軸Ｙ０－Ｙ０に対して中心軸Ｙ１－Ｙ１（回動軸３３）の反対側の端部に設けられたヒンジ部、２９は他端側の係止部である。

【００１４】一方、ノズル３は、球型の基部３１と、この基部３１から接線方向に延設された吸い口３２とを具備する。基部３１は本体２の収容部２２に対応する球面で構成され、球面上には吸い口３２の延長方向と交叉する方向に一対のボス状の回動軸３３が対称的に突設されている。３４は窪み２６に対応して基部３１の表面に形成された突起である。吸い口３２を貫通して先端に開口した流路の他端は、基部３１の球面上に開口している。そして、基部３１の両側の回動軸３３が軸受け２３内に上方からやや固く押し込まれて、基部３１の凸球面が収容部２２の凹球面内に嵌入されて、相互に密着して摺動するようになっている。

【００１５】こうして、本体２の外面側２ｂに装着されたノズル３は、回動軸３３を中心に回動角の上限が後述する望ましい起立角θに対応するようにほぼ１２０°の角範囲を回動して吸い口３２が起伏される。この場合、吸い口３２は突起３４が窪み２６に嵌合したクリック位置で伏臥して収納溝２１内に収納されると共に、伏臥した吸い口３２によって通気孔２７が封鎖される。また、回動角の上限では吸い口３２の背部が収容部２２の角部に当接して起立状態が保持されると共に、ノズル３と通液筒２ｄの流路が一致して連通する。４１は蓋４を本体２のヒンジ部２８に連結するヒンジ軸、４２は他端側の係止片である。蓋４はヒンジ軸４１を支点にほぼ３／４回転して本体２の上部空間を開放し、係止片４２が係止部２９に係止されて本体２の上空が包囲される。

【００１６】次に、図４を主にして、実施の形態１の動作を説明する。図４では、本考案のボトルキャップ１をペットボトルに適用した場合が例示されている。ペットボトル１２の注ぎ口に被された専用のキャップを取り除いてから、通液筒２ｄに接続されたストロー１１を注ぎ口に差し込む。図２に示されたような閉蓋状態のボトル

Zak Designs, Inc. Exhibit 1007
4 of 16

IPR 2024-01137
CamelBak - Ex 2001
Page 55 of 857

キャップ１の雌ネジ２ｃを注ぎ口の雄ネジに螺入して、注ぎ口との接触面に介装されたパッキン２ｅを締め付けて装着する。この結果、図示されていないが、ペットボトル１２の中に挿入されたストロー１１の先端が底に沈められて、内液１３内の最深部に浸漬される。

【００１７】このときの状態では、前述のように基部３１が収容部２２に球面接触で密着して収納されており通気孔２７も伏臥状態の吸い口３２の胸部に封鎖されているので、たとえ振動等が加わってもペットボトル１２の内液１３が零ぼれるようなことがない。内液１３を飲むときは、係止片４２と係止部２９との係止を解除し、蓋４をヒンジ軸４１を中心に反時計方向に回転して本体２の上方を開放する。蓋４の解放後、ノズル３を回動軸３３を中心に時計向きに回転して、吸い口３２をクリック位置に起立させる。起立した吸い口３２内の空気を吸い込めば、連通された流路が負圧になって内液１３を飲むことができる。ノズル３の起立したときの角度（起立角θ…水平面とのなす角）は、垂直または水平付近では飲み難い。よって、垂直と水平の間の任意の鋭角内で、できれば起立角θをほぼ６０°に設定することが望ましい。

【００１８】図４に示すように、開放状態の蓋４と起立して傾斜した吸い口３２が左右に分かれて互いに対向して反対方向に保持されているので内液１３の吸飲に支障を来すことがない。吸飲が終わると、上記と逆の動作で収納溝２１に収納されたノズル３の上部空間が蓋４で覆われるようになっている。収納状態でノズル３は蓋４で覆われるので、衣類等との接触や塵埃の付着がなくなり衛生状態を保つことができる。ゴミ等が付着して汚れたときはノズル３を本体２から引き抜いて、汚れ易いノズル３を分離状態で簡単且つ綿密に洗浄することができる。同様に、ストロー１１，Ｏリング２５，パッキン２ｅも本体２から分解して洗浄可能である。この様に、分解して洗浄を行うことにより、ボトルキャップ１を清潔に保つことが可能であり、新たなペットボトル１２への使用を可能とする。

【００１９】実施の形態２．図５は実施の形態２の構成を示す説明図で、（ａ）は断面図、（ｂ）は変形例の部分断面図、図６は実施の形態２の動作を示す断面図である。実施の形態２では前記の従来例と同様に吸い口３２を垂直方向に突出させる突出型が採用されているが、構造面において著しく簡素化された特徴を有する。図５（ａ）と図６の実施の形態２では収容部２２が有底円筒状に形成され、キャップ軸Ｙ０－Ｙ０上で底部を内面側２ａに露出させている。内面側２ａのキャップの内壁に雌ネジ２Ｃが螺設されている構造には、実施の形態１と変わりがない。３５ａはノズル３の基部３１の上端の外周に設けられた抜け止めを防ぐ突条、３５ｂは端部に形成された円筒溝である。円筒溝３５ｂに包囲された内筒は、ストロー１１との接続部を構成する。３６は収容部２２の底面に設けられたストロー１１の挿通孔で、内面側２ａから外面側２ｂに通じている。

【００２０】収容部２２の上端の内壁面には内側に向けた爪部３６ａが形成され、挿通孔３６の内周面には例えば折り返し部３６ｂ等のストローの移動を抑制する滑り止め機能が与えられる。ストロー１１の先端はノズル３の基部３１の接続部に接続され、途中が挿通孔３６に挿通されている。このため，挿通孔３６に挿通されたストロー１１の挿入と引き出しに僅かな難易差を生じて、引き出し時には若干の抵抗力が加えられる。一方、ノズル３の基部３１は収容部２２の内部を、往復動可能に介装される。特に、ストロー１１にはやや強いバネ性の復元力を有するシリコンチューブが用いられている。その他の一部の共通部材には、実施の形態１と同一の符号が付されている。

【００２１】そして、蓋４の閉鎖時には吸い口３２の先端が蓋４の内壁に押圧されることにより、ノズル３は収納部２２内に押し下げられるものの、ノズル３に接続されたストロー１１は挿通孔３６の内周面に設けられた例えば折り返し部３６ｂ等により移動が抑制されているために圧縮されることになる。このとき、圧縮されたストロー１１は挿通孔３６により外部に押し出されることなく、図５に示すように横方向に撓んで“つの字型”に屈曲することになり、この屈曲部により内液１３の流路が自動的に封鎖されて遮断される。また、蓋４の係止を解いて開放すれば、ストロー１１の復元力が作用して基部３１がストロー１１の上限位置又は突条３５ａが爪部３６ａに当接する位置に押し上げられて吸い口３２が突出する。ノズル３の突出状態が、図６に示されている。実施の形態２によればノズル３を突出させるためのバネが不必要で面倒な組立操作が省け、部品点数と組立工数を減少させてコストの低減に寄与することが可能になる。

【００２２】図５（ｂ）は実施の形態２の変形例の要部の部分断面図である。図５（ｂ）において、４３は蓋４の内面でキャップ軸Ｙ０－Ｙ０上に形成された凹陥部、４４は板パッキンである。板パッキン４４には弾性を持つシリコンのような素材が用いられて、直径がやや小さく穿設された凹陥部４３内に取り外し自在に圧入されている。圧入された板パッキン４４は、蓋４の内面と同一面か或いは面より若干落ち込んで嵌入されている。そして、図示のように閉蓋時にノズル３の先端の吸い口３２が板パッキン４４に圧着して、流路の開口が封鎖されて内液１３の漏洩が防止されるようになっている。この場合、必ずしもストロー１１の“つの字型”の屈曲部が流路を封鎖していなくてもよい。実施の形態２には、この他に実施の形態１に類似した構成の第２の変形例が準備されている。第２の変形例は図示を省略したが、ノズル３の中心を通る垂直方向の中心軸Ｙ１－Ｙ１がキャップ軸Ｙ０－Ｙ０からδだけ並行にずれた構成が採用されている。この第２の変形例においても、バネが不必要で面

倒な組立操作が省ける等の前述と同等の効果が得られる。

【００２３】実施の形態３．図７は実施の形態３の構成を示す断面図、図８は実施の形態３の動作を示す説明図で、（ａ）と（ｂ）は蓋の開放状態の上面図と断面図、（ｃ）は要部の変形例の説明図である。この実施の形態３においても上述のストロー１１の復元力を利用するのは同じである。但し流路の封鎖はストロー１１をノズル３の一部で押さえる事で行い、蓋４の解放時にストロー１１の復元性でノズルを自動的に起立させる自動起伏構造が採用されている。また、このノズル３が回動軸３３を中心に回動して起伏するノズル３の軸支構造は実施の形態１と同様になっている。このため、図１に示されたように本体２がほぼ楕円形で、外面側２ｂに丸ドーム状の支持部２０が併設されて共通した構造になっている。また、ノズル３の基部３１には円筒溝３５ｂが形成されて、ストロー１１が円筒溝３５ｂに囲まれた内筒にやや固く接続されている。この他に、実施の形態３ではノズル３が伏臥したときにストロー１１の流路の遮断を効果的に行わせるために、基部３１の少なくとも下側の外環部に突出部３７が形成されている。また、収容部２２は下方に向う漸縮型で、ノズル３の伏臥方向に幾分傾けた逆円錐状に形成され自動的な起伏動作を円滑に実施させるための配慮がなされている。

【００２４】いま、図８（ｂ）に示されたように、開蓋状態でノズル３が起立しているときに蓋４をヒンジ部２８を支点に矢印方向に１５０°近く回転すると蓋４の内面が吸い口３２に接触する。蓋４を更に回転すると、ノズル３が弾性を有するストロー１１を引き伸ばして蓋４に逆方向の抵抗力を加えながら回動軸３３を中心に一体に同方向に回転する。そして、ストロー１１の抵抗力を受けている蓋４の係止片４２を係止部２９に係止すると、図７に示すようにノズル３が逆円錐状の部分から抜け出して伏臥状態になって収納溝２１内に収容される。このとき、ノズル３の回動に伴う部分的な伸張差にのもとに接続部付近のストロー１１が潰され、この潰された部分の内面が密着するように突出部３７により弾性的に圧接される。この結果、内部の流路が自動的に塞がれて、内液１３の漏洩が防止される。

【００２５】逆に、ヒンジ部２８の係止を開放すると、蓋４によって押圧されていたノズル３がストロー１１の復元力によって蓋４の開放に追随して図７の状態から図８の（ｂ）に示すように自動的に起立することになる。このように、実施の形態３によれば、ノズル３を起立させる手動動作が不必要になるばかりか、バネの利用を省略することができる。このほかに、蓋４が本体２と一体に作られていて、両者を連結した肉薄の帯部材でヒンジ部２８が構成されている。これにより実施の形態１に比較して同等の機能を果たしながら、一層のコストの低廉化が図られている。もちろん、実施の形態１，２と同様に蓋４が本体２と別体に形成されてもよい。

【００２６】図８の（ｃ）に、実施の形態３の流路の遮断機構の変形例が示されている。即ち、図（ｃ）では、ストロー１１が接続されるノズル３の基部３１の内環部の筒先に傾斜面３８が形成されている。そして、閉められた蓋４によってノズル３が押圧されて伏臥したときに、前記と同様に伸張差により強く引き伸ばされたストロー１１の内面部分が傾斜面３８に弾性的に圧着されることになる。それ故、この内面部分の圧着によって傾斜面３８に開口する流路が自動的に封鎖されて、内液１３の漏洩が防止されることになる。

【００２７】なお、上述の各実施の形態では本発明を自然水等を詰めたペットボトルの雄ネジを設けた注ぎ口に適用した場合を例示して説明したが、雌ネジの代替え構造を用いれば水筒や哺乳瓶等の他のボトルにも適用することができる。また、実施の形態１では９０°を越えた１２０°程度の回動角で吸い口３２を起伏させた場合で説明したが、回転角の上限を９０°以下にしてもよく、要するに開蓋時における蓋の反対側であって前述したようなノズル３の起立角θを任意の鋭角内で、望ましくは６０°付近に傾けて設定したものであればよい。さらに、本体やノズルの形状等についても、同等の機能を果たす限りでは必ずしも実施の形態に限定するものではない。

【００２８】

【発明の効果】本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に通液筒を設けた本体と、本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う蓋部材とを備え、ノズルの回転に伴う起伏動作に関連して内液の流路を開閉するノズル付きのボトルキャップを構成した。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成した。また、上記において、収容部に開口する流路を包囲するシーリング部材を設けたノズル付きのボトルキャップを構成した。また、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成した。

【００２９】この結果、図９と図１０に示した従来の容器のようにノズル（ストロー）が垂直上方に突出することがないので、頭部や上体を無理に傾けることなく楽な姿勢で内液を吸飲することができ便利になる。また、ボトルを傾けて飲むこともなくなり、キャップの締め付け

を多少弱くした場合でも内液を零すようなこともなくなる。また、樹脂と異なる金属のスプリングやバネを利用しないので、部品点数と資材の手配先の業種も限定されるばかりが設計に当たって腐食対策を考慮する心配がなくなる。

【００３０】また、本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の端部に接続部を設けたノズルと、外面側にノズルを往復動可能に収容する収容部を設けると共に、雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、ノズルの基部に着脱自在に接続されて挿通孔を介して先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時にノズルを押圧する蓋部材とを備え、蓋部材の開閉に伴うノズルの後退動作に関連してストローを屈曲させて内液の流路を遮断するノズル付きのボトルキャップを構成した。また、上記において、ストローに弾性を有する軟質材を用いたノズル付きのボトルキャップを構成した。また、上記において、挿通孔にストローの移動を抑制する抑制手段を設けたノズル付きのボトルキャップを構成した。

【００３１】また、本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側と端部にそれぞれ回動軸と接続部を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、ノズルの基部に着脱自在に接続されて挿通孔を介して先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時にノズルを押圧する蓋部材とを備え、蓋部材の開閉に伴うノズルの回転による起伏動作に関連してストローをノズルの一部で押さえて内液の流路を遮断するノズル付きのボトルキャップを構成した。また、上記において、ストローに弾性を有する軟質材を用いたノズル付きのボトルキャップを構成した。また、上記において、挿通孔にストローの移動を抑制する抑制手段を設けたノズル付きのボトルキャップを構成した。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成した。さらに、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成した。

【００３２】この結果、ノズルの往復動と起伏の動作にストローの屈伸性と弾力性の復元力を利用した実施の形態２と３によれば、従来に比較してバネ機構や回動機構が省略されて全体構成を著しく簡素化することができる。また、ストローを直接ノズルの基部に接続するので、ボトルの深さ等に応じて適宜適切なストローに交換することができ取り扱いも便利になる。さらに、バネの省略で面倒な組立操作が省け、部品点数と組立工数を減少させる等の利点もある。特に、蓋にパッキンを設けた実施形態の変形例によれば、ノズル突出用のバネを用いずに閉蓋時における内液の漏洩を完全に防止できるボトルキャップを実現できる。

【００３３】よって、本発明によれば、ノズルを適度な角度に傾けて飲み易くし、簡単な構成で部品点数を少なくしてコストアップを押さえると共に、取り扱いが便利でコンパクトなノズル付きのボトルキャップを提供することができる。

【図面の簡単な説明】

【図１】実施の形態１の構成を示す上面図である。

【図２】図１のＸ－Ｘ断面図である。

【図３】本体の断面図である。

【図４】実施の形態１の動作を示す断面図である。

【図５】実施の形態２の構成を示す説明図である。

【図６】実施の形態２の動作を示す断面図である。

【図７】実施の形態３の構成を示す断面図である。

【図８】実施の形態３の動作を示す説明図である。

【図９】従来装置の構成を示す説明図である。

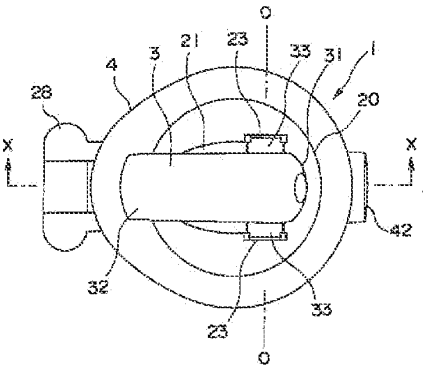
【図１０】従来装置の別の構成を示す説明図である。

【符号の説明】

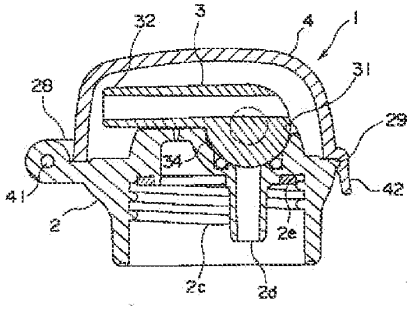
１　ボトルキャップ
２　本体
２ａ　内面側
２ｂ　外面側
２ｃ　雌ネジ
２ｄ　通液筒
２ｅ　パッキン
３　ノズル
４　蓋（蓋部材）
１１　ストロー
１２　ペットボトル
１３　内液
２０　支持部
２１　収納溝
２２　収容部
２３　軸受け
２４　環状溝
２５　Ｏリング
２６　窪み
２７　通気孔
２８　ヒンジ部
２９　係止部
３１　基部
３２　吸い口
３３　回動軸

３４　突起
３５ａ　突条
３５ｂ　円筒溝
３６　挿通孔
３６ａ　爪部
３６ｂ　折り返し部（滑り止め手段）
３７　突出部
３８　傾斜面
４１　ヒンジ軸
４２　係止片
４３　凹陥部
４４　板パッキン
Ｏ－Ｏ　軸心
Ｙ０－Ｙ０　キャップ軸
Ｙ１－Ｙ１　中心軸
δ　ズレ
θ　起立角

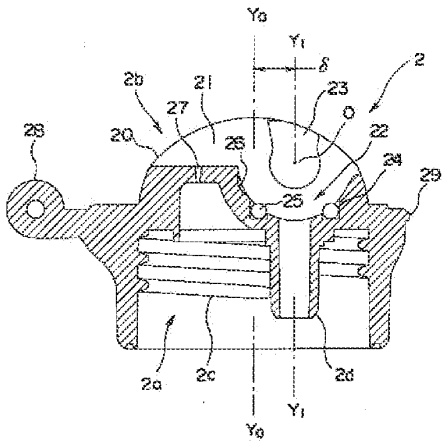
【図１】



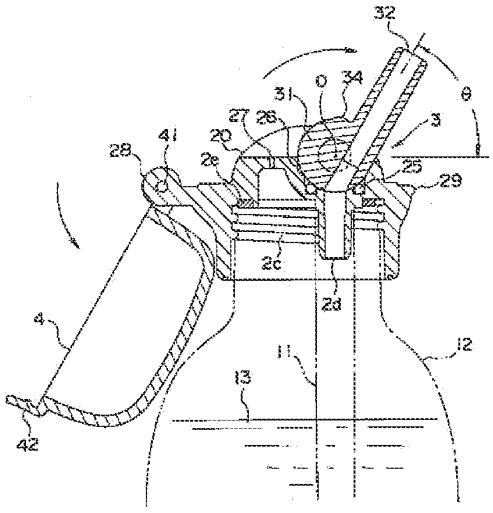
【図２】



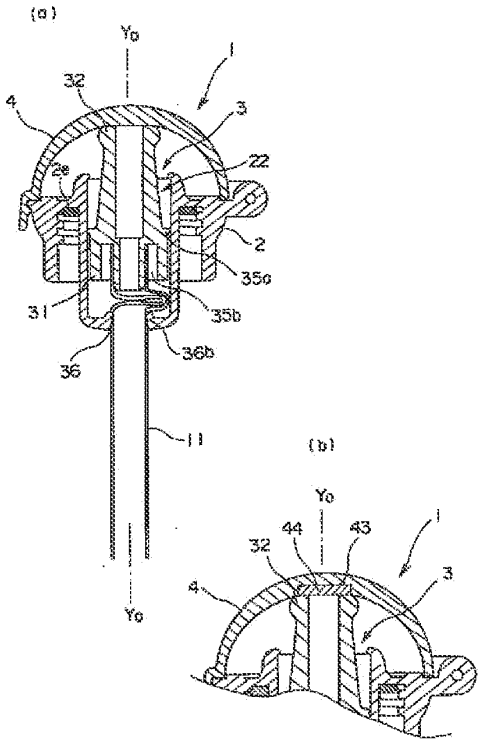
【図３】



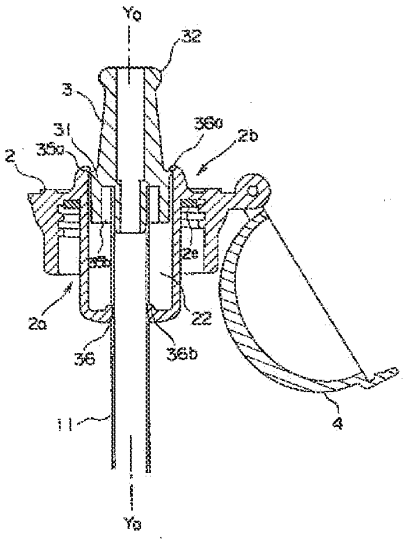
【図４】



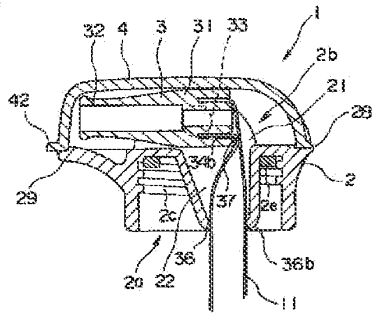
【図5】


(a)
Yo
1
32
3
4
22
2e
2
35a
31
35b
36
36b
11
Yo
(b)
Yo
44
43
1
32
3
4

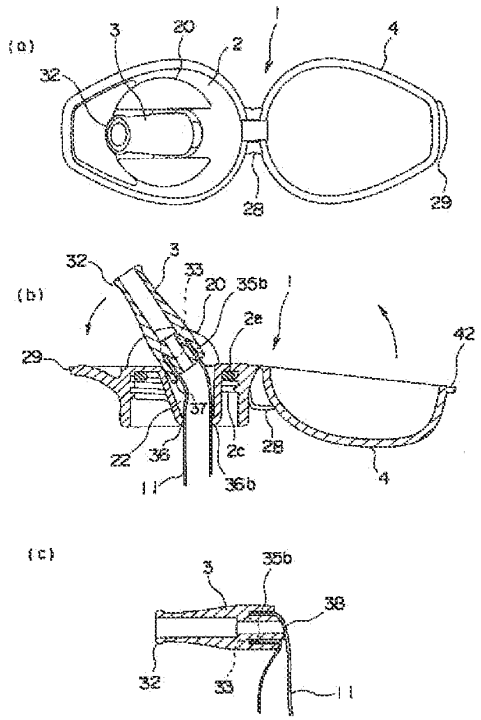
【図6】


Yo
32
3
31
35a
36a
2b
2
2e
2a
22
36
36b
11
4
Yo

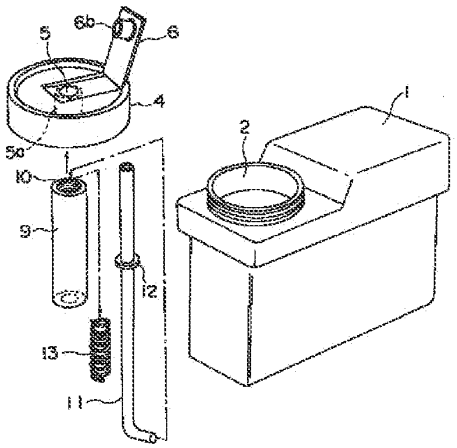
【図7】


32
4
3
31
33
1
2b
21
28
42
34b
2
29
2c
37
2e
2a
22
36
36b
11

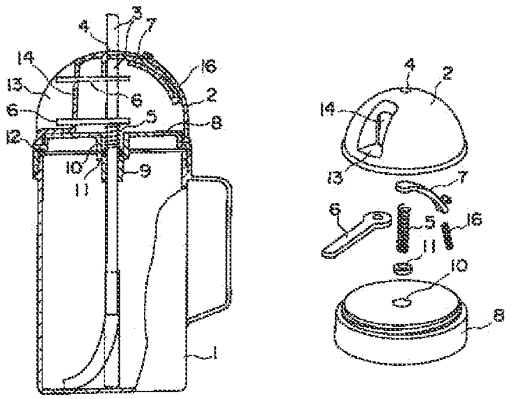
【図8】


(a)
3
20
2
4
32
28
29
(b)
32
3
33
20
35b
2e
1
42
29
37
22
36
2c
28
11
36b
4
(c)
3
35b
38
32
33
11

【図9】



【図10】



【手続補正書】
【提出日】平成１２年6月19日（２０００．６．１９）
【手続補正１】
【補正対象書類名】明細書
【補正対象項目名】全文
【補正方法】変更
【補正内容】
【書類名】　　明細書
【発明の名称】　ノズル付きのボトルキャップ
【特許請求の範囲】
【請求項１】　ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、
先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、
外面側に前記ノズルを回転可能に収容する収容部と該収容部を介在させた支持部を併設し、該支持部の対向面に前記回動軸の押入可能な軸受けを形成すると共に、前記雌ネジを螺設した内面側に通液筒を設けた本体と、
該本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、
前記本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う蓋部材とを備え、
前記ノズルの回転に伴う起伏動作に関連して前記内液の流路を開閉することを特徴とするノズル付きのボトルキャップ。
【請求項２】　前記ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したことを特徴とする請求項１記載のノズル付きのボトルキャップ。
【請求項３】　前記収容部に開口する流路を包囲するシーリング部材を設けたことを特徴とする請求項１または２記載のノズル付きのボトルキャップ。
【請求項４】　前記ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したことを特徴とする請求項１乃至３の何れかに記載のノズル付きのボトルキャップ。
【請求項５】　ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、
先端に吸い口が設けられて基部の両側と端部にそれぞれ回動軸と接続部を設けたノズルと、
外面側に前記ノズルを回転可能に収容する収容部と該収容部を介在させた支持部を併設し、該支持部の対向面に前記回動軸の押入可能な軸受けを形成すると共に、前記雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、
前記ノズルの基部に着脱自在に接続されて前記挿通孔を介して先端を内液に浸漬されるストローと、
前記本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時に前記ノズルを押圧する蓋部材とを備え、
該蓋部材の開閉に伴うノズルの回転による起伏動作に関連して前記ストローをノズルの一部で押さえて内液の流路を遮断することを特徴とするノズル付きのボトルキャップ。
【請求項６】　前記ススストローに弾性を有する軟質材を用いたことを特徴とする請求項５記載のノズル付きのボトルキャップ。
【請求項７】　前記挿通孔にストローの移動を抑制する抑制手段を設けたことを特徴とする請求項５または６記

載のノズル付きのボトルキャップ。
【請求項８】　前記ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したことを特徴とする請求項５乃至７の何れかに記載のノズル付きのボトルキャップ。
【請求項９】　前記ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したことを特徴とする請求項５乃至８の何れかに記載のノズル付きのボトルキャップ。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】近時、ペットボトル等のボトル内に詰められた自然水や清涼飲料等の中味を、ストローで飲む，所謂ゆる“ストロー飲み”を可能にするノズル付きのボトルキャップが開発されている。ノズル付きのボトルキャップを利用すればコップが不要で、しかも何回にも飲み分ける際に、その都度キャップの蓋ネジを回して開閉することなく、詰められた中身をノズルの飲み口で飲むことができて極めて都合がよい。本発明は上述したようなノズル付きのボトルキャップに関するものである。
【０００２】
【従来の技術】従来のこの種の類似キャップを用いた物品として、例えば実公平３－８０９０号公報と実公平３－１８３６２号記載の容器が知られている。図７は実公平３－８０９０号公報記載の容器の構成を示す分解斜視図である。図７において、１０１は容器本体、１０２は注入注出用口部、１０４は注入注出用口部１０２の閉塞部材、１０５は閉塞部材１０４に設けられたストロー導出用の小口部、１０６は小栓、１０６ｂはその嵌合部、１０９は保持筒である。また、１１０は螺着手段、１１１はストロー、１１２はストッパー、１１３はスプリングである。
【０００３】容器本体１０１の内部の飲料を飲むときは、閉塞部材１０４の小口部１０５に嵌着した小栓１０６の嵌合部１０６ｂを外せば、小口部１０５の筒状縁１０５ａに螺着手段１１０で固着した保持筒１０９内のスプリング１１３の弾発力によりストロー１１１がストッパー１１２と小口部１０５の下端との当接位置まで持ち上げられる。そして、ストロー上端部が小口部１０５から突出することになり、突出したストロー１１１により内部飲料を吸飲することができる。また、スプリング１１３の弾発力に抗してストロー１１１を押し込むようにして小栓１０６を小口部１０５に嵌着すれば、ストロー１１１を容器本体１０１内に保持した元の状態に戻るようになっている。
【０００４】図８は上記した実公平３－１８３６２号公報に掲載の図面で、（ａ）は全体の縦断面図、（ｂ）はキャップ部分の分解斜視図である。図８において、２０１は液体容器、２０２はキャップ、２０３はストロー、２０４はキャップ２０２の突出口、２０５はストロー２０３を突出させるバネ、２０６はレバー、２０７は開閉部材、２０８は内蓋、２０９は筒部、２１０はバネ２０５の下端部が嵌着された凹部である。また、２１１はストロー２０３に嵌めたパッキング、２１２は内蓋２０８と容器２０１との間のパッキング、２１３はキャップ２０２の側面に形成した凹部、２１４はレバー２０６が凹部２１０に飛び出す上下方向の孔、２１６は押しばねである。
【０００５】図８に示した液体容器２０１の構成において、開閉部材２０７はストロー２０３の突出方向と交叉方向へスライドし、その先端部でストロー２０３の上端を押えているので、ストロー２０３は突出口２０４から直ちに突出し、飲用後は押下げレバー２０６を押下げれば自動的に開閉部材２０７が突出口２０４を閉じる。また、ストロー２０３の上端に当接する開閉部材２０７は、漏液も防止する。また、開閉部材２０７をスライド操作すれば突出ばね２０５によりストロー２０３が突出口２０４から直ちに突出し、飲用後は押下げレバー２０６を押下れば自動的に突出口２０４が閉じられるようになっている。
【０００６】
【発明が解決しようとする課題】しかしながら、図７と図８の従来の容器は何れもストロー１１１と２０３が、垂直上方に突出するように構成されている。したがって、ストロー１１１と２０３で内液を吸飲するときには、上体と一緒に頭部を傾けて無理な姿勢を取らなければならず極めて不便である。姿勢の傾きを怠って直立したまま吸飲すると、容器１０１や２０１側が傾いて内容液を零す恐れがある。また、樹脂と異なる金属のスプリング１１３やバネ２０５，２１６を利用しているので、部品点数と資材の手配先の業種が増えるばかりか設計に当たって腐食対策を配慮しなければならない等の問題点があった。
【０００７】本発明は，上述のような従来の問題点を解消するためになされたもので、ノズルを適度な角度に傾けて飲み易くし、簡単な構成で部品点数を少なくしてコストアップを押さえると共に、取り扱いが便利でコンパクトなノズル付きのボトルキャップを実現することを目的とするものである。
【０００８】
【課題を解決するための手段】本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に通液筒を設けた本体と、本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う

蓋部材とを備え、ノズルの回転に伴う起伏動作に関連して内液の流路を開閉するノズル付きのボトルキャップを構成したものである。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成したものである。また、上記において、収容部に開口する流路を包囲するシーリング部材を設けたノズル付きのボトルキャップを構成したものである。また、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成したものである。

【０００９】また、本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側と端部にそれぞれ回動軸と接続部を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雄ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、ノズルの基部に着脱自在に接続されて挿通孔を介して先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時にノズルを押圧する蓋部材とを備え、蓋部材の開閉に伴うノズルによる押圧動作に関連してストローをノズルの一部で押さえて内液の流路を遮断するノズル付きのボトルキャップを構成したものである。また、上記において、ストローに弾性を有する軟質材を用いたノズル付きのボトルキャップを構成したものである。また、上記において、挿通孔にストローの移動を抑制する抑制手段を設けたノズル付きのボトルキャップを構成したものである。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成したものである。さらに、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成したものである。

【００１０】

【発明の実施の形態】実施の形態１．図１は本発明実施の形態１の構成を示す上面図、図２は図１のＸ−Ｘ断面図、図３は本体の断面図、図４は実施の形態１の動作を示す断面図である。図１乃至図４において、１はボトルキャップである。ボトルキャップ１の素材にはポリプロピレン等が用いられ、破損し難いやや軟質な樹脂材で成型されている。２はボトルキャップ１の本体、３はノズル、４は蓋である。また、１１はシリコーンチューブのようなゴム状の弾性樹脂を用いたストロー、１２はペットボトル、１３はペットボトル１２に詰められた内液である。

【００１１】２ａはキャップ型の本体２の内面側、２ｂは外面側である。２ｃは内面側２ａに設けられた雌ネジ、２ｄは貫通する内液１３の流路を設けて下方に突出した垂直方向の通液筒、２ｅはリング状の平パッキンである。雌ネジ２ｃは垂直方向のキャップ軸Ｙ０−Ｙ０を中心に螺設され、通液筒２ｄはキャップ軸Ｙ０−Ｙ０からδだけずれた並行方向の中心軸Ｙ１−Ｙ１上に設けられている。通液筒２ｄにはストロー１１が取り外し自在に接続されて、その先端は内液１３に浸漬される。２０は外面側２ｂの上面の丸ドーム状の支持部、２１は支持部２０の頂部を左右方向に水平にカットした円弧状の収納溝である。収納溝２１のカットにより、支持部２０に前後方向の対向壁面が併設されている。

【００１２】２２は中心軸Ｙ１−Ｙ１上の点を球心Ｏとする半球状に穿設した収容部で、収納溝２１内に開口している。２３は収納溝２１の上端から収容部２２の側壁にかけて水平方向（図３の前後方向）に対向して形成されたほぼＵ字溝状の軸受けである。軸受け２３の下端の円弧の中心を結ぶ直線は球心Ｏを通って中心軸Ｙ１−Ｙ１に直交していて、次に説明するノズル３の回動軸の軸心Ｏ−Ｏを構成する。図３に示すように、収容部２２の最深部の中心には通液筒２ｄの流路が開口している。２４は通液筒２ｄの開口を囲む環状溝、２５は環状溝２４に介装されたＯリングである。２６は収容部２２の凹球面に形成されクリック用の小さな窪み、２７は本体２の内外面を貫通した通気孔である。２８はキャップ軸Ｙ０−Ｙ０に対して中心軸Ｙ１−Ｙ１（回動軸３３）の反対側の端部に設けられたヒンジ部、２９は他端側の係止部である。

【００１３】一方、ノズル３は、球型の基部３１と、この基部３１から接線方向に延設された吸い口３２とを具備する。基部３１は本体２の収容部２２に対応する球体で構成され、球面上には吸い口３２の延長方向と交叉する方向に一対のボス状の回動軸３３が対称的に突設されている。３４は窪み２６に対応して基部３１の表面に形成された突起である。吸い口３２を貫通して先端に開口した流路の他端は、基部３１の球面上に開口している。そして、基部３１の両側の回動軸３３が軸受け２３内に上方からやや固く押し込まれて、基部３１の凸球面が収容部２２の凹球面内に嵌入されて、相互に密着して摺動するようになっている。

【００１４】こうして、本体２の外面側２ｂに装着されたノズル３は、回動軸３３を中心に回動角の上限が後述する望ましい起立角θに対応するようにほぼ１２０°の角範囲を回動して吸い口３２が起伏される。この場合、吸い口３２は突起３４が窪み２６に嵌合したクリック位置で伏臥して収納溝２１内に収納されると共に、伏臥した吸い口３２によって通気孔２７が封鎖される。また、回動角の上限では吸い口３２の背部が収容部２２の角部に当接して起立状態が保持されると共に、ノズル３と通液筒２ｄの流路が一致して連通する。４１は蓋４を本体２のヒンジ部２８に連結するヒンジ軸、４２は他端側の

係止片である。蓋４はヒンジ軸４１を支点にほぼ３／４回転して本体２の上部空間を開放し、係止片４２が係止部２９に係止されて本体２の上空が包囲される。

【００１５】次に、図４を主にして、実施の形態１の動作を説明する。図４では、本考案のボトルキャップ１をペットボトルに適用した場合が例示されている。ペットボトル１２の注ぎ口に被された専用のキャップを取り除いてから、通液筒２ｄに接続されたストロー１１を注ぎ口に差し込む。図２に示されたような閉蓋状態のボトルキャップ１の雌ネジ２ｃを注ぎ口の雄ネジに螺入して、注ぎ口との接触面に介装されたパッキン２ｅを締め付けて装着する。この結果、図示されていないが、ペットボトル１２の中に挿入されたストロー１１の先端が底に沈められて、内液１３内の最深部に浸漬される。

【００１６】このときの状態では、前述のように基部３１が収容部２２に球面接触で密着して収納されており通気孔２７も伏臥状態の吸い口３２の胸部に封鎖されているので、たとえ振動等が加わってもペットボトル１２の内液１３が零れるようなことがない。内液１３を飲むときは、係止片４２と係止部２９との係止を解除し、蓋４をヒンジ軸４１を中心に反時計方向に回転して本体２の上方を開放する。蓋４の開放後、ノズル３を回動軸３３を中心に時計向きに回転して、吸い口３２をクリック位置に起立させる。起立した吸い口３２内の空気を吸い込めば、連通された流路が負圧になって内液１３を飲むことができる。ノズル３の起立したときの角度（起立角θ…水平面とのなす角）は、垂直または水平付近では飲み難い。よって、垂直と水平の間の任意の鋭角内で、できれば起立角θをほぼ６０°に設定することが望ましい。

【００１７】図４に示すように、開放状態の蓋４と起立して傾斜した吸い口３２が左右に分かれて互いに対向して反対方向に保持されているので内液１３の吸飲に支障を来すことがない。吸飲が終わると、上記と逆の動作で収納溝２１に収納されたノズル３の上部空間が蓋４で覆われるようになっている。収納状態でノズル３は蓋４で覆われるので、衣類等との接触や塵埃の付着がなくなり衛生状態を保つことができる。ゴミ等が付着して汚れたときはノズル３を本体２から引き抜いて、汚れ易いノズル３を分離状態で簡単且つ綿密に洗浄することができる。同様に、ストロー１１，Ｏリング２５，パッキン２ｅも本体２から分解して洗浄可能である。この様に、分解して洗浄を行うことにより、ボトルキャップ１を清潔に保つことが可能であり、新たなペットボトル１２への使用を可能とする。

【００１８】実施の形態２．図５は実施の形態２の構成を示す断面図．図６は実施の形態２の動作を示す説明図で、（ａ）と（ｂ）は蓋の開放状態の上面図と断面図、（ｃ）は要部の変形例の説明図である。実施の形態２では構造面において、実施の形態１に比較して著しく簡素化された特徴を有する。基本的には、流路の封鎖にストロー１１をノズル３の一部で押さえることで行い、蓋４の解放時にストロー１１の復元性でノズルを自動的に起立させる自動起伏構造が採用されている。また、ノズル３が回動軸３３を中心に回動して起伏するノズル３の軸支構造は実施の形態１と同様になっている。このため、図１に示されているように本体２がほぼ楕円形で、外面側２ｂに丸ドーム状の支持部２０が併設されて実施の形態１と共通した構造になっている。

【００１９】また、ノズル３の基部３１には円筒溝３６が形成されて、ストロー１１が円筒溝３６に囲まれた内筒にやや固く着脱自在に接続されている。この他に、実施の形態２ではノズル３が伏臥したときにストロー１１の流路の遮断を効果的に行わせるために、基部３１の少なくとも下側の外環部に突出部３７が形成されている。また、収容部２２は下方に向う漸縮型で、ノズル３の伏臥方向に幾分傾けた有底の逆円錐状に形成されて自動的な起伏動作を円滑に実施させるための配慮がなされている。そして、逆円錐状の収容部２２の底部を内面側２ａに露出させている。

【００２０】２２ａは収容部２２の底部に設けられたストロー１１の挿通孔で、本体２の内面側２ａから外面側２ｂに通じている。この挿通孔２２ａの内周面には例えば折り返し部２２ｃ等のストロー１１の移動を抑制する滑り止め機能が与えられる。ストロー１１の先端はノズル３の基部３１に接続され、途中が挿通孔２２ａに挿通されている。特に、ストロー１１にはやや強いバネ性の復元力を有するシリコーンチューブが用いられている。その他の一部の共通部材には、実施の形態１と同一の符号が付されている。

【００２１】いま、図６（ｂ）に示されたように、開蓋状態でノズル３が起立しているときに蓋４をヒンジ部２８を支点に矢印方向に１５０°近く回転すると蓋４の内面が吸い口３２に接触する。蓋４を更に回転すると、ノズル３が弾性を有するストロー１１を引き伸ばして蓋４に逆方向の抵抗力を加えながら回動軸３３を中心に一体に同方向に回転する。そして、ストロー１１の抵抗力を受けている蓋４の係止片４２を係止部２９に係止すると、図５に示すようにノズル３が逆円錐状の部分から抜け出して伏臥状態になって収納溝２１内に収容される。このとき、ノズル３の回動に伴う部分的な伸張差のもとに接続部付近のストロー１１が潰され、この潰された部分の内面が密着するように突出部３７により弾性的に圧接される。この結果、内部の流路が自動的に塞がれて、内液１３の漏洩が防止される。

【００２２】逆に、係止片４２の係止部２９との係止を開放すると、蓋４によって押圧されていたノズル３がストロー１１の復元力によって蓋４を開放させながら図５の状態から図６の（ｂ）に示すように自動的に起立することになる。このように、実施の形態２によれば、ノズ

ル３を起立させる手動動作が不必要になるばかりか、バネの利用を省略することができる。このほかに、蓋４が本体２と一体に作られていて、両者を連結した肉薄の帯部材でヒンジ部２８が構成されている。これにより実施の形態１に比較して同等の機能を果たしながら、一層のコストの低廉化が図られている。もちろん、実施の形態１と同様に蓋４が本体２と別体に形成されてもよい。

【００２３】図６の（ｃ）に、実施の形態２の流路の遮断機構の変形例が示されている。即ち、図（ｃ）では、ストロー１１が接続されるノズル３の基部３１の円筒溝３６に囲まれた内筒の筒先に傾斜面３８が形成されている。そして、閉められた蓋４によってノズル３が押圧されて伏臥したときに、前記と同様に伸張差により強く引き伸ばされたストロー１１の内面部分が傾斜面３８に弾性的に圧着されることになる。それ故、この内面部分の圧着によって傾斜面３８に開口する流路が自動的に封鎖されて、内液１３の漏洩が防止されることになる。

【００２４】なお、上述の両実施の形態では本発明を自然水等を詰めたペットボトルの雄ネジを設けた注ぎ口に適用した場合を例示して説明したが、雌ネジの代替え構造を用いれば水筒や哺乳瓶等の他のボトルにも適用することができる。また、実施の形態１では９０°を越えた１２０°程度の回動角で吸い口３２を起伏させた場合で説明したが、回転角の上限を９０°以下にしてもよく、要するに開蓋時における蓋の反対側であって前述したようなノズル３の起立角θを任意の鋭角内で、望ましくは６０°付近に傾けて設定したものであればよい。さらに、本体やノズルの形状等についても、同等の機能を果たす限りでは必ずしも実施の形態に限定するものではない。

【００２５】

【発明の効果】本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側に回動軸を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に通液筒を設けた本体と、本体の通液筒に着脱自在に接続されて先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆う蓋部材とを備え、ノズルの回転に伴う起伏動作に関連して内液の流路を開閉するノズル付きのボトルキャップを構成した。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成した。また、上記において、収容部に開口する流路を包囲するシーリング部材を設けたノズル付きのボトルキャップを構成した。また、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成した。

【００２６】この結果、図９と図１０に示した従来の容器のようにノズル（ストロー）が垂直上方に突出することがないので、頭部や上体を無理に傾けることなく楽な姿勢で内液を吸飲することができ便利になる。また、ボトルを傾けて飲むこともなくなり、キャップの締め付けを多少弱くした場合でも内液を漏すようなこともなくなる。また、樹脂と異なる金属のスプリングやバネを利用しないので、部品点数と資材の手配先の業種も限定されるばかりか設計に当たって腐食対策を考慮する心配がなくなる。

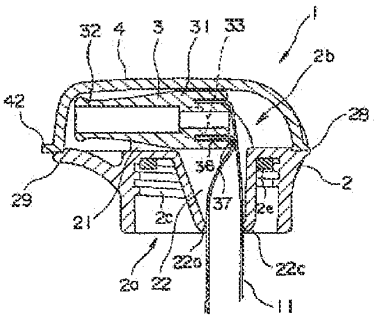
【００２７】また、本発明は、ボトルの内液の注ぎ口に雌ネジを螺合して着脱自在に装着されるノズル付きのボトルキャップにおいて、先端に吸い口が設けられて基部の両側と端部にそれぞれ回動軸と接続部を設けたノズルと、外面側にノズルを回転可能に収容する収容部と収容部を介在させた支持部を併設し、支持部の対向面に回動軸の押入可能な軸受けを形成すると共に、雌ネジを螺設した内面側に収容部に通じる挿通孔を設けた本体と、ノズルの基部に着脱自在に接続されて挿通孔を介して先端を内液に浸漬されるストローと、本体にヒンジを介して開閉可能に取り付けられて本体の上面を覆って閉蓋時にノズルを押圧する蓋部材とを備え、蓋部材の開閉に伴うノズルの回転による起伏動作に関連してストローをノズルの一部で押さえて内液の流路を遮断するノズル付きのボトルキャップを構成した。また、上記において、ストローに弾性を有する軟質材を用いたノズル付きのボトルキャップを構成した。また、上記において、挿通孔にストローの移動を抑制する抑制手段を設けたノズル付きのボトルキャップを構成した。また、上記において、ノズルの起立角θを任意の鋭角内に設定し、望ましくはほぼ６０°に傾けて設定したノズル付きのボトルキャップを構成した。さらに、上記において、ノズルの起立方向を開蓋時の蓋部材と反対方向に設定したノズル付きのボトルキャップを構成した。

【００２８】この結果、ノズルの起伏の動作にストローの屈伸性と弾力性の復元力を利用した実施の形態２によれば、従来に比較してバネ機構や回動機構が省略されて全体構成を著しく簡素化することができる。また、ストローを直接ノズルの基部に接続するので、ボトルの深さ等に応じて適宜適切な長さのストローに交換することができ取り扱いも便利になる。さらに、バネの省略で錆対策と面倒な組立操作が省け、部品点数と組立工数を減少させる等の利点もある。

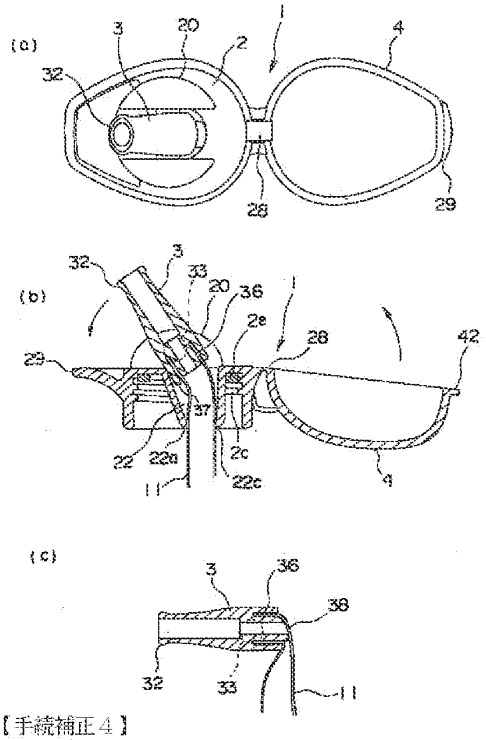
【００２９】よって、本発明によれば、ノズルを適度な角度に傾けて飲み易くし、簡単な構成で部品点数を少なくしてコストアップを押さえると共に、取り扱いが便利でコンパクトなノズル付きのボトルキャップを提供することができる。

【図面の簡単な説明】

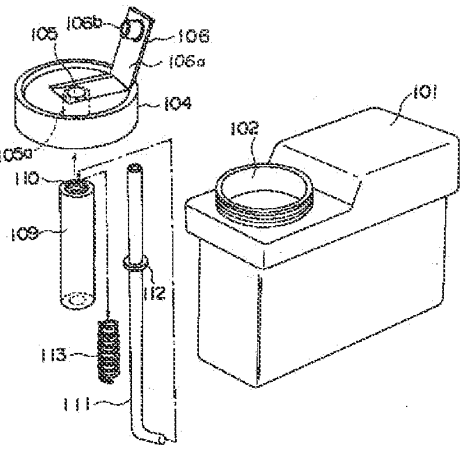
【図１】実施の形態１の構成を示す上面図である。
【図２】図１のＸ－Ｘ断面図である。
【図３】本体の断面図である。
【図４】実施の形態１の動作を示す断面図である。
【図５】実施の形態２の構成を示す断面図である。
【図６】実施の形態２の動作を示す説明図である。
【図７】従来装置の構成を示す説明図である。
【図８】従来装置の別の構成を示す説明図である。
【符号の説明】
１　ボトルキャップ
２　本体
２ａ　内面側
２ｂ　外面側
２ｃ　雌ネジ
２ｄ　通液筒
２ｅ　平パッキン
３　ノズル
４　蓋（蓋部材）
１１　ストロー
１２　ペットボトル
１３　内液
２０　支持部
２１　収納溝
２２　収容部
２２ａ　挿通孔
２２ｃ　折り返し部
２３　軸受け
２４　環状溝
２５　Ｏリング
２６　窪み
２７　通気孔
２８　ヒンジ部
２９　係止部
３１　基部
３２　吸い口
３３　回動軸
３４　突起
３６　円筒溝
３７　突出部
３８　傾斜面
４１　ヒンジ軸
４２　係止片
Ｏ－Ｏ　軸心
Ｙ０－Ｙ０　キャップ軸
Ｙ１－Ｙ１　中心軸
δ　ズレ
θ　起立角
【手続補正２】
【補正対象書類名】図面
【補正対象項目名】図５
【補正方法】変更
【補正内容】
【図５】



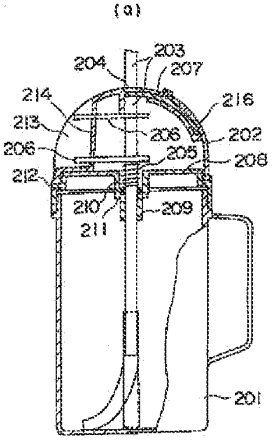
【手続補正３】
【補正対象書類名】図面
【補正対象項目名】図６
【補正方法】変更
【補正内容】
【図６】

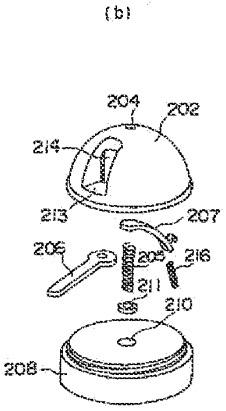


【手続補正４】
【補正対象書類名】図面
【補正対象項目名】図７
【補正方法】変更
【補正内容】
【図７】



【手続補正５】
【補正対象書類名】図面
【補正対象項目名】図８
【補正方法】変更
【補正内容】
【図８】





【手続補正６】
【補正対象書類名】図面
【補正対象項目名】図９
【補正方法】削除

【手続補正７】
【補正対象書類名】図面
【補正対象項目名】図１０
【補正方法】削除

フロントページの続き

(72)発明者　藤谷　博美
大阪市中央区農人橋２丁目１番36号　ピッ
プフジモト株式会社内

Ｆターム(参考)　3E084 AA04 AA12 AA24 AB01 CA02
CC03 FB01 GA04
4F033 BA04 CA04 DA01 EA01 NA01

(19) Japan Patent Office (JP) (12) Official Gazette for Kokai Patent Applications (A) (11) Japanese Patent Application Kokai Publication No. 2001-294252 (P2001-294252A)

(43) Kokai Publication Date: October 23, 2001 (2001.10.23)

(51) Int. Cl.7	ID Code	FI		Theme code (reference)	
B65D 47/06		B65D 47/06		H	3E084
43/16		43/16		Z	4F033
47/26		47/26		T	
//B05B 1/06		//B05B 1/06			

Request for Examination: Not yet made
Number of claims: 9 OL
Total pages: 16

(21) Application No.: 2000-114501 (P2000-114501)

(22) Application Filing Date: April 17, 2000 (2000.4.17)

(71) Applicant: 000107066
Richell Corporation
136 Mizuhashi Sakuragi, Toyama-shi, Toyama-ken
(72) Inventor: Tooru Toudou
Richell Corporation
136 Mizuhashi Sakuragi, Toyama-shi, Toyama-ken
(72) Inventor: Akiko Marutani
Richell Corporation
136 Mizuhashi Sakuragi, Toyama-shi, Toyama-ken
(74) Agent: 100061273
Patent Attorney: Shuji Sasaki (and 3 others)

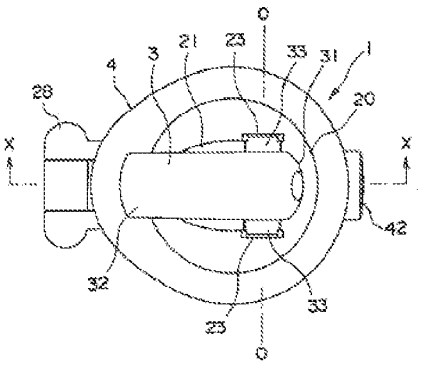
(Continued on the last page)

(54) [Title of the Invention] BOTTLE CAP WITH NOZZLE

(57) Abstract

[Problems] The present invention realizes a bottle cap with a nozzle that enables the nozzle to be tilted at an appropriate angle to facilitate drinking and the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact.

[Solution] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle.



[What is claimed is]

[Claim 1] A bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising:

a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion;

a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed;

a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and

a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body,

wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle.

[Claim 2] The bottle cap with a nozzle according to Claim 1, wherein the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees.

[Claim 3] The bottle cap with a nozzle according to Claim 1 or 2, wherein a sealing member surrounding the flow path opened to the storage portion is provided.

[Claim 4] The bottle cap with a nozzle according to any one of Claims 1-3, wherein the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[Claim 5] A bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising:

a nozzle provided with a suction port at its tip and a connecting portion at the tip portion of the base portion;

a main body provided with a storage portion for storing the nozzle in a reciprocatable manner on the outer surface side and an insertion hole communicating with the storage portion on the inner surface side where the female screw is screwed;

a straw detachably connected with the base portion of the nozzle, wherein the tip of the straw is to be immersed in the internal liquid via the insertion hole; and

a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body and thereby press the nozzle down when the lid is closed,

wherein the flow path of the internal liquid is blocked by bending the straw in connection with the backward motion of the nozzle associated with the opening and closing of the lid member.

[Claim 6] The bottle cap with a nozzle according to Claim 5, wherein an elastic soft material is used for the straw.

[Claim 7] The bottle cap with a nozzle according to Claim 5 or 6, wherein restraining means are provided for the insertion hole for restraining the movement of the straw.

[Claim 8] A bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising:

a nozzle provided with a suction port at its tip as well as rotation shafts and a connecting portion on both sides and tip portion of the base portion, respectively;

a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed;

a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid, and

a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body,

wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the up and down motion caused by the rotation of the nozzle associated with the opening and closing of the lid member.

[Claim 9] The bottle cap with a nozzle according to Claim 8, wherein an elastic soft material is used for the straw.

[Claim 10] The bottle cap with a nozzle according to Claim 8 or 9, wherein restraining means are provided for the insertion hole for restraining the movement of the straw.

[Claim 11] The bottle cap with a nozzle according to Claim 1, wherein the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees.

[Claim 12] The bottle cap with a nozzle according to any one of Claims 8-11, wherein the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[detailed Explanation of the Invention]

[0001]

[Technological Field to which the Invention Belong] Recently, there is a bottle cap with a nozzle developed for enabling the so-called "straw drinking" to drink the contents of natural water or soft drinks filled in bottles such as PET bottles with a straw. If you use a bottle cap with a nozzle, you don't need a cup, and you can drink the packed contents without opening and closing the lid of the cap every time you want to drink them different times, which is extremely convenient. The present invention relates to a bottle cap with a nozzle as described above.

[0002]

[Prior Art] As conventional articles using a similar cap of this type, for example, containers disclosed in Japanese Utility Model Publication No. H03-8090 and Japanese Utility Model Publication No. H03-18362 are known. The configurations of both containers are described in FIGS. 9 and 10, but in the description of FIG. 9, the numerical value 100 is added to the reference numerals described in the gazette and 200 is added to FIG. 10. FIG. 9 is an exploded perspective view showing the configuration of the container described in Japanese Utility Model Publication No. H03-8090. In FIG. 9, 101 is a container main body, 102 is an injection/pouring opening, 104 is a closing member for the injection/pouring opening 102, 105 is a small opening portion for discharging a straw provided on the closing member 104, 106 is a small plug, 106b is a fitting portion thereof, and 109 is a holding cylinder. Furthermore, 110 is a screwing member, 111 is a straw, 112 is a stopper, and 113 is a spring.

[0003] When drinking a beverage inside the container main body 101, by removing the fitting portion 106b of the small plug 106 fitted in the small opening portion 105 of the closing member, the straw 111 is lifted up to the contact position between the stopper 112 and the lower end of the small opening portion 105 by the elastic force of the spring 113 in the holding cylinder 109, which is fixed to the cylindrical edge 105a of the small opening portion 105 by a screwing means. Then, the upper end portion of the straw projects from the small opening portion 105, and you can drink the internal beverage using the protruding straw 111. In addition, if the straw 111 is pushed against the elastic force of the spring 113 to make the small plug 106 fit into the small opening portion 105, the straw 111 can be returned to the original state held in the container main body 101.

[0004] FIG. 10 is a drawing disclosed in the abovementioned Japanese Utility Model Publication No. H03-18362, in which (a) is an overall longitudinal sectional view and (b) is an exploded perspective view of a cap portion. In FIG. 10, 201 is a liquid container, 202 is a cap, 203 is a straw, 204 is a projecting opening of the cap 202, 205 is a spring for projecting the straw 203, 206 is a lever, 207 is an opening/closing member, 208 is an inner lid, 209 is a cylindrical portion, and 210 is a recessed portion into which the lower end of the spring 203 is fitted. Furthermore, 211 is a packing fitted in the straw 203, 212 is a packing between the inner lid 208 and the container 201, 213 is a recessed portion formed on the side surface of the cap 202, 214 is a vertical hole through which the level 206 jumps to the recessed portion 210, and 216 is a push spring.

[0005] In the configuration of the liquid container 201 shown in FIG. 10, the opening/closing member 207 slides in the direction intersecting with the projecting direction of the straw 203 to hold down the top end of the straw 203 by means of the tip portion thereof, so that the straw 203 immediately projects from the projecting opening 204, and after drinking, if the push-down lever 206 is pressed down, the opening/closing member 207 automatically closes the projecting opening 204. Also, the opening/closing member 207 abutting the upper end of the straw 203 prevents liquid leakage. Furthermore, when the opening/closing member 207 is slid, the straw 203 is immediately projected from the projecting opening 204 by means of the projecting spring 205, and after drinking, the projecting opening 204 is automatically closed by pressing the push-down lever 206 down.

[0006]

[Problems that the Invention is to Solve] However, in both the conventional containers shown in FIGS. 9 and 10, the straws 111 and 203 are configured to project vertically upward. Therefore, when drinking the internal liquid by sucking with the straws 111 and 203, the head needs to be tilted together with the upper body so that an unreasonable posture must be taken, which is extremely inconvenient. If you drink the beverage by sucking while standing upright without tilting the posture, container 101 or 201 side tilts so that the content liquid might leak out. Moreover, since the spring 113 and the springs 205 and 216 made of metal are used rather than resin, the number of parts and the number of industries from which materials are procured increase, and there is an additional problem that corrosion-preventive measures must be taken into consideration at the time of designing.

[0007] The present invention has been made in order to solve the abovementioned problems, the object of the present invention is to realize a bottle cap with a nozzle that enables the nozzle to be tilted at an appropriate angle to facilitate drinking and the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact.

[0008]

[Means for Solving the Problems] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, a sealing member surrounding the flow path opened to the storage portion is provided. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0009] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and a connecting portion at the tip portion of the base portion; a main body provided with a storage portion for storing the nozzle in a reciprocatable manner on the outer surface side and an insertion hole communicating with the storage portion on the inner surface side where the female screw is screwed; a straw detachably connected with the base portion of the nozzle, wherein the tip of the straw is to be immersed in the internal liquid via the insertion hole; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body and thereby press the nozzle down when the lid is closed, wherein the flow path of the internal liquid is blocked by bending the straw in connection with the pressing motion of the nozzle associated with the opening and closing of the lid member.

[0010] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip as well as rotation shafts and a connecting portion on both sides and tip portion of the base portion, respectively; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the pressing motion by the nozzle associated with the opening and closing of the lid member. Furthermore, in the abovementioned bottle cap with a nozzle, an elastic soft material is used for the straw. Furthermore, in the abovementioned bottle cap with a nozzle, restraining means are provided for the insertion hole for restraining the movement of the straw. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0011]

[Mode for Implementing the Invention] Embodiment 1. FIG. 1 is a top view showing the configuration of the first embodiment of the present invention. FIG. 2 is a sectional view taken along the line X-X of FIG. 1, FIG. 3 is a sectional view of a main body, and FIG. 4 is a sectional view showing the operation of the first embodiment. In FIGS. 1 through 4, 1 denotes a bottle cap. Polypropylene or the like is used as the material of the bottle cap 1 and is molded with a slightly soft resin material that is hard to break. The reference numeral 2 is the main body of the bottle cap 1, 3 is a nozzle, and 4 is a lid. Furthermore, 11 is a straw using a rubber-like elastic resin such as a silicone tube. The reference numeral 12 is a PET bottle, and 13 is an internal liquid filled in the PET bottle 12.

[0012] Reference numeral 2a is the inner surface side of the cap-type main body 2, and 2b is the outer surface side. Reference numeral 2c is a female screw provided on the inner surface side 2a, 2d is a vertical liquid passing cylinder protruding downward and provided with a passage for the internal liquid 13 penetrating therethrough, and 2e is a ring-shaped flat packing. The female screw 2c is screwed around a vertical cap shaft Y0-Y0, and the liquid passing cylinder 2d is provided on a parallel central shaft Y1-Y1, which is offset from the cap shaft Y0-Y0 by δ. The straw 11 is detachably connected to the liquid passing cylinder 2d, and the tip thereof is immersed in the internal liquid 13, and 21 is an arcuate storage groove formed by horizontally cutting the top portion of the support portion 20 in the left-right direction. Due to the cutting of the storage groove 21, opposing wall surfaces in the front-rear direction are provided on the support portion 20.

[0013] Reference numeral 22 denotes a semi-spherically projecting storage portion having a spherical center at a point on the central shaft Y1-Y1 and opens to the storage groove 21. Reference numeral 23 is a substantially U-shaped groove-like bearing formed to face the horizontal direction (the front-back direction in FIG. 3) and is orthogonal to the central shaft Y1-Y1 and constitutes the shaft center O-O of the rotation shaft of the nozzle 3 described below. As shown in FIG. 3, the flow path of the liquid passing cylinder 2d is opened at the center of the deepest portion of the storage portion 22. Reference numeral 24 is an annular groove surrounding the opening of the liquid passing cylinder 2d, and 25 is an O-ring interposed in the annular groove 24. Reference numeral 26 is a small cavity formed on the concave spherical surface of the storage portion 22, and 27 is a vent penetrating the inner and outer surfaces of the main body 2. Reference numeral 28 is a hinge portion provided at an end portion on the opposite side of the central shaft Y1-Y1 (rotation shaft 33) with respect to the cap shaft Y0-Y0, and 29 is a latching portion on the other end side.

[0014] On the other hand, the nozzle 3 is provided with a spherical base portion 31 and a suction port 32 extending tangentially from the base portion 31. The base portion 31 is formed of a spherical surface corresponding to storage portion 22 of the main body 2, and on the spherical surface, a pair of boss-shaped rotation shafts 33 are symmetrically projected in the direction intersecting with the extending direction of the suction port 32. Reference numeral 34 is a projection formed on the surface of the base portion 31 corresponding to the cavity 26. The other end of the flow path, which penetrates through the suction port 32 and opens at the tip, are slightly tightly pushed into the bearing 23 from above, and the convex spherical surface of the base portion 31 is fitted into the concave spherical surface of the storage portion 22 and slides in close contact with each other.

[0015] In this way, the nozzle 3 mounted on the outer surface side 2b of the main body 2 rotates about the rotation shaft 33 in an angular range of about 120 degrees so that the upper limit of the rotation angle corresponds to a desired rising angle θ described below and makes the suction port 32 up and down. In this case, the suction port 32 is stored in the storage groove 21 while lying down at the click position where the projection 34 fits into the cavity 26, and the vent 27 is closed by the lying-down suction port 32. Furthermore, at the upper limit of the rotation angle, the back portion of the suction port comes into contact with the corner portion of the storage portion 22 to maintain the rising state, and the flow paths of the nozzle 3 and the liquid passing cylinder 2d coincide and communicate with each other. Reference numeral 41 is a hinge shaft that connects the lid 4 to the hinge portion 28 of the main body 2, and 42 is a latching piece on the other end side. The lid 4 rotates about 3/4 around the hinge shaft 41 as a fulcrum to open the upper surface of the main body 2, and the latching piece 42 is latched onto the latching portion 29 to close the upper space of the main body 2.

[0016] Next, the operation of the first embodiment is described below mainly with reference to FIG. 4. FIG. 4 illustrates the case where the bottle cap 1 of the present device is applied to a PET bottle. After removing the dedicated cap covering the pouring portion of the PET bottle 12, the straw 11 connected to the liquid passing cylinder 2d is inserted into the pouring portion. The female screw 2c of the bottle cap 1 in the closed state as shown in FIG. 2 is screwed into the male screw of the pouring portion, and the packing 2e interposed on the surface in contact with the pouring portion is attached by tightening. As a result, the tip of the straw 11 inserted into the PET bottle 12 is sunk to the bottom and immersed in the deepest part of the internal liquid 13 (not shown here).

Zak Designs, Inc. Exhibit 1008
4 of 17

IPR 2024-01137
CamelBak - Ex 2001
Page 71 of 857

[0017] In this state, as described above, the base portion 31 is stored in close spherical contact with the storage portion 22, and the vent 27 is also blocked by the chest portion of the suction port 32 in the prone state, so that if a vibration or the like occurs, the internal liquid 13 of the PET bottle 12 does not spill. When drinking the internal liquid 13, the latching between the latching piece 42 and the latching portion 29 is released, and the lid 4 is rotated counterclockwise around the hinge shaft 41 to open the upper part of the main body 2. After the lid 4 is released, the nozzle 3 is rotated clockwise around the rotation shaft 33 to raise the suction port 32 to the click position. If the air in the standing suction port 32 is sucked in, the pressure of the communicating flow path becomes negative, so that the internal liquid 13 can be drunk. If the angle is near vertical or horizontal when the nozzle 3 is in the rising state (the rising angle θ, i.e., the angle formed with respect to the horizontal plane), it is difficult to drink the internal liquid. Therefore, it is desirable to set the rising angle within an arbitrary acute angle between vertical and horizontal positions (it is desirable to set it to approximately 60 degrees if possible).

[0018] As shown in FIG. 4, since the lid 4 in the open state and the suction port 32 in a rising and inclined state face each other right and left and are held in opposite directions, nothing can interfere to drink the internal liquid 13 by sucking. After the drinking is finished, the upper space of the nozzle 3 stored in the storage groove 21 is covered with the lid 4 by the operation reversed to the above. Since the nozzle 3 is covered with the lid 4 in the stored state, no contact with clothes or the like occurs and dust is not attached, so that the hygienic state can be maintained. When dust or the like adheres the nozzle 3 to make it dirty, it can be pulled out from the main body 2; the nozzle 3 that tends to be easily polluted can be washed in a separate state with ease and thoroughly. Similarly, the straw 11, the O-ring 25, and the packing 2e can also be disassembled from the main body 2 to be washed. In this way, i.e., by disassembling and washing, the bottle cap 1 can be kept clean and can also be used for a new PET bottle 12.

[0019] Embodiment 2. FIG. 5 is an explanatory view showing the configuration of the second embodiment, where (a) is a sectional view and (b) is a partial sectional view of a modified example, and FIG. 6 is a sectional view showing the operation of the second embodiment. In the second embodiment, as in the abovementioned conventional examples, the protruding type is used in which the suction port 32 is vertically projected, but it is characterized by a remarkably simplified structure. In the second embodiment shown in FIGS. 5 (a) and 6, the storage portion 22 is formed in a cylindrical shape having a bottom, and the bottom portion is exposed to the inner surface side 2a on the cap shaft Y0-Y0. The structure in which the female screw 2C is screwed on the inner wall of the cap on the inner surface side 2a is the same as that of the first embodiment. Reference numeral 35a denotes a ridge provided on the outer periphery of the upper end of the base portion 31 of the nozzle 3 for preventing from falling out, and 35b denotes a cylindrical groove formed at the end portion. The cylinder surrounded by the cylindrical groove 35b constitutes a connecting portion with the straw 11. Reference numeral 36 denotes an insertion hole for the straw 11 provided on the bottom surface of the storage portion 22, which communicates from the inner surface side 2a to the outer surface side 2b.

[0020] A claw portion 36a directed inwardly is formed on the inner wall surface of the upper end of the storage portion 22, and the inner peripheral surface of the insertion hole 36 is provided with a slip preventing function such as a folded portion 36b for suppressing movement of the straw. The tip of the straw 11 is connected to the connecting portion of the base portion 31 of the nozzle 3, and the middle section thereof is inserted into the insertion hole 36. For this reason, there is a slight difference in difficulty for the insertion and withdrawal of the straw 11 inserted through the insertion hole 36, and a slight resistance force is applied during withdrawal. On the other hand, the base portion 31 of the nozzle 3 is placed in such a way that the storage portion 22 can be reciprocated inside. In particular, the straw 11 is made of a silicon tube having a slightly strong spring-like restoring force. Some other common members are designated by the same reference numerals as those in the first embodiment.

[0021] When the lid 4 is closed, the tip of the suction port 32 is pressed against the inner wall of the lid 4, so that the nozzle 3 is pushed down into the storage portion 22; however, the straw 11 connected to the nozzle 3 is compressed, because the movement of the straw 11 is restrained by the folded portion 36b or the like provided on the inner peripheral surface of the insertion hole 36. At this time, the compressed straw 11 is not pushed to the outside by the insertion hole 36 but is bent in the lateral direction into a "U shape" as shown in FIG. 5 and the flow path of the internal liquid 13 is automatically blocked by this bent portion. When the lid 4 is unlocked and released, the restoring force of the straw 11 acts and the base portion 31 is pushed up to the upper limit position of the straw 11 or the position where the ridge 35a abuts the claw portion 36a, resulting in the protrusion of the suction opening 32. The protruding state of the nozzle 3 is shown in FIG. 6. According to the second embodiment, a spring for projecting the nozzle 3 is unnecessary, so that a troublesome assembling operation can be omitted, and the number of parts and the number of assembling steps can be reduced, which can contribute to the cost reduction.

[0022] FIG. 5 (b) is a partial cross-sectional view of the essential parts of a modified example of the second embodiment. In FIG. 5 (b), 43 is a cavity portion formed on the cap shaft Y0-Y0 on the inner surface of the lid 4, and 44 is a plate packing. The plate packing 44 uses a material such as silicon having elasticity and removably press-fitted into the protruded cavity portion 43 having a slightly smaller diameter. The press-fitted plate packing 44 is fitted on the same surface as the inner surface of the lid 4 or slightly down from the surface. Then, as shown in the drawing, when the lid is closed, the suction port 32 at the tip of the nozzle is pressed against the plate packing 44 to block the opening of the flow path and prevent the internal liquid 13 from leaking. In this case, it is not absolutely necessary for the "U-shaped" bent portion of the straw 11 to close the flow path. In addition to this, the second embodiment prepares a second modified example having a configuration similar to that of the first embodiment. Although no illustration is shown in the second modified example, a configuration is adopted in which the central axis Y1-Y1 in the vertical direction passing through the center of the nozzle 3 is deviated from the cap shaft Y0-Y0 in parallel by δ. In this second modified example, effects similar to those described above, i.e., no spring or troublesome assembly operation can also be achieved.

[0023] Embodiment 3. FIG. 7 is a cross-sectional view showing the configuration of the third embodiment. FIG. 8 is an explanatory view showing the operation of the third embodiment, wherein (a) and (b) are respectively top and cross-sectional views of the lid in an open state, and (c) is an explanatory view of a modified example of the main portion. In the third embodiment, the restoring force of the straw 11 is also used in the same manner. However, the flow path is closed by pressing the straw 11 with part of the nozzle 3, and when the lid is released, and an automatic undulating structure is employed in which the nozzle is automatically raised by the resilience of the straw 11. In addition, the shaft support structure of the nozzle 3 in which the nozzle 3 rotates around the rotation shaft 33 up and down is similar to that of the first embodiment. Therefore, as shown in FIG.1, the main body 2 has a substantially elliptical shape, and the support portion 20 having a circular dome shape is provided side by side on the outer surface side 2b to have a common structure. A cylindrical groove 35b is formed in the base portion 31 of the nozzle 3, and the straw 11 is slightly rigidly connected to the inner cylinder surrounded by the cylindrical groove 35b. In addition to this, in the third embodiment, in order to effectively block the flow path of the straw 11 when the nozzle 3 is prone, a projecting portion 37 is formed at least on the lower outer ring portion of the base portion 31. Furthermore, the storage portion 22 is of a gradual downward reduction type and is formed in an inverted conical shape that is slightly inclined in the prone direction of the nozzle 3 so as to ensure a smooth automatic up and down motion.

[0024] Now, as shown in FIG. 8 (b), when the lid 4 is rotated about 150 degrees in the direction of an arrow around the hinge 28 as the fulcrum when the nozzle 3 is standing in the open state, the inner surface of the lid 4 comes into contact with the suction port 32. When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33. Then, when the latching piece 42 of the lid 4 under the resistance force of the straw 11 is latched onto the latching portion 29, the nozzle 3 comes out of the inverted conical portion and becomes a prone state as shown in FIG. 7 to be stored in the storage groove 21. At this time, the straw 11 near the connection portion is crushed based on the partial expansion difference due to the rotation of the nozzle 3, and the ridge 37 elastically presses the inner surface of the crushed portion to make it attached firmly. As a result, the internal flow path is automatically closed and thereby the internal liquid 13 is prevented from leaking.

[0025] Conversely, when the latching of the hinge portion 28 is released, the nozzle 3 pressed by the lid 4 follows the opening of the lid 4 by the restoring force of the straw 11 and is automatically raised as shown in FIG. 8 (b) from the state shown in FIG. 7. Thus, according to the third embodiment, not only is the manual operation for raising the nozzle 3 becomes unnecessary, but the use of the spring can be eliminated as well. In addition to this, the lid 4 is formed integrally with the main body 2, and the hinge portion 28 is configured by a thin band member that connects both. As a result, the cost is further reduced while achieving the same function as that of the first embodiment. Of course, the lid 4 may be formed separately from the main body 2 as in the first and second embodiments.

[0026] FIG. 8 (c) shows a modified example of the flow path blocking mechanism according to the third embodiment. In other words, in FIG. 8 (c), an inclined surface 38 is formed at the cylinder tip of the inner ring portion of the base portion 31 of the nozzle 3 to which the straw 11 is connected. When the nozzle 3 is pressed by the closed lid 4 to lie down, the inner surface portion of the straw 11 which is strongly stretched due to the expansion difference in a manner similar to that described above is elastically pressed against the inclined surface 38. Therefore, by the pressure bonding of the inner surface portion, the flow path that is open to the inclined surface 38 is automatically closed, and the leakage of the inner liquid 13 is prevented.

[0027] Each of the abovementioned embodiments describes the case where the present invention is applied to a pouring opening provided with a male screw of a PET bottle filled with natural water or the like as an example; however, if an alternative structure of a female screw is used, it can also be applied to other bottles such as water bottles and baby bottles. Furthermore, the first embodiment describes the case where the suction opening 32 is moved up and down at a rotation angle of about 120 degrees (i.e., exceeding 90 degrees), but the upper limit of the rotation angle may be set to 90 degrees or less; in other words, it is good enough as long as the suction port can be set on the opposite side of the lid and the rising angle θ of the nozzle 3 as described above may be set within an arbitrary acute angle, preferably at an angle of about 90 degrees. Furthermore, the shapes of the main body and the nozzles are not necessarily limited to the embodiments as long as they have the equivalent functions.

[0028]

[Effect of the Invention] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, a sealing member surrounding the flow path opened to the storage portion is provided. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0029] As a result, since the nozzle (straw) does not project vertically upward unlike the conventional containers shown in FIGS. 9 and 10, the internal liquid can conveniently be drunk in a comfortable posture without unreasonably tilting the head or upper body. Also, since the bottle is not tilted for drinking, the internal liquid will not be spilled when the cap is tightened a little loosely. Furthermore, since no spring made of a metal is used (i.e., resin is used), not only are the number of parts and the number of industries from which materials are procured can be limited, but there is also no need to worry about any corrosion measures at the time of designing.

[0030] Furthermore, the present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and a connecting portion at the tip portion of the base portion; a main body provided with a storage portion for storing the nozzle in a reciprocatable manner on the outer surface side and an insertion hole communicating with the storage portion on the inner surface side where the female screw is screwed; a straw detachably connected with the base portion of the nozzle, wherein the tip of the straw is to be immersed in the internal liquid via the insertion hole, and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body and thereby press the nozzle down when the lid is closed, wherein the flow path of the internal liquid is blocked by bending the straw in connection with the backward motion of the nozzle associated with the opening and closing of the lid member. Furthermore, in the abovementioned bottle cap with a nozzle, an elastic soft material is used for the straw. Furthermore, in the abovementioned bottle cap with a nozzle, restraining means are provided for the insertion hole for restraining the movement of the straw.

[0031] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip as well as rotation shafts and a connecting portion on both sides and tip portion of the base portion, respectively; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the up and down motion caused by the rotation of the nozzle associated with the opening and closing of the lid member. Furthermore, in the abovementioned bottle cap with a nozzle, an elastic soft material is used for the straw. Furthermore, in the abovementioned bottle cap with a nozzle, restraining means are provided for the insertion hole for restraining the movement of the straw. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0032] As a result, according to the second and third embodiments in which the bending and stretching properties of the straw and its elastic restoring force are used for the reciprocating motion and up and down motion of the nozzle, the spring mechanism and the rotating mechanism are omitted as compared with the conventional one, so that the overall configuration can be remarkably simplified. Furthermore, since the straw is directly connected to the base portion of the nozzle, it can be replaced with a suitable straw appropriately according to the depth of the bottle and the like, so that the handling also becomes convenient. Furthermore, since the spring is omitted, there is an advantage that the troublesome assembling operation can be omitted and the number of parts and the assembling man-hour can be reduced. Particularly, according to the modified example of the embodiment in which the lid is provided with the packing, it is possible to realize the bottle cap that can completely prevent the leakage of the internal liquid when the lid is closed without using the spring for projecting the nozzle.

[0033] Accordingly, the present invention can provide a bottle cap with a nozzle that enables the nozzle to be tilted at an appropriate angle to facilitate drinking and the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact.

[Brief Description of Drawings]

[FIG. 1] A top view showing the configuration of Embodiment 1.

[FIG. 2] An X-X sectional view of FIG. 1

[FIG. 3] A sectional view of a main body.

[FIG. 4] A sectional view showing the operation of Embodiment 1.

[FIG. 5] A sectional view showing the configuration of Embodiment 2.

[FIG. 6] A sectional view showing the operation of Embodiment 2.

[FIG. 7] A sectional view showing the configuration of Embodiment 3.

[FIG. 8] A sectional view showing the operation of Embodiment 3.

[FIG. 9] An explanatory view showing the configuration of a conventional device.

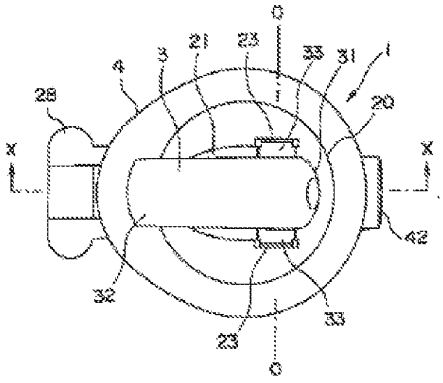
[FIG. 10] An explanatory view showing the configuration of another conventional device.

[Explanation of Reference Numerals]

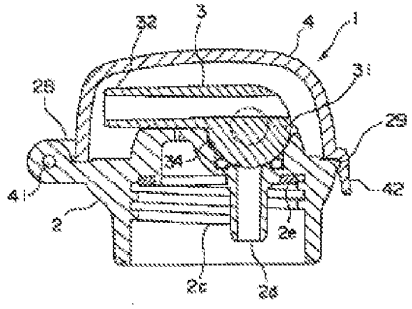
1: Bottle cap
2: Main body
2a: Inner surface side
2b: Outer surface side
2c: Female screw
2d: Liquid passing cylinder
2e: Packing
3: Nozzle
4: Lid (lid member)
11: Straw
12: PET bottle
13: Internal liquid
21: Support portion
22: Storage groove
23: Bearing
24: Ring-shaped groove
25: O-ring
26: Cavity
27: Vent
28: Hinge portion
29: Latching portion
31: Base portion
32: Suction port
33: Rotation shaft

34: Projection
35a: Ridge
35b: Cylindrical groove
36: Insertion hole
36a: Claw portion
36b: Folded portion (anti-slip portion)
37: Projecting portion
38: Inclined plane
41: Hinge shaft
42: Latching piece
43: Recessed portion
44: Plate packing
O-O: Shaft center
Y0-Y0: Cap shaft
Y1-Y1: Central shaft
δ: Difference
θ: Rising angle

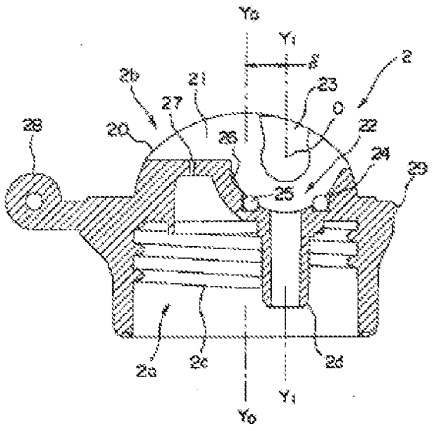
[FIG. 1]



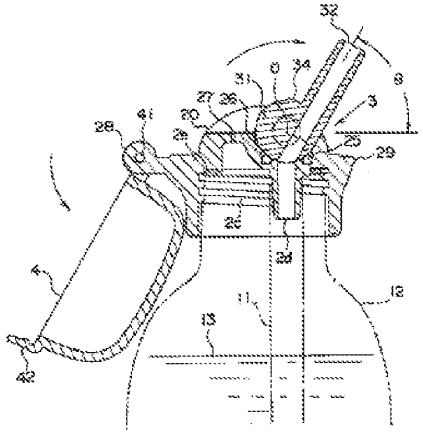
[FIG. 2]



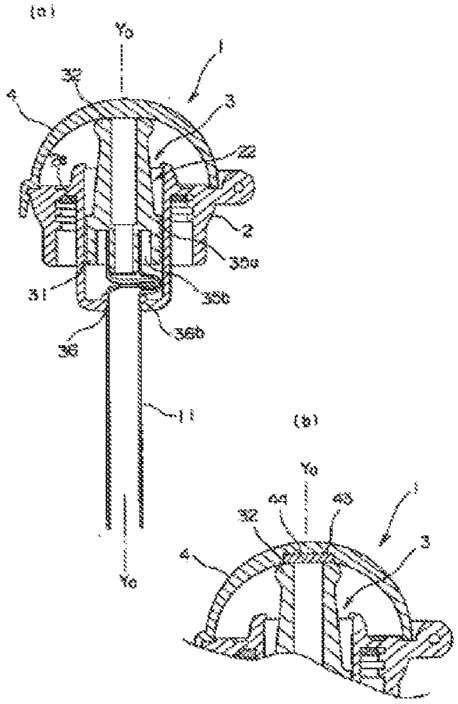
[FIG. 3]



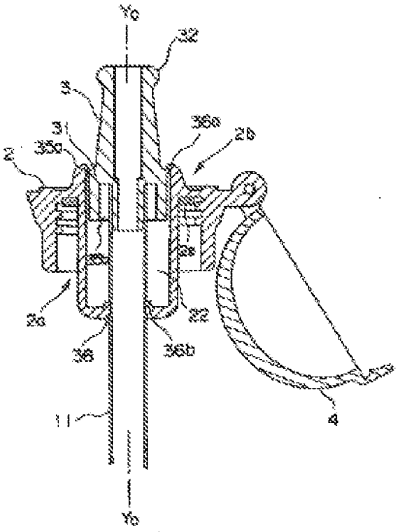
[FIG. 4]



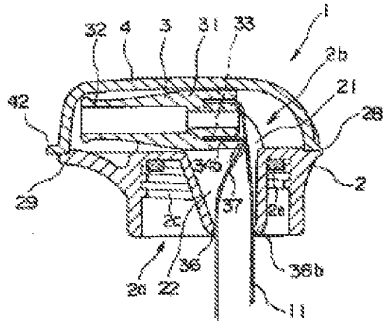
[FIG. 5]



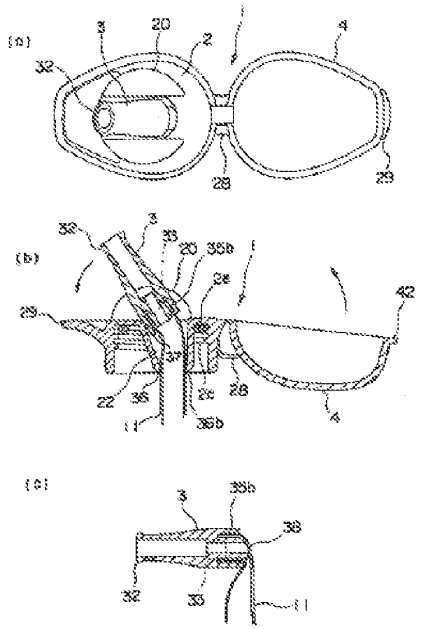
[FIG. 6]



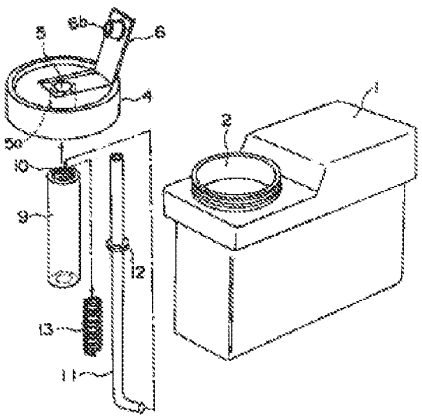
[FIG. 7]



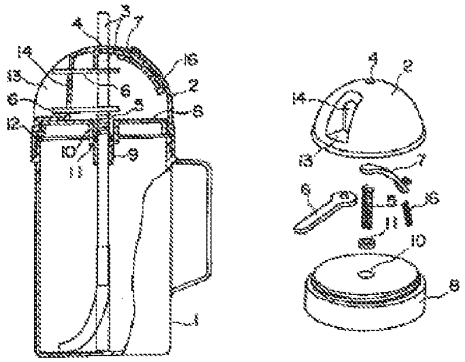
[FIG. 8]



[FIG. 9]



[FIG. 10]



[Amendment]
[Filing Date] June 19, 2000 (2000.6.19)
[Amendment 1]
[Document Title for Parts Amended] Specification
[Item Name for Parts Amended] Full text
[Method for the Amendment] Modification
[Content of the Amendment]
[Title of the Invention]
[Document Title] Specification
[What is claimed is] BOTTLE CAP WITH A NOZZLE
[Claim 1] A bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising:

a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion;

a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed;

a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and

a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body,

wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle.

[Claim 2] The bottle cap with a nozzle according to Claim 1, wherein the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees.

[Claim 3] The bottle cap with a nozzle according to Claim 1 or 2, wherein a sealing member surrounding the flow path opened to the storage portion is provided.

[Claim 4] The bottle cap with a nozzle according to any one of Claims 1-3, wherein the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[Claim 5] A bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising:

a nozzle provided with a suction port at its tip as well as rotation shafts and a connecting portion on both sides and tip portion of the base portion, respectively;

a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed;

a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and

a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body,

wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the up and down motion caused by the rotation of the nozzle associated with the opening and closing of the lid member.

[Claim 6] The bottle cap with a nozzle according to Claim 5, wherein an elastic soft material is used for the straw.

[Claim 7] The bottle cap with a nozzle according to Claim 5 or 6, wherein restraining means are provided for the insertion hole for restraining the movement of the straw.

[Claim 8] The bottle cap with a nozzle according to any one of Claims 5-7, wherein the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees.

[Claim 9] The bottle cap with a nozzle according to any one of Claims 5-8, wherein the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[Detailed explanation of the Invention]

[0001]

[Technical Field to which the Invention belongs] Recently, there is a bottle cap with a nozzle developed for enabling the so-called "straw drinking" to drink the contents of natural water or soft drinks filled in bottles such as PET bottles with a straw. If you use a bottle cap with a nozzle, you don't need a cup, and you can drink the packed contents without rotating to open and close the lid screw of the cap every time you want to drink them different times, which is extremely convenient. The present invention relates to a bottle cap with a nozzle as described above.

[0002]

[Prior Art] As conventional articles using a similar cap of this type, for example, containers disclosed in Japanese Utility Model Publication No. H03-8090 and Japanese Utility Model Publication No. H03-18362 are known. FIG. 7 is an exploded perspective view showing the configuration of the container described in Japanese Utility Model Publication No. H03-8090. In FIG. 7, 101 is a container main body, 102 is an injection/pouring opening, 104 is a closing member for the injection/pouring opening 102, 105 is a small opening portion for discharging a straw provided on the closing member 104, 106 is a small plug, 106b is a fitting portion thereof, and 109 is a holding cylinder. Furthermore, 110 is a screwing member, 111 is a straw, 112 is a stopper, and 113 is a spring.

[0003] When drinking a beverage inside the container main body 101, by removing the fitting portion 106b of the small plug 106 fitted in the small opening portion 105 of the closing member, the straw 111 is lifted up to the contact position between the stopper 112 and the lower end of the small opening portion 105 by the elastic force of the spring 113 in the holding cylinder 109, which is fixed to the cylindrical edge 105a of the small opening portion 105 by a screwing means. Then, the upper end portion of the straw projects from the small opening portion 105, and you can drink the internal beverage using the protruding straw 111. In addition, if the straw 111 is pushed against the elastic force of the spring 113 to make the small plug 106 fit into the small opening portion 105, the straw 111 can be returned to the original state held in the container main body 101.

[0004] FIG. 8 is a drawing disclosed in the abovementioned Japanese Utility Model Publication No. H03-18362, in which (a) is an overall longitudinal sectional view and (b) is an exploded perspective view of a cap portion. In FIG. 8, 201 is a liquid container, 202 is a cap, 203 is a straw, 204 is a projecting opening of the cap 202, 205 is a spring for projecting the straw 203, 206 is a lever, 207 is an opening/closing member, 208 is an inner lid, 209 is a cylindrical portion, and 210 is a recessed portion into which the lower end of the spring 205 is fitted. Furthermore, 211 is a packing fitted in the straw 203, 212 is a packing between the inner lid 208 and the container 201, 213 is a recessed portion formed on the side surface of the cap 202, 214 is a vertical hole through which the level 206 jumps to the recessed portion 210, and 216 is a push spring.

[0005] In the configuration of the liquid container 201 shown in FIG. 8, the opening/closing member 207 slides in the direction intersecting with the projecting direction of the straw 203 to hold down the top end of the straw 203 by means of the tip portion thereof, so that the straw 203 immediately projects from the projecting opening 204, and after drinking, if the push-down lever 206 is pressed down, the opening/closing member 207 automatically closes the projecting opening 204. Also, the opening/closing member 207 abutting the upper end of the straw 203 prevents liquid leakage. Furthermore, when the opening/closing member 207 is slid, the straw 203 is immediately projected from the projecting opening 204 by means of the projecting spring 205, and after drinking, the projecting opening 204 is automatically closed by pressing the push-down lever 206 down.

[0006]

[Problems that the Invention is to Solve] However, in both the conventional containers shown in FIGS. 7 and 8, the straws 111 and 203 are configured to project vertically upward. Therefore, when drinking the internal liquid by sucking with the straws 111 and 203, the head needs to be tilted together with the upper body so that an unreasonable posture must be taken, which is extremely inconvenient. If you drink the beverage by sucking while standing upright without tilting the posture, container 101 or 201 side tilts so that the content liquid might leak out. Moreover, since the spring 113 and the springs 205 and 216 made of metal are used rather than resin, the number of parts and the number of industries from which materials are procured increase, and there is an additional problem that corrosion-preventive measures must be taken into consideration at the time of designing.

[0007] The present invention has been made in order to solve the abovementioned problems, the object of the present invention is to realize a bottle cap with a nozzle that enables the nozzle to be tilted at an appropriate angle to facilitate drinking and the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact.

[0008]

[Means for Solving the Problems] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle.

Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, a sealing member surrounding the flow path opened to the storage portion is provided. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0009] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip as well as rotation shafts and a connecting portion on both sides and tip portion of the base portion, respectively; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the up and down motion caused by the rotation of the nozzle associated with the opening and closing of the lid member. Furthermore, in the abovementioned bottle cap with a nozzle, an elastic soft material is used for the straw. Furthermore, in the abovementioned bottle cap with a nozzle, restraining means are provided for the insertion hole for restraining the movement of the straw. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0010]

[Mode for Implementing the Invention] Embodiment 1. FIG. 1 is a top view showing the configuration of the first embodiment of the present invention. FIG. 2 is a sectional view taken along the line X-X of FIG. 1, FIG. 3 is a sectional view of a main body, and FIG. 4 is a sectional view showing the operation of the first embodiment. In FIGS. 1 through 4, 1 denotes a bottle cap. Polypropylene or the like is used as the material of the bottle cap 1 and is molded with a slightly soft resin material that is hard to break. The reference numeral 2 is the main body of the bottle cap 1, 3 is a nozzle, and 4 is a lid. Furthermore, 11 is a straw using a rubber-like elastic resin such as a silicone tube. The reference numeral 12 is a PET bottle, and 13 is an internal liquid filled in the PET bottle 12.

[0011] Reference numeral 2a is the inner surface side of the cap-type main body 2, and 2b is the outer surface side. Reference numeral 2c is a female screw provided on the inner surface side 2a, 2d is a vertical liquid passing cylinder protruding downward and provided with a passage for the internal liquid 13 penetrating therethrough, and 2e is a ring-shaped flat packing. The female screw 2c is screwed around a vertical cap shaft Y0-Y0, and the liquid passing cylinder 2d is provided on a parallel central shaft Y1-Y1, which is offset from the cap shaft Y0-Y0 by δ. The straw 11 is detachably connected to the liquid passing cylinder 2d, and the tip thereof is immersed in the internal liquid 13, and 21 is an arcuate storage groove formed by horizontally cutting the top portion of the support portion 20 in the left-right direction. Due to the cutting of the storage groove 21, opposing wall surfaces in the front-rear direction are provided on the support portion 20.

[0012] Reference numeral 22 denotes a semi-spherically projecting storage portion having a spherical center at a point on the central shaft Y1-Y1 and opens to the storage groove 21. Reference numeral 23 is a substantially U-shaped groove-like bearing formed to face the horizontal direction (the front-back direction in FIG. 3) and is orthogonal to the central shaft Y1-Y1 and constitutes the shaft center O-O of the rotation shaft of the nozzle 3 described below. As shown in FIG. 3, the flow path of the liquid passing cylinder 2d is opened at the center of the deepest portion of the storage portion 22. Reference numeral 24 is an annular groove surrounding the opening of the liquid passing cylinder 2d, and 25 is an O-ring interposed in the annular groove 24. Reference numeral 26 is a small cavity formed on the concave spherical surface of the storage portion 22, and 27 is a vent penetrating the inner and outer surfaces of the main body 2. Reference numeral 28 is a hinge portion provided at an end portion on the opposite side of the central shaft Y1-Y1 (rotation shaft 33) with respect to the cap shaft Y0-Y0, and 29 is a latching portion on the other end side.

[0013] On the other hand, the nozzle 3 is provided with a spherical base portion 31 and a suction port 32 extending tangentially from the base portion 31. The base portion 31 is formed of a spherical surface corresponding to storage portion 22 of the main body 2, and on the spherical surface, a pair of boss-shaped rotation shafts 33 are symmetrically projected in the direction intersecting with the extending direction of the suction port 32. Reference numeral 34 is a projection formed on the surface of the base 31 corresponding to the cavity 26. The other end of the flow path, which penetrates through the suction port 32 and opens at the tip, are slightly tightly pushed into the bearing 23 from above, and the convex spherical surface of the base portion 31 is fitted into the concave spherical surface of the storage portion 22 and slides in close contact with each other.

[0014] In this way, the nozzle 3 mounted on the outer surface side 2b of the main body 2 rotates about the rotation shaft 33 in an angular range of about 120 degrees so that the upper limit of the rotation angle corresponds to a desired rising angle θ described below and makes the suction port 32 up and down. In this case, the suction port 32 is stored in the storage groove 21 while lying down at the click position where the projection 34 fits into the cavity 26, and the vent 27 is closed by the lying-down suction port 32. Furthermore, at the upper limit of the rotation angle, the back portion of the suction port comes into contact with the corner portion of the storage portion 22 to maintain the rising state, and the flow paths of the nozzle 3 and the liquid passing cylinder 2d coincide and communicate with each other. Reference numeral 41 is a hinge shaft that connects the lid 4 to the hinge portion 28 of the main body 2, and 42 is a latching piece on the other end side. The lid 4 rotates about 3/4 around the hinge shaft 41 as a fulcrum to open the upper surface of the main body 2, and the latching piece 42 is latched onto the latching portion 29 to close the upper space of the main body 2.

[0015] Next, the operation of the first embodiment is described below mainly with reference to FIG. 4. FIG. 4 illustrates the case where the bottle cap 1 of the present device is applied to a PET bottle. After removing the dedicated cap covering the pouring portion of the PET bottle 12, the straw 11 connected to the liquid passing cylinder 2d is inserted into the pouring portion. The female screw 2c of the bottle cap 1 in the closed state as shown in FIG. 2 is screwed into the male screw of the pouring portion, and the packing 2e interposed on the surface in contact with the pouring portion is attached by tightening. As a result, the tip of the straw 11 inserted into the PET bottle 12 is sunk to the bottom and immersed in the deepest part of the internal liquid 13 (not shown here).

[0016] In this state, as described above, the base portion 31 is stored in close spherical contact with the storage portion 22, and the vent 27 is also blocked by the chest portion of the suction port 32 in the prone state, so that if a vibration or the like occurs, the internal liquid 13 of the PET bottle 12 does not spill. When drinking the internal liquid 13, the latching between the latching piece 42 and the latching portion 29 is released, and the lid 4 is rotated counterclockwise around the hinge shaft 41 to open the upper part of the main body 2. After the lid 4 is released, the nozzle 3 is rotated clockwise around the rotation shaft 33 to raise the suction port 32 to the click position. If the air in the standing suction port 32 is sucked in, the pressure of the communicating flow path becomes negative, so that the internal liquid 13 can be drunk. If the angle is near vertical or horizontal when the nozzle 3 is in the rising state (the rising angle θ, i.e., the angle formed with respect to the horizontal plane), it is difficult to drink the internal liquid. Therefore, it is desirable to set the rising angle within an arbitrary acute angle between vertical and horizontal positions (it is desirable to set it to approximately 60 degrees if possible).

[0017] As shown in FIG. 4, since the lid 4 in the open state and the suction port 32 in a rising and inclined state face each other right and left and are held in opposite directions, nothing can interfere to drink the internal liquid 13 by sucking. After the drinking is finished, the upper space of the nozzle 3 stored in the storage groove 21 is covered with the lid 4 by the operation reversed to the above. Since the nozzle 3 is covered with the lid 4 in the stored state, no contact with clothes or the like occurs and dust is not attached, so that the hygienic state can be maintained. When dust or the like adheres the nozzle 3 to make it dirty, it can be pulled out from the main body 2; the nozzle 3 that tends to be easily polluted can be washed in a separate state with ease and thoroughly. Similarly, the straw 11, the O-ring 25, and the packing 2e can also be disassembled from the main body 2 to be washed. In this way, i.e., by disassembling and washing, the bottle cap 1 can be kept clean and can also be used for a new PET bottle 12.

[0018] Embodiment 2. FIG. 5 is a cross-sectional view showing the configuration of Embodiment 2, and FIG. 6 is an explanatory view showing the operation of the second embodiment, wherein (a) and (b) are respectively top and cross-sectional views of the lid in an open state, and (c) is an explanatory view of a modified example of the main portion. The second embodiment has significantly simplified features as compared with the first embodiment. Basically, an automatic undulating structure is employed in which the straw 11 is pressed with part of the nozzle 3 so as to block the flow path and the nozzle is automatically raised by the resistivity of the straw 11 when the lid 4 is released. In addition, the shaft support structure of the nozzle 3 in which the nozzle 3 rotates around the rotation shaft 33 up and down is similar to that of the first embodiment. Therefore, as shown in FIG.1, the main body 2 has a substantially elliptical shape, and the support portion 20 having a circular dome shape is provided side by side on the outer surface side 2b to have a common structure.

[0019] A cylindrical groove 36 is formed in the base portion 31 of the nozzle 3, and the straw 11 is slightly rigidly connected removably to the inner cylinder surrounded by the cylindrical groove 36. In addition to this, in the second embodiment, in order to effectively block the flow path of the straw 11 when the nozzle 3 is in a prone position, a projecting portion 37 is formed at least on the lower outer ring portion of the base 31. Furthermore, the storage portion 22 is of a gradual downward reduction type and is formed in an inverted conical shape that is slightly inclined in the prone direction of the nozzle 3 so as to ensure a smooth automatic up and down motion. The bottom portion of the inverted conical shaped storage portion 22 is exposed to the inner surface side 2a.

[0020] The reference numeral 22a is an insertion hole provided on the bottom portion of the storage portion 22 for the straw 11 and communicates from the inner surface side 2a of the main body 2 to its outer surface side 2b. The inner peripheral surface of the insertion hole 22a is provided with a slip preventing function such as a folded portion 22c for suppressing movement of the straw 11. In particular, the straw 11 is made of a silicone tube having a slightly strong spring-like restoring force. Some other common members are designated by the same reference numerals as those in the first embodiment.

[0021] Now, as shown in FIG. 6 (b), when the lid 4 is rotated about 150 degrees in the direction of an arrow around the hinge 28 as the fulcrum when the nozzle 3 is standing in the open state, the inner surface of the lid 4 comes into contact with the suction port 32. When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33. Then, when the latching piece 42 of the lid 4 under the resistance force of the straw 11 is latched onto the latching portion 29, the nozzle 3 comes out of the inverted conical portion and becomes a prone state as shown in FIG. 5 to be stored in the storage groove 21. At this time, the straw 11 near the connection portion is crushed based on the partial expansion difference due to the rotation of the nozzle 3, and the ridge 37 elastically presses the inner surface of the crushed portion to make it attached firmly. As a result, the internal flow path is automatically closed and thereby the internal liquid 13 is prevented from leaking.

[0022] Conversely, when the latching of the latching piece 42 with the latching portion 29 is released, the nozzle 3 pressed by the lid 4 follows the opening of the lid 4 by the restoring force of the straw 11 and is automatically raised as shown in FIG. 6 (b) from the state shown in FIG. 5. Thus, according to the second embodiment, not only is the manual operation for raising the nozzle 3 becomes unnecessary, but the use of the spring can be eliminated as well. In addition to this, the lid 4 is formed integrally with the main body 2, and the hinge portion 28 is configured by a thin band member that connects both. As a result, the cost is further reduced while achieving the same function as that of the first embodiment. Of course, the lid 4 may be formed separately from the main body 2 as in the first embodiments.

[0023] FIG. 6 (c) shows a modified example of the flow path blocking mechanism according to the second embodiment. In other words, in FIG. 6 (c), an inclined surface 38 is formed at the cylinder tip of an inner cylinder surrounded by the cylindrical groove 36 of the base portion 31 of the nozzle 3 to which the straw 11 is connected. When the nozzle 3 is pressed by the closed lid 4 to lie down, the inner surface portion of the straw 11 which is strongly stretched due to the expansion difference in a manner similar to that described above is elastically pressed against the inclined surface 38. Therefore, by the pressure bonding of the inner surface portion, the flow path that is open to the inclined surface 38 is automatically closed, and the leakage of the inner liquid 13 is prevented.

[0024] Each of the abovementioned embodiments describes the case where the present invention is applied to a pouring opening provided with a male screw of a PET bottle filled with natural water or the like as an example; however, if an alternative structure of a female screw is used, it can also be applied to other bottles such as water bottles and baby bottles. Furthermore, the first embodiment describes the case where the suction opening 32 is moved up and down at a rotation angle of about 120 degrees (i.e., exceeding 90 degrees), but the upper limit of the rotation angle may be set to 90 degrees or less; in other words, it is good enough as long as the suction port can be set on the opposite side of the lid and the rising angle θ of the nozzle 3 as described above may be set within an arbitrary acute angle, preferably at an angle of about 90 degrees. Furthermore, the shapes of the main body and the nozzles are not necessarily limited to the embodiments as long as they have the equivalent functions.

[0025]

[Effect of the Invention] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, a sealing member surrounding the flow path opened to the storage portion is provided. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0026] As a result, since the nozzle (straw) does not project vertically upward unlike the conventional containers shown in FIGS. 9 and 10, the internal liquid can conveniently be drunk in a comfortable posture without unreasonably tilting the head or upper body. Also, since the bottle is not tilted for drinking, the internal liquid will not be spilled when the cap is tightened a little loosely. Furthermore, since no spring made of a metal is used (i.e., resin is used), not only are the number of parts and the number of industries from which materials are procured can be limited, but there is also no need to worry about any corrosion measures at the time of designing.

[0027] The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, the bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip as well as rotation shafts and a connecting portion on both sides and tip portion of the base portion, respectively; a main body provided with a storage portion for rotatably storing the nozzle and a support portion with the storage portion interposed therebetween on the outer surface side, a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted, and a liquid passing cylinder on the inner surface side where the female screw is screwed; a straw detachably connected with the liquid passing cylinder of the main body, wherein the tip of the straw is to be immersed in the internal liquid; and a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body, wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the up and down motion caused by the rotation of the nozzle associated with the opening and closing of the lid member. Furthermore, in the abovementioned bottle cap with a nozzle, an elastic soft material is used for the straw. Furthermore, in the abovementioned bottle cap with a nozzle, restraining means are provided for the insertion hole for restraining the movement of the straw. Furthermore, in the abovementioned bottle cap with a nozzle, the rising angle θ of the nozzle is set to an arbitrary acute angle and the bottle cap with a nozzle is desirably set to be tilted at about 60 degrees. Furthermore, in the abovementioned bottle cap with a nozzle, the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened.

[0028] As a result, according to the second embodiment in which the bending and stretching properties of the straw and its elastic restoring force are used for the up and down motion of the nozzle, the spring mechanism and the rotating mechanism are omitted as compared with the conventional one, so that the overall configuration can be remarkably simplified. Furthermore, since the straw is directly connected to the base portion of the nozzle, it can be replaced with a suitable straw appropriately according to the depth of the bottle and the like, so that the handling also becomes convenient. Furthermore, since the spring is omitted, there is an advantage that the rust-preventive measures and the troublesome assembling operation can be omitted and the number of parts and the assembling man-hour can be reduced.

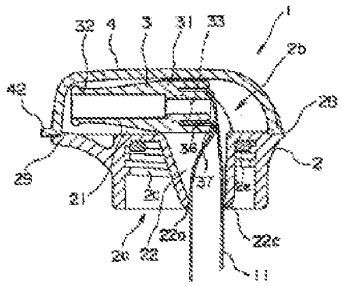
[0029] Accordingly, the present invention can provide a bottle cap with a nozzle that enables the nozzle to be tilted at an appropriate angle to facilitate drinking and the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact.

[Brief Description of Drawings]

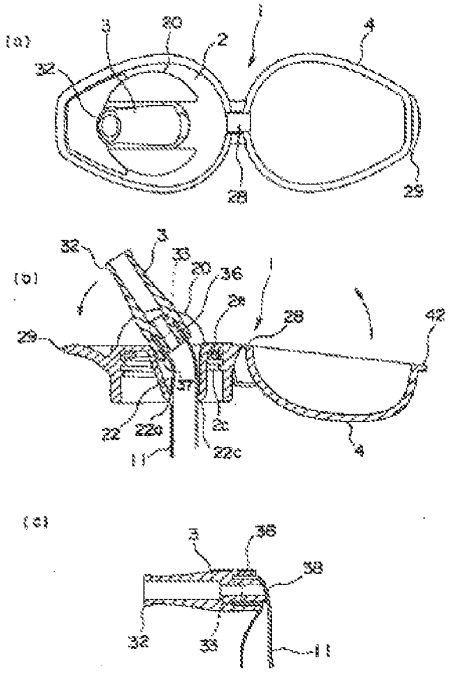
Zak Designs, Inc. Exhibit 1008
14 of 17

IPR 2024-01137
CamelBak - Ex 2001
Page 81 of 857

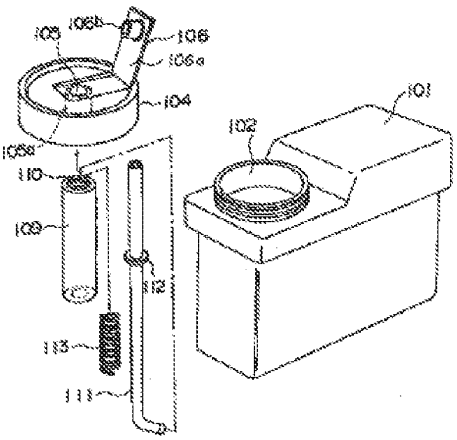
[FIG. 1] A top view showing the configuration of Embodiment 1.
[FIG. 2] An X-X sectional view of FIG. 1
[FIG. 3] A sectional view of a main body.
[FIG. 4] A sectional view showing the operation of Embodiment 1.
[FIG. 5] A sectional view showing the configuration of Embodiment 2.
[FIG. 6] A sectional view showing the operation of Embodiment 2.
[FIG. 7] An explanatory view showing the configuration of a conventional device.
[FIG. 8] An explanatory view showing the configuration of another conventional device.
[Explanation of Reference Numerals]
1: Bottle cap
2: Main body
2a: Inner surface side
2b: Outer surface side
2c: Female screw
2d: Liquid passing cylinder
2e: Packing
3: Nozzle
4: Lid (lid member)
11: Straw
12: PET bottle
13: Internal liquid
21: Support portion
22: Storage groove
22a: Insertion hole
22c: Folded portion
23: Bearing
24: Ring-shaped groove
25: O-ring
26: Cavity
27: Vent
28: Hinge portion
29: Latching portion
31: Base portion
32: Suction port
33: Rotation shaft
34: Projection
36: Cylindrical groove
37: Projecting portion
38: Inclined plane
41: Hinge shaft
O-O: Shaft center
Y0-Y0: Cap shaft
Y1-Y1: Central shaft
δ: Difference
θ: Rising angle
[Amendment 2]
[Document Title for Parts Amended] Drawing
[Item Name for Parts Amended] FIG. 5
[Method for the Amendment] Modification
[Content of the Amendment]
[FIG. 5]



[Amendment 3]
[Document Title for Parts Amended] Drawing
[Item Name for Parts Amended] FIG. 6
[Method for the Amendment] Modification
[Content of the Amendment]
[FIG. 6]

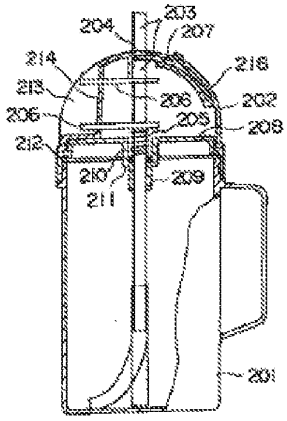


[Amendment 4]
[Document Title for Parts Amended] Drawing
[Item Name for Parts Amended] FIG. 7
[Method for the Amendment] Modification
[Content of the Amendment]
[FIG. 7]

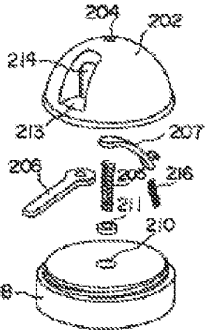


[Amendment 5]
[Document Title for Parts Amended] Drawing
[Item Name for Parts Amended] FIG. 8
[Method for the Amendment] Modification
[Content of the Amendment]
[FIG. 8]

(a)



(b)



[Amendment 6]
[Document Title for Parts Amended] Drawing
[Item Name for Parts Amended] FIG. 9
[Method for the Amendment] Deletion

[Amendment 7]
[Document Title for Parts Amended] Drawing
[Item Name for Parts Amended] FIG. 10
[Method for the Amendment] Deletion

(Continued from the front page)

(72) Inventor: Hiromi Fujitani
Pippu Fujimoto Corporation, 2-1-36 Noninbashi, Chuo-ku, Osaka-shi

F term (reference) 3E084 AA04 AA12 AA24 AB01 CA02
CC03 FB01 GA04
4F033 BA04 CA04 DA01 EA01 NA01

SOURCE IP

Your global source
for foreign filing services

Certificate of Accuracy

Date: 7/27/2022

To whom it may concern:

I, Kazuho Tokito, a translator fluent in the Japanese and English languages, on behalf of Source IP, do solemnly and sincerely declare that the following is, to the best of my knowledge and belief, a true and correct translation of the documents listed below in a form that reflects the intention and meaning of the original text.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

The document designated as:

* **Japanese Patent Application Kokai Publication No. 2001-294252 (P2001-294252A), published October 23, 2001**

[translator signature] Kazuho Tokito

Signature

Kazuho Tokito

Print

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
11 December 2003 (11.12.2003)

PCT

(10) International Publication Number
WO 03/101261 A1

(51) International Patent Classification[7]: A47G 19/22, A61J 11/00

(21) International Application Number: PCT/GB03/02357

(22) International Filing Date: 30 May 2003 (30.05.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0212759.5 31 May 2002 (31.05.2002) GB

(71) Applicant *(for all designated States except US)*: **JACKEL INTERNATIONAL LIMITED** [GB/GB]; Dudley lane, Cramlington, Northumberland NE23 7RH (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **WRIGHT, Willie** [GB/GB]; Jackel International Limited, Dudley Lane, Cramlington, Northumberland NE23 7RH (GB). **WEARMOUTH, Richard** [GB/GB]; Jackel International Limited, Dudley Lane, Cramlington, Northumberland NE23 7RH (GB).

(74) Agents: **CORNISH, K., V., J.** et al.; Kilburn & Strode, 20 Red Lion Street, London WC1R 4PJ (GB).

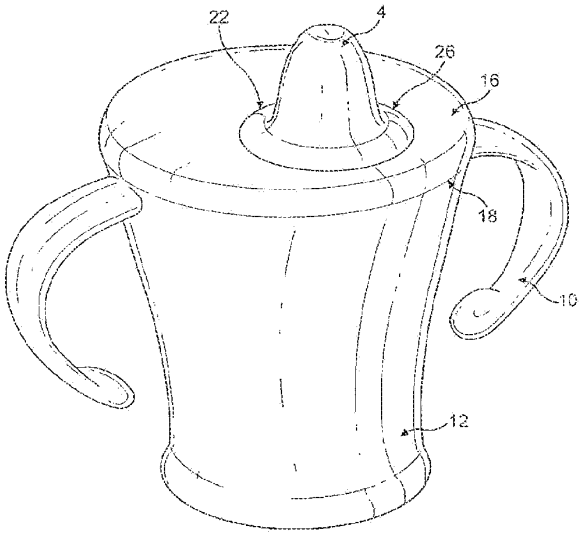
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

(54) Title: A DRINKING VESSEL



(57) Abstract: The present invention relates to a drinking vessel comprising a vessel body (12) and a cover (16), wherein the cover includes a flexible mouthpiece (24) defining a flow passage from the vessel body, the mouthpiece having a top with a duck bill valve and sides, arranged such that on application of a force to the sides of the mouthpiece, the mouthpiece deforms inwardly and the duck bill valve opens.

WO 03/101261 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A Drinking Vessel

The invention relates to a drinking vessel, for example a vessel such as a children's drinking vessel and preferably an infant drinking vessel.

A range of infant cups are known, for example of the type generally termed trainer cups, including a cup-like body often including handles for ease of use by an infant, a cover and a drinking spout provided on the cover. The cup is easier to handle and allows the infant to drink from the cup with less risk of spillage.

Various improvements to infant cups are known which typically use a variety of types of suction actuated non-spill valves, either at the tip of a rigid spout or mounted in the lid itself, which allows liquid to flow when the infant sucks but closes otherwise. As a result the cup is largely spill-proof under normal conditions.

It will be appreciated that biting or prolonged sucking on a spout can lead to tooth damage for the infant during the important teething stage, especially for infants up to 9 months of age. As the known systems allow liquid to flow only under pure suction, "grazing" is encouraged whereby the infant sucks continually, as can be the case with more standard feeding bottles. This can lead to the infant's teeth being bathed for long periods in the liquid in the cup, which will often be a sweet drink, and again can give rise to tooth damage. Also it is recognised that dental health and ear, nose and throat problems could be caused by the extra suction required (over and above the level of suction needed to drink from a straw or a free flow training spout) to open a

conventional non-spill valve. Furthermore this extra suction can be tiring and off putting for the child.

According to the invention there is provided a drinking vessel comprising a vessel body and a cover, wherein the cover includes a flexible mouthpiece defining a flow passage from the vessel body, the mouthpiece having a top with a duck bill valve and sides, arranged such that on the application of a force to the sides of the mouthpiece, the mouthpiece deforms inwardly and the duck bill valve opens. The sideways force is applied substantially in the same direction as the duck bill valve. For the purposes of this invention, the mouthpiece can be a spout.

As a result the vessel promotes a healthy drinking action, especially for infants. The duck bill valve is biased towards the closing direction and will not open when suction alone is applied. Instead it is necessary to apply a force to the sides of the mouthpiece which then opens the duck bill valve. As a result the duck bill valve opens under a pursing, biting or stripping action rather than sucking which is believed to be preferable to a sucking action. The flexibility of the mouthpiece also reduces the risk of damage to the infant's teeth.

The mouthpiece is preferably formed of flexible resilient material and hence does not damage the user's teeth.

Embodiments of the invention will now be described, by way of example, with reference to the drawings, of which:

Fig. 1a shows the assembled drinking vessel according to the present invention
Fig. 1b shows a sectional of the cover with a removable/replaceable spout

Fig. 1c shows a sectional view of the cover with an integrally moulded spout

Fig. 1d shows a sectional view of the cover with an integrally moulded spout and duck bill valve

Fig. 2a shows a perspective view of the spout forming part of the present invention

Fig. 2b shows a sectional view of the spout with the duck bill valve in its closed position

Fig. 2c shows a sectional view of the spout with the duck bill valve in its open position

Fig. 2d shows a view of the spout from above with the duck bill valve in its closed position

Fig. 2e shows a view of the spout from above with the duck bill valve in its open position

Fig. 3a shows a sectional view of the spout integrally moulded onto a screw ring, for attachment to a bottle or disposable container with a clip on hygenic cover

Fig 3b shows a sectional view of the spout integrally moulded onto a screw ring and internal hygenic cover connected via a live hinge.

Fig 3c shows a sectional view of the spout integrally moulded onto a cover with a hygenic cover clipped to the cover and an integral duck bill valve mould into the cover.

Referring to Fig. 1a to 1c, the basic components of an infant cup according to one embodiment of the present invention are shown. It will be noted that the invention is not limited to the specific construction shown. The infant cup is designated generally a cup body 12 of generally circular cross section. The cup

may alternatively have 10 one or two handles allowing the infant to grip the cup firmly.

The cup further includes a cover 16 having a skirt 18 wherein the cover 16 is a press fit over the cup. The cup body 12 and cover 16 are preferably made of polypropylene although any other suitable materials can be used. The threaded locking ring may have an integrally moulded or clip on hinged hygienic cover (90) which will cover the spout when not in use and rotate away from the spout for usage.

The cover 16 further provides a mouthpiece (24), which is integrally moulded into place via a second shot process allowing the cover 16 and spout 24 to be one complete unit

The cover 16 includes a general circular threaded orifice 22 arranged to receive a threaded locking ring 26 from above which the spout is integrally moulded onto via a second shot process.

The outer shape of the mouthpiece 24 is generally oval in cross-section in a horizontal plane and can follow the conventional shape of infant cup spouts. However, as discussed in more detail below, the mouthpiece is formed of a flexible, resilient flexible elastomer material such as PU rubber.

The cover 16 includes a tab (25) to provide purchase for the user to remove the cover 16 more easily. The positioning of any such formations must of course be selected so as not to impede the use of the cup by the infant in any way.

As can be seen in Figures 2a to 2e, the mouthpiece includes an upper mouthpiece portion 40 having a duck bill valve 44. Referring to figure 2D, the upper mouthpiece portion can be viewed as being substantially oval in cross-section having two "long sidewalls" 50 visible in front cross-section and two "short sidewalls" 52 visible in side cross-section terminating in a concave top. The duck bill valve 44 is located perpendicular to the long sidewalls 50.

In a preferred embodiment of the present invention as illustrated in Figures 2a-c, the mouthpiece comprises a concave dome area (80) above the duck bill valve (44). This dome area (80) protects the duck bill valve from damage caused by biting on the mouthpiece. The duck bill valve is thus domed downwards at the base of the dome area (80) as illustrated in Figure 2b.

When suction is applied to the mouthpiece (40), the duck bill valve (44) is pulled more tightly closed thereby preventing the flow of liquid from the drinking vessel. The duck bill valve opens only under a biting or stripping action.

To aid orientation of the mouthpiece in the mouth, the mouthpiece (40) may comprise a lipped rim (82) and one or more dimples (84). The mouth of the user is guided between the rim (82) and the dimples (84) so that the biting or stripping action occurs such that a sideways force is applied in the same direction on the duck bill valve to ensure opening of the duck bill valve and resulting flow of liquid.

In use, the action of pursing, biting or stripping the mouthpiece in the direction of the duck bill valve causes the opening of the duck bill valve and allows fluid

flow. As a sideways force is applied to the long sidewalls 50, the duck bill valve is forced open allowing the flow of fluid. It is further possible to vent the drinking vessel by manually applying a sideways force to the long sidewalls 50 of the mouthpiece (for example by squeezing the sidewalls 50 between the thumb and forefinger). Alternatively, the vessel may comprise a second duck bill valve, preferably on the cover 16 which will automatically release or equalise pressure within the drinking vessel when the vessel is in use.

The second duck bill valve allows airflow into the vessel when the spout is actively in use thus preventing a vacuum from building up, said vacuum preventing the free flow of liquid. It will be appreciated that in the illustrated embodiment the duck bill valve is aligned to open when the mouthpiece is fitted into the mouth in its most comfortable position.

A particular advantage of the configuration according to the present invention is that it allows a natural drinking action especially in younger infants. In order to open the duck bill valve, lateral pressure on the mouthpiece by the infant's teeth, lips or gums is required. While this pressure can result from normal biting or squeezing, the 'stripping' action used by an infant when breastfeeding will also open the duck bill valve. It is well established that this stripping action is beneficial to the infant's dental development and that the transition to a pure sucking action too early can be detrimental. In addition, this stripping action which is peristaltic in nature provides a discontinuous flow of liquid which can reduce caries. In addition, because the mouthpiece is of flexible material and, in the preferred embodiment, the duck bill valve is also made in no more than semi-rigid material, physical damage to the infant's teeth is reduced or avoided. The sensitivity of the mouthpiece coupled with activation by direct pressure or

by a stripping action gives rise to a range of advantages over known suction activated values.

Because the degree to which the duck bill valve is opened is dependent on the force applied to the mouthpiece, the user can control the flow rates by varying the force exerted on the mouthpiece. In addition the responsiveness can be varied by altering the materials, their softness/hardness flexibility or their thickness. The mouthpiece can be provided with a portion of the mouthpiece for example the top portion being flexible. Alternatively, the whole of the mouthpiece may be flexible. As a result a fully responsive system is provided which can be adapted to change with the infant's changing needs.

As illustrated in Figure 3, the mouthpiece and locking ring (26) of the drinking vessel may comprise a cover (90) clipped onto or integrally moulded to the mouthpiece/locking ring unit. The cover (90) protects the mouthpiece when the drinking vessel is in transit or not in use. Preferably, the cover is recessed into the cover (16) of the drinking vessel when the drinking vessel is in use.

As illustrated in Figure 3c, the cover (16) may further comprise a second duck bill valve (92). This valve (92) equalises or releases the pressure within the container when in use.

It will be appreciated that the specific configuration described with reference to Figs. 1, 2 and 3 comprises only one embodiment of the invention; various other ways of forming the invention are encompassed by the present invention. For example, the cover 16 may have a threaded skirt 18 (not shown) allowing the cover to be screwed into a co-operating screw thread (not shown) on the thread.

It will be appreciated that the mouthpiece may contain more than one duck bill valve, for example a two or multi-valve mouthpiece.

The various components are easily separated for cleaning, provide no dirt traps and are indeed easily cleaned. The components are of a size and shape that remove any choking hazard and again makes cleaning more easy – for example the mouthpiece comprises a single integral piece. It will be appreciated that of the various materials discussed above, different components can be changed or altered as long as the relevant functional requirements are met but preferably the selected materials ensure that operation of the mouthpiece is not affected by the range of temperatures to which the cup may be subjected or to sudden changes in temperature experienced in cleaning, use and/or storage of the cup.

Although the system is discussed specifically in relation to infant drinking vessels, it may be used equally in other appropriate drinking vessels where a non-spill action is required, for example adult or sports drinking bottles. The vessels may be of the multi-use kind or single use, disposable vessels. The vessel body may be a beaker, bottle or disposable container such as a carton or bag which may have no handles.

Claims

1. A drinking vessel comprising a vessel body and a cover, wherein the cover includes a flexible mouthpiece defining a flow passage from the vessel body, the mouthpiece having a top including a duck bill valve and sides arranged such that on the application of a sideways force to the sides of the mouthpiece, the mouthpiece deforms inwardly and the duck bill valve opens.

2. A drinking vessel as claimed in claim 1 wherein the sideways force is applied to the mouthpiece in substantially the same direction as the duck bill valve.

3. A drinking vessel as claimed in claims 1 or 2 wherein the sideways force is provided by a pursing, biting or striping action.

4. A drinking vessel as claimed in anyone of claims 1 to 3 wherein the mouthpiece is substantially oval in cross-section with two long sidewalls and two short sidewalls, and where the duck bill valve is perpendicular to the long sidewalls.

5. A drinking vessel as claimed in anyone of claims 1 to 4 wherein the mouthpiece is composed of flexible, resilient material.

6. A drinking vessel as claimed in any one of claims 1 to 5 wherein a portion of the mouthpiece is flexible.

7. A drinking vessel as claimed in any one of claims 1 to 5 wherein all of the mouthpiece is flexible.

8. A drinking vessel as claimed in any one of claims 1 to 7 further comprising a second pressure equalising valve.

9. A drinking vessel as claimed in claim 8 wherein the second pressure equalising valve is a duck bill valve.

10. A drinking vessel as claimed in any one of claims 1 to 9 further comprising an integral hygienic cover

11. A mouthpiece having a top including a duck bill valve and sides, arranged such that on application of a sideways force to the sides of the mouthpiece, the duck bill valve opens.

12. A drinking vessel substantially as described herein with reference to one or more of the drawings.

13. A mouthpiece substantially as described herein with reference to one or more of the drawings.

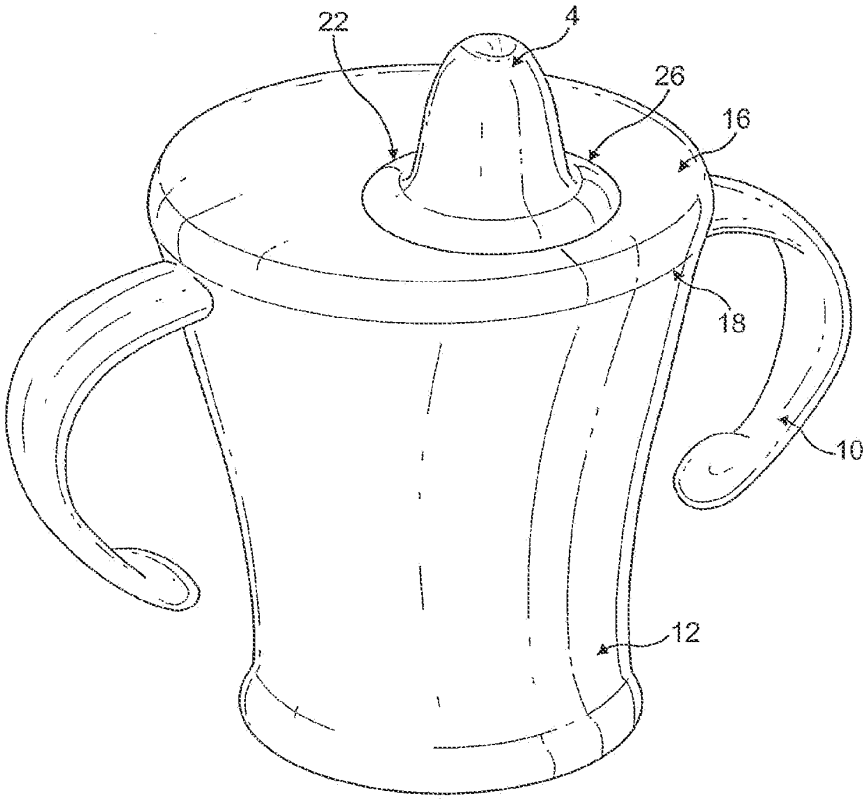


FIG. 1A

Zak Designs, Inc. Exhibit 1009
13 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 97 of 857

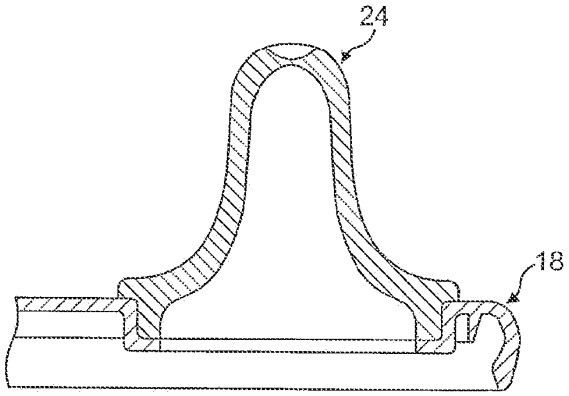


FIG. 1B

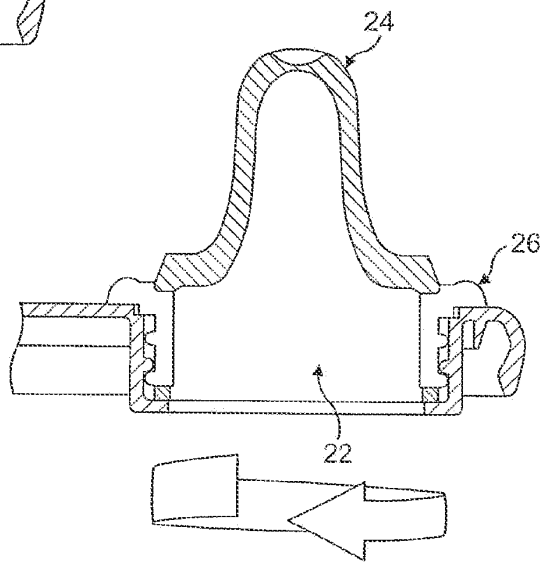


FIG. 1C

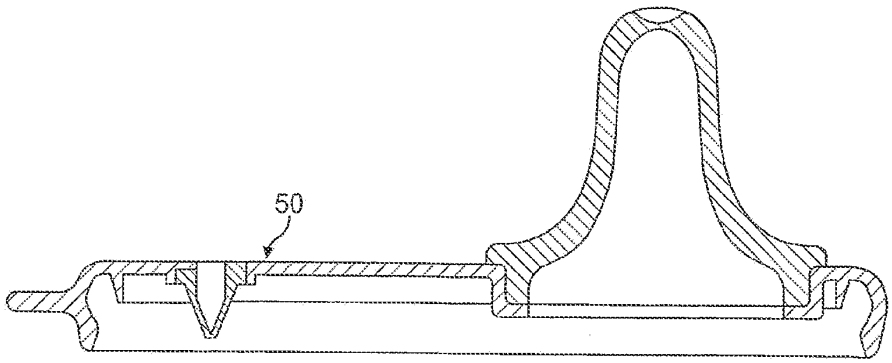


FIG. 1D

Zak Designs, Inc. Exhibit 1009
14 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 98 of 857

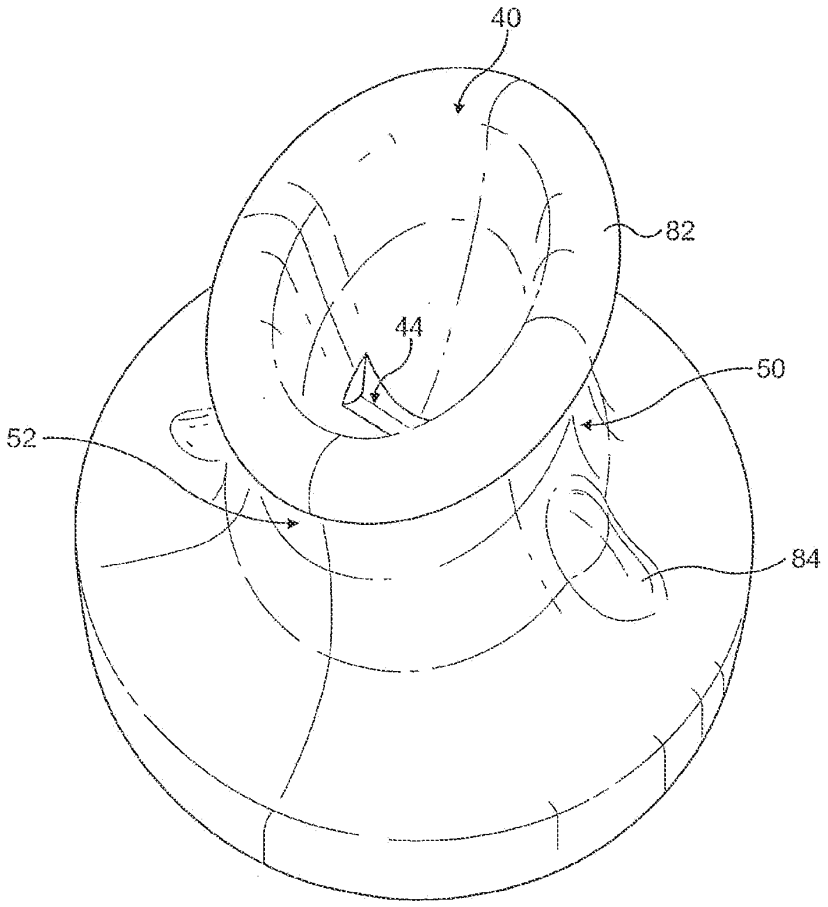


FIG. 2A

Zak Designs, Inc. Exhibit 1009
15 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 99 of 857

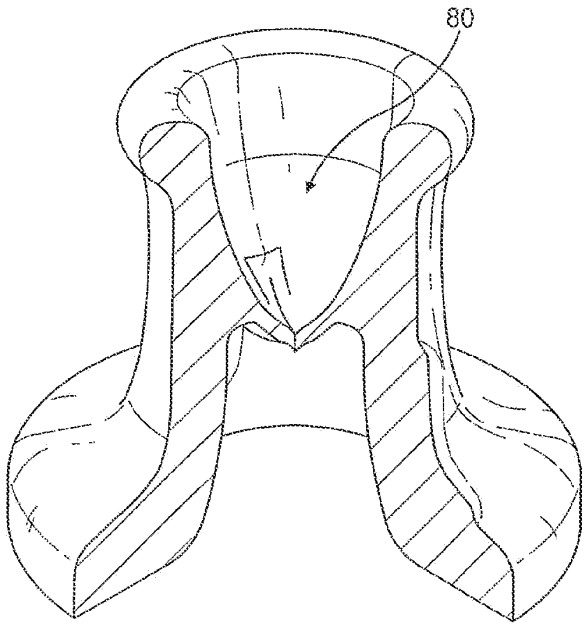


FIG. 2b

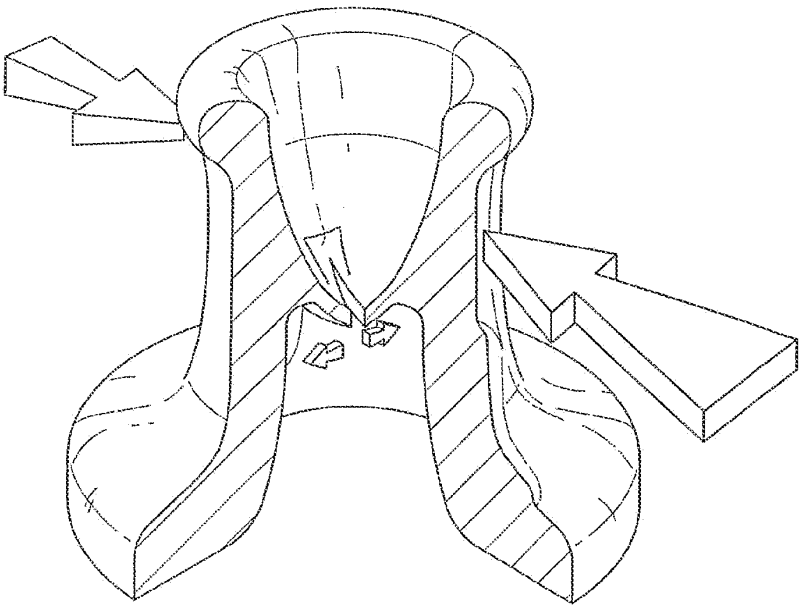


FIG. 2C

Zak Designs, Inc. Exhibit 1009
16 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 100 of 857

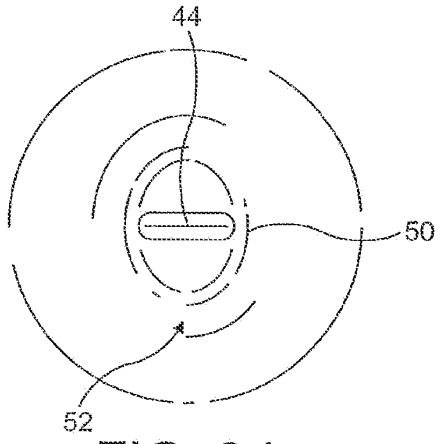


FIG. 2d

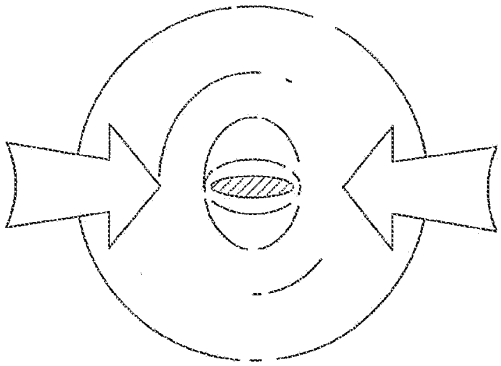


FIG. 2e

Zak Designs, Inc. Exhibit 1009
17 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 101 of 857

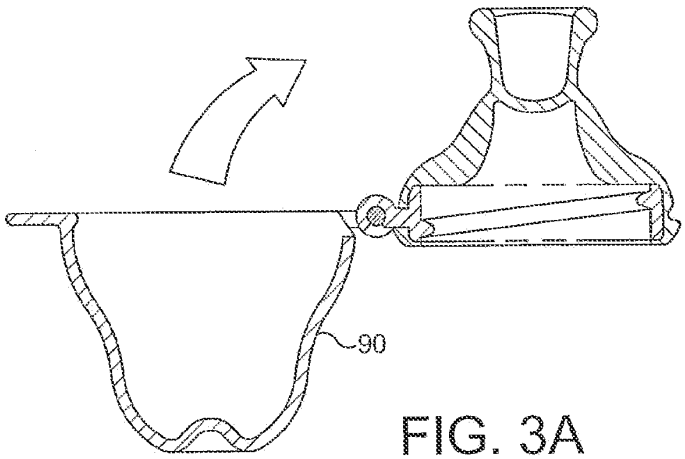


FIG. 3A

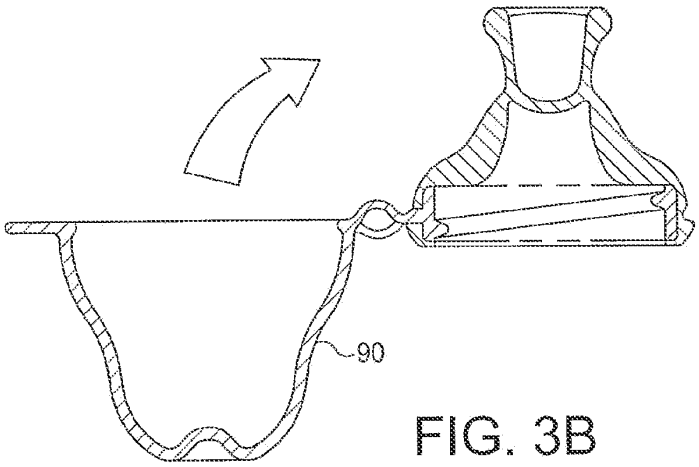


FIG. 3B

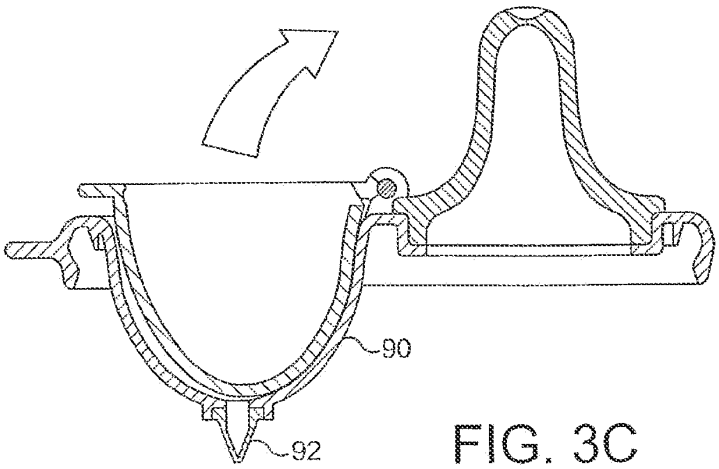


FIG. 3C

Zak Designs, Inc. Exhibit 1009
18 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 102 of 857

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02357

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A47G19/22 A61J11/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A47G A61J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 101 991 A (MORIFUJI YASUO ET AL) 7 April 1992 (1992-04-07) column 2, line 44 -column 5, line 37	1-3,5, 7-9, 11-13
X	US 5 035 340 A (TIMMONS SARAH J) 30 July 1991 (1991-07-30) figures 3,5	1-3,5,7, 11-13
X	US 5 791 510 A (PACZONAY JOSEPH R) 11 August 1998 (1998-08-11) column 2, line 66 -column 5, line 37	1-6, 11-13
X	US 5 601 207 A (PACZONAY JOSEPH R) 11 February 1997 (1997-02-11) column 3, line 3 -column 4, line 57	1-6, 11-13

-/--

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 September 2003	22/09/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Reichhardt, O

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02357

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 085 349 A (FAWCETT ROGER R) 4 February 1992 (1992-02-04) column 4, line 35 -column 7, line 35	1-6, 11-13
X	US 4 946 062 A (COY PETER) 7 August 1990 (1990-08-07) column 2, line 64 -column 7, line 48	1-5,7, 11-13
X	US 6 230 923 B1 (HUNG KUNG-TIE) 15 May 2001 (2001-05-15) figure 4	1-3,5, 7-9, 11-13
X	US 6 102 245 A (HABERMAN MANDY NICOLA) 15 August 2000 (2000-08-15) figures 10,13	1-3,5, 7-9, 11-13
A	WO 02 22073 A (JACKEL INTERNAT LTD) 21 March 2002 (2002-03-21) figure 13A	10

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB 03/02357

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5101991 A	07-04-1992	JP 2161950 A	21-06-1990
		DE 3931254 A1	21-06-1990
		DE 8915849 U1	24-10-1991
		GB 2226014 A ,B	20-06-1990
		IT 1231976 B	22-01-1992
		KR 9205110 B1	26-06-1992
		US 4993568 A	19-02-1991
US 5035340 A	30-07-1991	NONE	
US 5791510 A	11-08-1998	US 5601207 A	11-02-1997
		US 6382061 B1	07-05-2002
US 5601207 A	11-02-1997	US 5791510 A	11-08-1998
		US 6382061 B1	07-05-2002
US 5085349 A	04-02-1992	NONE	
US 4946062 A	07-08-1990	US 4782975 A	08-11-1988
		AU 2469788 A	10-08-1989
		CA 1322190 C	14-09-1993
		EP 0326743 A2	09-08-1989
		JP 1209017 A	22-08-1989
		NZ 226737 A	25-06-1991
		US 4836404 A	06-06-1989
		US 4828141 A	09-05-1989
US 6230923 B1	15-05-2001	NONE	
US 6102245 A	15-08-2000	GB 2266045 A	20-10-1993
		DE 69319109 D1	16-07-1998
		DE 69319109 T2	24-12-1998
		EP 0634922 A1	25-01-1995
		ES 2117707 T3	16-08-1998
		WO 9319718 A1	14-10-1993
		HK 1007675 A1	23-04-1999
WO 0222073 A	21-03-2002	AU 7570301 A	26-03-2002
		EP 1318783 A1	18-06-2003
		WO 0222073 A1	21-03-2002
		NO 20031109 A	08-05-2003

Zak Designs, Inc. Exhibit 1009
21 of 21

IPR 2024-01137
CamelBak - Ex 2001
Page 105 of 857

United States Patent [19]

Phlaphongphanich

[11] **Patent Number: 4,676,386**

[45] **Date of Patent: Jun. 30, 1987**

[54] **NIPPLE**

[75] Inventor: **Vichai Phlaphongphanich**, Bangkok, Thailand

[73] Assignee: **Royal American Industries, Inc.**, Westboro, Mass.

[21] Appl. No.: **815,450**

[22] Filed: **Dec. 31, 1985**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 673,665, Nov. 21, 1984, abandoned.

[51] **Int. Cl.**[4] **A61J 11/00**; A61J 11/04

[52] **U.S. Cl.** ..... **215/11 R**; 128/360

[58] **Field of Search** ..... 215/11 R, 11 A–11 E; 128/359, 360

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,989,060	1/1935	Liddick	215/11 R
2,889,829	6/1959	Tannenbaum et al.	128/360
3,424,157	1/1969	Di Paolo	215/11 D
3,593,870	7/1971	Anderson	215/11 B
3,650,270	3/1972	Frazier	215/11 B
4,195,638	4/1980	Duckstein	128/360

FOREIGN PATENT DOCUMENTS

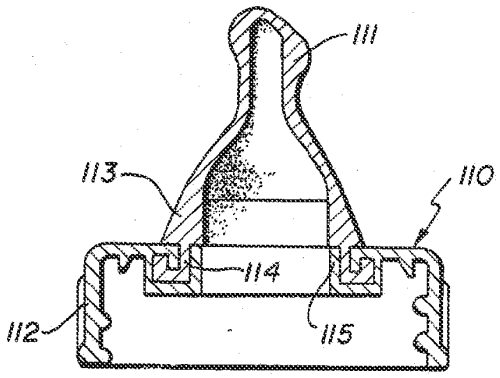
457009	3/1928	Fed. Rep. of Germany	215/11 R
2219909	3/1973	Fed. Rep. of Germany	215/11 R
3347876	5/1985	Fed. Rep. of Germany	128/359
54-11183	1/1979	Japan	215/11 R
584080	1/1947	United Kingdom	128/359

Primary Examiner—William Price
Assistant Examiner—Sue A. Weaver
Attorney, Agent, or Firm—Norman S. Blodgett; Gerry A. Blodgett

[57] **ABSTRACT**

Baby bottle nipple or pacifier having a mouth portion made of elastomer and a base portion made of semi-rigid thermoplastic polymer. The mouth portion is formed in a hot first mold and the mouth portion is transferred to relatively cold second mold in which the base portion is molded around it.

5 Claims, 17 Drawing Figures



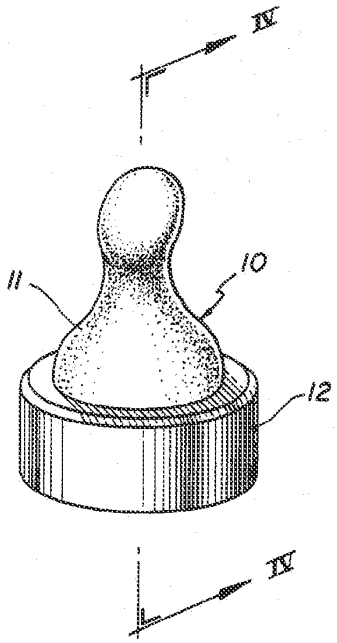


FIG. 1

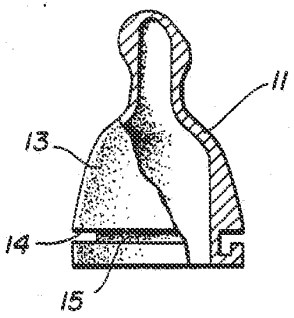


FIG. 2

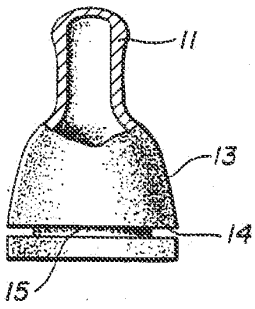


FIG. 3

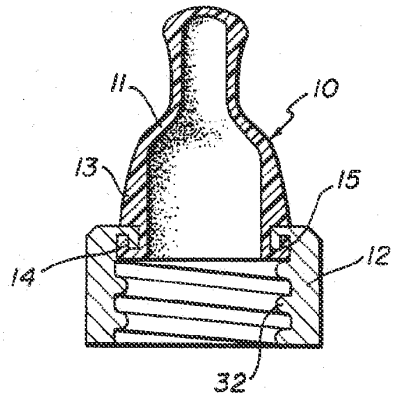


FIG. 4

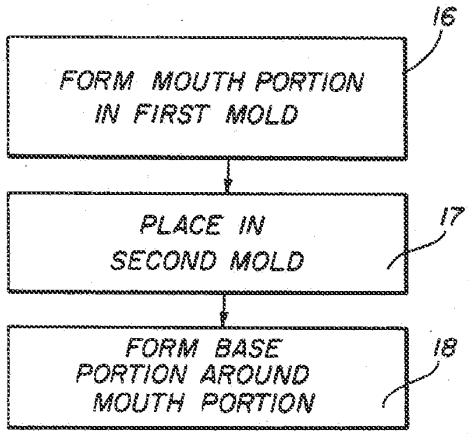


FIG. 5

FIG. 6

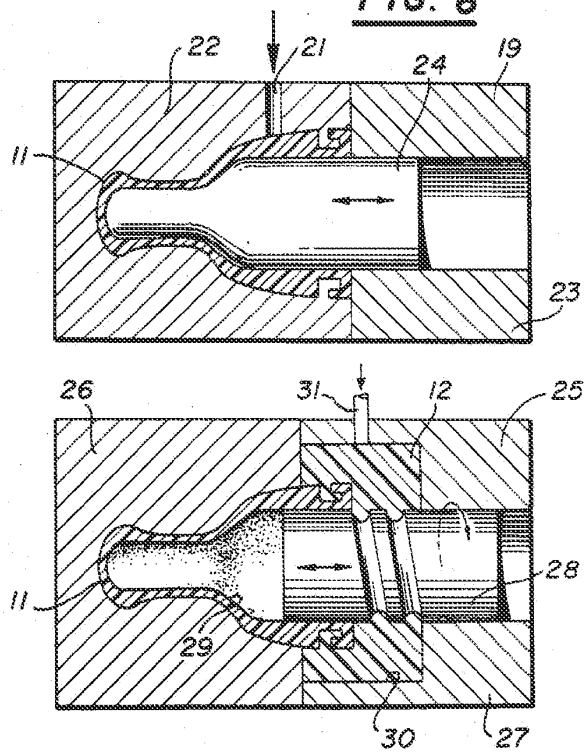


FIG. 7

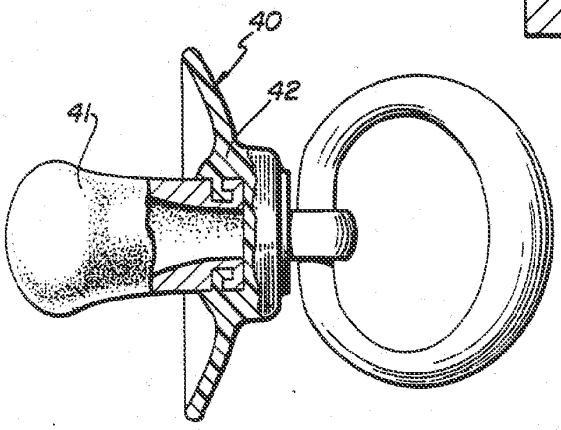


FIG. 8

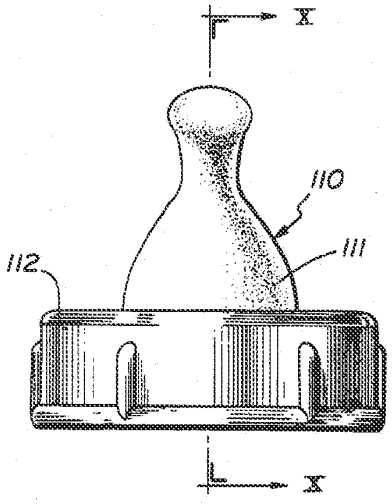


FIG. 9

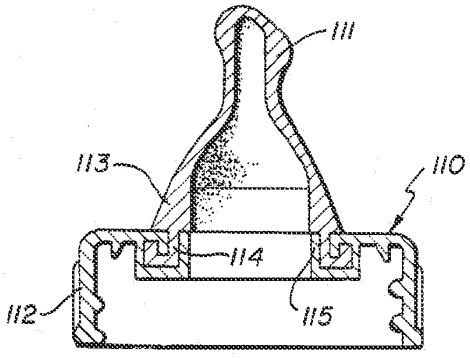


FIG. 10

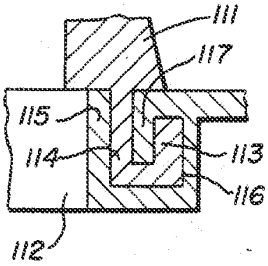


FIG. 11

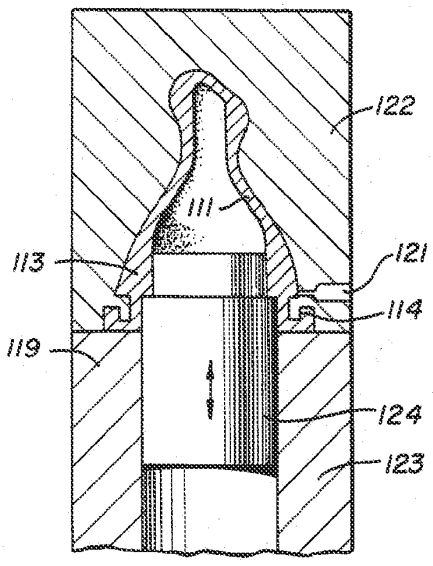


FIG. 12

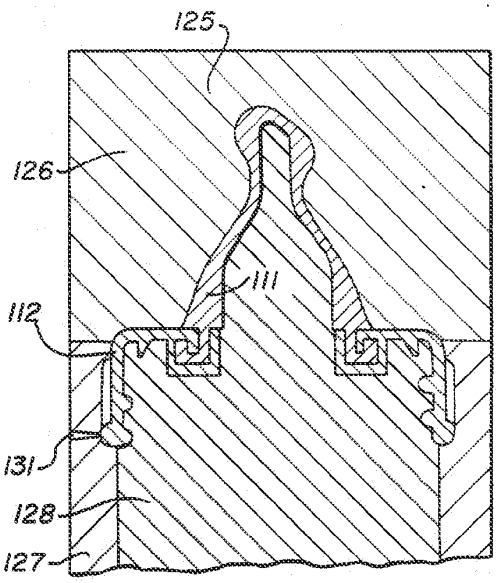


FIG. 13

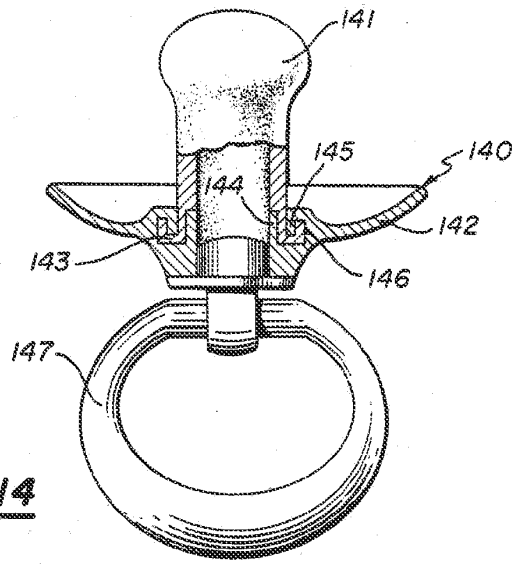


FIG. 14

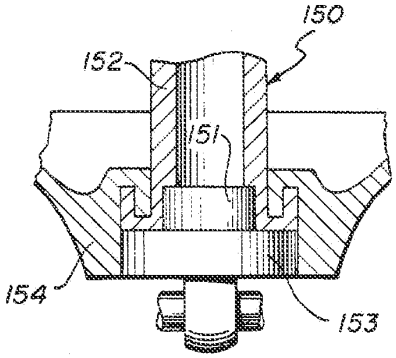


FIG. 15

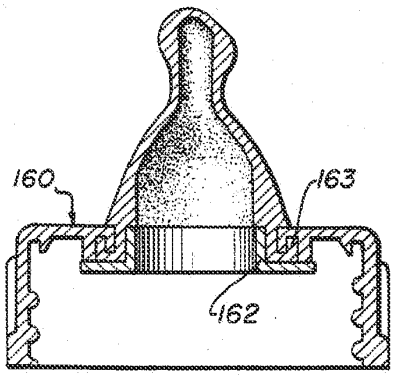


FIG. 16

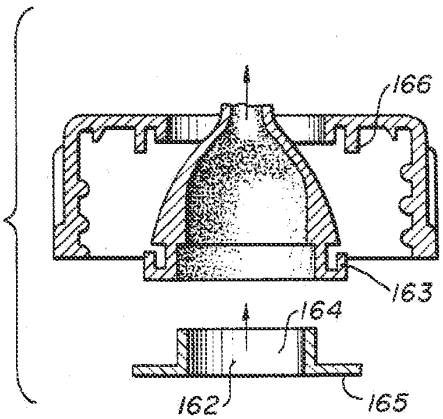


FIG. 17

NIPPLE

This is a continuation-in-part of copending application Ser. No. 673,655 filed on Nov. 21, 1984, abandoned.

BACKGROUND OF THE INVENTION

The traditional construction of baby feeders has involved the provision of a bottle having a wide mouth to which an elastic nipple is attached by means of a threaded cap. When the entire nipple and cap combination is formed from the best materials, such as liquid silicone rubber, it becomes quite expensive. At the same time, the use of an elastic nipple that is separate from a semi-rigid bottle cap leads to a situation in which the baby sometimes pulls the nipple out of the cap. These and other difficulties experienced with the prior art devices have been obviated in a novel manner by the present invention.

It is, therefore, an outstanding object of the invention to provide a nipple or the like formed of a combination of expensive and inexpensive materials.

Another object of this invention is the provision of a nipple which can be attached to a baby bottle in such a way that it cannot be pulled free by the baby.

A further object of the present invention is the provision of a method of manufacturing a hybrid baby bottle nipple with an orthodontic mouth portion.

Another object of the invention is the provision of a nipple or the like in which only a small portion is made of an expensive elastic material.

It is another object of the instant invention to provide a method of making a nipple which is an integral combination of an elastomer mouth portion and a semi-rigid cap portion.

With these and other objects in view, as will be apprarent to those skilled in the art, the invention resides in the combination of parts set forth in the specification and covered by the claims appended hereto.

SUMMARY OF THE INVENTION

In general, the invention consists of a nipple or the like having a mouth portion formed of an elastomer having a high melting temperature, and a cap portion formed around the mouth portion, the cap portion being formed of a polymer having a relatively low melting temperature.

More specifically, the invention consists of a method of forming the nipple consisting of forming in a first mold the mouth portion of an elastomer having a high melting temperature, placing the mouth portion in a second mold, and forming a cap portion around the mouth portion of a thermoplastic polymer having a relatively low melting temperature.

BRIEF DESCRIPTION OF THE DRAWINGS

The character of the invention, however, may be best understood by reference its structural forms, as illustrated by the accompanying drawings, in which:

FIG. 1 is a perspective view of a nipple incorporating the principles of the present invention,

FIG. 2 is a front elevational view of the nipple with portions broken away,

FIG. 3 is a side elevational view of the nipple with portions broken away,

FIG. 4 is a vertical sectional view of the nipple taken on the line IV—IV of FIG. 1,

FIG. 5 is a flow chart of the steps used in a process for manufacturing the nipple,

FIG. 6 is a vertical sectional view of a first mold used in the process,

FIG. 7 is a vertical sectional view of a second mold used in the process,

FIG. 8 is an elevational view with portions broken away of a pacifier making use of the principles of the present invention,

FIG. 9 is a front elevation view of a modified form of the nipple,

FIG. 10 is a vertical sectional view of the nipple taken on the line X—X of FIG. 9,

FIG. 11 is an enlarged sectional view of a portion of the nipple,

FIG. 12 is a vertical sectional view of a mold for forming the mouth portion of the nipple,

FIG. 13 is a vertical sectional view of a mold for forming the cap portion of the nipple,

FIG. 14 is an elevational view with portions broken away of a modified form of pacifier,

FIG. 15 is a vertical sectional view of a portion of a still further modification of the pacifier,

FIG. 16 is a vertical sectional view of a further modification of the nipple, and

FIG. 17 is an exploded view of the nipple of FIG. 16, showing the manner of assembly of the parts.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIGS. 1–5, which best show the general features of the invention, it can be seen that the nipple, indicated generally by the reference numeral 10, consists of a mouth portion 11 and a base or cap portion 12.

The mouth portion 11 is formed of an elastomer having a high melting temperature. The cap portion 12 is formed around the mouth portion, and is formed of a polymer having a relatively low melting temperature. In the preferred embodiment, the elastomer is liquid silicone rubber.

As is evident in FIGS. 2 and 3, the mouth portion 11 has a lower skirt 13 formed with an external groove 14 into which the cap portion is locked. The groove extends entirely around the skirt, has an L-shaped cross-section, and has a textured surface 15.

FIGS. 5, 6, and 7 illustrate the method used in manufacturing the nipple. The process consists of a first step 16 that consists of injection-forming the mouth portion 11 in a first mold 19 of an elastomer having a high melting temperature and then a second step 17 of placing the mouth portion 11 in a second mold 25.

The third step 18 consists of injection-forming the cap portion 12 around the mouth portion of a thermoplastic polymer having a relatively low melting temperature.

Since the nipple is orthodontic, the mouth portion 11 is formed in a non-drawable, thin-walled shape and the elastomer is liquid silicone rubber having a melting temperature in the order of 400° to 500° F. The first mold 19 is operated at a high temperature and the second mold 25 is operated at a relatively low temperature, in the order of 250° F. The elastomer is expensive and the polymer is inexpensive.

In FIG. 6, it can be seen that the first mold 19 consists of a first part 22 having the cavity with an injection port 21 for forming the mouth portion 11, a second part 23, and a third part 24 which defines the interior of the

Zak Designs, Inc. Exhibit 1010
6 of 8

IPR 2024-01137
CamelBak - Ex 2001
Page 111 of 857

mouth portion. The first part 22 and the second part 23 are moved apart to permit removal of the workpiece or product; the third part may have independant movement to facilitate removal of the mouth portion, which is non-drawable because of the orthodontic shape. This shape makes it necessary to collapse it elastically to permit removal from the mold. This is made necessary also by the configuration of the groove 14.

FIG. 7 illustrates the manner in which the second mold 25 has a first part 26 having a cavity in which the preformed mouth portion 11 is inserted. A second part 27 is provided with a cavity 30 in which the cap portion 12 is formed by injection of molten plastic through an injection port 31. A third part 28 is in the form of a plug that lies in the cavity 30 to define the inner surface of the cavity to support the preform and to form a thread 32 (see FIG. 4) on the inside of the base portion, which the thread serves to lock the assemblage onto the top of a baby bottle. The third part 28 must, of course, be removable by turning in the well-known manner, because of the thread on the product.

The operation and advantages of the invention will now be readily understood in view of the above description. The nipple 11 serves the dual functions of the traditional nipple and baby bottle cap. The unit is threaded onto the baby bottle after the liquid formula has been placed in the bottle. Because of the unitary construction, the baby cannot separate the mouth portion from the base portion, so that the nipple of the invention is very safe to use. The mouth portion 11 can be made of a very satisfactory (but expensive) elastomer, such as liquid silicone rubber, while the base portion 12 can be made of an inexpensive, semi-rigid polymer, such as polypropyiene. The resulting combination then becomes inexpensive enough to be commercially acceptable, i.e., affordable by a wide range of consumers.

FIG. 8 shows a pacifier 40 constructed in the manner described above. A mouth portion 41 made of the liquid silicone rubber is formed in a first mold. The material has a high melting temperature, i.e., in the order of 500° F. The mouth portion is then placed in a second mold and a base portion 42 is molded around it, using an injection temperature that is relatively low, such as 250° F.

FIG. 9 shows a nipple 110 which is a modification of the nipple 10. The nipple 110 is provided with an elastomer mouth portion 111 that is attached to a cap or base portion 112 formed of a semi-rigid polymer.

FIG. 10 illustrates the manner in which the mouth portion and the base portion are connected. The mouth portion is of orthodontic shape and has a skirt 113 with an annular appendage 114 of U-shaped cross-section. The base portion 112 is formed around the skirt to interlock with the appendage. The base portion is provided with a tubular portion 115 that lies inside the skirt and presses outwardly against the appendage 114. The outer leg of the appendage is larger that the other parts to promote adequate locking.

FIG. 11 shows in detail the details of the interlocking between the mouth portion and the base portion. The base portion 112 has a second tubular portion 116 that lies outside the appendage 114 and presses inwardly against it. The base portion also has a third tubular portion 117 that lies in the appendage 114 and engages the facing surfaces of the U-shaped cross-section.

FIG. 12 illustrates the mold 119 that is used to form the mouth portion 111. The mold consists of a first part 122 that contacts a second part 123. An injection port 121 leads into the cavity in which the mouth portion is formed. A third part 124 is slidably carried in a bore in the second part 123. The third part forms and supports the skirt 113 and the appendage 114 during formation.

In a similar way, FIG. 13 shows the mold 125 for forming the cap portion 112. An injection port 131 leads into the cavity. The upper part of the mouth portion is inserted in a first part 126 of the mold with the appendage extending downwardly into a portion of the cavity formed in a third part 128. The cap cavity is formed in the first part 126, the second part 127, and the third part 128.

The pacifier 140 shown in FIG. 114 uses a means for locking together an elastomer mouth portion 141 to a semi-rigid polymer base portion 142 that is similar to the system shown in the nipple of FIG. 10. The mouth portion has a lower appendage 143 that has a U-shaped cross-section about which the base portion is molded. A tubular portion 144 supports the inner surface of the appendage, a tubular portion 145 extends into the groove in the appendage, and a wall 146 supports the outside of the appendage. The usual pacifier ring 147 is pivotally mounted on the base portion.

In FIG. 15, a pacifier 150 is shown in which a plug 151 supports the inner surface of the appendage of the mouth portion 152. A larger plug 153 supports the bottom wall of the appendage. The plug 153 is mounted in a bore formed in the base portion 154.

The nipple 160 illustrated in FIG. 16 is similar to that shown in FIG. 10, but is provided with a base portion that has a separate plug 162 to support the inner wall of the appendage 163. The details are best shown in FIG. 17. The plug 162 has a tubular portion 164 that fits inside the the appendage. It also has a radial portion 165 that fits against the bottom of the appendage and is cemented or fused to a second tubular portion 166 forming part of the base portion.

An examination of FIGS. 10, 11, 14 and 16 shows that, in each case, the base portion can be described as having a cavity of annular form extending downwardly from an upper surface. The cavity is concentric with the skirt of the mouth portion. The cavity has a U-shaped cross-section defined by a first tubular leg that opens at the upper end on the said surface and a second tubular leg which is concentric with the first leg and joined to it by a radial passage. The skirt of the mouth portion enters the cavity through the said opening; it passes down the first leg, through the radial passage, and up the second leg. In this way, the mouth portion is securely locked to the base portion.

More specifically, the radial dimension (thickness) of the second leg is substantially greater than (a) the first leg, and (2) the vertical dimension of the radial passage. This construction serves to inhibit the pulling of the skirt from the cavity.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, however, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

The invention having been thus described, what is claimed as new and desired to secure by Letters Patent is:

1. Nipple, comprising:

(a) a mouth portion of orthodontic shape formed of an elastomer and having a skirt with an annular appendage of U-shaped cross-section, and

(b) a base portion made of a semi-rigid polymer and formed around the skirt of the mouth portion to interlock with the appendage, the base portion having a tubular portion that lies inside the skirt and presses outwardly against the appendage.

2. Nipple as recited in claim 1, wherein the base portion has a second tubular portion that lies outside the appendage and presses inwardly against it.

3. Nipple as recited in claim 2, wherein the base portion has a third tubular portion that lies in the appendage and engages the facing surfaces of the U-shaped cross-section.

4. Nipple, comprising:

(a) a mouth portion of orthodontic form made of an elastomer and having a generally tubular skirt,

(b) a base portion made of semi-rigid polymer, the base portion having a cavity of annular form, which cavity is concentric with the skirt of the mouth portion, wherein the cavity, has a U-shaped cross-section defined by a first tubular leg having an opening onto an outer surface of the base portion and a second tubular leg concentric with the first leg and joined to it by a radial passage, the skirt of the mouth portion entering the cavity through the opening into the first leg, filling the first leg, the radial passage, and the second leg to lock the mouth portion securely to the base portion.

5. Nipple as recited in claim 4, wherein the radial dimension of the second leg is substantially greater than that of the first leg and the vertical dimension of the said radial passage in order to resist the pulling of the skirt from the cavity.

* * * * *

Dec. 17, 1957 E. S. TUPPER 2,816,548

SIPPER SEAL FOR FLUID-FILLED VESSELS

Filed Sept. 16, 1955 2 Sheets-Sheet 1

Fig. 1

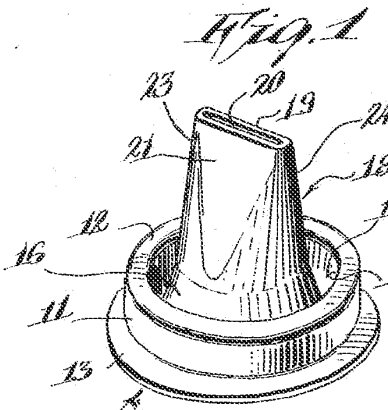


Fig. 2

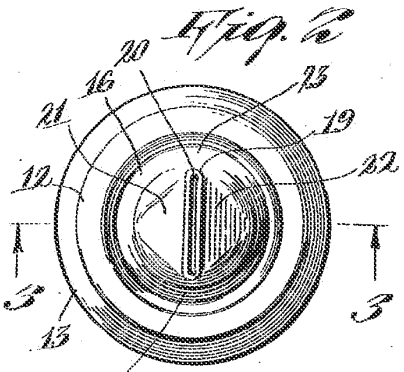


Fig. 4

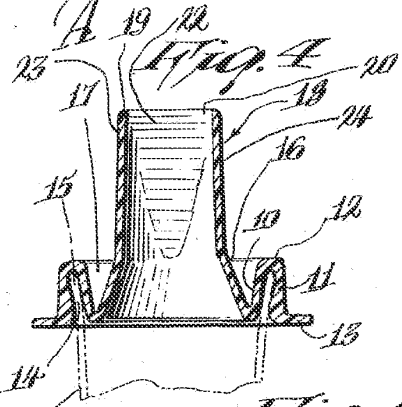


Fig. 3

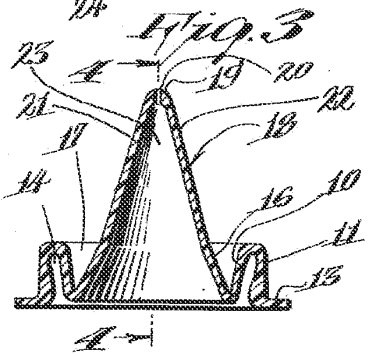
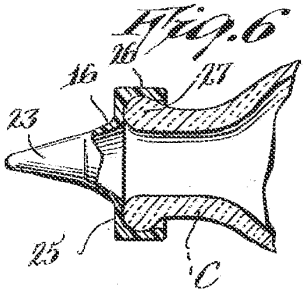


Fig. 5



Fig. 6



EARL S. TUPPER
INVENTOR.

BY Howard & Howard

ATTORNEY

Dec. 17, 1957 E. S. TUPPER 2,816,548

SIPPER SEAL FOR FLUID-FILLED VESSELS

Filed Sept. 16, 1955 2 Sheets-Sheet 2

Fig. 7

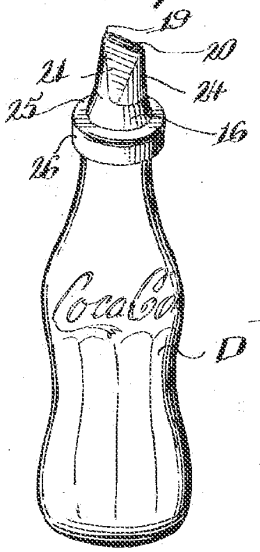


Fig. 8

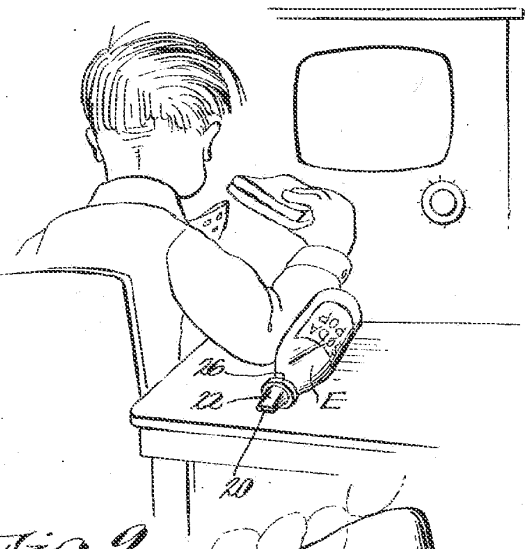
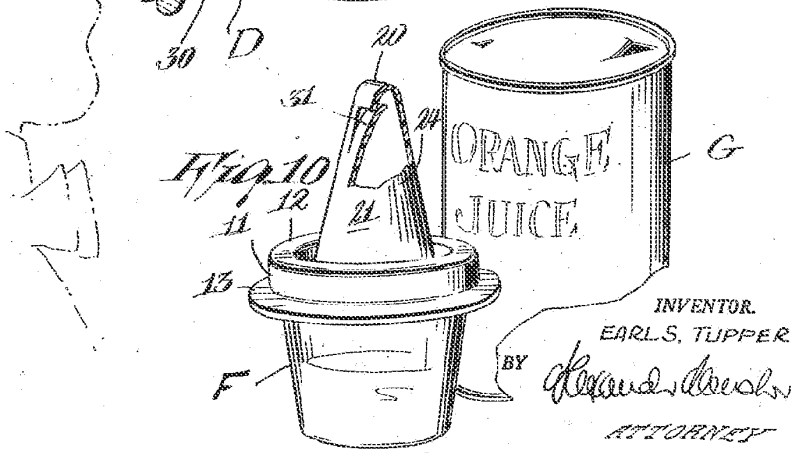


Fig. 9



Fig. 10



INVENTOR.
EARL S. TUPPER
BY Howard Davis
ATTORNEY

United States Patent Office 2,816,548 Patented Dec. 17, 1957

2,816,548

SIPPER SEAL FOR FLUID-FILLED VESSELS

Earl S. Tupper, Smithfield, R. I.

Application September 16, 1955, Serial No. 534,846

7 Claims. (Cl. 128—252)

This invention relates generally to a removable sipper-type of seal for consuming fluid contents from vessels or containers, but more specifically to a combined seal and sipper for use during fluid consumption whereby flow of fluid contents is prevented when the vessel accidentally assumes horizontal or inverted position during the period of consumption.

A main feature of the invention resides in the provision of a removable sipper-type of seal formed of a sterile, odorless, durable and locally deformable plastic material adapted to serve multiple functions during fluid consumption periods. The device serves to sealably engage the vessel neck at the neck of the bottle or the container inner peripheral portion thereof, to act simultaneously as a sipper for withdrawal of fluid contents, and to act as a check for fluid flow when the vessel accidentally assumes horizontal or inverted position.

A further feature of the invention resides in the structure of a sipper-type of seal provided with central and projecting tubular structure terminating on top in a narrow longitudinal slot communicating with the interior of the vessel and adapted to be filled to check gravity flow when and if there is sufficient of the fluid contents of the vessel to spill over under the action of gravity by reason of accidental horizontal or inverted position of the vessel.

Another feature of the invention resides in the provision of a seal of this type wherein the sipping or drawing operation is capable of functioning by tilting the vessel upwardly with the narrow longitudinal slot within the mouth as when drawing a fluid from the neck of a bottle or by alternate lip or teeth compression of the tubular structure to force fluid contents therethrough based on the principle of nipple feeding.

A further feature of of the invention resides in the provision of a sipping seal of the above type which is sanitary, reusable, capable of serving as a souvenir and which is spill-proof.

A further feature of the invention resides in the provision of a sipper-type of seal which is capable of being used by and is especially attractive to children for withdrawal of liquid contents from vessels in the home, in the den and on common carriers and tending to serve the double function of a sipping seal and check to spillage during the consumption period.

These objects and other incidental ends and advantages of the invention will hereinafter appear in the progress of the disclosure and as pointed out in the appended claims.

Accompanying this specification are drawings showing preferred forms of the invention wherein:

Figure 1 is a view in perspective showing one form of sipper seal per se.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a sectional view of Figure 2 across the plane 3—3 thereof.

Figure 4 is a sectional view of Figure 3 across the plane 4—4 thereof showing the neck of a container in phantom.

Figure 5 is a view in perspective showing a child withdrawing fluid from a baby bottle equipped with a modified form of seal.

Figure 6 is an enlarged sectional view of Figure 5 across the plane 6—6 thereof.

Figure 7 shows the seal of Figures 5 and 6 as applied to a soda bottle.

Figure 8 shows the seal device of Figure 7 applied to a vessel in horizontal position while a child is viewing a television program and eating simultaneously, the bottle having been accidently thrown down.

Figure 9 is a view in perspective partly in section showing another modified form of seal in the form of an insert and being engaged for sipping or fluid withdrawal purposes.

Figure 10 is another modified view of a sipper seal as applied to a vessel containing orange juice.

In accordance with the invention and the preferred forms shown, letter A indicates generally a sipper-type of seal having an engaging groove for the neck of a container or vessel generally indicated by letter B, said engaging groove being of the inverted type and having an inner wall 10, an outer wall 11, a top connecting wall 12, and an outer wall offset shown as outwardly extending flange 13. Said groove walls form a groove 14 for engagement of the neck portion 15 of a vessel shown in phantom lines in Figure 4. Inner groove wall 10 extends inwardly to form a frusto-conical and hollow section 16, the outer face thereof forming with the outer face of groove inner wall 10 a trough 17 of V-shape in cross section.

Formed with and extending upwardly and vertically from the frusto-conical hollow section 16 is an inwardly tapering and tubular section generally indicated by numeral 18. A pair of opposite walls of tubular section 18 are flattened from the top of said tubular section 18 to form a narrow and elongated rim 19 for a slot 20, front and rear walls 21 and 22 being substantially in the form of inverted isosceles triangles, and tapering end walls 23 and 24.

The engaging groove 14 represented by walls 10—12 is capable of being applied to rim 15 of vessel B by spreading the groove at any position over the rim 15 by means of offset or flange 13 and then applying sliding thumb pressure on top wall 12 for complete hermetical engagement. It is preferable that the inner lateral dimension of wall 11 be less than the outer lateral dimension of rim 15 for this purpose so that there will be live engagement at least between the inner face of wall 11 and the vessel neck.

In Figures 5, 6, 7 and 8 are shown a modification of a vessel-engaging structure for the neck of the vessel differing over the groove engaging structure of Figures 1–4 in that the frusto-conical hollow section 16 at the base has a concentric horizontal extension 25 terminating in a downwardly extending peripheral engaging flange 26 for removable and sealing engagement with the outer periphery of the neck 27 of a feeding vessel C (Figure 5), with the outer periphery of the neck of a beverage bottle D (Figure 7), and with the outer periphery of the neck of a pop bottle E (Figure 8). It is to be observed that in Figure 8 the pop bottle E is shown in accidentally displaced horizontal position by a child who is casually eating and following a television program.

In Figure 9 is a modified form of sipper-type of seal and is of the stopper type wherein the frusto-conical section 16 is substituted by a downwardly extending substantially cylindrical section 28 of thicker gauge than the rest of the seal, the said cylindrical section being adapted

Zak Designs, Inc. Exhibit 1011
3 of 4

IPR 2024-01137
CamelBak - Ex 2001
Page 116 of 857

to frictionally engage the inner surface 29 of neck 30 of bottle D in the form of a stopper.

In Figure 10 is shown a sipper-type of seal, similar to that shown in Figures 1–4, engageable with a tumbler F for purposes of sipping a fluid such as fruit juice. A can of orange juice indicated by letter G is shown in Figure 10 for purposes of replenishing tumbler F. The sipper seal of Figure 10 is modified over that shown in Figures 1–4 in having provided therewith a slitted portion 31 for ingress of atmospheric pressure so that the fluid may be drawn out of slot 20 in a continuous operation.

The sipper-type of seal described is capable of formation by known procedures, such as compression, vacuum, injection, and blow molding or otherwise. Moreover, the material from which the seal is formed should be inert, odorless, washable, capable of sterilization, and further should be yieldable and not subject to breakage or comminution by the teeth or mouth of the user as is the case with glass. A plastic of the locally deformable type such as polyethylene or vinyl is preferable for use since said material is compatible with mouth introduction.

The sipper seal and spill-proof features thereof as described is suitable for infants after they have been weaned from a nipple; for children at parties and even for grown-ups. The draw of fluid contents from the longitudinal and narrow opening 20 is smoother and more controlled compared to drawn flow from a bottle neck, and as mentioned there is no danger of introducing shatterable and dangerous glass into the mouth. Moreover, when the elongated slot 20 of the sipper seal is held in any non-drinking position capable of creating a gravity flow toward slot 20, the fluid tends to completely fill the entire area of the slot to check spillage by reason of fluid capillarity and surface tension.

I wish it understood that minor changes and variations in the material, gauge, shape, formation and location of parts may all be resorted to without departing from the spirit of the invention and the scope of the appended claims. It is further understood that the sipper seal described may be formed of various sizes, and the dispensing end is capable of being squeezed or deformed by the mouth or teeth of the user whereby slot 20 is capable of being increased in width to vary drawing capacity.

I claim:

1. A removable sipper seal of resilient plastic material for the pouring rim of a fluid-containing vessel, comprising a hollow body member removably and sealably engageable with said rim, a hollow frusto-conical section communicating with and projecting upwardly from said body member, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated narrow rim enclosing a slot whereby fluid contents of the vessel may be expeditiously withdrawn into the mouth of the user and whereby said slot acts as a check valve against flow when the vessel is accidentally thrown off its base.

2. A removable sipper seal as set forth in claim 1 and wherein the said seal is formed of a substance from the group consisting of polyethylene and the vinyl plastic compounds.

3. A removable sipper seal as set forth in claim 1 wherein said seal is formed of a locally deformable plastic material.

4. A removable sipper seal of resilient plastic material for sealing the pouring rim of a fluid-containing vessel, comprising a body member having a peripheral rim-engaging groove formed of inner, top and outer walls, the said inner wall having formed therewith a frusto-conical section projecting upwardly from the bottom thereof, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated and narrow rim enclosing a slot, said slot serving either as a withdrawing outlet for fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position.

5. A removable sipper seal as set forth in claim 4 wherein said outer wall is provided with an offset portion for application and removal of said engaging groove with respect to the pouring rim.

6. A removable sipper seal of resilient plastic material for sealing the pouring rim of a fluid-containing vessel, comprising a hollow body member having a top wall portion and peripheral downwardly extending skirt for telescopic engagement with said rim, a hollow frusto-conical section communicating with and projecting upwardly from said body member, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated narrow rim enclosing a slot, said slot serving either as a withdrawing outlet for the flow of fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position.

7. A removable sipper seal of resilient plastic material for sealing the pouring rim of a fluid-containing vessel, comprising a hollow body member sealably engageable with and internally of said rim, a hollow frusto-conical section communicating with and projecting upwardly from said body member, a hollow dispensing member formed and communicating with the top edge of said frusto-conical section and terminating at the top in an elongated narrow rim enclosing a slot, the said slot serving either as a withdrawing outlet for the flow of fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position.

References Cited in the file of this patent

UNITED STATES PATENTS

Re. 11,086	Eggers	June 17, 1890
D. 136,098	Hartman	Aug. 3, 1943
378,742	Underwood	Feb. 28, 1888
420,651	Fowler	Feb. 4, 1890
1,538,798	Grier	May 19, 1925
2,805,663	Robinson	Sept. 10, 1957

Zak Designs, Inc. Exhibit 1011
4 of 4

IPR 2024-01137
CamelBak - Ex 2001
Page 117 of 857

May 21, 1935. A. C. HEISE ET AL. 2,001,842

TEETHING AND FEEDING NIPPLE

Filed May 21, 1934

Fig. 1

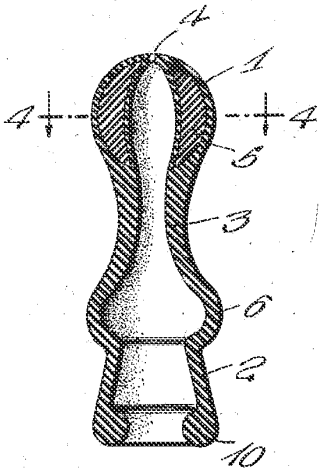
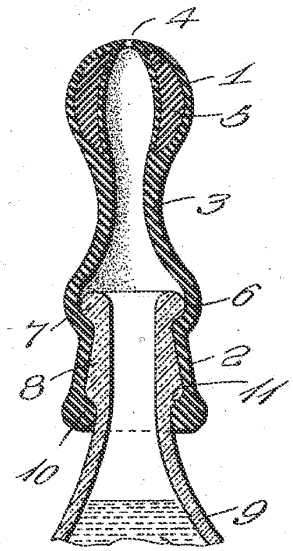


Fig. 2



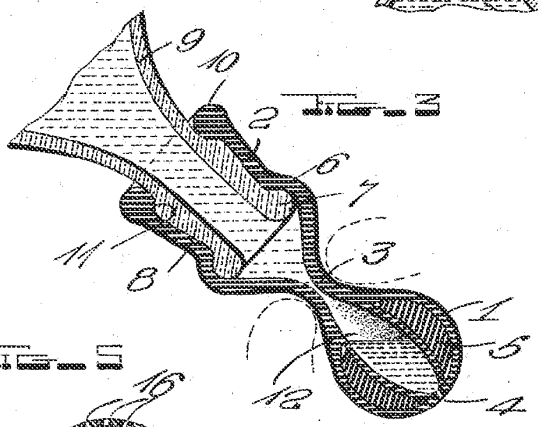


Fig. 3

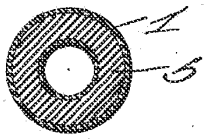
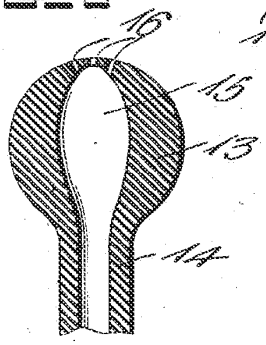


Fig. 4

Fig. 5



Inventors
Arthur C. Heise,
Millard W. Jacobi,
BY Jacobi & Jacobi
ATTORNEYS.

Zak Designs, Inc. Exhibit 1012
1 of 3

IPR 2024-01137
CamelBak - Ex 2001
Page 118 of 857

Patented May 21, 1935 2,001,842

UNITED STATES PATENT OFFICE

2,001,842

TEETHING AND FEEDING NIPPLE

Arthur C. Heise and Millard W. Jacobi,
Baltimore, Md.

Application May 21, 1934, Serial No. 726,838

2 Claims. (Cl. 128—252)

This invention relates to nipples and one object of the invention is to provide a device of this character of such construction that it may serve both as a feeding nipple and as a teething device.

Another object of the invention is to provide the nipple with a reinforced outer end portion of such construction that it serves very effectively as a teething device and also as a reservoir for a measured quantity of milk when a baby is feeding from a bottle.

A still further object of the invention is to provide a nipple of such construction that during feeding, pressure of the lips will cause the nipple to be constricted inwardly of its reinforced outer end portion as suction is applied, thereby restricting flow of additional milk into the chamber formed by the reinforced outer end portion of the nipple and preventing more than a certain quantity of milk being sucked into the baby's mouth at one time. This prevents too rapid feeding and also prevents danger of colic due to a large quantity of milk being consumed in a short length of time.

Another object of the invention is to so construct the nipple that when it is in use, it cannot collapse due to the formation of a partial vacuum in the bottle and prevent flow of milk through the nipple.

A still further object of the invention is to provide a nipple having its inner end portion of such construction that it will firmly grip the neck of a bottle and not be liable to work loose or be pulled off by a baby.

Still another object of the invention resides in providing a nipple which is simple and durable in construction, inexpensive to manufacture and one which will be very efficient in application to use.

With these and numerous other objects in view, our invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawing forming a part of this application;

Figure 1 is a sectional view taken longitudinally through the nipple;

Figure 2 is a longitudinal sectional view showing the nipple applied to a bottle;

Figure 3 is a view similar to Figure 2 showing the bottle tilted as in use and the nipple constricted during a sucking operation;

Figure 4 is a section taken transversely through the nipple along the line 4—4 of Figure 1; and

Figure 5 is a longitudinal sectional view illustrating a modified construction.

This improved nipple is formed of rubber and has a body consisting of an outer end portion 1, an inner end portion 2 and a throat or intermediate portion 3 uniting the inner and outer end portions. The body is of soft rubber of sufficient thickness to normally retain the shape disclosed in Figure 1 and its outer end 1 which is formed with an outlet opening 4 at its center, is substantially spherical in shape and molded about a reinforcement 5 formed of tough resilient rubber. The solid reinforcement is entirely embedded in walls of the outer end portion or head of the nipple and it should be noted that its walls are crescent shaped in longitudinal section as shown in Figures 1, 2 and 3. By this arrangement, the head will have a soft outer surface so that it will not hurt a baby's tender gums but at the same time the head will have sufficient resiliency and toughness to permit it to be used as a teething device.

The walls of the body gradually lessen in thickness from the head 1 towards the inner end of the neck 3 which is flared and then constricted to form a channel 6 to engage about the bead 7 of the neck 8 of a bottle 9 and the neck 2 or inner end portion of the nipple increases in diameter towards its rear end and terminates in an inwardly projecting circumferential bead 10 which fits tightly about the bottle neck under the shoulder 11. It will thus be seen that the inner end portion of the neck 2 of the nipple will have tight fitting engagement about the neck of a bottle and since the bead 10 engages under the shoulder 11 and the bead 7 of the bottle is received in the channel 6, there will be no danger of the nipple working off of the bottle and also a baby will not be able to pull the nipple from the bottle.

Referring to Figures 1 and 2, it will be seen that when this nipple is in its normal condition and applied to a bottle, milk can flow freely from the bottle through the neck 3 into the head or front end 1 and fill the interior of the nipple. When the bottle is in use it is tilted in an inverted position as shown in Figure 3 and the head of the nipple placed in the baby's mouth with the neck disposed between the lips indicated by dotted lines in this view. In drinking from the bottle, the baby sucks upon the nipple and pressure of the lips will cause the neck 3 to be constricted, thereby entirely or almost entirely closing the nipple intermediate the

Zak Designs, Inc. Exhibit 1012
2 of 3

IPR 2024-01137
CamelBak - Ex 2001
Page 119 of 857

length of the neck and effectively preventing flow of milk from the bottle into the chamber 12, thus formed in the interior of the head. The pressure and suction causes milk in this chamber to pass out through the discharge opening 4 and since flow of additional milk into the chamber is prevented as long as the neck is constricted, only a predetermined quantity of milk corresponding to the capacity of the chamber 12 can be consumed during one sucking operation. When pressure upon the neck is relieved during intervals between sucking, milk will again flow into the chamber to fill the same and during each sucking operation, the chamber will be emptied. It will thus be seen that too rapid feeding will be prevented and as the baby cannot gulp its milk, likelihood of colic will be eliminated.

The reinforcement 5 serves to quickly distend the nipple to its normal dimensions between sucking operations and it also serves to prevent collapsing of the nipple by action of a partial vacuum forming in the bottle when the milk is partially consumed. A bottle having one of the improved nipples applied thereto can be given to a baby during the night and will last such a length of time that only one night feeding will be necessary. When a baby is cutting teeth the nipple can be used as a teething device as the reinforcement is sufficiently tough and resilient to permit the head to be chewed upon without losing its spherical shape. It should be further noted that when the nipple is to be washed, the head can be readily grasped in one hand and the throat and neck or rear end portion turned forwardly over the head to such a position that the inner and outer surfaces of the nipple can be thoroughly cleansed.

In Figure 5, there has been disclosed a modified embodiment of the invention. Referring to this figure, it will be seen that the head 13 is formed entirely of soft rubber instead of having a tough resilient core embedded therein. The dimensions and shape are substantially the same as shown in Figures 1, 2 and 3 so that the neck 14 and inner end portion of the head may be constricted to confine milk in the chamber 15 and force a measured quantity of milk to be ejected during each sucking operation. It should also be noted that in this form of the invention a plurality of outlet openings 16 are provided instead of a single outlet. This nipple serves very effectively as a feeding nipple and to a certain extent as a teething device as the walls of the head are thick enough to normally retain the head in spherical shape and a baby can chew upon the head without unduly collapsing the head.

From the foregoing description of the construction of our improved nipple, the application of the same to use will be readily understood. It will be seen that we have provided a simple, inexpensive and efficient means for carrying out the objects of the invention and while we have particularly described the elements best adapted to perform the functions set forth, it is obvious that various changes in form, proportion and in the minor details of construction may be resorted to, without departing from the spirit or sacrificing any of the principles of the invention.

Having thus described the invention, what is claimed is:

1. A nipple comprising a body of soft rubber having its rear portion adapted for application to a bottle and having its forward portion enlarged to form a substantially spherical head merging into a reduced intermediate portion, an outlet opening being formed centrally of the outer end of the nipple, and a reinforcement of tough resilient rubber embedded in walls of the head, said reinforcement being substantially spherical in shape and extending the entire circumference of the head and longitudinally thereof for substantially the entire depth of the head but terminating in radial spaced relation to the outlet opening and in spaced relation to the reduced neck whereby the neck portion of the nipple may be constricted.

2. A nipple comprising a body of soft rubber open at its rear and formed with a bottle engaging rear portion, a substantially spherical forward portion constituting a head and a reduced intermediate portion between the head and rear portion, walls of the intermediate portion gradually increasing in thickness towards the head and merging into the head and the head being formed with a centrally located discharge opening at its outer end and having forward portions of its walls gradually decreased in thickness towards the discharge opening, and a reinforcement of tough resilient rubber substantially spherical in shape, said reinforcement being entirely embedded in walls of the head for the entire circumference thereof and extending longitudinally of the head for substantially the entire length thereof, walls of the reinforcement being substantially crescent-shaped in longitudinal section and gradually decreased in thickness towards inner and outer ends of the head with their outer ends terminating in radial spaced relation to the discharge opening.

ARTHUR C. HEISE,
MILLARD W. JACOBI.

Zak Designs, Inc. Exhibit 1012
3 of 3

IPR 2024-01137
CamelBak - Ex 2001
Page 120 of 857

April 19, 1949. W. G. CANHAM ET AL 2,467,463

NURSING UNIT

Filed Dec. 7, 1945

FIG. 1

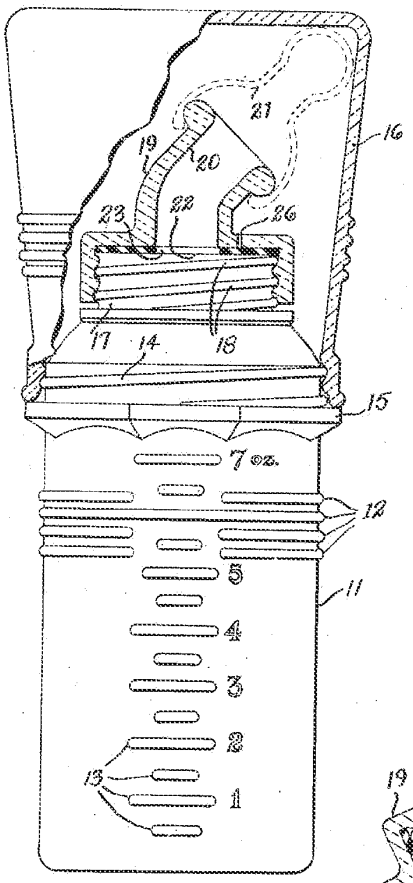


FIG. 2.

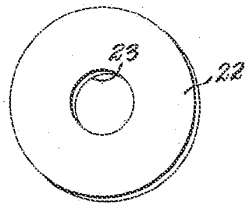


FIG. 3.

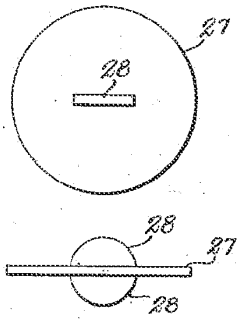


FIG. 4.

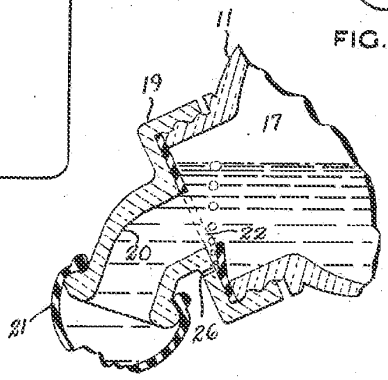


FIG. 5

INVENTORS:

WALTER G. CANHAM, ALVIN H. OSTRIN AND LEON BORSTEIN,

BY McMorrow, Berman and Davidson

ATTORNEYS.

Zak Designs, Inc. Exhibit 1013
1 of 3

IPR 2024-01137
CamelBak - Ex 2001
Page 121 of 857

Patented Apr. 19, 1949 2,467,463

UNITED STATES PATENT OFFICE

2,467,463

NURSING UNIT

Walter G. Canham, St. Albans, and Alvin H. Ostrin and Leon Borstein, Charleston, W. Va.; said Canham assignor to said Ostrin and said Borstein

Application December 7, 1945, Serial No. 633,488

3 Claims. (Cl. 215—11)

1

This invention relates to a baby's nursing devices, and more particularly to a combination nursing unit and tumbler.

A main object of the invention is to provide a novel and improved baby's nursing unit of simple construction which is provided with automatic pressure equalizing means for providing a substantial continuous flow of fluid to the infant while nursing and wherein the infant may be fed with its head in a comfortable position.

A further object of the invention is to provide an improved nursing unit for an infant wherein the infant may obtain fluid from the unit without sucking in colic-producing air, and wherein protective means is provided for keeping the nipple portion of the unit sterile when the unit is not in use.

Further objects and advantages of the invention will appear from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view, partly in cross-section, of a nursing unit constructed in accordance with the present invention.

Figure 2 is a perspective view of a gasket member employed with the nursing unit of Figure 1.

Figure 3 is a plan view of a sealing disc adapted to be employed with the nursing unit of Figure 1.

Figure 4 is a side elevational view of the sealing disc of Figure 3.

Figure 5 is a detail cross-sectional view of the neck portion of the nursing unit of Figure 1 shown in inverted nursing position.

Referring to the drawings, 11 designates a container for baby's milk or other fluid, said container being preferably molded of transparent heat-resistant plastic material.

Container 11 is formed with a plurality of integral strengthening ribs 12 and with a series of integrally molded graduation ribs 13 appropriately marked in terms of fluid volumetric units.

The upper portion of container 11 is formed with threads 14 and an abutment rib 15 for the reception of a sealing closure 16, preferably of molded transparent plastic, which is also adapted to be employed as a tumbler.

The top end of container 11 is formed with a reduced neck portion 17 provided with threads 18 upon which is adapted to be threadedly engaged a nipple adapter member 19, preferably of molded plastic, which is formed with an outlet passage 20 inclined at about 45° to the axis of the container. The top end of adapter member 19 is formed to receive a conventional nipple 21.

Positioned between adapter member 19 and the rim of the container is a resilient gasket member 22 of rubber or the like, which is formed with an opening 23 adapted to register with passage 20.

2

Adapter member 19 is formed with a restricted orifice 25 normally sealed by gasket 22, but which is adapted to be opened to the atmosphere when the pressure inside of the container drops below atmospheric pressure, to thereby admit air to equalize the pressure within the container with respect to atmospheric pressure. Gasket 22 is sufficiently flexible to bend slightly inward, as shown in Figure 5, to permit the entry of the required amount of air when the pressure inside the container is reduced by the withdrawal of fluid by the infant. Gasket 22 thus functions as a pressure-responsive check valve.

When the unit is not in use, passage 20 may be sealed off by a rigid disc member 27 positioned between adapter member 19 and gasket 22. Disc member 27 is formed with lug elements 28 on each face thereof, the lower lugs element being adapted to be received in opening 23 of the gasket member.

The inclined relation of passage 20 of adapter 19 to the axis of the container makes it possible to feed the infant in many different positions comfortably. When the baby is in a reclining position the nipple can be turned downwardly and the container supported on the baby's chest. The baby can then drink the fluid without bending the nipple, thus insuring an uninterrupted flow of fluid. The angle top makes it easy to handle the container regardless of which way the baby turns.

Tumbler 16 may be used to hold baby food to be given along with the milk or other fluid in the container.

While a specific embodiment of a baby nursing unit has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention other than as defined by the scope of the appended claims.

What is claimed is:

1. A baby nursing unit comprising a container having a threaded rim, an adapted member threadedly secured to the rim of the container and formed to receive a nipple, said adapter member having its outer end inclined with respect to the axis of the container and having its inner end aligned with said axis, an opening formed in said adapter member laterally spaced from the rim of the container, and a resilient gasket interposed between said adapter member and the rim of the container and normally covering said opening, said gasket having a central opening registering with the inner end of the adapter member and being adapted to be bent inwardly at times by air pressure to uncover the adapter member opening.

2. A baby nursing unit comprising a container

Zak Designs, Inc. Exhibit 1013
2 of 3

IPR 2024-01137
CamelBak - Ex 2001
Page 122 of 857

having a rim, an adapter member secured to the rim of the container and formed to receive a nipple, said adapter member having a portion inclined with respect to the axis of the container, and valve means for admitting air to the container responsive to the decrease of pressure within the container to below atmospheric, said valve means comprising an opening formed in said adapter member inwardly spaced from the rim of the container and an annular resilient gasket interposed between said adapter member and the rim of the container and normally covering said opening.

3. A baby nursing unit comprising a container having a rim, an adapter member secured to the rim of the container and formed to receive a nipple, said adapter member having a portion inclined with respect to the axis of the container, a resilient gasket interposed between said adapter member and the rim of the container, said gasket having a central opening registering with the inner end of the adapter, and a sealing member interposed between said adapter member and

said gasket, said sealing member being provided with a lug element projecting from a face thereof, the lug element being positioned within said opening.

WALTER G. CANHAM.
ALVIN H. OSTRIN.
LEON BORSTEIN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,623,544	Kushner	Apr. 5, 1927
2,330,019	Vaughn et al.	Sept. 21, 1943
2,372,261	Jordan	Mar. 27, 1945

FOREIGN PATENTS

Number	Country	Date
152,594	Great Britain	June 2, 1920
249,200	Germany	Aug. 25, 1911

Zak Designs, Inc. Exhibit 1013
3 of 3

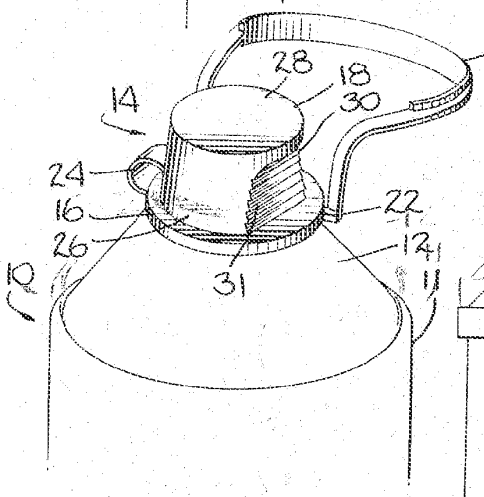
IPR 2024-01137
CamelBak - Ex 2001
Page 123 of 857

March 7, 1967 J. J. ANDERSON 3,307,752

CAPTIVE PLASTIC CLOSURE FOR CONTAINER WITH INTEGRAL CONTAINER HANDLE

Filed March 15, 1965 2 Sheets-Sheet 1

Fig. 1.



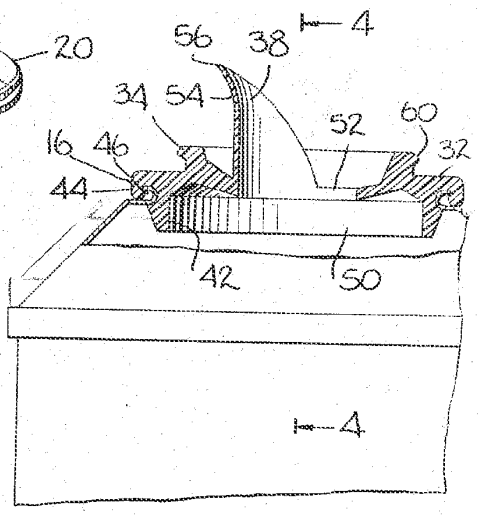


Fig. 3.

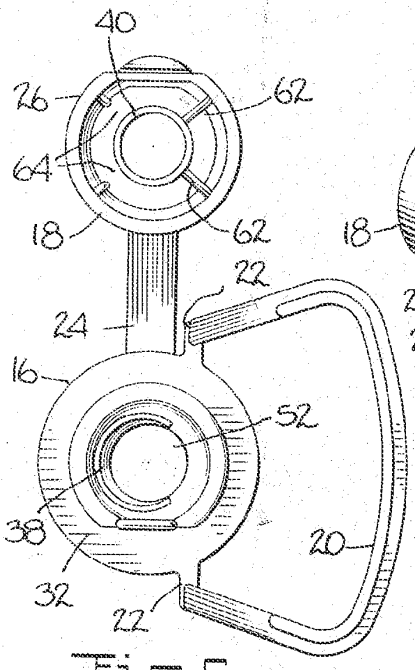


Fig. 6.

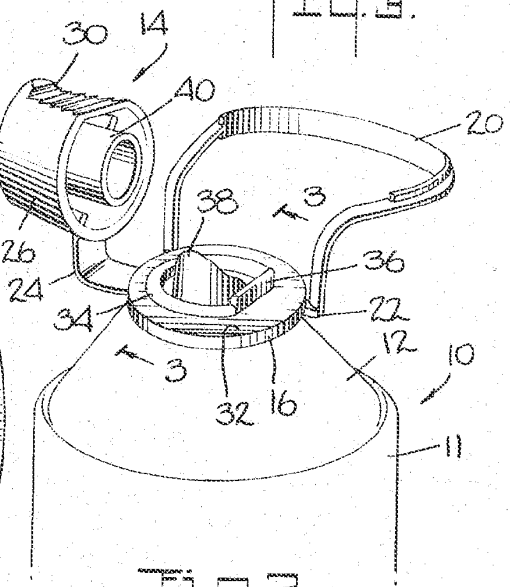


Fig. 2.

March 7, 1967 J. J. ANDERSON 3,307,752

CAPTIVE PLASTIC CLOSURE FOR CONTAINER WITH INTEGRAL CONTAINER HANDLE

Filed March 15, 1965 2 Sheets-Sheet 2

Fig. 4.

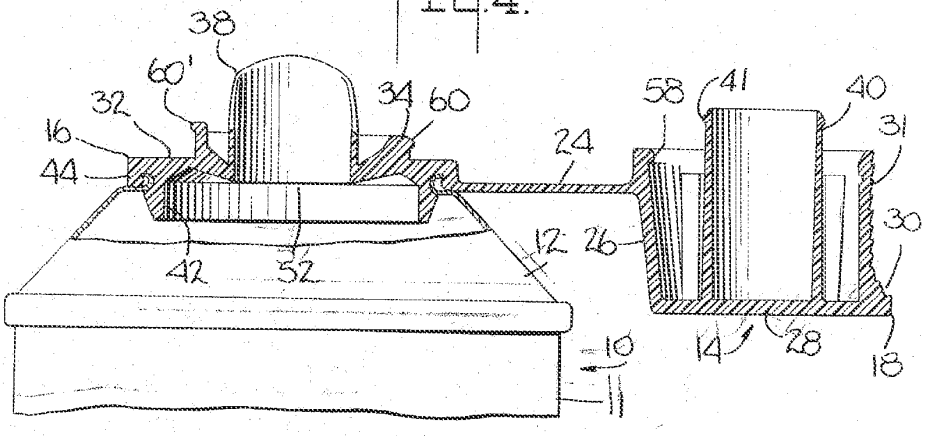


Fig. 7.

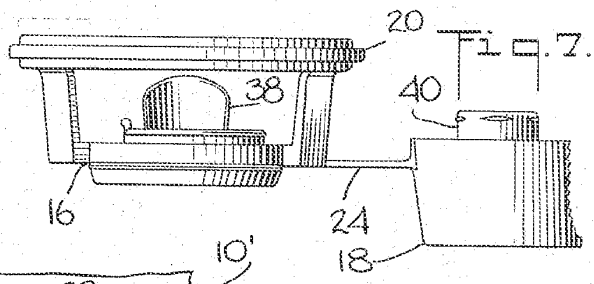


Fig. 5.

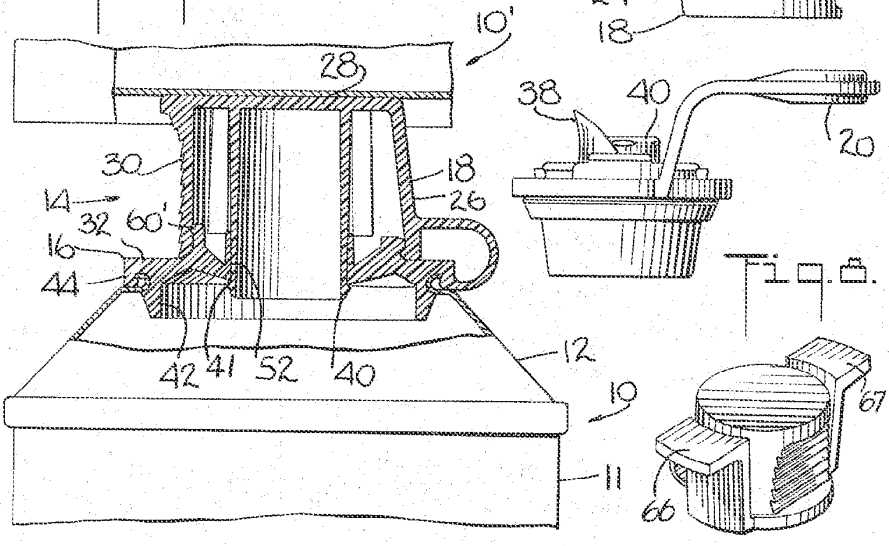


Fig. 8.

Fig. 9.

United States Patent Office

3,307,752
Patented Mar. 7, 1967

3,307,752

CAPTIVE PLASTIC CLOSURE FOR CONTAINER WITH INTEGRAL CONTAINER HANDLE

John J. Anderson, Kenosha, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Mar. 15, 1965, Ser. No. 439,777
4 Claims. (Cl. 222—465)

This invention relates to container closures and more particularly it concerns an improved overcap closure arrangement for use with spouted containers.

Certain liquids, such as those of low viscosity and low cohesiveness, exhibit a strong tendency to spill or drip during pouring. For this reason, it is desirable to provide some sort of a pouring spout on the containers in which these liquids are kept.

Unfortunately, the provision of pouring spouts on liquid containers has introduced collateral difficulties of such a nature that the spouts in many cases had to be dispensed with. One such difficulty was due to the fact that the spout, being located along the inner edge of the container opening, made it difficult to design a really effective and easily openable closure for the container. Another difficulty was that the upwardly protruding spout, being of comparatively fragile construction, was easily damaged or distorted when these containers were handled or stacked upon each other as for storage or shipment prior to sale.

In some cases, spouted containers have been provided with closure means such as a removable plug which was wedged into the container opening at the base of the spout. This, however, left the spout exposed and susceptible to contamination. Furthermore, the exposed upwardly protruding spout was left in a position to be crushed by the weight of any containers stacked thereon. Also, the weight of stacked containers very often would wedge the plug into the container opening to such an extent as to cause distortion and loss of the liquid seal.

In certain other cases, container closures of the cap type have been provided. These closures, which resembled an inverted cup, would cover the entire container opening. However, they were unsatisfactory for use with spouted containers for they would allow liquid to flow up and around the spout area and inside the hollow cap, so that when the cap was removed, the problem of dripping and spilling was even greater than before.

I have made possible, through my invention, the provision of a container closure for use in connection with spouted containers without the aforementioned difficulties of the prior art. As a result of my invention, it is possible to provide at very low cost, conveniently useable container closures which neatly seal and protect a spouted container opening without undue distortion due to the heavy loading effects of stacked containers.

In essence, my invention resides in the provision of a specially shaped double walled cap structure which cooperates in a novel manner with the spouted opening of a container. The cap structure includes an outer wall portion which surrounds and encloses the spout, and an inner plug portion which depends within the outer wall portion and which is shaped such that when the cap is in position on the container, the plug enters into and seals the container opening. The plug has essentially the same peripheral dimensions along its length as the container opening so that the sealing effect of the plug is substantially independent of any distortion which the outer portion of the cap may undergo.

According to one feature of my invention, I provide a circumferential ridge surrounding the spout and opening, and a pressure receiving surface immediately surrounding the ridge. This allows the bottom peripheral edge of the wall portion of the cap to be pressed down against the container without distorting the shape of the container opening. Also, where the cap is of a resilient plastic material, the ridge may be beaded for a snap type fit with the cap thus providing a positive closure without the complexity and expense of screw threads.

According to another feature of my invention, I have provided as an integral unit, a captive cap and spouted base arrangement which can readily be snapped onto metal or glass containers formed with a simple central container opening. This integral unit may be molded of polyethylene material quite economically and it greatly increases the versatility of conventional metal and glass containers.

In one of its aspects, my invention includes the provision of a specially shaped handle preferably molded as an integral part of the base and captive cap. This handle serves a dual function; first, that of providing a carrying means thus eliminating the need for a waist shaped or small necked container; and secondly, that of providing a front end holding means when the container is tipped for pouring out through the spout.

There has thus been outlined rather broadly the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception upon which this disclosure is based may readily be utilized as a basis for the designing of other structures for carrying out the several purposes of the invention. It is important, therefore, that the claims be regarded as including such equivalent constructions as do not depart from the spirit and scope of the invention.

A specific embodiment of the invention has been chosen for purposes of illustration and description, and is shown in the accompanying drawings, forming a part of the specification wherein:

FIG. 1 is a perspective view illustrating the top portion of a container outfitted with a closure cap arrangement according to the present invention;

FIG. 2 is a view similar to FIG. 1 but illustrating the closure cap arrangement in opened condition;

FIG. 3 is an elevational view, partially in section, taken along lines 3—3 of FIG. 2;

FIG. 4 is an elevational view, partially in section, taken along lines 4—4 of FIG. 3;

FIG. 5 is a side elevational view similar to FIG. 4 but showing the cap in closed condition and illustrating the relationship of stacked containers outfitted with this cap;

FIG. 6 is a bottom plan view of a closure cap arrangement representing one embodiment of the invention;

FIG. 7 is a rear elevation of the embodiment shown in FIG. 6;

FIG. 8 is a side elevation of the embodiment shown in FIG. 6;

FIG. 9 is a perspective view illustrating a T-bar handle arrangement.

In FIG. 1 there is shown a container 10, having a cylindrically shaped side wall 11, and an upwardly slanted top wall 12. The container 10 is typical of many glass or metal containers used in connection with the retail merchandising of various liquids such as floor wax or liquid cleansers. On the top of the container 10, I provide a novel cap arrangement, indicated generally at 14. This novel cap arrangement is formed of a plastic material such as polyethylene and includes a circular base 16, fitted onto the top wall 12, a cup-shaped overcap 18. In a preferred embodiment handle 20 is generally U-shaped. In this embodiment handle 20 is affixed to and may be integrally molded with the base portion 16 at outwardly protruding lugs 22 located at its periphery.

Zak Designs, Inc. Exhibit 1014
3 of 5

IPR 2024-01137
CamelBak - Ex 2001
Page 126 of 857

In still another embodiment (not shown) handle 20 is affixed to base portion 16 by means of a single outwardly protruding lug. Also, the overcap 18 is permanently connected to the base portion 16 via a strap hinge 24 which likewise may be integral with the base 16.

The cup-shaped overcap 18 includes a generally cylindrical and slightly tapered outer wall 26 which terminates at a flat top wall 28. These walls serve to support the weight of other containers which may be stacked upon the container 10.

The overcap 18 is undercut as at 30 and has its undercut surface formed with serrations or ribs as at 31. This provides an effective thumb grip for lifting up and opening the overcap from the base 16.

In the preferred embodiment handle 20, as can be seen in FIG. 2, extends upwardly from the lugs 22 for a short distance and then outwardly away from the overcap 18 so that its maximum height does not exceed that of the overcap. This permits stacking of these containers without undue interference from or to their respective handles. Also, this handle configuration enables the containers to to be grasped quite readily both for pouring and for carrying.

FIG. 2 shows the container 10 with its overcap 18 in opened position, so as to expose the internal elements of the circular base 16. On the upper side of the base there is provided a horizontal annular pressure receiving surface 32 and a locking and reinforcing rib 34 which extends upwardly from the inner edge of the pressure bearing surface 32. The rib 34 is dimensioned to fit closely within the outer wall 26 of the overcap portion 18. Thus, it is provided with a flattened region 36 which accommodates the undercut thumb grip portion 30 of the overcap. Immediately within the reinforcing rib 34 there extends an upwardly protruding spout 38 designed to provide proper control of liquid flow out of the container. The precise shape of the spout will, of course, depend upon the nature of the liquid in the container. However, in all cases its most important feature will be that it protrudes up and out from the top of the container so as to keep the liquid being poured from dripping down over the walls of the container.

My overcap 18, as can be seen, is hollow and open at its bottom; and it is provided with a centrally depending tubular shaped plug element 40. This plug element, as will be seen more fully hereinafter, fits down inside of the spout 38 to seal the container when the overcap 18 is in closed position as in FIG. 1. At the same time, the spout 38 extends up into the cap between the plug element 40 and the outer wall 26.

As shown in FIGS. 3 and 4, the circular base 16 is of integral construction and is provided with annular downwardly depending inner and outer skirts 42 and 44 which are shaped to define a locking groove 46. The top wall 12 of the container is bent back as at 48 around a central opening 50 to form a semi-circular channel which cooperates with the locking groove 46 to secure the base 16 to the container 10.

The base 16 itself has a central opening 52 located within its locking and reinforcing rib 34. The spout 38 rises upwardly from the edge of this base opening and out over the rib 34. In order to ensure freedom from dripping, etc. I make the spout 38 at least semi-circular at the opening 52 and provide a slightly accentuated curve 54 and a tapered lip 56 toward its upper edge.

The spout obviously is incapable of supporting any appreciable loads and would be crushed or severly distorted should one attempt to stack other containers on it. Because of my novel arrangement, however, such crushing is avoided even though very heavy loading forces are imposed on the container.

The annular pressure bearing surface 32 of the base 16 is located outside the rib 34, while the spout 38 and central opening 52 are located inside the rib. It will be noted also, that the pressure bearing surface 32 is located nearly directly above the inner and outer skirts 42 and 44 so that loading forces imposed on the overcap 18 are transmitted directly through the outer regions of the base 16 to the upper wall 12 of the container 10 thus bypassing the region of the central opening 52 and the spout 38. This arrangement, in cooperation with the reinforcing rib 34 prevents these loading forces from distorting the central opening and spout even though these loading forces may cause buckling of the container 10 or the overcap 18.

As can be seen in FIG. 4, the plug element 40 of my overcap 18 extends somewhat beyond the open edge of the outer wall 26 of the overcap 18. Also the circumferential configuration all along the length of the plug element conforms closely to the configuration of the central opening 52 in the base 16. The end of the plug 40 is provided with a bead 41 which locks under the wall forming the central opening 52. Thus, when the plug element it fitted into this opening, it provides a positive liquid seal; and this seal is essentially unaffected by any vertical movements which the plug element might undergo as a result of exceptionally heavy loads on the overcap 18.

The intercooperation of the various elements which form the base 16 and overcap 18 can be seen in the partial section view of FIG. 5. Here the overcap 18 is shown in closed position on the base 16 and while at the same time being subjected to the loading effects of another stacked container 10' placed on top of the container 10. As shown, the upper container 10' rests on the top wall 28 of the overcap 18. The weight of this upper container is resisted solely by the outer wall 26 of the overcap 18 and not by the plug element 40. This is because the plug element, being at most of a very slight taper, is free to move with respect to the base opening 52 whereas the outer wall 26 is restrained by the pressure bearing surface 32 which in turn is supported by the top wall 12 of the container 10. Since the downwardly loading forces are thus bypassed around the plug 40 and central opening 52, they will undergo no distortion and the seal between them will remain intact even under relatively heavy loads. Further, even if the loading forces increase to a point where the outer wall 26 begins to buckle, the seal between the plug element 40 and the central opening 52 remains unaffected, for the plug element merely becomes pushed slightly further into the opening.

It will, of course, be appreciated that at this same time, the spout 38 is itself isolated from these loading forces by virtue of this novel arrangement of element, since the spout extends up between the plug 40 and the outer wall 26 of the overcap without contacting any part of the overcap.

In order to maintain a positive snap fit connection between the overcap 18 and the base 16, I provide a slight protrusion 58 around the inner periphery of the lower edge of the overcap outer wall 26 and a corresponding mating protrusion 60 about the reinforcing and locking rib 34. I have found that the effectiveness of the snap fit connection is improved without appreciably increasing the difficulty of removing the cap by making the flattened region 36 of the reinforcing and locking rib 34 somewhat higher than the remainder of the rib, and by positioning its locking protrusion 60' near its upper edge.

FIGS. 6, 7 and 8 serve to illustrate the overall configuration of the cap arrangement 14.

As shown in FIG. 6, the overcap 18 is provided with a plurality of reinforcing ribs 62 which extend radially between the plug element 40 and the outer wall 26. Certain of these ribs have portions thereof cut away as at 64 so as to provide room for the spout 38 when the overcap is in closed position.

The handle 20 is arranged to extend back in a direction away from the spout 38. This enables it to be used both for carrying the container 10 and for supporting the

Zak Designs, Inc. Exhibit 1014
4 of 5

IPR 2024-01137
CamelBak - Ex 2001
Page 127 of 857

upper end of the container when pouring liquid out through the spout.

FIG. 9 illustrates another handle arrangement wherein the wing protrusions 66 and 67 respectively are located adjacent to the overcap 18 to provide a T-shaped handle arrangement. This handle arrangement is particularly suited for carrying container 10.

It will be seen that the cap lends itself to integral construction and that it may easily be molded of a plastic material such as polyethylene; thus providing a considerable improvement to the characteristics of metal and/or glass containers without appreciably increasing their cost.

Although a particular embodiment of the invention is herein disclosed for purposes of explanation, further modifications thereof, after study of this specification, will be apparent to those skilled in the art to which the invention pertains. Reference should accordingly be had to the appended claims in determining the scope of the invention.

What is claimed and desired to be secured by Letters Patent is:

1. A cap arrangement comprising, a base made of a plastic material said base including means for securing it to a container opening, said base further being formed with a central opening leading into such container, a plastic spout integral with said base and rising upwardly from the edge of said central opening, said base being formed with a horizontal annular pressure bearing surface surrounding said spout and central opening, a locking rib protruding upwardly from said base along one edge of said pressure bearing surface, a hollow cup shaped plastic overcap having a generally tubular upstanding outer wall and a horizontal top wall, the lower peripheral edge of said outer wall being shaped to rest upon said pressure bearing surface and to frictionally engage said locking rib in a snap fit to secure said overcap on said base, and a plastic handle of generally U-shaped configuration and attached at its ends to points along the edge of said base, said handle rising upwardly from said base to the height of said overcap, and then horizontally away from said cap to provide full finger access without interference with movements of said overcap.

2. A cap arrangement comprising, a base made of a plastic material said base including means for securing it to a container opening, said base further being formed with a central opening leading into such container, a plastic spout integral with said base and rising upwardly from the edge of said central opening, said base being formed with a horizontal annular pressure bearing surface surrounding said spout and central opening, a locking rib protruding upwardly from said base along one edge of said pressure bearing surface, a hollow cup shaped plastic overcap having a generally tubular upstanding outer wall and a horizontal top wall, the lower peripheral edge of said outer wall being shaped to rest upon said pressure bearing surface and to frictionally engage said locking rib in a snap fit to secure said overcap on said base, and a pair of oppositely disposed handle members, said members being attached at their ends to the edge of said base at oppositely disposed points respectively, each of said handle members rising upwardly and flaring outwardly to provide finger access without interference with movement of said overcap.

3. In combination, a base having a central opening therethrough and adapted to form the top opening of a container, a spout formed about at least a portion of the periphery of said central opening and extending upwardly therefrom, said base being formed with an annular pressure bearing surface encircling said central opening and said spout in a plane below the outer edge of said spout, a cup shaped overcap having a lower peripheral edge shaped in accordance with said pressure receiving surface, said overcap having an internal height greater than the height of said spout above said pressure bearing surface, and a plug element depending centrally from the inside top of said overcap, said plug element being of a length and outer contour such that it enters into said central opening when the peripheral edge of said overcap is located on said pressure bearing surface, means for positively securing and sealing said overcap with respect to said base.

4. In combination, a base having a central opening therethrough and adapted to form the top opening of a container, a spout formed about at least a portion of the periphery of said central opening and extending upwardly therefrom, said base being formed with an annular pressure bearing surface encircling said central opening and said spout in a plane below the outer edge of said spout, a locking rib protruding upwardly from said base along one edge of said pressure bearing surface, a cup shaped overcap having a lower edge shaped in accordance with said pressure receiving surface, a protrusion on the inner periphery of the lower edge of said overcap and a mating protrusion on said locking rib, said overcap having an internal height greater than the height of said spout above said pressure bearing surface, and a plug element depending centrally from the inside top of said overcap, said plug element being of a length and outer contour such that it enters into said central opening, and a sealing and locking bead disposed towards the end of said plug for locking under the periphery of said central opening when the lower edge of said overcap is located on said pressure bearing surface.

References Cited by the Examiner

UNITED STATES PATENTS

2,086,219	7/1937	Geyser	222—543 X
2,286,175	6/1942	Wackman.	
2,829,807	4/1958	Kirschenbaum	222—546 X
2,851,203	9/1958	Nowack	222—543
2,950,847	8/1960	Tupper	222—465
2,963,204	12/1960	Pottle	222—465
3,117,703	1/1964	Henchert	222—546
3,124,281	3/1964	Stull	222—546 X
3,208,650	9/1965	La Ham	222—543
3,235,147	2/1966	Hamilton	222—543

FOREIGN PATENTS

200,496	11/1958	Austria.

RAPHAEL M. LUPO, *Primary Examiner.*

Zak Designs, Inc. Exhibit 1014
5 of 5

IPR 2024-01137
CamelBak - Ex 2001
Page 128 of 857

US 20040217139A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2004/0217139 A1

Roth et al. (43) Pub. Date: Nov. 4, 2004

(54) CLOSURE FOR A BOTTLE

(76) Inventors: **Donna Roth**, Duxbury, MA (US); **Henry Roth**, Duxbury, MA (US)

Correspondence Address:
VOLPE AND KOENIG, P.C.
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103 (US)

(21) Appl. No.: 10/702,489

(22) Filed: Nov. 5, 2003

Related U.S. Application Data

(63) Continuation-in-part of application No. 29/180,775, filed on Apr. 30, 2003, now Pat. No. D,485,757.

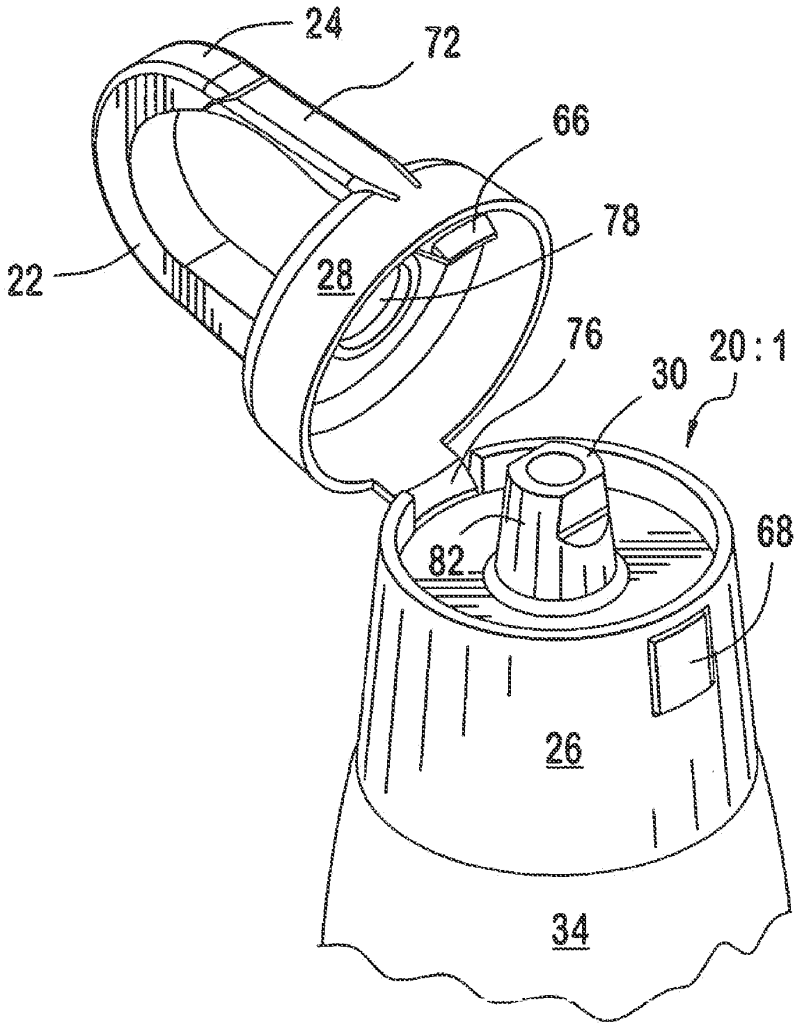
Publication Classification

(51) Int. Cl.[7] B65D 51/00; B65D 23/12; A45F 3/00

(52) U.S. Cl. 224/148.7; 215/228; 215/237; 215/387; 215/399; 224/269

(57) ABSTRACT

A closure for a bottle that defines a cavity opening to a mouth. The closure includes a closure body having a base portion configured to engage the bottle with the closure body positioned over the mouth. A liquid passageway is defined by the base portion and extends at least partially therethrough. A connector is disposed on the closure body and is adapted to allow the closure body to be detachably connected to an object.



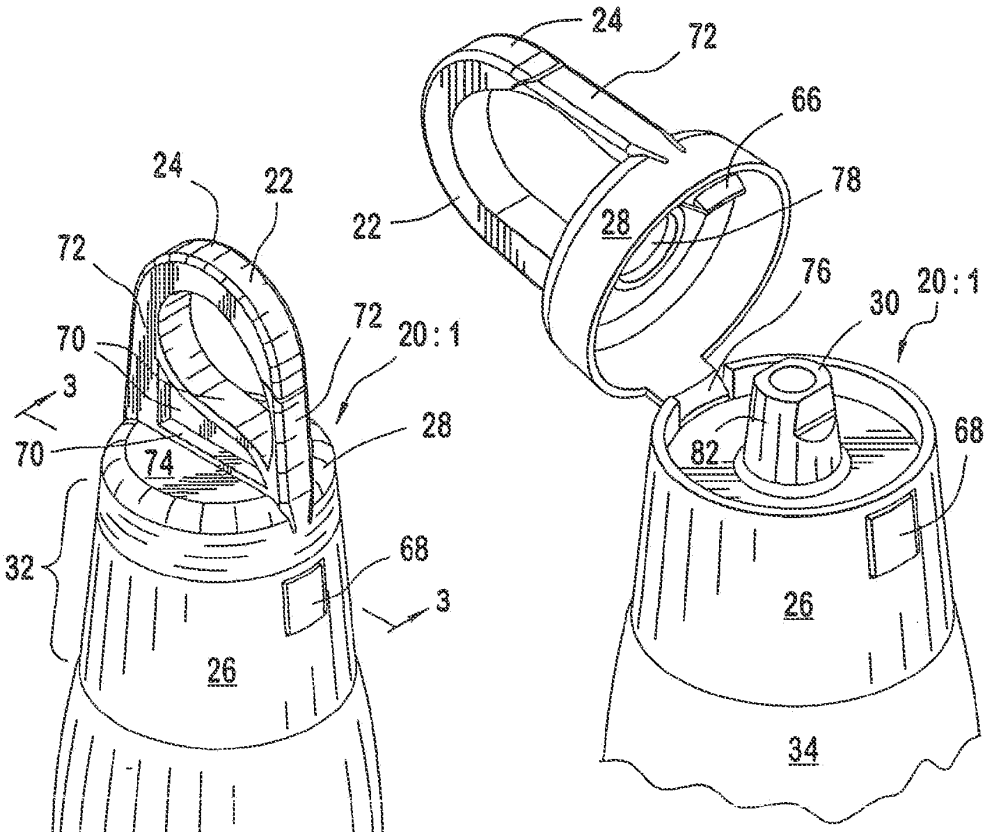

24
72
66
78
22
28
76
30
20 : 1
82
68
26
34

FIG. 2

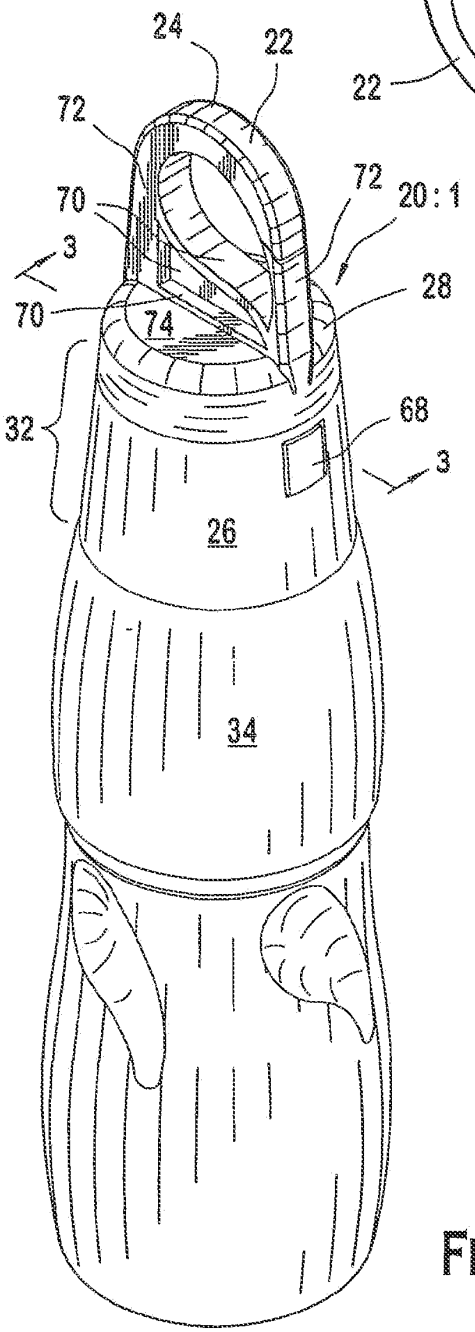

24
22
72
70
3
70
74
72
20 : 1
28
32
68
3
26
34

FIG. 1

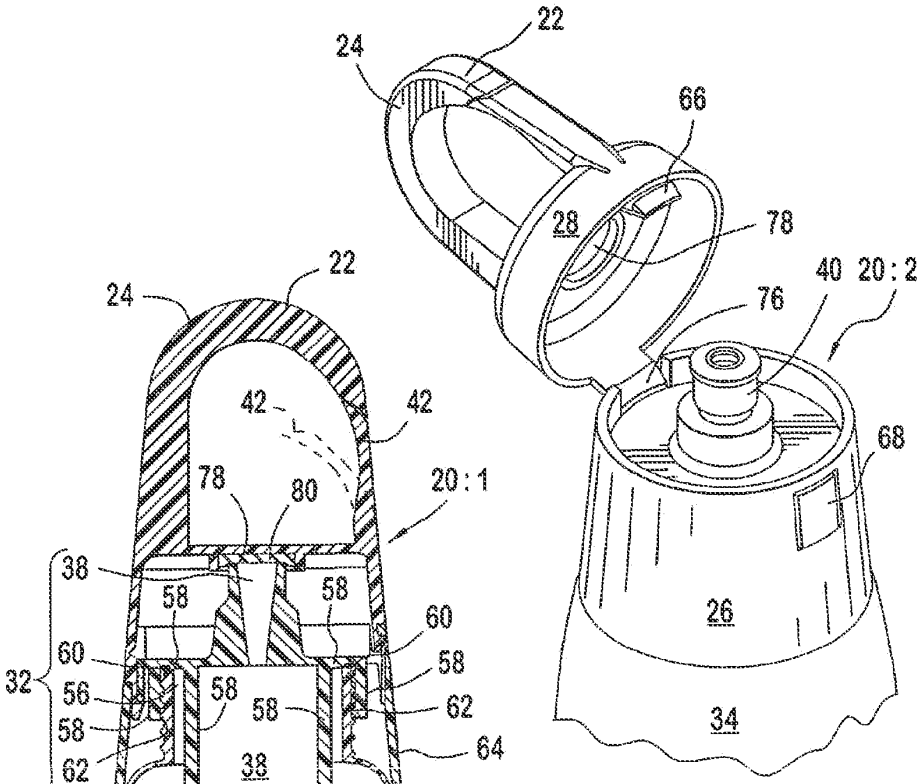

22
24
66
28
78
40
20:2
76
68
26
34

FIG. 4

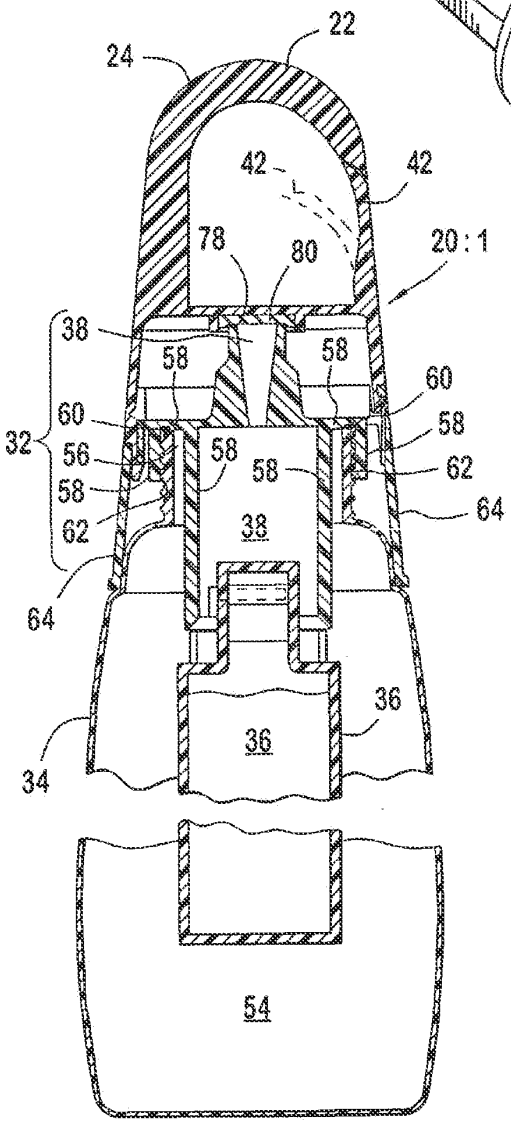

22
24
42
42
78
80
20:1
38
58
58
60
32
60
56
58
58
58
62
64
38
64
36
36
34
54

FIG. 3

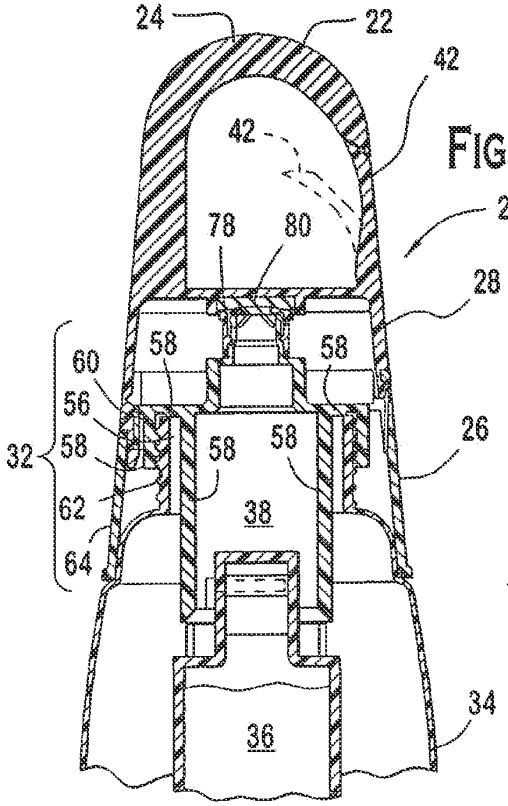


FIG. 5

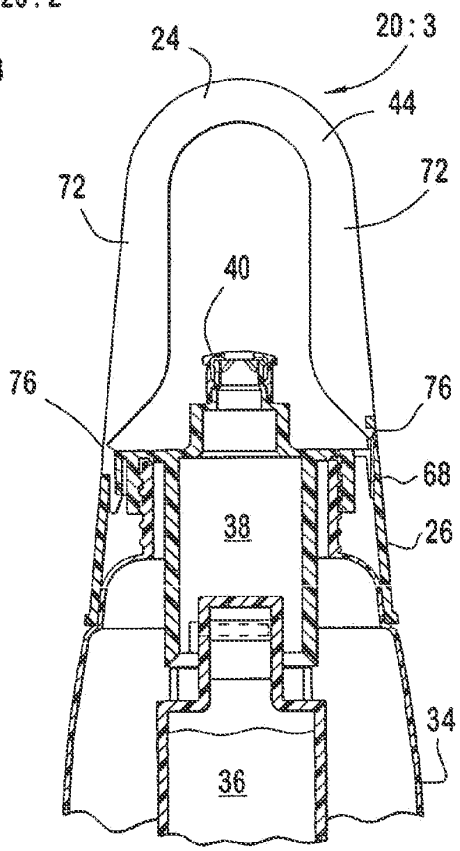


FIG. 6

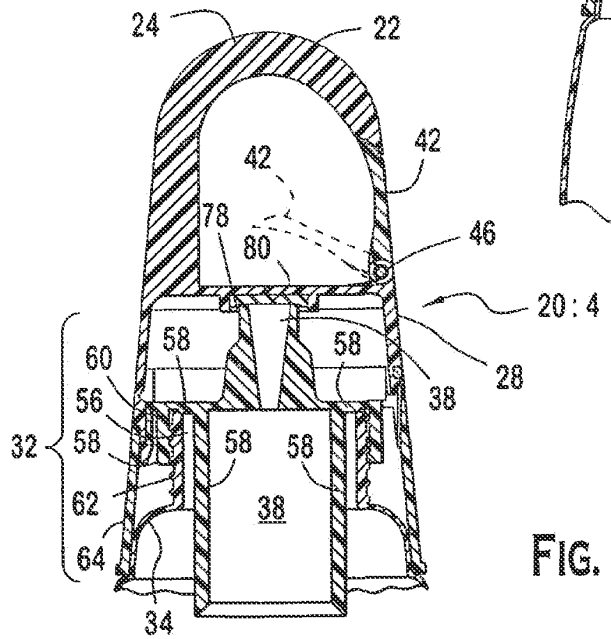


FIG. 7

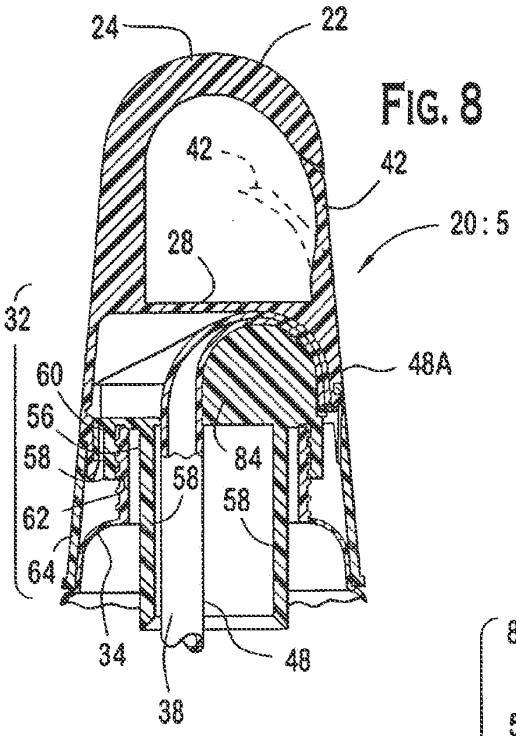


FIG. 8

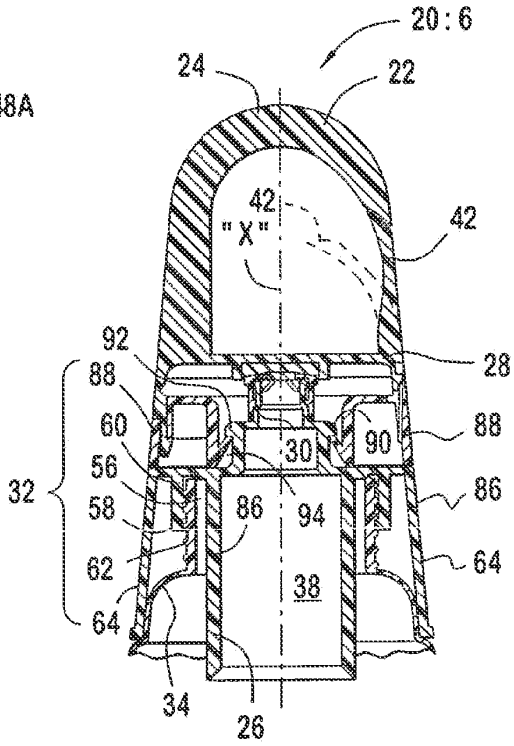


FIG. 9

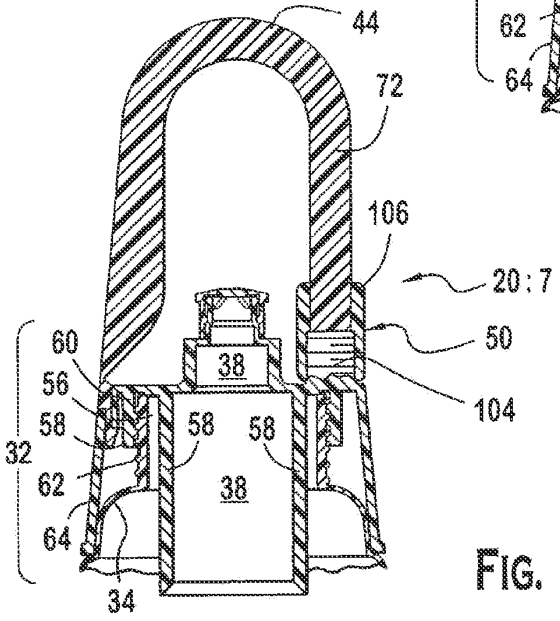


FIG. 10

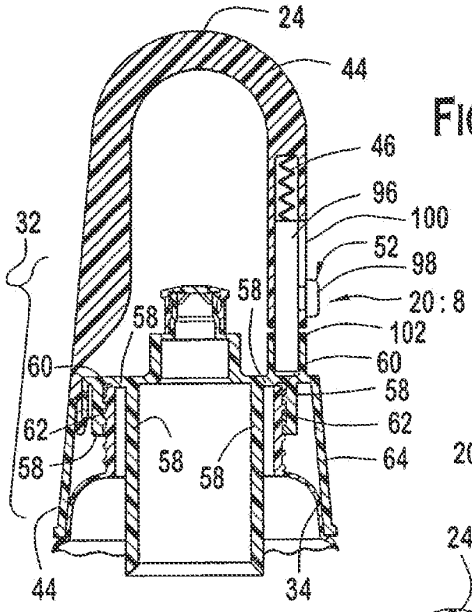
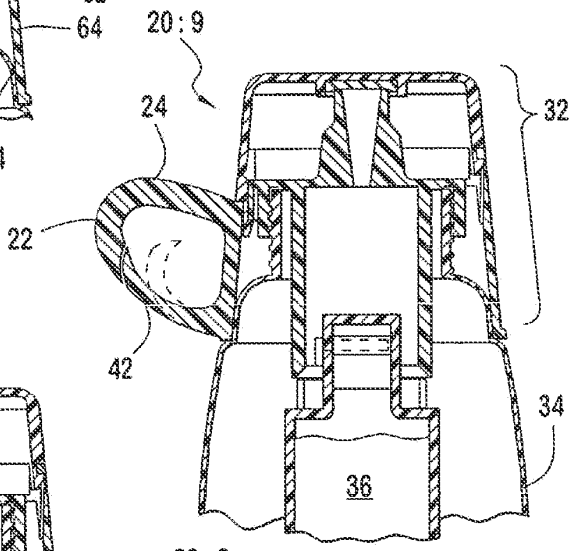


FIG. 11

FIG. 11A



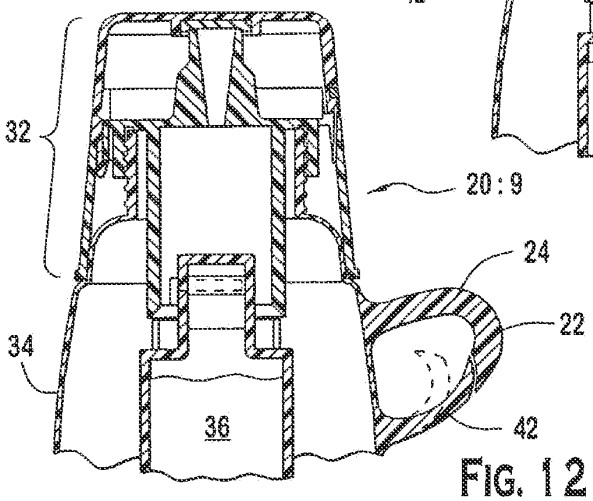
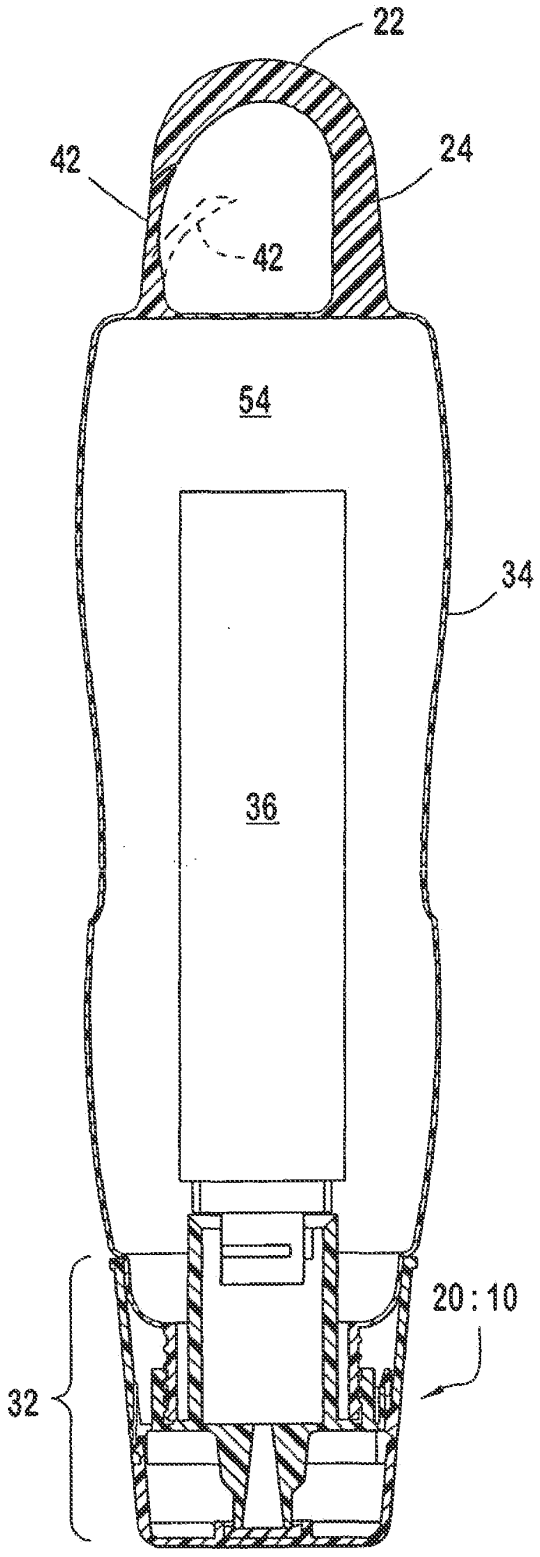


FIG. 12

FIG. 13



CLOSURE FOR A BOTTLE

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application is a continuation-in-part and claims priority under 35 U.S.C. § 120 from U.S. Design patent application Ser. No. 29/180,775, filed Apr. 30, 2003, and entitled "Lid for a Bottle", which is hereby incorporated by reference herein in its entirety as if fully set forth.

BACKGROUND

[0002] The present invention is directed to closures for bottles and, more specifically, to closures that allow bottles to be detachably connected to objects.

[0003] Drinking bottles are typically carried by hand when their owners are traveling and wish to bring along a beverage. In some cases, drinking bottles are stored in backpacks or purses to simplify carrying. However, while storing drinking bottles in backpacks or the like may simplify carrying, it also increases the amount of time necessary to drink from the bottle. Specifically, it is necessary to open the backpack, locate the bottle, remove the bottle from the backpack, and then open the bottle to begin to drink.

[0004] It would be advantageous to provide a bottle that could be attached to objects, for example, a belt loop or a purse strap, to simplify the removal and reattachment of the bottle to facilitate drinking therefrom.

SUMMARY

[0005] One embodiment of the present invention is directed to a closure for a bottle that defines a cavity opening to a mouth. The closure includes a closure body having a base portion configured to engage the bottle with the closure body positioned over the mouth. A liquid passageway is defined by the base portion and extends at least partially therethrough. A connector is disposed on the closure body and is adapted to allow the closure body to be detachably connected to an object.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The foregoing summary as well as the following detailed description of the preferred embodiments of the present invention will be better understood when read in conjunction with the appended drawings. For the purpose of illustrating the invention, there are shown in the drawings embodiments which are presently preferred. It is understood, however, that the present invention is not limited to the precise arrangements and instrumentalities shown. In the drawings:

[0007] **FIG. 1** is a perspective view a first preferred embodiment of a closure according to the present invention; the closure includes a closure body formed by a lid and a base portion with a connector located on the lid; the connector is formed by a snap hook; the lid is shown in a first position;

[0008] **FIG. 2** is an enlarged perspective view of **FIG. 1** with the lid pivoted away from the base of the closure body to allow access to a drinking spout; the lid is in a second position in which the lid is at least partially disengaged from the base portion;

[0009] **FIG. 3** is a cross-sectional view of the closure of **FIG. 1** as taken along the line **3-3** of **FIG. 1** and illustrates a preferred engagement of the closure of **FIG. 1** with a bottle; a thermal energy storing member can also be attached to the closure; the lid is in the first position, in which the lid engages the base portion and prevents access to the drinking spout;

[0010] **FIG. 4** is a perspective view of a second preferred embodiment of the closure of the present invention and illustrates the liquid passageway through the base portion being part of a pull top drinking spout;

[0011] **FIG. 5** is a cross-sectional view of the closure of **FIG. 4** similar to that of **FIG. 3** and illustrates a snap lever in a closed position (shown in solid lines) and in an open position (shown in dashed lines) to allow the snap hook to be engaged or disengaged from an object;

[0012] **FIG. 6** is a cross-sectional view similar to that of **FIG. 3** illustrating a third preferred closure according to the present invention; this closure has an enlarged U-shaped member that can have one end detached from the base portion to allow the closure to be attached to an object; the pull top drinking spout preferably remains exposed regardless of whether the enlarged U-shaped member is fully engaged with or partially disengaged from the base portion;

[0013] **FIG. 7** is a cross-sectional view similar to that of **FIG. 3** illustrating a fourth preferred embodiment of the closure of the present invention in which the snap lever is spring biased;

[0014] **FIG. 8** is a cross-sectional view similar to **FIG. 3** illustrating a fifth preferred embodiment of the closure of the present invention in which the liquid passageway **38** is formed by a straw **48**;

[0015] **FIG. 9** is a cross-sectional view of a sixth preferred embodiment of the closure of the present invention in which the lid and connector are configured to swivel about a longitudinal axis of the bottle to simplify the engagement and disengagement of the closure with an object;

[0016] **FIG. 10** is a cross-sectional view similar to **FIG. 3** illustrating a seventh preferred embodiment of a closure member according to the present invention in which an enlarged U-shaped snap member incorporates a fastener type connection;

[0017] **FIG. 11** is a cross-sectional view similar to that of **FIG. 3** illustrating an eighth preferred embodiment of a closure according to the present invention in which the enlarged U-shaped member incorporates a bolt clip;

[0018] **FIG. 11A** is cross-section a view similar to that of **FIG. 3** illustrating an alternative embodiment of a closure according to the present invention in which the snap hook is disposed on a side of the closure;

[0019] **FIG. 12** is a cross-sectional view similar to that of **FIG. 3** illustrating a ninth preferred embodiment of a closure according to the present invention in which the connector is disposed on the bottle; and

[0020] **FIG. 13** is a cross-sectional view similar to **FIG. 3** illustrating a tenth preferred embodiment of a closure according to the present invention in which the connector is located on an end of the bottle opposite from the closure.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] Certain terminology is used in the following description for convenience only and is not limiting. The words "right,""left,""top," and "bottom" designate directions in the drawings to which reference is made. The words "inwardly" and "outwardly" refer to directions toward and away from, respectively, the geometric center of the closure and designated parts thereof. The words "a" and "one" are defined as including one or more of the referenced item unless specifically stated otherwise. This terminology includes the words above specifically mentioned, derivatives thereof, and words of similar import.

[0022] Referring to **FIGS. 1-13**, wherein like numerals indicate like elements throughout, ten preferred embodiments of a closure according to the present invention are shown and generally designated **20:1-20:10** respectively. Briefly stated, the present invention is directed to a closure **20:1-20:10** for a bottle **34** that increases the ease and enjoyment with which a user can carry and drink from the bottle **34**.

[0023] Many of the features of the closure **20:1-20:10** of the present invention are similar and operate in a generally similar fashion. For simplicity, the first preferred closure **20:1** will be described and, thereafter, generally only the differences between the first preferred closure **20:1** and the remaining preferred closure assemblies **20:2-20:10** will be discussed. Accordingly, it is understood that those features discussed in connection with any one the embodiments of the closure **20:1-20:10** will operate generally the same in the remaining embodiments unless otherwise described.

[0024] It is preferred that the closure **20:1-20:10** be formed of a durable, non-corrosive, compatible with food material, such as a suitable polymer. However, those of ordinary skill in the art will appreciate from this disclosure that the closures **20:1-20:10** of the present invention may be formed of any suitable material, such as stainless steel or the like without departing from the scope of the present invention.

[0025] Referring to **FIGS. 1-3**, the first preferred closure **20:1** of the present invention is adapted for use with a bottle **34** that defines a cavity **54** which opens to a mouth **56**. The closure **20:1** includes a closure body **32** having a base portion **26** that is configured to engage the bottle **34** with the closure body **32** positioned over the mouth **56**.

[0026] As best shown in **FIG. 3**, the closure **32** preferably includes an annular envelope **58** adapted to receive a portion of the bottle **34** which defines the mouth **56** therein. While the annular envelope **58** is shown being as generally rectilinear in cross-section, those of ordinary skill in the art will appreciate from this disclosure that the annular envelope **58** may be parabolic or otherwise non-rectilinear in cross-section without departing from the scope of the present invention.

[0027] It is preferred that the closure **20:1** include a seal **60** that is positioned within the upper portion of the annular envelope **58** to create a generally liquid tight seal between the top of the bottle mouth **56** and the closure **32** when the bottle **34** is fully inserted into the annular envelope **58**. The seal **60** generally reduces any liquid transfer between the closure body **32** and the bottle **34**.

[0028] It is preferred that the annular envelope **58** include at least one thread **62** for engaging the bottle **34**. It is also preferred that the closure **32** include an annular shroud **64** that is adapted to cover any interface between the annular envelope **58** and the bottle **34**. It is preferred the annular shroud **64** flare outwardly as one moves along the outer surface of the annular shroud **64** downwardly toward the bottle and away from a drinking spout **30** (further described below).

[0029] Referring to **FIG. 2**, it is preferred that the closure body **32** include a latch **66** for detachably securing the lid **28** in a first position (shown in **FIGS. 1 and 3** and further described below). It is preferred that the annular shroud **64** include a depressible section **68** that releases the latch **66** to allow the lid **28** to be moved from the first position.

[0030] Referring again to **FIG. 3**, a liquid passageway **38** is defined by the base portion **26** and extends at least partially therethrough. Referring to FIGS. **5, 7-10**, and **12**, the liquid passageway **38** can have various shapes without departing from the scope of the present invention.

[0031] Referring to **FIGS. 1-3**, a connector **24** is disposed on the closure body **32** and is adapted to allow the closure body **32** to be detachably connected to an object, such as a belt loop, a carry strap, a purse strap, a cord, a loop, or the like. It is preferred that the connector **24** is located on the closure body **32** to extend generally outwardly away from the bottle **34**. As shown in **FIG. 1** the connector **24** preferably extends generally upwardly from the lid **28**. However, those of ordinary skill in the art will appreciate from this disclosure that the connector **24** can extend from a lateral side of the closure body **32** or from a lateral side of the annular shroud **64** without departing from the scope of the present invention. It is preferable that the connector **24** is generally symmetrically aligned about a longitudinal axis (the axis is shown in **FIG. 9** and identified by reference numeral "X") of the bottle **34**.

[0032] Referring to **FIGS. 1-5, 8, 9, 12**, and **13**, it is preferable that the connector **24** is a snap hook **22**. It is preferred that the snap hook **22** include a portion **42**, also referred to as snap lever, having a sufficiently thin cross section to allow the snap hook portion **42** to be deflected (as shown in dashed lines). It is preferred that the snap hook **22** is integrally formed with the closure body **32**. It is also preferred that the closure body **32** and the snap hook **22** are formed by a suitable polymer. As best shown in **FIG. 1**, it is also preferred that the snap hook **22** include a lateral support member **70** that is connected to opposing lateral sides **72** of the snap hook **22** and to a surface **74** of the closure body **32** that supports the snap hook **22**.

[0033] Referring to **FIGS. 2 and 3**, it is preferred that a drinking spout **30** is disposed on the base portion **26** of the closure body **32** and forms at least part of the liquid passageway **38**. The closure body **32** preferably includes a lid **28** that is moveably connected to the base portion **26** due to a hinge connection **76**. While the hinge connection **76** is shown as a living hinge formed by a portion of the closure body **32** those of ordinary skill in the art will appreciate that any hinge, torsion hinge, or suitable pivotable connector can be used to moveably secure the lid **28** to the base portion **26** without departing from the scope of the present invention.

[0034] The lid **28** is moveable between a first position (shown in **FIG. 3**), in which the lid **28** engages the base

portion **26** and prevents access to the drinking spout **30**, and a second position (shown in **FIG. 2**), in which the lid **28** is at least partially disengaged from the base portion **26** to allow access to the drinking spout **30**. It is preferred that a surface **78** of the lid **28**, which faces the base portion **26** when the lid **28** is in the first position, seals the drinking spout **30** while in the first position (shown in **FIG. 3**). It is also preferred that the surface **78** include a seal **80** which substantially prevents fluid flow from the bottle **34** past the lid **28** when the lid **28** is in the first position. Any known suitable seal material may be used in conjunction with the lid surface **78**.

[0035] Referring to **FIG. 2**, the drinking spout **30** may be a tube **82** or the like. Referring to **FIGS. 4 and 5**, the drinking spout **30** may be a pull top **40** as well. Alternatively, the drinking spout may be formed by part of a straw **48** as shown in **FIG. 8**. A drinking end **48A** of the straw is preferably bendable about an abutment **84** when the lid **28** is in the first position. Those of ordinary skill in the art will appreciate from this disclosure that the drinking spout may be any known mechanism, such as a rotatable tube or the like, without departing from the scope of the present invention.

[0036] Referring to **FIG. 9**, a sixth preferred embodiment of the closure **20**:6 has a lid **28** and connector **24** that are rotatable about a central axis "X" regardless of whether the lid **28** in the first or second position. It is preferred that the base portion **26** include a first part **86** that is adapted to engage the bottle and a second part **88** that is rotatably connected to the first part **86**. It is preferred that the second part **88** of the base portion **26** is rotatably connected to the first part **86** via the drinking spout **30**.

[0037] It is preferred that the second part **88** have an inner ridge **90** that extends generally upwardly and inwardly in an annular fashion about the drinking spout **30**. It is also preferred that the drinking spout **30** include a circumferential lip **92** that abuts the inner ridge **90** of the second part **88** of the base portion **26** to prevent the second part **88** from being disconnected from the first part **86** of the base portion **26**. An inwardly facing surface of the inner ridge **90** forms a beveled surface **94** that faces generally diagonally downwardly and inwardly toward the bottom center of the closure body **32**.

[0038] During assembly, the beveled surface **94** in combination with the circumferential ridge **92** allows the second part **88** of the closure body **32** to be downwardly depressed over the drinking spout **30** to snap into place for ease of manufacturing. Once the second part **88** has been pressed downwardly so that beveled surface **94** is past the circumferential lip **92**, the top edge of the inner ridge **90** abuts the circumferential lip **92** and prevents removal of the second part **88** from the drinking spout **30** that is preferably integrally formed with the first part **86** of the closure body **32**.

[0039] Referring to **FIG. 6**, a third embodiment of the closure body **32** includes a connector formed by an enlarged U-shaped member **44**. The right side of the enlarged U-shaped **44** member detachably engages the base portion **26** to secure the connector **24** in the closed position. To engage the closure **20**:3 with an object, the right side of the enlarged U-shaped member **44** is disengaged from the base portion **26** so that the object can be inserted between the lateral sides **72** of the enlarged U-shaped member **44**. Then, the right side of the enlarged U-shaped member **44** is reengaged with the base portion **26** so that the latch **66** of the U-shaped member **44** is secured thereto.

[0040] Referring to **FIG. 7**, as an alternative to the snap lever **42** being an integral part of the connector **24** and the lid **28**, the snap lever **42** may be a separate piece that is rotatably secured to the lid **28** and biased into the closed position by an elastic member, such as spring **46**. Referring to **FIG. 11**, the connector **24** may be a bolt clip or may be an enlarged U-shaped member **44** which incorporates a bolt clip **52** therein. The bolt clip **52** may be incorporated into the right leg of the U-shaped member **44** so that a bolt **96** is sidably positioned therein. It is preferable that the bolt **96** be biased downwardly by an elastic member **46** or the like. A button **98** preferably protrudes through a slot **100** to allow a user to manually move the bolt **96** upwardly to disengage the bolt **96** from a bolt receptacle **102** disposed on either a lid or the base portion **26**.

[0041] Referring to **FIG. 10**, the enlarged U-shaped member **44** may use a fastener type connection **50** to secure the unhinged side to the lid **28** or the base portion **26**. For example, a threaded projection **104** may be located on the base portion **26** to threadably engage a sleeve to secure the right lateral side **72** of the U-shaped member **44** in the closed position.

[0042] Referring to **FIGS. 12 and 13**, the closures **20**:9-**20**:10 of the present invention may include connectors **24** that are located on the bottle **34**. The placement of connectors **24** on the bottle **34** is within the scope of the present invention.

[0043] Referring to **FIGS. 3, 5, 6**, and **13**, a thermal energy storing member **36** may be attached to the inside of the inner wall which preferably forms a part of the annular envelope **58**. Details of the engagement of the thermal energy storing member **36** with the closure **20**:1-**20**:10 of the present invention are provided in U.S. Pat. No. 6,584,800, issued to Donna Roth and Hank Roth on Jul. 1, 2003, which is hereby incorporated by reference herein in its entirety as if fully set forth.

[0044] Referring to **FIGS. 1-3**, one embodiment of the present invention operates as follows. A user attaches the bottle closure **20**:1 to an object, such as a backpack strap, by depressing the snap lever **42** to allow the back pack strap or the like to be placed within the snap connector **22**. Once the closure **20**:1 and any accompanying bottle is secured, a user may carry the closure **20**:1 with ease. When a drink is desired, the snap lever **42** is depressed to allow the closure **20**:1 to be disengaged from the back pack strap or the like. Then, the user presses the depressible section **68** to disengage the latch **66** from the base portion **26**. Then, the lid **28** is rotated from the first position (shown in **FIG. 3**) into the second position (shown in **FIG. 2**) to allow the user to access the drinking spout **30**. Once the user is finished drinking from the drinking spout **30**, the lid **28** is moved into the first position such that the latch **66** is engaged with the base portion **26**. Then, the closure **20**:1 and accompanying bottle can be secured for transport by depressing the snap lever **42** to engage the snap hook **22** with a portion of an object. As detailed above, a few examples of the sort of objects to which the closures can be attached are: backpacks, clothes lines, purses, belts, belt loops, luggage straps, drawstrings, loops, and the like.

[0045] While various shapes, connectors, drinking spouts, liquid passageways, and types of base portions have been described above and shown in the drawings for the various embodiments of the closure **20**:**1**-**20**:**10** of the present invention, those of ordinary skill in the art will appreciate from this disclosure that any combination of the above features, connectors, base portions or the like can be used, in any combination, without departing from the scope of the present invention. Accordingly, it is recognized by those skilled in the art from this disclosure that changes may be made to the above described embodiments of the invention without departing from the inventive concept thereof It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, but is intended to cover all modifications which are within the spirit and scope of the present invention as defined by the appended claims and/or as shown in the attached drawings.

What is claimed is:

1. A closure for a bottle defining a cavity opening to a mouth, the closure comprising:

a closure body having a base portion configured to engage the bottle with the closure body positioned over the mouth;

a liquid passageway defined by the base portion and extending at least partially therethrough; and

a connector disposed on the closure body and adapted to allow the closure body to be detachably connected to an object.

2. The closure of claim 1, wherein the connector is located on the closure body to extend generally outwardly away from the bottle.

3. The closure of claim 2, wherein the connector is generally symmetrically aligned about a longitudinal axis of the bottle.

4. The closure of claim 1, wherein the connector is a snap hook.

5. The closure of claim 1, wherein the snap hook is integrally formed with the closure body.

6. The closure of claim 4, wherein the closure body and the snap hook are formed by a polymer, a portion of the snap hook having a sufficiently thin cross-section to allow the portion to be deflected.

7. The closure of claim 4, wherein the snap hook includes a lateral support member that is connected to opposing lateral sides of the snap hook and to a surface of the closure body that supports the snap hook.

8. The closure of claim 1, wherein the connector is a U-shaped member having first and second legs, the first leg being pivotably connected to the closure body and the second leg being detachably engageable with the closure body.

9. The closure of claim 8, wherein the connector incorporates a bolt clip that is configured to detachably engage the closure body.

10. The closure of claim 1, further comprising:

a drinking spout disposed on the base portion of the closure body and forming at least part of the liquid passageway;

the closure body including a lid that is moveably connected to the base portion for motion between a first position, in which the lid engages the base portion and prevents access to the drinking spout, and a second position, in which the lid is at least partially disengaged from the base portion to allow access to the drinking spout.

11. The closure of claim 10, wherein the drinking spout is a tube.

12. The closure of claim 10, wherein the drinking spout is a pull top drinking spout.

13. The closure of claim 10, wherein the drinking spout is formed by part of a straw.

14. The closure of claim 10, wherein the drinking spout is a rotatable tube.

15. The closure of claim 10, wherein a surface of the lid, which faces the base portion when the lid is in the first position, seals the drinking spout while in the first position.

16. The closure of claim 15, wherein the surface includes a seal which substantially prevents fluid flow from the bottle past the lid when the lid is in the first position.

17. The closure of claim 10, wherein the closure further comprises an annular envelope adapted to receive a portion of the bottle defining the mouth therein.

18. The closure of claim 17, wherein the closure further comprises a seal located within the envelope to generally reduce any liquid transfer between the closure body and the bottle.

19. The closure of claim 17, wherein the annular envelope includes at least one thread for engaging the bottle.

20. The closure of claim 17, further including an annular shroud adapted to cover any interface between the annular envelope and the bottle.

21. The closure of claim 20, wherein the closure body further comprises a latch for detachably securing the lid in the first position.

22. The closure of claim 21, wherein the annular shroud further comprises a depressible section that releases the latch to allow the lid to be moved from the first position.

23. The closure of claim 1, further comprising a thermal energy storage member detachably connected to the base portion of the closure body, wherein the base portion is configured to support the thermal energy storage member within the cavity of the bottle when the base portion is engaged with the bottle.

24. The closure of claim 10, wherein the lid and connector are rotatable about a central closure axis regardless of whether the lid is in the first or second position.

25. The closure of claim 24, wherein the base portion includes a first part that is adapted to engage the bottle and a second part that is rotationally connected to the first part.

26. The closure of claim 25, wherein the second part of the base portion is rotationally connected to the first part via the drinking spout.

27. The closure of claim 8, wherein the connector incorporates a fastener on the second leg that is configured to detachably engage the closure body.

* * * * *

United States Patent [19]

Hurst

[11] **4,020,964**

[45] **May 3, 1977**

[54] **INFANTS FEEDING BOTTLE**

[75] Inventor: **Eric Kenneth Hurst**, London, England

[73] Assignee: **Lewis Woolf Griptight Limited**, Birmingham, England

[22] Filed: **Sept. 10, 1975**

[21] Appl. No.: **612,042**

[52] **U.S. Cl.** ..... **215/11 C**

[51] **Int. Cl.²** **A61J 9/00**

[58] **Field of Search** ..... 215/11 C, 11 R; 248/102; 128/252

[56] **References Cited**

UNITED STATES PATENTS

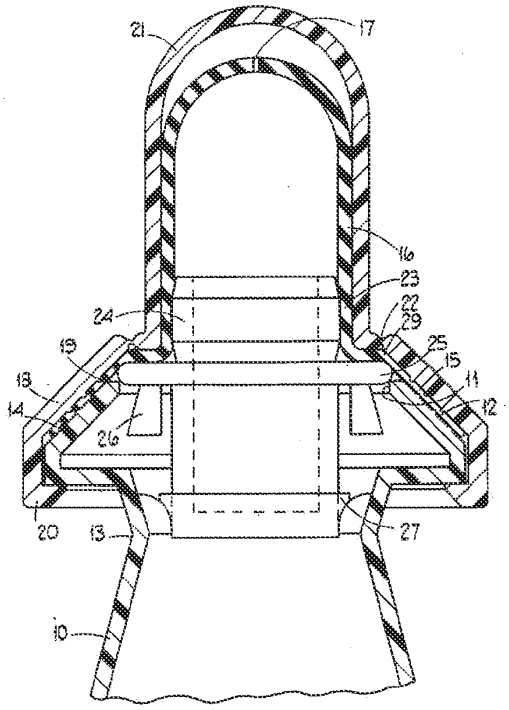
3,655,083	4/1972	Eberhardt	215/11 C
3,677,429	7/1972	LaBarge	215/11 C
3,782,578	1/1974	Ballin	215/11 C
3,844,436	10/1974	Hurst	215/11 C
3,858,738	1/1975	Hurst	215/11 C

Primary Examiner—Ro E. Hart

[57] **ABSTRACT**

An infants feeding bottle comprising a container for liquid, a teat securable onto the container, a detachable teat cap enclosing the teat before use and a closure member frictionally engageable within the teat and arranged to be dislodged by manipulation of the teat cap without the necessity for removal thereof from a position in which it covers the teat, the teat container, teat cap and closure member being substantially of oval section the longer dimensions of the oval sections being mutually in alignment and the teat having an outlet slit at its end the length of which is in the direction of the longer dimensions of the oval sections.

2 Claims, 2 Drawing Figures



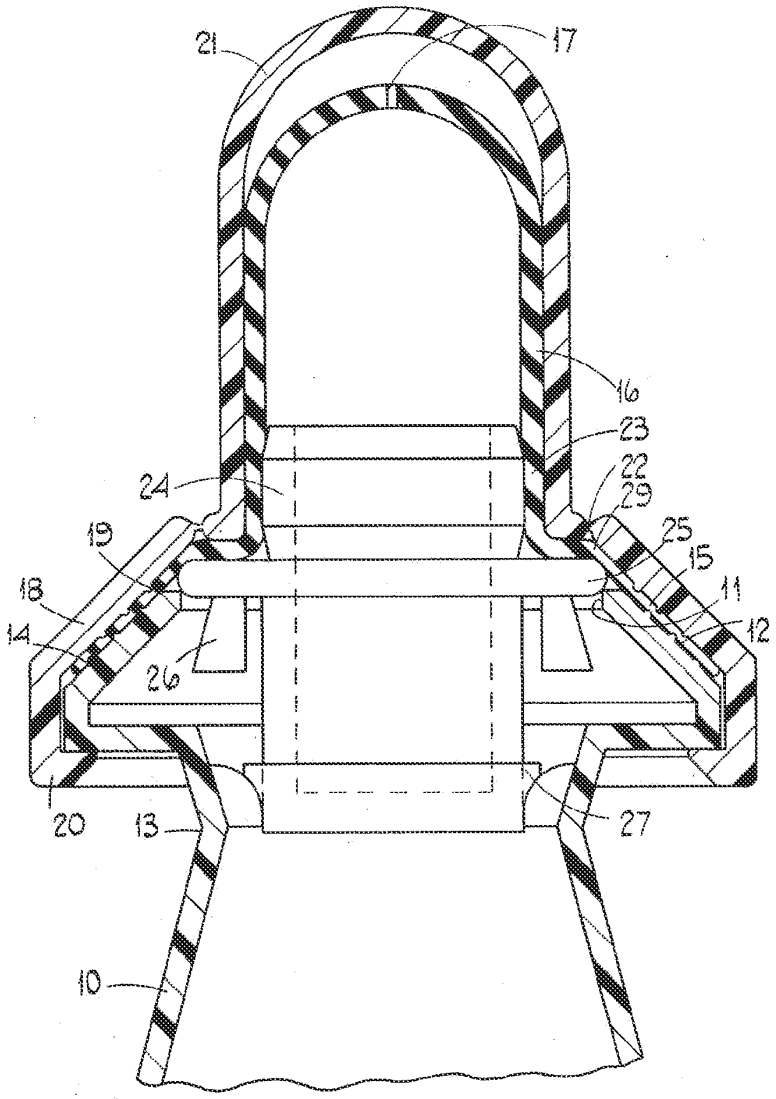
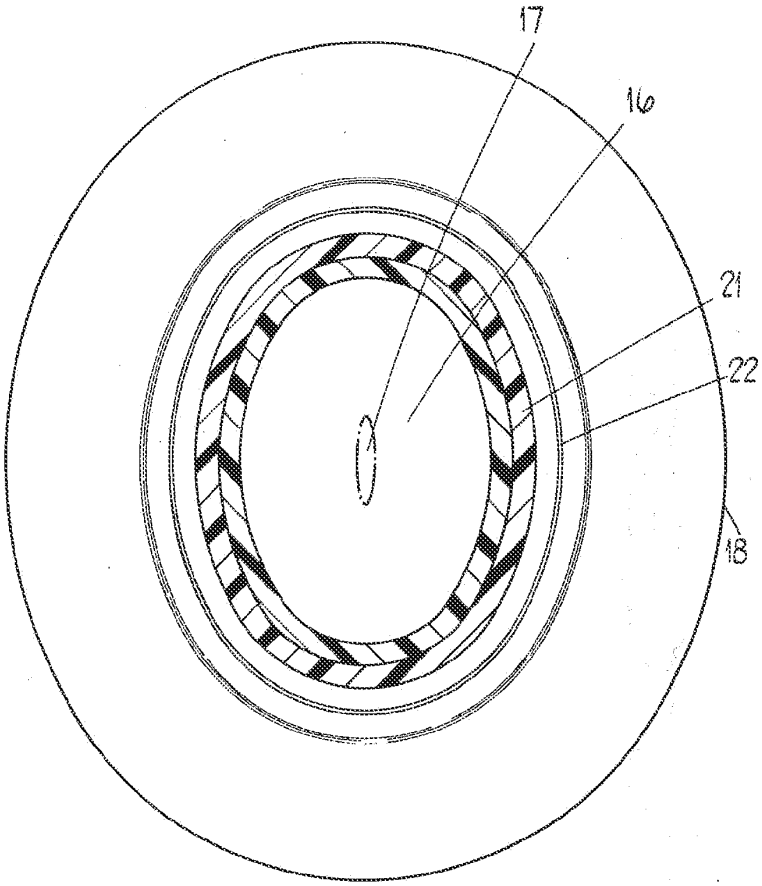


FIG. 1

FIG. 2.



INFANTS FEEDING BOTTLE

This invention relates to infants feeding bottles of the kind comprising a container for liquid, a teat securable onto the container, a detachable teat cup enclosing the teat before use and means whereby before use the interior of the container is isolated from the interior of the teat.

It is the object of this invention to provide an infants feeding bottle which is not only particularly convenient to use in that its correct orientation is easily determined, but also it can be inexpensively produced thus rendering disposal after use economically realistic.

According to the invention an infants feeding bottle comprises a container for liquid, a teat securable onto the container, a detachable teat cap enclosing the teat before use, and a closure member frictionally engageable within the teat before use, and arranged to be dislodged by manipulation of the teat cap into the interior of the container, with the cap covering the teat, the container, teat, teat cap and closure member being of substantially oval sections respectively, the longer dimensions of the oval sections being aligned, and the teat having an outlet slit at its end, the length of the slit being in the direction of the longer dimensions of the oval sections.

The invention will now be described by way of example with reference to the accompanying drawing, in which FIG. 1 is a side elevation cross-sectional view of an infants feeding bottle, constructed in accordance with the invention and shown in the sealed condition,

FIG. 2 is a cross-sectional view through the teat.

The feeding bottle illustrated comprises a container 10 having an opening 11 surrounded by a frusto conical seating 12. The seating is formed on the external surface of an enlarged mouth portion of the container which is defined by a narrow neck portion indicated generally at 13. The surface of the seating 12 is formed with ribs 14. Engaging on the seating surface 12 is a flange 15 of a teat 16. In the condition shown the teat is somewhat deformed in shape as will be described. The flange 15 is formed by a flare portion at one end and the other end is domed and provided with a single outlet 17. This outlet 17 is in the form of a slit in the center of the end of the teat 16.

To retain the teat flange 15 in sealing engagement with the seat 12 of the container 10 there is an attachment part 18. The attachment part has an internal surface matching that of the seating 12 and having integral ribs 19 similar to those of the seating 12. The ribs 14 and 19 tend to deform the teat flange 15 so as to retain it firmly in place in tight sealing engagement with the seating 12. The attachment part has an undercut flange 20 arranged to engage under the portion of the container on which the seating 12 is formed. To allow the attachment part 18 to be fitted to the container the edge of the undercut flange is chamfered as shown. Both the container and the attachment part are formed from resilient materials to allow snap engagement to be accomplished as will be described.

Formed integrally with the attachment part 18 is a teat cap 21. These parts are connected together by an integral continuous thin severable portion 22. This portion 22 provides a connecting zone which when it is intact prevents ingress of dirt to that portion of the teat 16 which is immediately within it. The attachment part 18 and cap 21 with the connecting portions 22 are

preferably formed by a moulding process from a plastics material, and the severable portion 22 has sufficient strength to withstand normal handling during transport or storage of the feeding bottle, but when required it can be broken away.

Breaking away of the severable portion 22 is accomplished by driving it inwards by the application of pressure to the top of the cap

The cap 21 is tightly engaged against the exterior surface of the teat 16 in the zone indicated at 23. Such tight engagement is produced by a closure member 24 which in the sealed condition has a plug portion of generally cylindrical external configuration. The edges of such a plug portion are however shallowly chamfered as indicated but the diameter of the cylindrical zone thereof is sufficiently large to place the zone 23 of the teat in compression.

The closure member 24 is of unitary construction and is preferably moulded from a plastics material. It has an integral flange 25 from which depend a number of support lugs 26. The flange is adjacent the plug portion of the closure member, but the other end is formed with four projections 27. The edges of these are curved and they define between them four zones through which liquid stored in the interior of the container 10 can flow into the upper part of the container and ultimately into the interior of the teat when the feeding bottle has been made ready for use.

Support lugs 26, and the projections 27 provide means for supporting the closure member 24 in the position within the narrow neck portion 13 of the container. The flange 25 is however slightly larger in external dimensions and the opening 11 of the container 10. The edge of the flange 25 is rounded and it is possible to force the flange through the opening 11. Once it has passed through the opening the flange will not however return therethrough.

The rim of the cap 21 is disposed in the sealing condition shown in the drawing over th flange 25 and the teat 16 is compressed in the zone indicated at 29 between such rim of the cap 21 and the flange 25 of the closure member 24.

This provides means whereby the closure member 24 can be positively forced downwards by manipulation of the cap 21 between the sealing position shown and a ready position.

The container 10, the teat 16, the teat cap 21, the attachment part 18 and the closure member 24 are all of oval section. The longer dimensions of the oval sections are moreover aligned so that the whole assembly is narrower in one direction than it is in the other.

The slit 17 forming the outlet from the teat 16 extends in the direction of the longer dimensions of the oval sections of the respectively components.

Operations for making the feeding bottle ready for use comprise the following. In the sealing condition the severable portion 22 is complete. Severing of this is accomplished by application of pressure to the top of the cap 21. This has the effect also of driving the closure member to a position where its flange 25 passes through the opening 11 in the top of the container, and the support lugs 26 and the projections 27 engage on either side of the narrow neck portion 13 of the container. This operation is carried out with the teat cap 21 covering the teat 16 at all times.

Subsequently the teat cap 21 can be removed from over the teat 16. In practice the first operation of dislodging the closure member into the interior of the

container may be carried out at a position remote from the position of use, but the cap **21** remains in place until the feeding bottle is actually to be put to use. Only immediately before such use commences is the cap **21** removed.

Removal of the cap allows the teat **16** to become undeformed. Not only is it impossible for the closure member **24** to pass the opening **11** in the container **10** but were it to do so it would be impossible for the closure member **24** to re-engage in the interior of the teat since a degree of compression of the teat takes place during such insertion and the closure member **24** has insufficient weight to allow such compressive force to be exerted. Thus a completely reliable operation of the feeding bottle is accomplished both during the process of making it ready for use and during actual use.

The method of assembling the components comprises the following. First the teat **16** is inserted into the cap **21** which has formed integrally with it the attachment part **18**. Next the closure member **24** is inserted into the interior of the teat some pressure being necessary to accomplish this. Finally the whole of this assembly is secured onto the top of the container by the snap action afforded by the undercut flange **20** of the attachment part **18**.

To replace the snap action afforded by the undercut flange **20** of the attachment part **18** other means for securing the attachment part to the container may be employed. Welding or the use of adhesives constitute some such methods of attachment.

The provision of an oval cross-sectional assembly together with a slit as an outlet from the teat **16** has certain advantages. The slit provides means for regulating the rate at which feeding takes place, and the oval section of the feeding bottle allows the orientation of the slit to be readily recognised.

The provision of an oval teat moreover has the advantage that it is possible by the hot latex dip process to manufacture larger numbers of teats simultaneously than is possible with teats of circular cross-section. The teats are manufactured by this process in lines carried on support bars. With oval section teats a larger number of such teats can be mounted on a bar than is possible with those of circular section.

I claim:

1. An infants feeding bottle comprising a container for liquid, a teat securable onto the container, a detachable teat cap enclosing the teat before use, and a closure member frictionally engageable within the teat before use, and arranged to be dislodged by manipulation of the teat cap into the interior of the container, with the cap covering the teat, the container, teat, teat cap and closure member being of substantially oval sections respectively, the longer dimensions of the oval sections being aligned, and the teat having an outlet slit at its end, the length of the slit being in the direction of the longer dimensions of the oval sections.

2. An infants feeding bottle as claimed in claim **1** in which the teat cap and the attachment part are connected by a severable portion.

* * * * *

IN THE UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF ARKANSAS
FAYETTEVILLE DIVISION

CAMELBAK PRODUCTS, LLC **PLAINTIFF**

V. **CASE NO. 5:21-CV-05109**

ZAK DESIGNS, INC. **DEFENDANT**

MEMORANDUM OPINION AND ORDER

TABLE OF CONTENTS

I. INTRODUCTION 1
II. BACKGROUND 3
III. LEGAL STANDARD 5
IV. DISCUSSION 7
A. Agreed Constructions 7
B. "rigid" 8
C. "the resilient mouthpiece is more resilient than the drink spout" 11
D. "release the mouthpiece assembly to move via its bias . . ." 14
E. "a user release mechanism adapted to automatically disengage . . ." 17
F. "is biased" / "biases" 21
G. "stowing region" 25
H. "automatically" 27
I. "user engagement pad . . ." 29
J. "the anchor portion is sized to restrict passage . . ." 32
V. CONCLUSION 37

I. INTRODUCTION

As Plaintiff CamelBak Products, LLC's patents explain, "For some time people have recognized the need to stay hydrated." (Doc. 64-1, p. 14). This need has created a market for well-designed, reusable water bottles. CamelBak and Defendant Zak Designs, Inc. are competitors in this market. CamelBak brought this case alleging Zak is infringing on its patents for water bottles and water bottle lids.

The parties now ask the Court to construe certain terms that appear in the claims—the recitations at the end of a patent that define the scope of the invention—of CamelBak's patents. The Court conducted a claim construction hearing on December 2, 2022. In advance of the hearing, the parties submitted a Joint Claim Construction and Prehearing Statement (Doc. 63) which identified 23 claim terms in dispute. Pursuant to Northern District of California Patent Local Rule 4.3(c),[1] the parties also identified the 10 most significant terms for the Court to construe during the claim construction stage of this case. The parties then briefed their proposed constructions of those 10 terms. *See* Docs. 64, 65, 69. The parties' briefing included declarations and deposition testimony from CamelBak's expert witness, Jim Goldman, and Zak's expert, John Hamilton. There is no dispute that both Mr. Goldman and Mr. Hamilton, as experienced mechanical engineers, qualify as persons of ordinary skill in the art. At the hearing, the Court entertained oral argument and presentations on the disputed terms identified as most significant by the parties. After the hearing, the Court instructed the parties to submit supplemental briefing on their proposed constructions of an additional disputed term, variations of the word "bias." *See* Docs. 71, 73, 74.

Having fully examined the patents, briefing, exhibits, expert opinions, and the parties' oral arguments and presentations, the Court construes the disputed claim terms as stated below.

[1] The parties consented to the Court's adoption of the Northern District of California Patent Local Rules in this case.

Zak Designs, Inc. Exhibit 1017
2 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 146 of 857

II. BACKGROUND

CamelBak's Amended Complaint (Doc. 61) alleges Zak is infringing on six of its patents which fall into two patent families (collectively, "the Asserted Patents"). Within the six Asserted Patents, CamelBak alleges Zak has infringed 75 claims. The Asserted Patents are as follows:

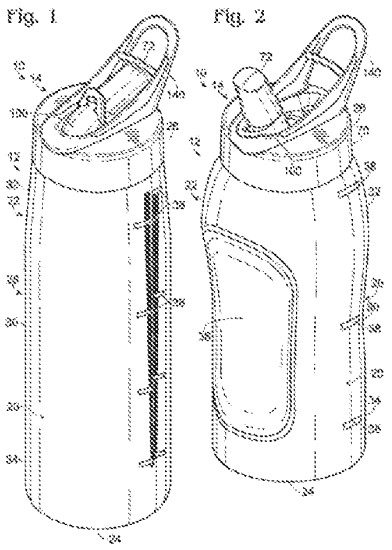
Family	Patent Number	Priority Date
Drink Bottles Leak-proof flip-top water bottles	9,463,911 ("the '911 patent")	Apr. 11, 2005
	10,676,255 ("the '255 patent")	
Drink Containers Push-button flip-top water bottles	9,782,028 ("the '028 patent")	Jan. 21, 2009
	9,820,595 ("the '595 patent")	
	10,165,879 ("the '879 patent")	
	10,542,833 ("the '833 patent")	

The '255 patent is a continuation of the '911 patent, and their specifications—the figures and text in a patent that precede the claims—are nearly identical. Similarly, the '595, '879, and '833 patents are continuations of the '028 patent with near-identical specifications for each patent. Therefore, this Opinion cites only to the '911 and '028 specifications. However, certain of the disputed claim terms appear only in the continuation patents.

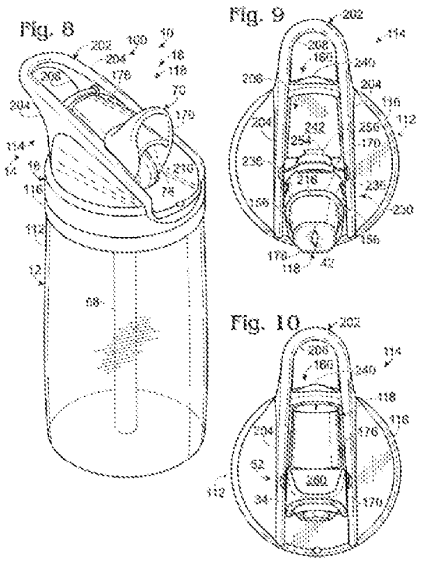
Zak Designs, Inc. Exhibit 1017
3 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 147 of 857

The '911 patent (Doc. 64-1) describes, in part, a drink container with a removable cap and a fluid conduit (tube). The cap has a manually operated drink spout and valve that allow for a closed configuration, wherein the spout is stowed and the valve prevents liquid from flowing through the fluid conduit, and an open configuration, wherein the spout is in a dispensing position and the valve allows liquid to flow through the fluid conduit. The drink spout has a flexible mouthpiece that opens when the user bites down on it, allowing the user to drink liquid. The cap also has an air return assembly that allows air to flow into the drink container when the drink spout is in the dispensing position but does not allow air to flow when the spout is stowed.



The '028 patent (Doc. 64-3) describes a drink container that is similar to the drink container described in the '911 patent. The container includes, in part, the following features: a cap assembly; a mouthpiece that alternates between a stowed configuration and a dispensing configuration; a tube that may be crimped to restrict the flow of liquid when the mouthpiece is stowed; a mouthpiece that is biased toward being in the dispensing configuration and moves automatically to that configuration upon user activation; a mouthpiece that is opened through an action of the user, such as



Zak Designs, Inc. Exhibit 1017
4 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 148 of 857

biting down; two catch structures that secure the mouthpiece in the stowed position until activated; and a user release mechanism that allows the user to activate and release the mouthpiece from its stowed configuration so the mouthpiece can move automatically to the dispensing configuration.

III. LEGAL STANDARD

"Victory in an infringement suit requires a finding that the patent claim 'covers the alleged infringer's product or process,' which in turn necessitates a determination of 'what the words in the claim mean.'" *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996) (quoting H. Schwartz, Patent Law and Practice 1, 80 (2d ed.1995)). This determination of the meaning of claim terms, known as claim construction, "is exclusively within the province of the court." *Id.* at 372.

Claim terms are given "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (quotation and citations omitted). "In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Id.* at 1314 (citing *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed. Cir. 2001)). In other words, some claim terms do not require any construction at all.

Nevertheless, "[w]hen the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). "Thus, a determination that a claim term needs no construction or has the plain and ordinary meaning may be

Zak Designs, Inc. Exhibit 1017
5 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 149 of 857

inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute." *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1318 (Fed. Cir. 2016) (cleaned up).

Claims must be construed in light of the intrinsic evidence—the claim language itself, the specification, and the patent's prosecution history. The claim language can "provide substantial guidance as to the meaning of particular claim terms," both through the context in which the claim terms are used and through comparison with other claims in the patent. *Phillips*, 415 F.3d at 1314. "[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The prosecution history, while often lacking the "clarity" of the specification, also constitutes intrinsic evidence that provides "evidence of how the PTO and the inventor understood the patent." *Phillips*, 415 F.3d at 1317.

Courts may also consider extrinsic evidence—such as dictionaries and expert testimony—though such evidence is given less weight than intrinsic evidence. *Id.* Dictionaries may reveal what the ordinary and customary meaning of a term would have been to a person of ordinary skill in the art at the time of the invention. *See Frans Nooren Afdichtingssystemen B.V. v. Stopaq Amcorr Inc.*, 744 F.3d 715, 722 (Fed. Cir. 2014). Expert testimony can also help "to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field." *Phillips*, 415 F.3d at 1318.

Zak Designs, Inc. Exhibit 1017
6 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 150 of 857

IV. DISCUSSION

A. Agreed Constructions		
Claim Term	**Patents**	**Construction**
"constructed as a unitary assembly"	'028, '595, '879, and '833 Patents	"constructed as a single piece that includes a group of parts or distinct portions"
"friction-fit arrangement"	'028, '595, '879, and '833 Patents	"arrangement in which one part is fitted inside another part such that relative movement between them is resisted by friction"
"fluid conduit"	'911 and '255 Patents	"fluid-carrying structure, such as a channel, pipe, or tube"
"mouthpiece assembly"	'028, '595, '879, and '833 Patents	"the group of parts or distinct sections that, taken together, allow the user to drink liquid"
"air return assembly"	'911 Patent	"a group of parts that, taken together, form a unit that is adapted to return air"

In the Joint Claim Construction and Prehearing Statement, the parties agreed to the constructions of two claim terms, "constructed as a unitary assembly" and "friction-fit arrangement." In their claim construction briefing, the parties informed the Court they had also reached an agreement on the construction of one of the ten most significant terms, "fluid conduit." On the record at the claim construction hearing, the parties agreed to the constructions of two additional disputed terms, "mouthpiece assembly" and "air return assembly." Having reviewed these agreed constructions in the context of the Asserted Patents, the Court agrees with the parties' constructions and adopts them as stated above.

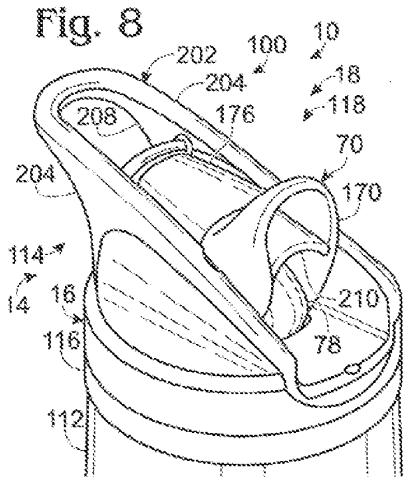
Zak Designs, Inc. Exhibit 1017
7 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 151 of 857

The Court now turns to the remaining disputed terms, taking them up in the order presented by the parties at the claim construction hearing.

B. "rigid"		
'028, '595, '879, and '833 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	indefinite	plain and ordinary meaning

The term "rigid" is used extensively in the Asserted Patents' specifications and claims. For example, claim 10 of the '028 patent recites that "the mouthpiece assembly further includes a rigid collar member that is pivotally coupled to the base and which includes a crimping portion," and "wherein the rigid collar member engages and crimps the crimping region to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration." (Doc. 64-3, pp. 18–19). This "rigid collar member" 170 is seen in figure 8 of the '028 patent:



Zak Designs, Inc. Exhibit 1017
8 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 152 of 857

Id. at p. 6. The '028 specification further states that "[i]n some embodiments, the collar member may be rigid or at least semi-rigid." *Id.* at 11. However, only "rigid" appears in the claim language; "semi-rigid" is used only in the specification.

Zak argues the term "rigid" is indefinite. Indefiniteness occurs when the "claims, read in light of the specification . . . and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instr., Inc.*, 572 U.S. 898, 901 (2014). A finding of indefiniteness renders the claim invalid. Because patents are presumptively valid, 35 U.S.C. § 282(a), the party asserting indefiniteness bears the burden of proof and must demonstrate invalidity by clear and convincing evidence, *Young v. Lumenis, Inc.*, 492 F.3d 1336, 1345 (Fed. Cir. 2007) (citing *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1238–39 (Fed. Cir. 2003)).

Zak's expert, Mr. Hamilton, attests that "that the scope of the claim term 'rigid' was not reasonably certain to a person of ordinary skill in the art in January 2009 or at any time since," (Doc. 65-1, ¶ 22), because the specification describes the collar member as either "rigid" or "semi-rigid" and "there are no functional standards in the specifications or prosecution histories to use to determine when the collar member is rigid, semi-rigid, or other than rigid or semi-rigid," *id.* at ¶ 26. In short, Zak contends that rigidity exists on a spectrum, and the intrinsic evidence provides no guidance as to what level of rigidity the claims are referencing when they use the term.

CamelBak admits that rigidity exists on a spectrum but counters that the scope of "rigid" is not indefinite because the specification extensively discusses the term and even includes examples of the materials that would be "rigid" in this context. CamelBak further argues that "rigid" is a well-known term to mechanical engineers and the admissions of

Zak Designs, Inc. Exhibit 1017
9 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 153 of 857

Zak's expert are fatal to Zak's indefiniteness argument. At his deposition, Mr. Hamilton admitted that

- the examples of rigid materials in the specification helped clarify what "rigid" means in the context of the patents;
- the collar member must be rigid enough to collapse the silicone crimping region; and
- while rigidity is context specific and difficult to define, "engineers know it when they see it."

(Doc. 64-9, pp. 11, 18, 20). CamelBak's expert, Mr. Goldman, attests that the meaning of "rigid" in this context would be clear to a person of ordinary skill in the art. *See* Doc. 64-7, ¶ 32.

The Court finds that Zak has not met its burden to show "rigid" is indefinite by clear and convincing evidence. The contentions of Zak's expert as to the indefiniteness of "rigid" are undercut by his later admissions that a person of ordinary skill in the art could determine what "rigid" means when presented with the intrinsic evidence here. While rigidity is a relative measurement, the specification and claims adequately define the level of rigidity required by the inventions. For example, the claim language makes clear that the collar member must be sufficiently rigid to crimp the tube when the mouthpiece is in the stowed configuration and thereby prevent liquid from passing through the tube. This context, along with the figures and "rigid" material examples, provides sufficient objective standards with which a person of ordinary skill in the art could determine the level of rigidity required by the inventions. The specification's singular use of the term "semi-rigid"

Zak Designs, Inc. Exhibit 1017
10 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 154 of 857

to describe a possible embodiment of the collar member does not render "rigid"—the term actually used in the claims—indefinite.

Having found "rigid" not indefinite, the Court turns to the proper construction of the term and finds that "rigid" is an easily understood term that requires no construction in the context of these patents. The Court agrees with CamelBak that the meaning of "rigid" in this context would be clear not only to a person of ordinary skill in the art but also to lay judges and juries. Aside from asserting that "rigid" is indefinite, Zak has not offered a contrary construction.

C. "the resilient mouthpiece is more resilient than the drink spout"		
'911 Patent		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	indefinite	plain and ordinary meaning

This term appears in claims 1 and 25 of the '911 patent. Claim 1 states that the invention includes

> a resilient mouthpiece removably mounted on the drink spout and having a dispensing face, which includes the dispensing outlet, and a mouthpiece base that is shaped to restrict rotation of the resilient mouthpiece on the drink spout; wherein when the drink spout is in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the drink spout is in the Stowed position, *wherein the resilient mouthpiece is more resilient than the drink spout* and is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth . . . .

(Doc. 64-1, p. 23) (emphasis added). The specification provides silicone as an example of a "resiliently deformable" material and polycarbonate as a "rigid, or stiff," material. (Doc. 64-1, pp. 15, 19).

Zak Designs, Inc. Exhibit 1017
11 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 155 of 857

Zak contends this term is indefinite because the '911 patent provides no objective standard to measure resilience and therefore the scope of "more resilient" would not be reasonably certain to a person of ordinary skill in the art. Mr. Hamilton attests that the phrase "the resilient mouthpiece is more resilient than the drink spout" could mean one of four things:

> (1) the mouthpiece springs back or returns to its previous position or shape after being compressed *faster* than the drink spout;
>
> (2) the mouthpiece springs back or returns to its previous position or shape without damage after being *compressed to a greater extent* than the drink spout;
>
> (3) the mouthpiece can be *compressed for a longer period of time* and still spring back or return to its previous position or shape compared to the drink spout; or
>
> (4) the mouthpiece can be *compressed and decompressed more times* than the drink spout and still spring back or return to its previous position or shape without damage.

(Doc. 65-1, ¶ 60). Based on Mr. Hamilton's opinion that all four of these meanings are plausible, Zak argues the scope of the term is not reasonably certain.

CamelBak counters that it is clear in context that this term means that the "mouthpiece" must be sufficiently resilient to compress in response to a user's teeth, whereas the "drink spout" must be "sufficiently non-resilient, or rigid, so as to be able to apply a crimping force that restricts the flow of fluid through the fluid conduit." (Doc. 64, p. 15). CamelBak points to Mr. Hamilton's admissions at his deposition that resilience has a well-known technical meaning and that a person of ordinary skill in the art would be able to compare the relative resilience of any two materials. *See* Doc. 64-9, pp. 25–26.

Zak Designs, Inc. Exhibit 1017
12 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 156 of 857

CamelBak argues that Mr. Hamilton ignored this technical meaning in favor of a Webster's Dictionary definition of "resilient," from which he derived the four plausible meanings above.

The Court finds that Zak has not met its burden to show "the resilient mouthpiece is more resilient than the drink spout" is indefinite by clear and convincing evidence. The surrounding claim language and context from the specification sufficiently define the scope of the term—the mouthpiece must be made of a material that is more resilient, such as silicone, than the material the drink spout is made from. Mr. Hamilton agreed during his deposition that an engineer would understand resilience of a material to be "the elastic energy stored up in a cubic inch of material at the elastic limit" and that resilience is measurable. (Doc. 64-9, p. 25). Consistent with this testimony, Zak conceded at the hearing that a person of ordinary skill in the art would know what "resilient" means.

Zak maintains, however, that the dispute is whether adding the word "more" before "resilient" makes the term indefinite because the Webster's Dictionary definition gives four possible meanings of "resilient." But Mr. Hamilton also conceded at his deposition that a person of ordinary skill in the art could compare the resilience of two materials in the context of the '911 patent—in other words, a person of ordinary skill in the art could determine whether material A is more resilient than material B. That is all the claim term requires. A lay dictionary definition of "resilient" that allows for four possible types of resilience cannot make the term's scope indefinite when there is an agreed technical meaning. Given these findings, the Court cannot say that the term "fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instr., Inc.*, 572 U.S. 898, 901 (2014).

Zak Designs, Inc. Exhibit 1017
13 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 157 of 857

Lacking any counter-construction from Zak, the Court finds that "the resilient mouthpiece is more resilient than the drink spout" should be given its plain and ordinary meaning. Given that the parties' experts agree that the resilience of a material is measurable and comparable, the Court finds that the ordinary meaning of the claim term to a person of ordinary skill in the art will not be meaningfully in dispute at trial.

D. "release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration"		
'028, '595, '879, and '833 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	indefinite	plain and ordinary meaning

Zak argues this phrase is indefinite because "its bias" lacks an antecedent basis. "The requirement of antecedent basis is a rule of patent drafting, administered during patent examination." *Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006). The rule requires that the first time a term is used it be prefaced with an indefinite article—"a" or "an"—and then any subsequent use of the same term should be prefaced by a definite article—"said" or "the"—so the reader is clear that the latter term refers back to the former. "[F]ailure to provide explicit antecedent basis for terms does not always render a claim indefinite" because "an antecedent basis can be present by implication." *Id.* Accordingly, whether a term is given an explicit antecedent basis or not, the inquiry remains whether the term "fail[s] to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instr., Inc.*, 572 U.S. 898, 901 (2014).

Zak Designs, Inc. Exhibit 1017
14 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 158 of 857

Zak contends that "its bias" lacks an antecedent basis because the claim language does not include a recitation of "a bias." Zak points out that the patents' other uses of "bias" were as a verb or adjective—"biased" or "biases." Zak argues that the use of bias as a noun—"its bias"—is ambiguous. Zak points to the following section of the '028 patent's specification:

> Mouthpiece assemblies 18 according to the present disclosure are biased toward the dispensing configuration and therefore may be described as having a biasing mechanism 50. The bias of a mouthpiece assembly according to the present disclosure may be provided by the internal bias created by the material from which at least a portion of the mouthpiece assembly is constructed. For example, at least a portion of a mouthpiece assembly, such as crimping region 44, may be constructed of a resiliently deformable material. An illustrative, non-exclusive example of a suitable resiliently deformable material includes (but is not limited to) silicone. Additionally or alternatively, a biasing mechanism 50 may include at least one spring. Other configurations are also within the scope of the present disclosure.

(Doc. 64-3, p. 10). Mr. Hamilton attests that that this section describes three different ways the mouthpiece could be biased: "(1) an internal bias created by the material from which the mouthpiece assembly is constructed; (2) an external bias that includes at least one spring; or (3) an internal bias and an external bias." (Doc. 65-1, ¶ 36) (emphasis in original). Because it is not clear which of these three is being referred to by "its bias," Zak argues a person of ordinary skill in the art could not determine the scope of the claim with reasonable certainty.

The Court disagrees with Zak's reading of the claims and specification. What Zak and Mr. Hamilton refer to as three ways the mouthpiece assembly can be biased are actually three different ways the mouthpiece assembly's bias *can be accomplished*. The mouthpiece assembly's bias is the same—it returns to the dispensing configuration—whether that bias is created using a resiliently deformable material, a spring, or both. In

Zak Designs, Inc. Exhibit 1017
15 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 159 of 857

the disputed phrase "release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration," "its bias" explains *why* the mouthpiece assembly would move from the stowed configuration to the dispensing configuration when released by the user. The specification provides examples of *how* that bias is created. Therefore, the specification language cited by Zak fails to create the ambiguity Zak describes.

Even assuming Zak's reading of the specification is correct, the Court disagrees that the specification describing three possible embodiments of the mouthpiece assembly's bias renders the claim indefinite. Under Zak's reading, "its bias" would refer to whatever bias the mouthpiece assembly has in a given embodiment—be it internal, external, or both. But the term would not be indefinite simply because the specification provides the universe of possible biases the mouthpiece assembly can have and, in any event, the term "bias" has its own construction, as discussed below, that adds clarity to the disputed phrase.

The term "its bias" may lack an explicit antecedent basis, but it is clear in context that "its" refers to "mouthpiece assembly"—a point Zak conceded at the hearing—and "bias"—as used here—refers to the mouthpiece assembly's predisposition to the dispensing configuration. Zak has not shown by clear and convincing evidence that a person of ordinary skill in the art would fail to understand the scope of this term.

CamelBak argues that this term should be given its plain and ordinary meaning, and the Court agrees. In context, and with the aid of the other terms separately construed herein, the phrase "release the mouthpiece assembly to move via its bias from the stowed

Zak Designs, Inc. Exhibit 1017
16 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 160 of 857

configuration to the dispensing configuration" is easily understood by lay judges and juries.

E. "a user release mechanism adapted to automatically disengage the first and second catch structures upon actuation of the user release mechanism and thereby release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration"		
'028, '595, and '879 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	means-plus-function limitation	plain and ordinary meaning

Zak argues this claim must be limited to a means-plus-function construction under 35 U.S.C. § 112(f), which states:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Section 112(f) permits patent drafters to claim an element as "means" or "steps" for performing a function without identifying any particular structure. However, the "price to be paid" for drafting under § 112(f) is the limitation of the claim to only those structures disclosed in the specification and their equivalents. *O.I. Corp. v. Tekmar Co., Inc.*, 115 F.3d 1576, 1583 (Fed. Cir. 1997). In other words, § 112(f) allows a patent drafter to draft a claim more generically than otherwise allowed but limits the scope of that claim to only the example-embodiments described in the specification.

Normally, the clue that a claim has been drafted under § 112(f) is the use of the word "means" in the claim language. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). There is a rebuttable presumption that claim terms without the

Zak Designs, Inc. Exhibit 1017
17 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 161 of 857

word "means" are not governed by § 112(f), but the presumption is not a strong one. *Id.* at 1349. "[T]he essential inquiry is not merely the presence or absence of the word 'means' but whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure." *Id.* at 1348.

When the word "means" is not present, the drafter's use of "[g]eneric terms such as 'mechanism,' 'element,' 'device,' and other nonce words that reflect nothing more than verbal constructs may be . . . tantamount to using the word 'mean' because they 'typically do not connote sufficiently definite structure.'" *Id.* at 1350 (quoting *Mass. Inst. of Tech. & Elecs. for Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1354 (Fed. Cir. 2006)).

Zak argues that "user release mechanism" is a nonce phrase that is tantamount to using the word "means." Zak further argues that "the remaining language—'adapted to automatically disengage the first and second catch structures upon actuation of the user release mechanism . . .'—is merely functional because it gives no sense of what structure or form the claimed user release mechanism takes and only describes what the user release mechanism does." (Doc. 65, p. 20).

Zak points to *Williamson*, where the Federal Circuit examined a patent for virtual learning software and held that § 112(f) applied to the term "distributed learning control module," despite the term's lack of the word "means." 792 F.3d at 1351. The court found that "module" was a nonce word equivalent to using the word "means." *Id.* at 1350. The court looked without success to the specification for insight as to how a "distributed learning control module" would interact with the patent's other components "in a way that might inform the structural character of the limitation-in-question or otherwise impart structure." *Id.* at 1351. While recognizing "that the presence of modifiers can change the

Zak Designs, Inc. Exhibit 1017
18 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 162 of 857

meaning of" a nonce word, the use of the prefix "distributed learning control" could not save the term because those "words do not describe a sufficiently definite structure." *Id.*

CamelBak argues that "user release mechanism" is not a nonce phrase because—while "mechanism" may be a nonce word on its own—"user release" modifies "mechanism" and connotes sufficient structure to a person of ordinary skill in the art for § 112(f) to not apply. CamelBak points to the structures described in the disputed claim language:

> [A] *user release mechanism* adapted to automatically disengage *the first and second catch structures* upon actuation of the *user release mechanism* and thereby *release the mouthpiece assembly* to move via its bias from the *stowed configuration to the dispensing configuration*.

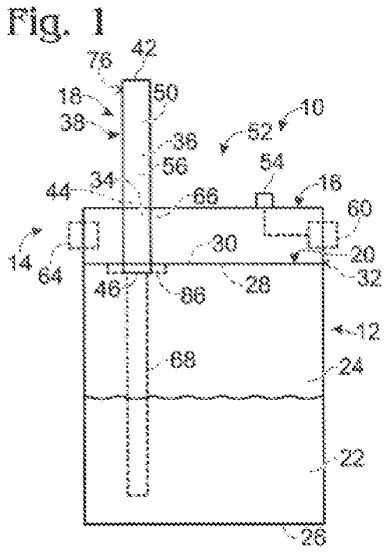
(Doc. 64-3, p. 18) (emphasis added). CamelBak argues that the word "user" implies a physical structure with which a user may interact. Moreover, the word "release" describes how the "mechanism" interacts with the other pieces of the physical structure: the "user release mechanism" must be a structure than can release the first and second catch structures to allow the mouthpiece to move to the dispensing configuration. CamelBak also argues that the figures and descriptions in the specification further elucidate the physical structure of the "user release mechanism."

CamelBak relies on *Alex Is the Best, LLC v. BLU Products, Inc.*, where the district court found § 112(f) did not apply to the terms "optical module" and "image capturing module." 2017 WL 5031638, at *7–8 (D. Del. Nov. 3, 2017). The court acknowledged that "module" is a nonce word that did not connote structure on its own but found that, in the context of digital photography equipment, the modifiers "optical" and "image capturing" made the terms' structures sufficiently clear to a person of ordinary skill in the art. *Id.* The court adopted the plain and ordinary meaning of the terms. *Id.*

Zak Designs, Inc. Exhibit 1017
19 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 163 of 857

The Court finds that § 112(f) does not apply to "user release mechanism" and its accompanying claim language. This mechanism is not a generic placeholder in the context of the patents. Rather, it plays the structural role of allowing the user to release the mouthpiece from the catch structures, causing the mouthpiece to move to the dispensing position. And unlike the disputed term in *Williamson*, here the specification "inform[s] the structural character" of "user release mechanism." 792 F.3d at 1351. For example, the figures in the '028 patent demonstrate how the "user release mechanism" 60 interacts with the catch structures 54 and 56 and the mouthpiece assembly 18:



(Doc. 64-3, pp. 4, 10).

Accordingly, the Court finds that, to a person of ordinary skill in the art, "user release mechanism" has "a sufficiently definite meaning as the name for structure," *Williamson*, 792 F.3d at 1348, and Zak has failed to overcome the presumption against the application of § 112(f). The Court further finds that the meaning of the full phrase

> a user release mechanism adapted to automatically disengage the first and second catch structures upon actuation of the user release mechanism and

Zak Designs, Inc. Exhibit 1017
20 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 164 of 857

> thereby release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration

is clear in context. Apart from the terms in this phrase that are separately construed herein, the Court gives the phrase its plain and ordinary meaning.

F. "is biased" / "biases"		
'028, '595, '879 and '833 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
"tends to return . . . absent an external force"	"is pushed, or force is exerted on, in a particular direction"	"returns . . . absent an external force"

Variations of the term "bias" appear in the patents in at least three contexts. First, the claims recite a mouthpiece assembly that "is biased to the dispensing configuration" and a crimping region that "at least partially biases the mouthpiece assembly to the dispensing configuration." (Doc. 64-3, p. 18). CamelBak asserts that the mouthpiece assembly's bias can be either internal—created by the material the mouthpiece assembly is made from—or external—created by a mechanism external to the mouthpiece assembly, such as a spring. The '028 specification explains:

> The bias of a mouthpiece assembly according to the present disclosure may be provided by the internal bias created by the material from which at least a portion of the mouthpiece assembly is constructed. For example, at least a portion of a mouthpiece assembly, such as crimping region 44, may be constructed of a resiliently deformable material. An illustrative, non-exclusive example of a suitable resiliently deformable material includes (but is not limited to) silicone. Additionally or alternatively, a biasing mechanism 50 may include at least one spring.

Id. at p. 10.

Zak Designs, Inc. Exhibit 1017
21 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 165 of 857

Second, the claims recite a bite-actuated mouthpiece that "is biased to the closed configuration." *Id.* CamelBak asserts this bias is internal only. In other words, the mouthpiece is made from a material—such as silicone—that remains closed until the user bites down on it, at which point the slit in the mouthpiece opens and allows liquid to flow into the user's mouth.

Third, the claims recite a sliding member that "is biased away from a position in which the sliding member releases the mouthpiece assembly to move from the stowed configuration to the dispensing configuration." (Doc. 64-6, p. 18). CamelBak asserts this bias is external only.

CamelBak proposes the "bias" terms be construed to mean "tends to return . . . absent an external force." For example, if this construction is inserted into the claim language, the claims would recite a mouthpiece assembly that "~~is biased~~ tends to return to the dispensing configuration absent an external force." In this example, the first and second catch structures are the "external force" that restrain the mouthpiece assembly and prevent it from returning to the dispensing configuration. CamelBak contends that this construction gives the "bias" terms a consistent meaning throughout the patents and is applicable to both internal and external biases.

Zak proposes "is biased" should be construed to mean "is pushed, or force is exerted on, in a particular direction" and "biases" should be construed to mean "pushes or exerts force in a particular direction." Zak contends that "the patents describe the biasing mechanism or biasing member as the part of the drink container that pushes or exerts force on another part to move it in a particular direction from one position or another position." (Doc. 73, p. 3).

Zak Designs, Inc. Exhibit 1017
22 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 166 of 857

Zak argues CamelBak's proposed construction is wrong because it "focus[es] on the part of the drink container that is biased while ignoring how its catch-all construction applies to the part that biases" and the inclusion of an ellipsis makes CamelBak's "proposed construction impossible for the jury to understand." *Id.* at 4–5. CamelBak contends Zak's proposed construction is inappropriately limited to only external biases because it requires a "push" or "force" against the structure and that the construction is nonsensical when inserted into the claim language.

Both parties cite to district court cases construing variations of the term "bias" to support their proposed constructions. Zak relies on *Perfectvision Manufacturing, Inc. v. PPC Broadband, Inc.*, 2014 WL 4285786, at *4 (E.D. Ark. Aug. 29, 2014), where the district court construed "to bias" to mean "to exert force in a particular direction against an object." Zak also points to *Invisible Fence, Inc. v. Perimeter Technologies, Inc.*, 2006 WL 1443399, at *5 (N.D. Ind. May 25, 2006), where the district court construed the term "biasing"—a term found in the claim language, "a contactor having a spring located inside the battery holder between the base of the battery holder and the battery for biasing the battery toward the opening of the battery holder"—to mean "exerting force in a particular direction toward the open end of the battery holder."

CamelBak argues that the claim language in *Perfectvision* and *Invisible Fence* referenced external biases only and are thus inapplicable here. Instead, CamelBak relies on *Acantha LLC v. DePuy Synthes Sales, Inc.*, 2017 WL 972106, at *6 (E.D. Wis. Mar. 13, 2017), where the district court construed "biased" to mean "the tendency of a structure or component to return to a certain position or shape absent external force."

Zak Designs, Inc. Exhibit 1017
23 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 167 of 857

The Court finds Zak's "is pushed, or force is exerted on" language fails to capture the full meaning of the "bias" terms. Zak's language is a poor fit when used to refer to the mouthpiece assembly's internal bias to the dispensing configuration, where nothing is pushing the mouthpiece assembly and the only force being exerted is the force generated by the material itself. Similarly, while Zak's "in a particular direction" language has been used by other courts to construe variations of the term "bias," the language is inartful in the context of these patents. The core of the "bias" terms is the predisposition of a part to a particular orientation, not necessarily the direction the part is moving in. CamelBak's proposed construction—"tends to return . . . absent an external force"—better captures this meaning. Mr. Goldman confirms that this is how a person of ordinary skill in the art would have understood the claim language, attesting that, in his opinion, the "bias" terms mean, "tends to return to its default state, absent an external force." (Doc. 64-7, ¶ 28). The Court finds the inclusion of an ellipsis in CamelBak's construction, as a placeholder for a part's specified default state, is appropriate and will be understandable by a jury.

However, Zak takes issue with CamelBak's inclusion of the word "tends" in the phrase "tends to return," and the Court agrees that CamelBak has not justified the word's inclusion. While one dictionary definition of the word "bias" is "tendency," *Bias*, The Merriam-Webster Dictionary (2022), the claim language and specification suggest that the parts are designed to *always* move to their default configuration absent an external force, *see, e.g.*, Doc. 65-3, p. 11 ("Bite-actuated valves . . . are typically biased to a closed configuration, and thus automatically return from an open configuration to a closed configuration upon release of the compression forces being applied thereto . . . ."). So, rather than having a tendency to return, the parts simply return.

Zak Designs, Inc. Exhibit 1017
24 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 168 of 857

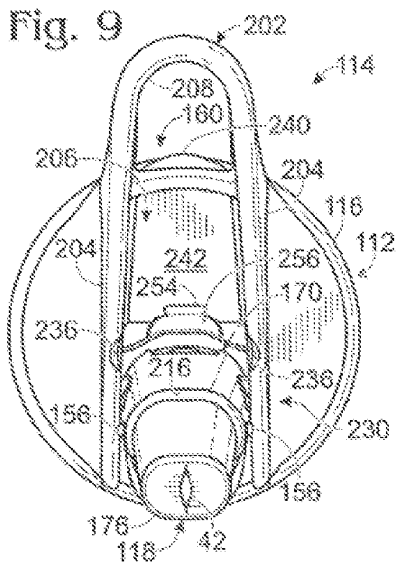
Accordingly, the Court construes the terms "is biased" and "biases" to mean "returns . . . absent an external force."

G. "stowing region"		
'028, '595, and '879 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	"the space on the cap assembly that is sized for storing at least a portion of the mouthpiece assembly"	plain and ordinary meaning

The term "stowing region" appears in the '028, '595, and '879 patents. For example, claim 1 of the '879 patent recites that "the cap assembly defines a stowing region sized to receive at least a portion of the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration." (Doc. 64-5, p. 18). Claim 6 of the '028 patent recites that "the cap assembly further includes a handle that projects away from the base of the cap assembly and a pair of lateral guards that at least partially define a stowing region that receives at least a portion of the mouthpiece assembly." (Doc. 64-3, p. 18). A possible embodiment of the "stowing region" 206 and "mouthpiece assembly" 118 is shown in figure 9 of the '028 patent:

Zak Designs, Inc. Exhibit 1017
25 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 169 of 857



Id. at p. 6.

Zak argues "stowing region" should be defined as "the space on the cap assembly that is sized for storing at least a portion of the mouthpiece assembly." In other words, Zak contends the "stowing region" is limited to *only* the area on the cap assembly where the mouthpiece assembly is stored and does not extend outside the space needed for that purpose. Zak points to the figures in the specification to support this construction.

CamelBak argues "stowing region" is a self-explanatory term that requires no construction. CamelBak further argues that Zak's construction improperly replaces "region" with "space" and "stowing" with "storing" and adds redundant language already present in the claims.

The Court finds that "stowing region" should be given its plain and ordinary meaning. First, CamelBak is correct that Zak's construction would substitute the claim language for similar words and would include redundant language. Second, Zak's construction would limit the claims based on the *possible* embodiments shown in the specification, but the Federal Circuit "has cautioned against limiting the claimed invention

Zak Designs, Inc. Exhibit 1017
26 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 170 of 857

to preferred embodiments or specific examples in the specification." *Vulcan Eng'g Co. v. Fata Aluminium, Inc.*, 278 F.3d 1366, 1376 (Fed. Cir. 2002) (quoting *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 805 F.2d 1558, 1563 (Fed. Cir. 1986)). The claim language limits the scope of the "stowing region" to an area defined by the cap assembly and a pair of lateral guards that is large enough to stow a portion of the mouthpiece assembly when in the stowed configuration, but the language does not say the region must be *no larger* than the mouthpiece assembly. Zak's contentions as to the scope of the "stowing region" are resolved by the claim language, and the term requires no construction by the Court.

H. "automatically"		
'028, '595, and '879 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
"without additional human intervention"	"without additional action by the user after actuation of the user release mechanism"	"without additional human intervention"

The term "automatically" appears in conjunction with the user release mechanism's ability, when pressed by the user, to release the mouthpiece assembly from the stowed configuration. For example, claim 1 of the '028 patent recites "a user release mechanism adapted to automatically disengage the first and second catch structures upon actuation of the user release mechanism and thereby release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration." (Doc. 65-3, p. 18). The '028 specification states that "[i]n some examples, the mouthpiece assembly is

Zak Designs, Inc. Exhibit 1017
27 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 171 of 857

biased toward the dispensing configuration and thus moves automatically under its bias upon release by the user-release mechanism." *Id.* at p. 8.

CamelBak argues "automatically" means "without additional human intervention" because the claim language and specification show that the user release mechanism "automatically" releases the mouthpiece assembly only after the user actuates it.

Zak initially proposed to construe "automatically" as "without action by the user," arguing the word "additional" is not necessary because other claim language recites the action required by the user. Nevertheless, Zak now offers a compromise construction of "without additional action by the user after actuation of the user release mechanism." So, Zak's compromise resolves the parties' primary dispute, which was over the word "additional." However, Zak maintains that if "additional" is included, then "after actuation of the user release mechanism" must also be included; CamelBak objects, pointing out that the latter phrase would be redundant of the surrounding claim language.

The Court agrees with CamelBak. In this context, "automatically" means that the user release mechanism performs the described function without requiring any further manual manipulation by the user beyond what is already described in the claim language. CamelBak's straightforward construction—"without additional human intervention"—captures this meaning. Zak has agreed to the inclusion of the word "additional," and the intrinsic evidence supports Zak's concession. "Automatically" cannot mean without *any* human intervention because the claim language requires that the user first actuate the user release mechanism. *See CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1235 (Fed. Cir. 2005) (affirming the district court's construction of "automatically" as "once initiated, the function is performed by a machine, without the need for manually

Zak Designs, Inc. Exhibit 1017
28 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 172 of 857

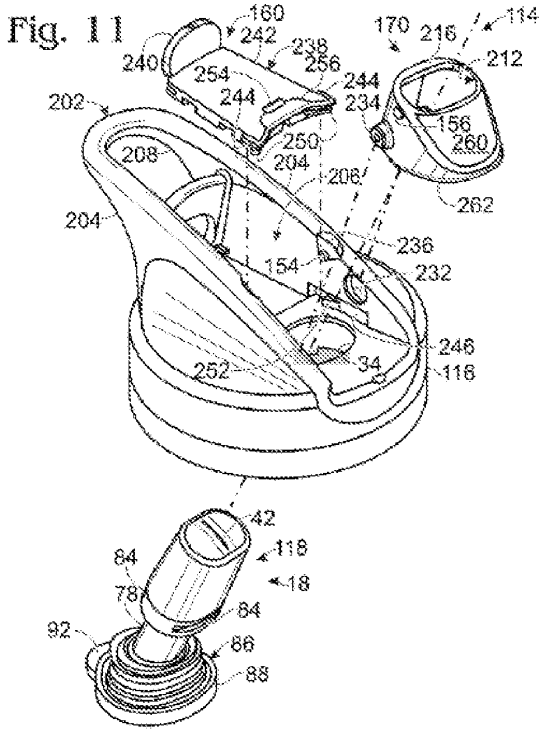
performing the function"). But full adoption of Zak's compromise construction would create an unnecessary and confusing redundancy in the definition of "automatically" by inserting a limitation—"after actuation of the user release mechanism"—that already exists in the claim language. Accordingly, the Court construes "automatically" to mean "without additional human intervention."

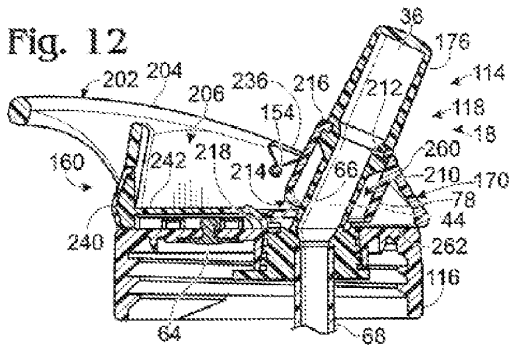
I. "user engagement pad . . . which extends through the sidewall of the base of the cap assembly" / "user engagement pad that extends through a wall of the cap assembly" / "user engagement pad extends through a wall of the cap assembly"		
'028, '595, and '833 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	"user engagement pad . . . which extends from one side to the other side of an opening that is surrounded by the sidewall of the base of the cap assembly"	plain and ordinary meaning

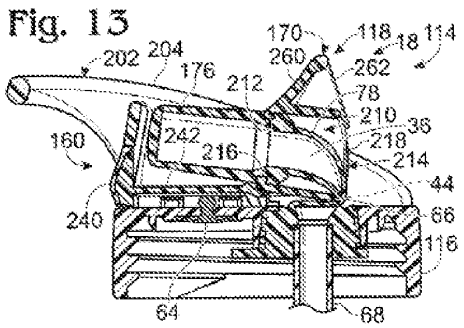
These terms involve the scope of the "user engagement pad," which is the area of the user release mechanism that the user presses (or otherwise interacts with) to release the mouthpiece from the stowed configuration. Claim 3 of the '028 patent recites that "the user release mechanism further includes a user engagement pad that is coupled to the sliding member and which extends through the sidewall of the base of the cap assembly for selective engagement by the user." The same or similar claim language is present elsewhere in the '028 patent and the '595 and '833 patents. The "user engagement pad" 240, the "user release mechanism" 160, the "sliding member" 238, and the "base of the cap assembly" 116 are exemplified in figures 11, 12, and 13 of the '028 patent:

Zak Designs, Inc. Exhibit 1017
29 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 173 of 857







(Doc. 64-3, p. 7).

Zak argues that because the "user engagement pad" phrases are not discussed in the specification, the Court must turn to the figures to understand their meaning. According to Zak, the figures show that the "user engagement pad" must extend from one side to the other side of an opening that is surrounded by the sidewall of the base of the cap assembly. Zak contends that giving these phrases their plain and ordinary meaning, as CamelBak proposes, would improperly allow CamelBak to claim an invention that is broader than what CamelBak actually invented with the patents. CamelBak argues that Zak's construction injects limitations not present in the claim language by substituting "from one side to the other side" for "through" and requiring the sidewall "surround" the opening.

Zak Designs, Inc. Exhibit 1017
30 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 174 of 857

The Court finds the "user engagement pad" phrases should be given their plain and ordinary meaning and require no construction by the Court. The Court declines to construe these phrases using Zak's description of the specification figures. Such a construction would improperly limit the claim language by using only the embodiment in the specification figures. *See Vulcan Eng'g*, 278 F.3d at 1376. Certainly, one embodiment of CamelBak's patents might include a user engagement pad that "extends from one side to the other side of an opening that is surrounded by the sidewall of the base of the cap assembly," but the claim language itself is not limited to that embodiment. Rather, the "user engagement pad" must extend through the wall of the base of the cap assembly so that the user can interact with the "user release mechanism." This *may* be accomplished by having the "user release mechanism" protrude through an enclosed opening that is the same size as the "user release mechanism," but this is not the only embodiment contemplated by the claim language. Accordingly, there remains no genuine dispute as to the scope of the plain language of these terms, and they require no construction by the Court.

Zak Designs, Inc. Exhibit 1017
31 of 37

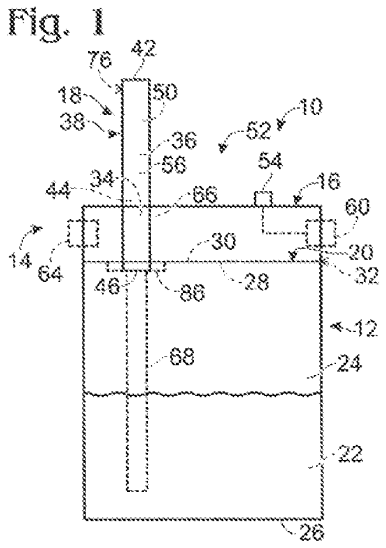
IPR 2024-01137
CamelBak - Ex 2001
Page 175 of 857

J. "the anchor portion is sized to restrict passage of the anchor portion through the through passage"		
'028, '595, and '879 Patents		
CamelBak's Proposed Construction	**Zak's Proposed Construction**	**Court's Construction**
plain and ordinary meaning	"the anchor portion is sized such that at least a part of the anchor portion is too large to fit into the through-passage and no part of the anchor portion may pass into one end of the through-passage and out of the opposite end of the through-passage"	plain and ordinary meaning

A representation of this claim phrase appears in claim 1 of the '028 patent, which recites "an anchor portion extending from the tube distal the mouthpiece portion, wherein the anchor portion is sized to restrict passage of the anchor portion through the through passage of the base of the cap assembly." (Doc. 64-3, p. 18). The '028 patent's specification further provides that "the mouthpiece assembly may include an anchor, or anchor portion, 86 that is adapted to prevent, or at least restrict, passing of the anchor portion through the through-passage of the base of the cap assembly." *Id.* at p. 12. The "anchor portion" 86 and "through passage" 34 are exemplified in figure 1 of the '028 patent:

Zak Designs, Inc. Exhibit 1017
32 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 176 of 857



Id. at p. 4.

Zak argues this claim phrase must be construed to mean that the "anchor portion" must be sized so that part of it is too big to fit into the through passage and none of it can fit *all the way* through the through passage. Zak insists this construction comes directly from the successful arguments CamelBak made to the Patent Trial and Appeal Board ("PTAB") and that CamelBak must be held to those arguments.

CamelBak argues it has not abandoned its arguments to the PTAB and that, contrary to Zak's proposed construction, the patents explicitly distinguish between *restricting* passage through the through passage and *preventing* passage through the through passage. CamelBak writes that "Zak's proposed construction fails because it limits the scope of the claim to the unclaimed preventing embodiment and excludes the claimed restricting embodiment." (Doc. 65, p. 28).

Zak directs the Court to the relevant prosecution history. The patent examiner initially rejected certain claims of the '028 patent due to prior art. Specifically, the examiner found that a prior drink container patent disclosed a mouthpiece portion with an anchor

Zak Designs, Inc. Exhibit 1017
33 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 177 of 857

portion. *Ex Parte Jeff Davies & Derek Gavin Sullivan*, 2017 WL 1032223, at *2 (P.T.A.B. Mar. 15, 2017). The examiner found CamelBak's limitation in claims 1 and 21 that the anchor portion be "sized to restrict passage of the anchor portion through the through passage" failed to distinguish CamelBak's invention from the prior art because "as long as the anchor portion has a size, it is capable of restricting passage." *Id.* CamelBak appealed the examiner's decision to the PTAB, which reversed the examiner's decision. *Id.* at *3. The PTAB found that CamelBak's "sized to restrict" language "positively limits the structure of the claims to a structure in which an anchor portion has a size that functionally acts to restrict, or limit, passage of the anchor portion through the claimed through-passage," and this limitation was not present in the prior art the examiner relied on. *Id.* Adopting CamelBak's argument, the PTAB explained that the examiner's findings were "unreasonable" because "[e]very structure has *a size*, but not all structures are capable of performing the claimed functional requirement of restricting passage of the anchor portion through the through-passage of the base of the cap assembly." *Id.* (emphasis in original). The PTAB further explained that "as [CamelBak] correctly note[s], for example, an anchor portion that is *smaller* than the through-passage will not function to restrict passage therethrough." *Id.* (emphasis in original).

The PTAB also reversed the examiner's rejection of claim 18 of the '028 patent, which does not recite the disputed claim phrase but instead recites an anchor portion having "a plurality of flanges that are sized and shaped to provide a friction-fit arrangement with the through-passage and to restrict passage of the anchor portion through the through-passage." *Id.* at *4. The examiner found that a prior patent, Choi, disclosed an anchor portion and another patent, Lin, disclosed flanges. The examiner

Zak Designs, Inc. Exhibit 1017
34 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 178 of 857

found that "that it would have been obvious to incorporate Lin's flanges into Choi's anchor portion to prevent leakage." *Id.* The PTAB reversed this finding, explaining:

> We agree with Appellants. As discussed above, Choi does not disclose an anchor portion as claimed. Lin does not remedy this defect because, although Lin teaches a plurality of flanges, Lin does not teach flanges that restrict passage of an anchor portion through a through-passage. Indeed, Lin's lower flange is expressly configured *to permit* passage through the through-passage. Further, the Examiner's purported reasoning for incorporating Lin's flanges into Choi's structure lacks rational underpinning, as Choi does not articulate a "leakage" problem, and Lin does not associate the prevention of leakage with the inclusion of flanges.

Id. (emphasis in original) (citations omitted).

Zak contends its proposed construction is appropriate because "[t]he PTAB accepted CamelBak's arguments that the relative size of the anchor portion and the through-passage is essential to the meaning of this claim phrase" and "that no part of the anchor portion (such as the lower flange in Lin) may pass into one end of the through-passage and out of the opposite end of the through-passage in order to meet the 'restrict passage of the anchor portion through the through-passage' limitation." (Doc. 65, pp. 10–12). Zak also points to the specification figures to support its proposed construction.

The Court finds Zak's proposed construction misconstrues the prosecution history and would inappropriately limit the claim phrase to embodiments not dictated by the claim language. While Zak purports to be pulling its construction from CamelBak's successful arguments to the PTAB, CamelBak did not argue that its claimed "anchor portion" must be sized so that part of it is too big to fit into the through passage and none of it can fit all the way through the through passage. Instead, CamelBak argued, and the PTAB agreed, that its "sized to restrict passage" claims were patentable because the claims required the anchor portion be at least as big as the through passage; otherwise, the passage of

Zak Designs, Inc. Exhibit 1017
35 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 179 of 857

the anchor portion through the through passage would not be restricted. This does not require the anchor portion to be *larger* than the through passage so that the anchor portion's passage through the through passage is *prevented*. Support for this interpretation is found in the specification, which states that the anchor portion "is adapted to prevent, or at least restrict, passing of the anchor portion through the through-passage of the base of the cap assembly," differentiating between "prevent" and "restrict." (Doc. 64-3, p. 12). As for claim 18 of the '028 patent, none of CamelBak's arguments nor the PTAB's reasoning—which was simply that the prior art did not include CamelBak's "plurality of flanges" that would restrict passage through the through passage—require an anchor portion sized to prevent passage through the through passage.

The meaning of the disputed claim phrase is simply its plain and ordinary meaning—that the anchor portion is of such a size that its passage through the through passage is restricted. Mr. Goldman persuasively attests that a person of ordinary skill in the art would understand this plain meaning. (Doc. 64-7, pp. 15–16). Accordingly, the Court finds that the claim phrase "the anchor portion is sized to restrict passage of the anchor portion through the through passage" requires no construction and is given its plain and ordinary meaning.

Zak Designs, Inc. Exhibit 1017
36 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 180 of 857

V. CONCLUSION

The Court **HEREBY ADOPTS** the above constructions for the claim terms identified by the parties.

IT IS SO ORDERED on this 9th day of January, 2023.

TIMOTHY L. BROOKS
UNITED STATES DISTRICT JUDGE

Zak Designs, Inc. Exhibit 1017
37 of 37

IPR 2024-01137
CamelBak - Ex 2001
Page 181 of 857

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2002/0033399	3/21/2002	Manganiello et al.			
	2002/0092858	7/18/2002	Bowman			
	2002/0092877	7/18/2002	Bowman			
	2002/0148806	10/17/2002	Cheng			
	2002/0166990	11/14/2002	Yang			
	2002/0185495	12/12/2002	Manganiello			
	2003/0085232	5/8/2003	Leinenweber			
	2003/0102318	6/5/2003	Lee			
	2003/0116573	6/26/2003	Clark et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO
	CN 85106703 A	5/10/1986	CN				X
	EP 0266067 A1	5/4/1988	EP			X	
	GB 2279130 A	12/21/1994	GB			X	
	WO 97/05055	2/13/1997	WO			X	
	WO 98/46106	10/22/1998	WO			X	
	CN 1198083 A	11/4/1998	CN				X

OTHER DOCUMENTS

		English-language abstract of Chinese Patent No. CN 85106703 A, European Patent Office, May 10, 1986.
		English-language abstract of Chinese Patent No. CN 1198083 A, European Patent Office, November 4, 1998.

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2003/0168462	9/11/2003	Kiyota			
	2003/0173536	9/18/2003	Christensen et al.			
	2003/0218015	11/27/2003	Randolph et al.			
	2003/0222238	12/4/2003	Getzewich et al.			
	2004/0000551	1/1/2004	Flink et al.			
	2004/0069783	4/15/2004	Chen			
	2004/0079775	4/29/2004	Choi et al.			
	2004/0089301	5/13/2004	Choi et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	TRANSLATION NO
	WO 00/03946	1/27/2000	WO			X	
	WO 00/49922	8/31/2000	WO			X	
	EP 1095599	5/2/2001	EP			X	
	JP 2002-326655 A	11/12/2002	JP				X
	CN 1394186 A	1/29/2003	CN				X
	WO 03/031315	4/17/2003	WIPO			X	

OTHER DOCUMENTS

		English-language abstract of Japanese Patent No. 2002-326655 A, European Patent Office, November 12, 2002.
		English-language abstract of Chinese Patent No. CN 1394186 A, European Patent Office, January 29, 2003.

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2004/0159820	8/19/2004	Yang			
	2004/0164043	8/26/2004	Hakim			
	2004/0217139	11/4/2004	Roth			
	2004/0217187	11/4/2004	Renz et al.			
	2004/0222230	11/11/2004	Samson et al.			
	2005/0029271	2/10/2005	McDonough			
	2005/0029313	2/10/2005	Robins et al.			
	2005/0045647	3/3/2005	Hession et al.			
	2005/0056610	3/17/2005	Randolph et al.			
	2005/0056652	3/17/2005	Cezeaux			
	2005/0072788	4/7/2005	Lieberman et al.			
	2005/0072804	4/7/2005	Brown			
	2005/0115966	6/2/2005	Leoncavallo et al.			
	2005/0133505	6/23/2005	Yoneoka et al.			
	2005/0133519	6/23/2005	McDonough			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2005/0184075	8/25/2005	Belcastro			
	2005/0205587	9/22/2005	Samson et al.			
	2005/0218242	10/6/2005	Renz et al.			
	1,788,795	1/13/1931	Hoban			
	2,844,267	7/22/1958	Petriccione			
	2,936,934	5/17/1960	Kubiliunas			
	3,179,301	4/20/1965	Lucht			
	3,181,743	5/4/1965	Libit et al.			
	3,283,967	11/8/1966	Akers			
	3,294,293	12/27/1966	Johns			
	3,392,887	7/16/1968	Bross			
	3,739,938	6/19/1973	Paz			
	3,972,443	8/3/1976	Albert			
	4,090,650	5/23/1978	Gotta			
	4,212,408	7/15/1980	Valenzona			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	4,485,963	12/4/1984	Panicci			
	4,607,755	8/26/1986	Andreozzi			
	4,836,404	6/6/1989	Coy			
	4,852,762	8/1/1989	Coy			
	4,860,934	8/29/1989	Komischke			
	4,925,042	5/15/1990	Chong			
	5,060,833	10/29/1991	Edison et al.			
	5,065,909	11/19/1991	Pino et al.			
	5,085,336	2/4/1992	Lynd			
	5,085,349	2/4/1992	Fawcett			
	5,101,991	4/7/1992	Morifuji et al.			
	5,203,468	4/20/1993	Hsu			
	5,242,079	9/7/1993	Stephens et al.			
	5,273,172	12/28/1993	Rossbach et al.			
	5,301,858	4/12/1994	Hollander			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	5,307,950	5/3/1994	Li			
	5,332,131	7/26/1994	Pehr			
	5,392,968	2/28/1995	Dark			
	5,433,353	7/18/1995	Flinn			
	5,433,535	7/18/1995	Hah			
	5,465,866	11/14/1995	Belcastro			
	5,518,142	5/21/1996	Lin			
	5,520,304	5/28/1996	Lin			
	5,553,726	9/10/1996	Park			
	5,582,315	12/10/1996	Reid			
	5,601,207	2/11/1997	Paczonay			
	5,607,087	3/4/1997	Wery et al.			
	5,699,933	12/23/1997	Ho et al.			
	5,730,336	3/24/1998	Lerner			
	5,755,368	5/26/1998	Bekkedahl			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	5,791,510	8/11/1998	Paczonay			
	5,806,726	9/15/1998	Ho			
	5,873,478	2/23/1999	Sullivan et al.			
	5,884,793	3/23/1999	Wang			
	5,897,013	4/27/1999	Manganiello			
	5,911,406	6/15/1999	Winefordner et al.			
	6,021,801	2/8/2000	Sheppard			
	6,032,831	3/7/2000	Gardner et al.			
	6,050,433	4/18/2000	Russell et al.			
	6,050,445	4/18/2000	Manganiello			
	6,059,154	5/9/2000	Bigotte et al.			
	6,070,767	6/6/2000	Gardner et al.			
	6,095,382	8/1/2000	Gross			
	6,116,458	9/12/2000	Dark			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	6,196,413	3/6/2001	Tung			
	6,199,729	3/13/2001	Drzymkowski			
	6,212,959	4/10/2001	Perkins			
	6,264,166	7/24/2001	Bowland et al.			
	6,276,560	8/21/2001	Belcastro			
	6,279,772	8/28/2001	Bowman			
	6,279,773	8/28/2001	Kiyota			
	6,283,344	9/4/2001	Bradley			
	6,290,108	9/18/2001	Gross			
	6,364,168	4/2/2002	Gardner et al.			
	6,390,341	5/21/2002	Ohmi et al.			
	6,422,415	7/23/2002	Manganiello			
	6,446,844	9/10/2002	Gross			
	6,497,348	12/24/2002	Forsman			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	6,513,686	2/4/2003	Ben-Sasson			
	6,523,711	2/25/2003	Hughes et al.			
	6,557,721	5/6/2003	Yang			
	6,607,092	8/19/2003	Manganiello et al.			
	6,609,624	8/26/2003	Goto et al.			
	6,675,998	1/13/2004	Forsman et al.			
	6,698,716	3/2/2004	Yang			
	6,708,950	3/23/2004	Christensen et al.			
	6,719,273	4/13/2004	Yang			
	D489,978	5/18/2004	Brown			
	6,742,681	6/1/2004	Yang			
	6,745,915	6/8/2004	Rees			
	6,764,064	7/20/2004	Sturm et al.			
	6,783,115	8/31/2004	Yang			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	6,854,888	2/15/2005	Brown et al.			
	6,908,015	6/21/2005	Choi et al.			
	6,915,961	7/12/2005	Renz et al.			
	6,994,225	2/7/2006	Hakim			
	7,014,077	3/21/2006	Brown			
	7,032,764	4/25/2006	Viggiano			
	7,048,137	5/23/2006	Leoncavallo et al.			
	7,059,490	6/13/2006	Son			
	7,073,688	7/11/2006	Choi et al.			
	8,701,928	4/22/2014	Samson			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Filer:	David S. D'Ascenzo/Robin Davin
Attorney Docket Number:	KRN 330E

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1720**

Electronic Acknowledgement Receipt

EFS ID:	33178469
Application Number:	16035418
International Application Number:	
Confirmation Number:	4623
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	139868
Filer:	David S. D'Ascenzo/Robin Davin
Filer Authorized By:	David S. D'Ascenzo
Attorney Docket Number:	KRN 330E
Receipt Date:	13-JUL-2018
Filing Date:	
Time Stamp:	18:48:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1720
RAM confirmation Number	071618INTEFSW00004962504551
Deposit Account	504551
Authorized User	Robin Davin
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	Application_Data_Sheet_KRN330E_7-13-18.pdf	622373 807e1c4b269429cc6cbd401bf637a3a0948e9ddf	no	8
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
2	Oath or Declaration filed	Declaration_for_Patent_Application_KRN330E_7-13-18.pdf	159718 3ce22b158ea2cc6dcca26e248c0838cc316fc2e8	no	3
Warnings:					
Information:					
3		continuation_patent_application_KRN330E_7-13-18.pdf	171899 4a06e4f3fae11546fab596a5e4c46fab0db52841	yes	42

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Specification	1	35
Claims	36	41
Abstract	42	42

Warnings:					
Information:					
4	Drawings-only black and white line drawings	Drawings_KRN330E_7-13-18.pdf	577288 0df9faf2b782c6c9c3960816eebab2a324da2fbc	no	9
Warnings:					
Information:					

5		Information_Disclosure_Statement_KRN330E_7-13-18.pdf	700945 2dc2d227333a0ac1f6881611ba1361930c5c6185	yes	12

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Transmittal Letter	1	2
Information Disclosure Statement (IDS) Form (SB08)	3	12

Warnings:

Information:

6	Fee Worksheet (SB06)	fee-info.pdf	34715 bd013bf97c8dffac15449168da113b32cff80d96	no	2

Warnings:

Information:

Total Files Size (in bytes):	2266938

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Robert		Choi	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Ogden	State/Province	UT	Country of Residence	US

Mailing Address of Inventor:

Address 1	170 N. Washington Boulevard, #1007		
Address 2			
City	Ogden	State/Province	UT
Postal Code	84404	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Barley	A.	Forsman	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Cotati	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	206 Maple Avenue		
Address 2			
City	Cotati	State/Province	CA
Postal Code	94931	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeremy		Galten	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

City	Petaluma	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	1623 Shenandoah Court		
Address 2			
City	Petaluma	State/Province	CA
Postal Code	94954	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	139868		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	DRINK BOTTLES		
Attorney Docket Number	KRN 330E	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	29

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Zak Designs, Inc. Exhibit 1003
17 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 198 of 857

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	139868		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15287915	2016-10-07

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15287915	Continuation of	14329096	2014-07-11	9463911	2016-10-11

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14329096	Continuation of	12133954	2008-06-05	8777048	2014-07-15

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12133954	Continuation of	11588476	2006-10-26	8622237	2014-01-07

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11588476	Continuation of	11313488	2005-12-20	7533783	2009-05-19

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11313488	Claims benefit of provisional	60706700	2005-08-08
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11313488	Claims benefit of provisional	60670828	2005-04-11

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◉ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	CamelBak Products, LLC		
Mailing Address Information For Applicant:			
Address 1	2000 S. McDowell, Suite 200		
Address 2			
City	Petaluma	**State/Province**	CA
Country	US	Postal Code	94954
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature				Date (YYYY-MM-DD)	2018-07-13
First Name	David S.	Last Name	D'Ascenzo	Registration Number	39952

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	KRN 330E
	Application Number	
Title of Invention	DRINK BOTTLES	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

DECLARATION FOR PATENT APPLICATION
English Language Declaration

As a below-named inventor, I hereby declare that:

This declaration is directed to:

_X_ the attached application, or
___U.S. Patent Application Serial No. _____, which was filed on _____,

and is entitled DRINK BOTTLES.

The above-identified application was made or authorized to be made by me.

I believe that I am the original and sole inventor (if only one name is listed below) or an original and joint inventor (if plural names are listed below) of a claimed invention in the application.

I hereby state that I have reviewed and understand the contents of the above-identified application, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56, including, for continuation-in-part applications, material information that became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment of not more than five (5) years, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full name of sole or first joint inventor: ROBERT CHOI

Inventor's signature: Robert Choi Date: 08/06/14

Residence: Ogden, Utah
Mailing Address: 170 N. Washington Boulevard, #1007, Ogden, Utah 84404

Full name of second joint inventor: BARLEY A. FORSMAN

Inventor's signature: _____ Date: _____

Residence: Cotati, California
Mailing Address: 206 Maple Avenue, Cotati, California 94931

Zak Designs, Inc. Exhibit 1003
24 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 205 of 857

DECLARATION FOR PATENT APPLICATION
English Language Declaration

As a below-named inventor, I hereby declare that:

This declaration is directed to:

_X_ the attached application, or
___U.S. Patent Application Serial No. _____, which was filed on _____,

and is entitled DRINK BOTTLES.

The above-identified application was made or authorized to be made by me.

I believe that I am the original and sole inventor (if only one name is listed below) or an original and joint inventor (if plural names are listed below) of a claimed invention in the application.

I hereby state that I have reviewed and understand the contents of the above-identified application, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose information that is material to patentability as defined in 37 C.F.R. § 1.56, including, for continuation-in-part applications, material information that became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment of not more than five (5) years, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full name of sole or first joint inventor: ROBERT CHOI

Inventor's signature: _____ Date:_____

Residence: Ogden, Utah
Mailing Address: 170 N. Washington Boulevard, #1007, Ogden, Utah 84404

Full name of second joint inventor: BARLEY A. FORSMAN

Inventor's signature: _____ Date: July 27th, 2014

Residence: Cotati, California
Mailing Address: 206 Maple Avenue, Cotati, California 94931

Atty. Docket No. – KRN 330C

Zak Designs, Inc. Exhibit 1003
25 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 206 of 857

Full name of third joint inventor: JEREMY GALTEN

Inventor's signature: _____ Date: 8/6/14

Residence: Petaluma, California

Mailing Address: 1623 Shenandoah Court, Petaluma, California 94954

Zak Designs, Inc. Exhibit 1003
26 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 207 of 857

DRINK BOTTLES

Related Applications

The present application is a continuation of, and claims priority under 35 U.S.C. § 120 to, U.S. Patent Application No. 15/287,915, which was filed on October 7, 2016, issued on July 17, 2018 as U.S. Patent No. 10,023,365, and which claims priority to U.S. Patent Application Serial No. 14/329,096, which was filed on July 11, 2014, issued on October 11, 2016 as U.S. Patent No. 9,463,911, and which claims priority to U.S. Patent Application Serial No. 12/133,954, which was filed on June 5, 2008, issued on July 15, 2014 as U.S. Patent No. 8,777,048, and which claims priority to U.S. Patent Application Serial No. 11/588,476, which was filed on October 26, 2006, issued on January 7, 2014 as U.S. Patent No. 8,622,237, and which claims priority to U.S. Patent Application Serial No. 11/313,488, which was filed on December 20, 2005, and issued on May 19, 2009 as U.S. Patent No. 7,533,783. U.S. Patent Application Serial No. 11/313,488 claims priority to U.S. Provisional Patent Application Serial Nos. 60/670,828 and 60/706,700, which were filed on April 11, 2005 and August 8, 2005, respectively. The complete disclosures of the above-identified patents and patent applications are hereby incorporated by reference.

Field of the Disclosure

The present disclosure relates generally to drink bottles, and more particularly to drink bottles with bite-actuated mouthpieces.

Background of the Disclosure

For some time people have recognized the need to stay hydrated. Conventionally, many individuals carry drink bottles that contain water or other potable beverages. These bottles are formed from plastic and include a cap. Some conventional drink bottles include a threaded or

Zak Designs, Inc. Exhibit 1003
27 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 208 of 857

other neck from which a user drinks fluid contained in the drink bottle after removal of the cap. Some conventional drink bottles include a spout, or nozzle, from which the drink fluid may be drawn from the drink bottle without removing the cap of the drink bottle. Conventional spouts include straws and rigid spouts having an outlet through which drink fluid may flow. Other conventional drink bottles require the cap to be removed to permit drink fluid to be removed from the drink bottle.

Zak Designs, Inc. Exhibit 1003
28 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 209 of 857

Brief Description of the Drawings

Fig. 1 is a perspective view of a bite-actuated drink bottle according to the present disclosure.

Fig. 2 is a perspective view of another bite-actuated drink bottle according to the present disclosure.

Fig. 3 is a fragmentary, partial cross-sectional side elevation view of a fluid container that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 4 is a fragmentary cross-sectional side elevation view of portions of another bite-actuated drink bottle according to the present disclosure.

Fig. 5 is a partial cross-sectional side elevation view of a cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 6 is a side elevation view of another cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 7 is a side elevation view of another cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 8 is a fragmentary somewhat schematic side elevation view of portions of another bite-actuated drink bottle according to the present disclosure.

Fig. 9 is a fragmentary somewhat schematic side elevation view of portions of another bite-actuated drink bottle according to the present disclosure.

Fig. 10 is an isometric view of a bite-actuated mouthpiece that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 11 is a top plan view of the mouthpiece of Fig. 10.

Fig. 12 is a side elevation view of the mouthpiece of Fig. 10.

Zak Designs, Inc. Exhibit 1003
29 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 210 of 857

Fig. 13 is a side elevation view of the mouthpiece of Fig. 10.

Fig. 14 is a cross-sectional view of the mouthpiece of Fig. 12.

Fig. 15 is a cross-sectional view of the mouthpiece of Fig. 13.

Fig. 16 is a somewhat schematic top plan view of a bite-actuated mouthpiece in a dispensing configuration.

Fig. 17 is a cross-sectional view of another bite-actuated mouthpiece that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 18 is transverse cross-sectional view of the mouthpiece of Fig. 17.

Fig. 19 is a cross-sectional view of another bite actuated mouthpiece that may be used with bite-actuated drink bottles according to the present disclosure.

Fig. 20 is a transverse cross-sectional view of the mouthpiece of Fig. 19.

Fig. 21 is a top plan view of another suitable cap assembly for use with bite-actuated drink bottles according to the present disclosure, with the cap assembly's spout in a stowed configuration.

Fig. 22 is a top plan view of the cap assembly of Fig. 21, with the cap assembly's spout in a dispensing configuration.

Fig. 23 is a side elevation view of the cap assembly of Fig. 21.

Fig. 24 is a side elevation view of the cap assembly of Fig. 22.

Fig. 25 is an exploded isometric view of the cap assembly of Fig. 21.

Fig. 26 is a cross-sectional side elevation view of the cap assembly of Fig. 21.

Fig. 27 is a cross-sectional side elevation view of the cap assembly of Fig. 22.

Fig. 28 is a partial cross-sectional side elevation view of another cap assembly that may be used with bite-actuated drink bottles according to the present disclosure.

Zak Designs, Inc. Exhibit 1003
30 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 211 of 857

Fig. 29 is a partial cross-sectional side elevation view of the cap assembly of Fig. 28, with the spout pivoted to a stowed configuration.

5

Zak Designs, Inc. Exhibit 1003
31 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 212 of 857

Detailed Description and Best Mode of the Disclosure

Examples of drink bottles according to the present disclosure are shown in Figs. 1 and 2 and indicated generally at 10. Drink bottles 10 according to the present disclosure include a fluid container 12 and a cap, or cap assembly, 14 that includes a mouthpiece 72. Although referred to herein as being "drink bottles," it is within the scope of the present disclosure that the fluid container may have any suitable shape, including shapes that do not resemble conventional bottles, and may be formed from any suitable material. Accordingly, it is within the scope of the present disclosure that drink bottles 10 may additionally or alternatively be referred to as drink containers 10 and/or as beverage containers 10. As discussed in more detail herein, drink bottles 10 according to the present disclosure will typically include a free-standing fluid container 12. Drink bottles 10 according to the present disclosure will typically include a cap assembly with a base 70 that is adapted to be coupled to the fluid container and a bite-actuated mouthpiece, or valve assembly, 72 upon which a user may bite to configure the mouthpiece from a closed configuration to a dispensing configuration.

In Figs. 1 and 2, the cap assemblies are shown including optional pivotal mounts 100 to which the mouthpieces are mounted, and optional handles 140 that extend from the cap assembly. In Fig. 2, the cap assembly is shown with the mount in a dispensing configuration in which the mouthpiece is oriented in a suitable position from which a user may draw drink fluid from the drink bottle through mouthpiece 72 when the user bites upon the mouthpiece or otherwise urges the mouthpiece from the illustrated sealed configuration to a dispensing configuration. In Fig. 1, the illustrative example of a cap assembly 14 is shown with the mount in a stowed configuration, in which the mouthpiece is positioned closer to the base of the cap than in the dispensing configuration, with the stowed configuration typically corresponding to an

Zak Designs, Inc. Exhibit 1003
32 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 213 of 857

orientation in which the mouthpiece is not suitably positioned for a user to bite upon the mouthpiece to configure the mouthpiece to a dispensing configuration. The stowed configuration may also be referred to as a retracted configuration, and the dispensing configuration may also be referred to as an extended configuration in which the distal end, or outlet, of the mount is oriented to extend generally away from the base of the cap assembly. The various configurations referred to herein may also be selectively referred to as positions without departing from the scope of the present disclosure.

As indicated in Figs. 1-2 and perhaps best seen in Fig. 3, fluid container 12 defines an internal compartment 20 that is sized to hold, or receive, up to a predetermined volume of potable drink fluid, or liquid. Illustrative examples of drink fluids include water, sports drinks, juices, energy drinks, and the like. Typically, container 12 will be sized to hold up to approximately two liters of drink fluid, with many embodiments of container 12 being sized to hold a maximum volume of less than two liters of drink fluid. It is within the scope of the present disclosure that container 12 may have any suitable size and shape, with illustrative, non-exclusive examples being shown in Figs. 1-3. Illustrative, non-exclusive examples of suitable sizes (i.e., capacities of drink fluid able to be received into the fluid container at one time) for fluid container 12 include 4 oz., 6 oz., 8 oz., 10 oz., 12 oz., 16 oz., 20 oz., 24 oz., 32 oz., 36 oz., .5 liters, .7 liters, 1 liter, 1.5 liters, 6-11 oz., 12-19 oz., 19-25 oz., 12-36 oz., 25-36 oz, and 10-70 oz. (with these illustrative examples referring to fluid ounces of drink fluid that may be poured in one filling into an empty fluid container). It is within the scope of the present disclosure that containers having different sizes, including sizes that are smaller than, larger than, or within the illustrative sizes and/or ranges presented above, may be used without departing from the scope of the present disclosure.

Zak Designs, Inc. Exhibit 1003
33 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 214 of 857

Fluid container 12 may be formed from any suitable material or combination of materials. Non-exclusive examples of factors that may be (but are not required to be) considered when selecting material(s) for the fluid container include the durability of the material, the intended potable drink fluid, or types of drink fluids, that will be contained in the fluid container, the intended life, or period of use, of the drink bottle, whether the fluid container is intended to be refilled or otherwise reused, environmental concerns, whether the fluid container is intended to resist being collapsed during use, whether the fluid container is designed to permit a user to collapse the fluid container inwardly when dispensing fluid therefrom, or to dispense drink fluid therefrom, whether the drink container (and optionally the cap assembly) is designed to be washed in a household dishwasher, etc. Illustrative examples of materials that may be used include polycarbonate, polyethylene, polypropylene, glass, metal, and the like. In some embodiments, it may be desirable for the material(s) to be selected so that the fluid container will be transparent, or at least translucent, so that a user may see the contents of the fluid container, or at least the level of drink fluid within the fluid container, through the walls, or wall structure, of the container. In some embodiments, it may be desirable for the material(s) to be selected so that the fluid container is rigid and resists being collapsed when a user drinks from the container. In some embodiments, the material(s) may be selected so that the fluid container is designed to be collapsed (i.e., to permit opposing portions of the wall structure to be urged toward, or even into contact with, each other) during use. However, even fluid containers that are adapted to be collapsed during use, such as by a user squeezing the container, will tend to be at least semi-rigid in their construction and thereby adapted to be self-supporting. In some embodiments, the material(s) may be selected so that the fluid container is not breakable, i.e., will not shatter if dropped. Polyethylene will typically produce a collapsible fluid container that is translucent or

Zak Designs, Inc. Exhibit 1003
34 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 215 of 857

opaque, but not transparent. Polycarbonate will typically produce a rigid, or stiff, fluid container that has a clear or glass-like appearance without the fragility of glass. Polypropylene will typically produce a fluid container that is more translucent and stiffer than polyethylene yet still able to be collapsed during use by a user squeezing the wall structure of the fluid container.

As indicated with respect to the illustrated examples of fluid containers shown in Figs. 1-3, container 12 includes a body 22 with a base, or bottom surface, 24 and a neck 26, with the bottom surface and the neck being separated by wall structure 28. As perhaps best seen in Fig. 3, bottom surface 24 is adapted to support the drink bottle on a level surface. In other words, in the illustrative example, when the drink bottle is set upon a generally level surface, the bottom surface of the drink bottle will support the drink bottle in an upright configuration upon that surface. Fig. 3 also demonstrates that the bottom surface of the fluid container is not required to have a flat, or planar, configuration, although this configuration is within the scope of the present disclosure.

In the illustrated example shown in Fig. 2, wall structure 28 has a contoured configuration, with the central region 30 of the wall structure being tapered, or defining a portion of the internal compartment that has a reduced cross-sectional area, relative to the corresponding upper and lower regions 32 and 34 of the wall structure. For example, the central region may be shaped to facilitate easier grasping of the drink bottle by a user. It is within the scope of the present disclosure that other configurations may be utilized. For example, the body may include a handle, or passage, that extends into, or through, the drink compartment. As another illustrative, non-exclusive example, the body may include a handle that projects outwardly from the wall structure. As yet another example, the wall structure may have a cylindrical or other geometrically shaped configuration. As shown in Fig. 1, the container's wall structure 28 may

Zak Designs, Inc. Exhibit 1003
35 of 189
IPR 2024-01137
CamelBak - Ex 2001
Page 216 of 857

have a generally cylindrical configuration. In the illustrated example, the upper region 32 of the wall structure has a tapered configuration relative to the central and lower regions 30 and 34 of the wall structure, and thereby has a smaller internal perimeter.

The cross-sectional configuration of the wall structural may be symmetrical throughout the upper, central, and lower regions, or at least one of the regions may have a cross-sectional configuration that is not symmetrical with the other regions and/or with respect to itself. For example, selectively shaping the cross-sectional configuration, or perimeter, of at least the central region may permit the drink bottle to be rotationally oriented by a user for drinking from the subsequently discussed bite-actuated valve assembly without requiring the user to look at the rotational position of the valve assembly relative to the user's hand that is holding the central region of the fluid container's wall structure. For example, and with reference to Fig. 2, shaping the wall structure to have a depression or other unsymmetrical portion 36 on the central region of the wall structure generally beneath the bite-actuated mouthpiece may permit a user to grasp and orient the bottle for drinking from the mouthpiece simply by feeling the position of the unsymmetrical portion of the wall structure. However, this is but one of many suitable configurations and is not required. In Figs. 1 and 2, the wall structure includes gradations 38 to indicate the volume of fluid present in the container. As shown, the gradations are spaced-apart along the height of the fluid container to indicate or otherwise demarcate volumes of drink fluid. Gradations 38 provide another example of optional structure that may or may not be implemented in a particular embodiment without departing from the scope of the present disclosure.

Neck 26 provides an opening, or portal, through which drink fluid may be poured into the internal compartment of the fluid container and/or removed therefrom. Neck 26 will typically

Zak Designs, Inc. Exhibit 1003
36 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 217 of 857

have a reduced cross-sectional area (or smaller perimeter) than the region of the fluid container from which it extends, although this configuration is not required. Neck 26 is adapted to interconnect, typically removably, with the cap assembly via any suitable mechanical interconnection, or coupling structure. In the illustrative example shown in Fig. 3, neck 26 includes a portal 40 with a coupling structure 42 that includes threads 44 that are configured to be threadingly engaged by corresponding threads 46 on the base 70 of the cap assembly to permit the cap to be screwed, or threaded, onto the neck, such as shown in Fig. 3. In the illustrative example shown in Fig. 3, the cap assembly's threads 46 provide the coupling structure 45 of the base. It is within the scope of the present disclosure that coupling assembly 43 may be used to refer collectively to the coupling structures of the base and the neck, such as threads 44 and 46.

Another example of a suitable coupling assembly 43 for interconnecting the cap assembly and the fluid container is shown in Fig. 4. As shown, the cap assembly is configured to engage the neck with a coupling assembly 43 in the form of a friction fit assembly, with neck 26 including a coupling structure 42 that includes an external lip, or ledge, 48 over which a corresponding coupling structure 45 in the form of a flange, or internal ledge, 50 of the base of the cap assembly extends to couple the cap assembly onto the neck. Cap assembly 14 and/or neck 26 may form a fluid-tight seal therebetween without requiring the inclusion of gaskets, o-rings or seal-enhancing structure. However, it is also within the scope of the present disclosure that one or more such structures may be utilized.

As discussed, cap assembly 14 is connected, and typically removably connected, to the neck of the fluid container. By "removably connected," it is meant that the cap assembly is designed, or adapted, to be repeatedly connected to and disconnected from the neck of the fluid container without destruction of the cap assembly or the neck. When properly connected to the

Zak Designs, Inc. Exhibit 1003
37 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 218 of 857

neck, the cap assembly forms a seal with the neck of the fluid container and thereby selectively seals the internal compartment of the container to prevent drink fluid from being dispensed therefrom through opening 40 except as permitted by the cap assembly. One or more of the cap assembly and the neck may include a compressible gasket or other sealing structure to assist in providing a water-tight seal between the cap assembly and the neck when the cap assembly is properly secured on the neck. When removed or otherwise disconnected from the fluid container, the cap assembly may be retained proximate the fluid container by a tether that interconnects the cap assembly and the fluid container to retain a connection between these components when the base of the cap assembly is not coupled to the neck of the fluid container. An optional tether is schematically illustrated in Fig. 4 at 52. When present, the tether may be integrally formed with one or both of the cap assembly and the fluid container, or it may be coupled to the cap assembly and/or the fluid container via any suitable mechanism. It is also within the scope of the present disclosure that the cap assembly may not be coupled to the fluid container by a tether.

As discussed, and as somewhat schematically illustrated in Fig. 5, cap assembly 14 includes a base 70, which is adapted to interconnect with the neck of the fluid container. Cap assembly 14 further includes a mouthpiece, such as a bite-actuated mouthpiece 72, which is adapted to selectively permit drink fluid to flow therethrough when the valve assembly is deformed from its closed configuration to a dispensing, or open, configuration. Cap assembly 14 further includes, or defines, a fluid conduit 74 though which drink fluid may selectively flow from the fluid container to the mouthpiece.

As discussed, base 70 is preferably configured to be removably coupled to the neck of the fluid container to seal the portal defined by the neck of the fluid container. In other words, a user

Zak Designs, Inc. Exhibit 1003
38 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 219 of 857

may drink directly from the fluid container through opening 40 when the cap assembly is not secured to the neck by a suitable coupling structure. When cap assembly 14 is secured to the neck, then drink fluid may not be withdrawn from fluid container 12 other than as permitted by the cap assembly, such as via bite-actuated mouthpiece 72. Base 70 forms a portion of coupling assembly 43, with the base and the neck of the fluid container cooperating to secure the base upon the neck. In Fig. 5, base 70 is shown including coupling structure 45 in the form of threads 46 that are configured to threadingly engage corresponding threads on the neck of a fluid container. As shown in Fig. 5, base 70 also includes, or defines, an inlet 80 to the fluid conduit 74 through which drink fluid is selectively drawn from the fluid container and dispensed through bite-actuated mouthpiece 72.

As discussed, cap assembly 14 defines a fluid conduit 74 that extends from the fluid container to the bite-actuated mouthpiece so that drink fluid from container 12 may be selectively dispensed through mouthpiece 72. Fig. 5 graphically depicts that it is within the scope of the present disclosure that cap assembly 14 may include a mount 100 to which the bite-actuated mouthpiece is removably mounted, or secured, with the mount defining at least a portion of fluid conduit 74, such as which may extend through a hollow passage 102 within the mount to a distal open end region 104 of the mount. When mount 100 includes a fluid passage through which drink fluid may at least selectively flow from the internal compartment of the fluid container to the mouthpiece, the mount may be referred to as a drink spout. In the illustrated example shown in Fig. 5, mount 100 extends in a fixed orientation relative to base 70, thereby defining the orientation of the mouthpiece 72 relative to the base (and fluid container) during use of the drink bottle. In Fig. 5, the mount extends generally parallel to the central, or long, axis 106 of the cap assembly and corresponding drink bottle (i.e., straight away from the

Zak Designs, Inc. Exhibit 1003
39 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 220 of 857

cap assembly). However, any suitable orientation may be used without departing from the scope of the present disclosure. This is graphically depicted in Fig. 6, in which the mount is shown extending at an inclined angle relative to the long, or central, axis 106 of the cap assembly and corresponding drink bottle.

It is also within the scope of the present disclosure that mount 100 may be adjustably positionable relative to the base of the cap assembly, thereby permitting the orientation of the bite-actuated mouthpiece to be adjusted within a range of positions, or configurations, that are defined at least in part by the mount. This adjustable positioning of the mouthpiece, when provided for in a particular embodiment, may permit a user to adjust the orientation of the mouthpiece to a user-selected drinking orientation. An example of an adjustably positionable mount 100 is shown in dashed lines in Fig. 6, in which the mount and attached mouthpiece are shown pivoted from the dispensing configuration shown in solid lines to a stowed configuration. In the stowed configuration, the mouthpiece is typically not positioned for being received into a user's mouth. As discussed in more detail herein, it is within the scope of the present disclosure that the cap assembly may include an optional valve or other fluid regulator that is adapted to prevent or otherwise restrict the flow of drink fluid to the mouthpiece when the mount is in a stowed configuration. In such an embodiment, when the mount is in the stowed configuration, drink fluid would be prevented from flowing from the fluid container through the mouthpiece regardless of the configuration of the mouthpiece.

Another illustrative example of a cap assembly 14 that includes a mount, or drink spout, 100 that is pivotal within a range of positions, or configurations, relative to the base of the cap assembly is shown in Fig. 7. As shown, the cap assembly includes an adjustable joint 108, which is somewhat schematically illustrated. As illustrative examples, the mouthpiece, and at

Zak Designs, Inc. Exhibit 1003
40 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 221 of 857

least a portion of the mount, may be coupled to the base of the cap assembly by a joint (and/or valve) 108, such as may take the form of a pivotal joint, a ball joint, or other suitable structure that provides for adjusting the angular and/or rotational orientation of the mount relative to the base of the cap assembly. When the cap assembly includes such a pivotal joint 108, it is within the scope of the present disclosure that the joint may form a portion of the cap assembly's fluid conduit 74, such as with the passage of the fluid conduit extending through the joint. However, this construction is not required to all embodiments. As a variation of this structure, the mount may include a hinged or other flexible region that permits selective adjustment of the orientation of the mount's distal open end region 104 relative to the inlet of the fluid conduit.

It is within the scope of the present disclosure that the mouthpiece is non-removably, or permanently, secured to the base, mount, or other portion of the cap assembly. However, in many embodiments it may be desirable for the mouthpiece to be removably connected to the cap assembly, such as to permit the mouthpiece to be repeatedly removed, such as for cleaning or replacement, and thereafter recoupled to the mount. As non-exclusive, illustrative examples, the mouthpiece may be removably mounted onto mount 100 and/or with mount 100 being designed to be removed from base 70.

Bite-actuated mouthpiece, or valve, 72 includes at least one opening through which drink fluid may flow when the mouthpiece is in its dispensing, or open configuration. An illustrative, non-exclusive example of a suitable construction for bite-actuated mouthpiece 72 is shown in Figs. 10-15. In the illustrated example, and perhaps best seen in Figs. 10 and 14-15, the mouthpiece includes a dispensing outlet, or opening, 86 that is defined by a slit 88 that extends through the dispensing face 90 of the mouthpiece. It is within the scope of the present disclosure that other configurations may be used, including two or more slits, intersecting or spaced-apart

Zak Designs, Inc. Exhibit 1003
41 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 222 of 857

slits, etc. This range of optional configurations is schematically indicated in Fig. 11, in which a pair of laterally spaced slits are shown in dashed lines at 88', and in which a second slit that intersects with slit 88 is shown in dash-dot lines at 88". The mouthpiece defines an internal chamber 110 into which drink fluid flows from the outlet, or end region, of the mount and to the opening formed by slit 88 when the mouthpiece is in a dispensing configuration. The sidewalls, or wall structure, 92 of the mouthpiece may be described as including one or more bite regions 112, which refer to opposed regions upon which a user may bite or otherwise apply compressive forces to urge the mouthpiece from its closed configuration to a dispensing configuration.

As perhaps best seen in Fig. 10, the illustrated example of a mouthpiece 72 has a non-symmetrical cross-sectional configuration between opposed regions of the mouthpiece's sidewalls 92. By this it is meant that the illustrated mouthpiece has different dimensions transverse to the direction of fluid flow, depending upon whether the dimensions are measured transverse or parallel to the illustrated slit. It is within the scope of the present disclosure that other non-symmetrical or symmetrical configurations may be used. For example, mouthpiece 72 may have a circular cross-sectional configuration, amongst others.

Mouthpiece 72 is resilient and biased to its closed configuration, such as is shown in Figs. 10-15. In use, the mouthpiece is adapted to be configured to the dispensing configuration by a user placing the mouthpiece in the user's mouth and biting upon or otherwise compressing the appropriate portions of sidewalls 92 of the mouthpiece, such as bite regions 112, to deform the mouthpiece to a position where the slit or other opening is no longer sealed and instead defines a fluid pathway through which drink fluid may flow. This is somewhat schematically depicted in Fig. 16 with another illustrative example of a suitable bite-actuated mouthpiece. As shown, the opposed lips, or sealing surfaces, 94 that define slit 88 are spread apart from each

Zak Designs, Inc. Exhibit 1003
42 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 223 of 857

other to define opening 86, through which drink fluid may be dispensed from the drink bottle. Mouthpiece 72 may be referred to as a self-sealing valve, or valve assembly, because the mouthpiece is constructed to automatically return to its closed, or sealed, configuration when the compressive forces, such as may be applied by a user's teeth or mouth, are no longer applied to maintain the mouthpiece in its dispensing configuration. Therefore, unless forces are being exerted to the mouthpiece to deform the mouthpiece to a dispensing configuration, the mouthpiece will be in its closed, or sealed, configuration.

The illustrated example also demonstrates that the region of the mouthpiece distal the dispensing face, which may be referred to as the base, or distal, portion of the mouthpiece and which is generally indicated at 113 in Figs. 10 and 12-15 may have (but is not required to have) a contoured configuration that does not extend at a constant distance from the dispensing face. In the illustrative, non-exclusive example shown in Figs. 12 and 13, the base portion includes a pair of projecting regions 114 separated by a pair of concave regions 115, although this construction is not required and other irregular base configurations may be utilized without departing from the scope of the present disclosure. Having a contoured or otherwise irregular configuration, when mounting on a dispensing spout or other mount that is complimentarily configured to receive and conform to such a configuration enables the mount to restrict relative rotation of the mouthpiece thereupon due to the engagement of the distal portion 113 of the mouthpiece with the mount, such as shown by referring back to Figs. 1 and 2. As discussed, the illustrated example is but a non-exclusive example of a suitable configuration, with it being within the scope of the present disclosure that the distal portion of the mouthpiece and/or the corresponding mount may have any suitable configuration for securing the mouthpiece upon the mount.

Zak Designs, Inc. Exhibit 1003
43 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 224 of 857

Additional illustrative, non-exclusive examples of suitable configurations for bite-actuated, self-sealing mouthpieces 72 for use with drink containers according to the present disclosure are shown in Figs. 17-20. In Figs. 17-20, the mouthpieces are shown positioned on a mount 100 that extends into a neck region 116 of the mouthpiece and terminates at an end region 104. Also shown are optional stops, or internal projections, 118 that are adapted to engage the end region 104 of the mount to define the fully inserted position of the mount within the mouthpiece. The illustrative portions of mount 100 define portions of fluid conduit 74 which extends from the end region, or outlet, 104 of the mount and into the internal chamber 110 of the mouthpiece.

Additional illustrative examples of suitable bite-actuated mouthpieces, including external and internal constructions of which that may be selectively utilized (in whole or in part) with mouthpieces 72 according to the present disclosure are disclosed in U.S. Patent Nos. 6,070,767 and 6,032,831, the complete disclosures of which are hereby incorporated by reference for all purposes. In the illustrated examples, mouthpiece 72 has a narrower head portion than the mouthpieces disclosed in the incorporated patents, but any of the illustrated configurations may be utilized. Similarly, the internal construction of the incorporated mouthpieces may be utilized with mouthpiece 72, such as the internal configurations for the mouthpiece's face and/or sidewalls. For example, at least Figs. 14 and 15 illustrate that mouthpieces 72 may, but are not required to, include internal discontinuities, such as internal corners or edges, that extend along the sidewalls away from the dispensing face and which may assist in the mouthpiece deforming to its open configuration and/or returning to a sealed configuration.

In the preceding discussion, mouthpiece 72 has been described as a bite-actuated mouthpiece. As also discussed, in some embodiments, the fluid container will be formed from a

Zak Designs, Inc. Exhibit 1003
44 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 225 of 857

material that configures, or permits, the wall structure of the fluid container to be collapsed inwardly as a user squeezes the fluid container. This intentional reduction in the internal volume of the fluid container may urge drink fluid through the fluid conduit and expel the fluid through the bite-actuated mouthpiece. It is within the scope of the present disclosure that mouthpiece 72 may be configured to permit this additional method of dispensing drink fluid from the drink bottle.

A potential benefit of the bite-actuated mouthpiece being biased to its closed configuration is that a user may position the drink bottle (and mouthpiece) to a desired drinking orientation, and even a partially or completely inverted orientation, without drink fluid being dispensed from the mouthpiece. When the user desires to drink from the positioned drink bottle, the user may bite upon the mouthpiece (and/or optionally squeeze a fluid container that is designed to be collapsed during use) to commence the flow of drink fluid through the mouthpiece to the user.

As discussed, bite-actuated mouthpiece 72 is biased to a closed, or sealed, configuration in which the opening that is formed in the dispensing face of the mouthpiece is closed and prevents drink fluid from passing therethrough. Therefore, unless the mouthpiece is reconfigured from its closed configuration to a dispensing configuration, drink fluid is prevented from being dispensed through the cap assembly's fluid conduit. In some embodiments, it may be desirable for the cap assembly to further include a flow-restricting, or on/off, valve in addition to the bite-actuated mouthpiece. For example, because the mouthpiece is designed to be configured to its dispensing configuration when lateral external forces are imparted to the mouthpiece (such as when a user bites upon or otherwise compresses the sidewalls of the mouthpiece toward each other), it is possible that external forces may be inadvertently exerted upon the mouthpiece.

Zak Designs, Inc. Exhibit 1003
45 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 226 of 857

Should this occur, drink fluid may be dispensed through the mouthpiece. However, the inclusion of an optional manual on/off valve, which selectively restricts whether drink fluid may flow to the mouthpiece from the fluid container, may prevent this unintentional dispensing of drink fluid regardless of the configuration of the mouthpiece. A graphical example of a drink bottle according to the present disclosure that includes an on/off, or shutoff, valve and a bite-actuated mouthpiece 72 is shown in Fig. 8. In Fig. 8, the on/off valve is indicated in dashed lines at 120 to graphically represent that the on/off valve, when present, may be located at any suitable position downstream (i.e., toward the internal compartment of the fluid container) of the mouthpiece's face, and typically proximate or upstream (i.e., toward the mouthpiece's dispensing face) from the inlet of the fluid conduit 74.

The on/off valve is selectively configured between open and closed configurations independent of the configuration of the bite-actuated mouthpiece. When the on/off valve is in its closed configuration, it is adapted to obstruct at least a portion of the fluid conduit, and optionally to completely obstruct the fluid conduit, thereby preventing drink fluid from passing from the fluid container to the face of the bite-actuated mouthpiece. Therefore, when the on/off valve is in its closed configuration, drink fluid cannot be dispensed from the fluid container through the mouthpiece, regardless of the configuration of the bite-actuated mouthpiece. As such, the on/off valve may also be referred to as a shutoff valve. When the on/off valve is in its open configuration, the drink fluid is selectively dispensed from the fluid container through the mouthpiece depending upon the configuration of the bite-actuated mouthpiece.

Unlike bite-actuated mouthpiece 72, the on/off valve will typically not be biased to return automatically to a particular configuration. Instead, the on/off valve may be configured to remain in a user-selected orientation until reconfigured to a different orientation by a user. In

Zak Designs, Inc. Exhibit 1003
46 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 227 of 857

such an embodiment, the on/off valve may be referred to as being a static valve, in that it only restricts flow of drink fluid through the fluid conduit when positively configured to do so by a user. The on/off valve may utilize any suitable actuation mechanism to selectively configure the valve between its open and closed configurations.

As an illustrative, non-exclusive example, the joint 108 illustrated in Fig. 7 may be configured to provide an on/off valve 120 when pivoting of the mount relative to the cap assembly selectively causes the fluid conduit through the cap assembly to mouthpiece 72 to be obstructed. For example, at least a portion of the fluid conduit may be obstructed as the distal end of the mount is pivoted toward the cap assembly. In some embodiments, such as when the fluid conduit extends through the joint, the degree to which the corresponding portion of the fluid conduit is obstructed may vary depending upon the degree to which the mount is pivoted or otherwise moved toward the cap assembly. In such an embodiment, the fluid conduit may not be obstructed by the joint or other on/off valve in at least one position (and optionally a sub-range of positions) within the range of positions within which the mount may be oriented relative to the cap assembly, the portion of the fluid conduit may be partially obstructed during another sub-range of the range of positions, and the portion of the fluid conduit may be completely obstructed in at least one (and optionally a third sub-range of positions) within the range of positions. It is also within the scope of the present disclosure that a similar range and sub-ranges may be provided by other embodiments of on/off valve 120. However, this construction is not required to all drink bottles according to the present disclosure.

An illustrative, non-exclusive example of a suitable configuration for an on/off, or shutoff, valve is shown in Figs. 26 and 27, in which the on/off valve is generally indicated at 120. As shown, mount 100 is pivotally coupled to base 70 of the cap assembly to selectively

Zak Designs, Inc. Exhibit 1003
47 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 228 of 857

restrict and permit drink fluid to flow from the fluid container to the fluid conduit. In at least Figs. 26 and 27, mount 100 may be described as providing a drink spout that is pivotally coupled to the base of the cap assembly. The drink spout is selectively pivoted between a stowed, or closed, configuration (such as shown in Fig. 26) and a dispensing, or extended, configuration (such as shown in Fig. 27), in which the drink spout is pivoted generally away from the base of the cap assembly relative to the closed configuration. In the closed configuration, the drink spout is pivoted toward or even against the base of the cap assembly relative to the dispensing configuration. In the illustrated example, the fluid conduit between the internal compartment of the drink container and the mouthpiece of the cap assembly is blocked by the drink spout when the drink spout is in its closed configuration, thereby restricting (or preventing) drink fluid from being dispensed through the drink spout regardless of the configuration of the mouthpiece when the drink spout is in the closed configuration. In the dispensing configuration, pivoting of the drink spout away from the base aligns an aperture in the drink spout to establish a continuous fluid conduit from the internal compartment to the mouthpiece.

Another example of a suitable actuation mechanism for an on/off valve 120 that may be used with drink bottles 10 according to the present disclosure is a push-pull mechanism, in which the bite-actuated mouthpiece and typically at least a portion of the mount and/or fluid conduit is urged away from a baffle or other obstruction that selectively prevents drink fluid from passing through the mount or other portion of the fluid conduit to the internal chamber of the mouthpiece. For example the push-pull mechanism may, in its closed configuration, prevent drink fluid from entering the inlet of the fluid conduit until the mouthpiece and other corresponding structure is drawn away from the obstruction. As another example, the push-pull mechanism that provides an on/off valve may selectively restrict drink fluid from passing

Zak Designs, Inc. Exhibit 1003
48 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 229 of 857

through an intermediate portion of the fluid conduit (such as within the mount), and/or from exiting the mount into the internal compartment of the mouthpiece. In a variant of this push-pull mechanism, the obstruction is selectively pushed or otherwise urged away from the inlet or other suitable portion of the fluid conduit to permit drink fluid to flow therethrough.

Yet another illustrative example of a suitable construction for a static on/off valve 120 is a rotatable mechanism, in which a portion of the fluid conduit upstream from the internal chamber of the mouthpiece (such as the inlet, outlet, or an intermediate portion of the mount) is selectively obstructed until the mouthpiece (and typically at least a portion of the mount and/or fluid conduit) is rotated to a position in which the obstruction no longer prevents drink fluid from passing through the fluid conduit. Yet another illustrative, non-exclusive example of a suitable actuation mechanism for a static on/off valve 120 utilizes a fluid conduit having a foldable, collapsible, resiliently deformable, and/or crimpable region and suitable structure for selectively folding, flattening, resiliently deforming, and/or crimping that region of the fluid conduit to block, obstruct, or otherwise restrict the flow of drink fluid therethrough. This region may define a portion of the fluid conduit through which drink fluid may selectively flow from the inlet to the mouthpiece. An illustrative, non-exclusive example of a suitable material for such a portion of the fluid conduit is silicone or another material that does not readily take a compression set and therefore may be repeatedly folded, flattened, crimped, and the like without leaking or otherwise being permanently deformed or failing.

The schematic example of an on/off, or shutoff, valve 120 that is depicted in Fig. 8 is intended to graphically represent these and any other suitable constructions for a static on/off valve that selectively prevents drink fluid from being dispensed from the drink bottle through the opening of the mouthpiece regardless of the configuration of the mouthpiece. Additional

Zak Designs, Inc. Exhibit 1003
49 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 230 of 857

examples are presented in the provisional patent applications that are incorporated by reference herein.

Drink bottles 10 according to the present disclosure may, but are not required to, additionally or alternatively include an air return, or pressure relief, assembly that is adapted to selectively permit air from external the drink bottle to enter the drink bottle's internal compartment other than through the dispensing opening of the mouthpiece. When present, the air return assembly is preferably positioned sufficiently away from the dispensing face of the mouthpiece that the air return valve is not obstructed when a user is drawing drink fluid from the fluid container through the opening of the mouthpiece. Especially when the fluid container has a rigid construction that is not adapted to readily collapse as drink fluid is drawn therefrom, a vacuum will tend to be drawn within the fluid container as drink fluid is withdrawn therefrom through the mouthpiece. As this vacuum, or pressure-differential, increases, it will become more difficult for a user to draw additional drink fluid through the mouthpiece until this pressure differential is reduced.

A schematic example of a drink bottle 10 according to the present disclosure that includes an air return assembly is shown in Fig. 9, with the air return assembly generally indicated at 160. Air return assembly 160 is adapted to permit air from external the drink bottle to enter the internal compartment 20 of fluid container 12 without having to pass through the drink bottle's mouthpiece 72 (or least the dispensing face 90 or opening 86 of the mouthpiece). It is within the scope of the present disclosure that the air return assembly may be implemented on the cap assembly, such as on base 70 of the cap assembly. It is also within the scope of the present disclosure that the air return assembly, when present, may be implemented on the fluid container and/or that the drink bottle may be formed without an air return assembly that is separate from

Zak Designs, Inc. Exhibit 1003
50 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 231 of 857

the bite-actuated mouthpiece. It is also within the scope of the present disclosure that an air return valve may be integrally formed with the bite-actuated mouthpiece or that it may be separately formed from the mouthpiece. When separately formed from the mouthpiece, the air return assembly may be positioned in a spaced-apart relationship to the mouthpiece on the cap assembly, on a dispensing mount (or nozzle) 100, on the fluid container, etc.

Air return assembly 160 may define an air conduit 162 through which air may flow at least from external the drink bottle to the internal compartment of the drink container. In Fig. 9, the conduit is schematically illustrated including an inlet 164, through which air may enter the conduit from external the drink container, and an outlet 166, through which air in the conduit may pass to the interior of the drink bottle, such as to the internal compartment of the drink container.

In embodiments of drink bottles 10 that include an air return assembly 160, the air return assembly may, but is not required to, include at least one air return valve, such as is schematically illustrated in Fig. 9 at 168 and which is less schematically illustrated in the subsequently discussed Figs. 25-29. Air return valve 168 is adapted to selectively restrict the flow of air through the air conduit from external the drink bottle and/or to restrict the flow of drink fluid through the air conduit from internal the drink bottle. Air return valve 168 is adapted to be selectively configured between a closed, or sealed, configuration in which the flow of air into the internal compartment through the air return assembly from external the drink bottle is restricted, and an open, or actuated, configuration, in which the air return valve is at least partially displaced from its sealed configuration and in which air may flow through the air return assembly, such as from external the drink bottle into the internal compartment of the fluid container. This flow of air may be through an air conduit, such as conduit 162, or may be simply

Zak Designs, Inc. Exhibit 1003
51 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 232 of 857

through an opening in the drink bottle that is selectively obstructed by the air return valve. Air return valve 168 preferably has a relatively low actuation pressure for permitting air to be drawn from external the drink bottle into the drink bottle's internal compartment, while also having a relatively high resistance to drink fluid being able to pass through the valve from within the internal compartment. In other words, the air return valve is preferably constructed to resist fluid flow through the valve from internal the compartment. Similar to bite-actuated mouthpiece 72, the air return valve is preferably a resilient valve that is biased to a closed configuration in which the valve is sealed and thereby prevents air or other fluid from passing therethrough. As discussed, the air return valve may be designed to be configured to an actuated, or open, configuration responsive to more than a predetermined pressure differential existing between the drink bottle's internal compartment and the environment external the drink bottle.

Air return valve 168 may include any suitable structure for selectively permitting air to enter the internal compartment of the drink bottle, preferably while also restricting drink fluid from exiting the internal compartment through the air return valve. As an illustrative, non-exclusive example, the air return valve may be a pressure-differential valve that is adapted to selectively permit air to flow into the drink container's internal compartment while restricting the flow of fluid through the air conduit from the internal compartment to exterior of the drink bottle. An illustrative, non-exclusive example of a suitable construction for air return valve 168 is an umbrella, or diaphragm valve, although other suitable valves may be used, including other suitable self-sealing valves. Another illustrative example of a suitable structure is a "duck bill" configuration, in which the valve assembly projects internally into the internal compartment and includes lips that are adapted to spread apart from each other to define a passage through which air may be returned into the internal compartment of the drink bottle, but which are biased

Zak Designs, Inc. Exhibit 1003
52 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 233 of 857

together to resist drink fluid passing from the internal compartment through the passage. Further examples include valves having one or more slits, including intersecting slits. When a self-sealing valve (i.e., a valve that is biased to a sealed configuration) is utilized, the seal may be provided by abutting surfaces of the valve itself and/or by the valve sealing against a portion of the drink bottle.

It is within the scope of the present disclosure that drink containers that include an air return assembly 160 may alternatively not include any form of physical valve that restricts the flow of fluid through the air conduit. In some embodiments, the air return assembly may include an air conduit that is obstructed on at least one of its ends (internal the fluid container or external the fluid container) when the drink bottle is not being used, such as when a pivotal dispensing nozzle is pivoted to a closed configuration. Air return assembly 160 is preferably positioned so that its air conduit is not obstructed by a user's mouth when the drink bottle is used to dispense drink fluid to a user.

Fig. 9 also graphically depicts that drink bottles 10 according to the present disclosure may, but are not required to, include an optional straw 180 that extends from the cap assembly into the fluid container, such as to (or at least proximate) the lower region of the fluid container. Straw 180 enables a user to draw drink fluid from the drink container via mouthpiece 72 without having to tip the drink bottle so that drink fluid may flow into the fluid conduit 74. For example, as the size of the fluid container increases, users may be more likely to want to draw drink fluid from the drink bottle without having to lift and tilt the drink bottle to the generally horizontal or even inverted configuration that would be used if straw 180 was not present. Straw 180 may be removably (or permanently) coupled to a corresponding mount 182 on the cap assembly, such as at or proximate the inlet 80 of fluid conduit 74. A benefit of a removable straw structure 180 is

Zak Designs, Inc. Exhibit 1003
53 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 234 of 857

that a user may selectively attach or remove the straw structure from the cap assembly, such as depending upon the desired use of the drink bottle at a given time. As discussed, it is also within the scope of the present disclosure that the straw may be fixedly, or permanently, attached to the cap assembly. As used herein, "removably," "removably coupled," and "removably attached" refer to structures that are designed to be repeatedly connected and disconnected without destruction of the corresponding structures. Similarly, fixedly connected or permanently coupled structures refer to structures that are not designed to be separated without destruction of at least a portion of the structures and/or the mechanism that joins the structures.

Fig. 9 also illustrates that drink bottles 10 according to the present disclosure may, but are not required to, include (or be selectively used with) elongate, flexible drink tubes, or external straw structures, 190 that fluidly interconnect the bite-actuated mouthpiece with mount 100 or another suitable receiver on cap assembly 14. It is within the scope of the present disclosure that any of the drink bottles disclosed, illustrated, and/or incorporated herein may be selectively utilized with an elongate drink tube 190. A potential benefit of this optional construction is that a user may draw drink fluid from the drink bottle without having to hold the drink bottle. Although it is within the scope of the present disclosure that the drink tube may be integrated with or otherwise permanently secured to one or both of the cap assembly or the bite-actuated mouthpiece, it may be desirable for each of these components to be removably coupled to the drink tube. For example, this permits the drink bottle to be used with the mouthpiece connected directly to the cap assembly (such as to mount 100) or to be connected to the cap assembly by drink tube 190. In Fig. 9, an optional mount 192 is shown interconnecting the drink tube with mount 100, such as with the end region thereof), although it is within the scope of the present disclosure that the drink tube may be coupled directly to an end of the mount, such as by

Zak Designs, Inc. Exhibit 1003
54 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 235 of 857

extending the corresponding end of the drink tube within or over an end of the mount. After attachment to the mount, the drink tube may optionally be described as forming an extension of the fluid conduit 74 of the drink bottle. When drink bottles according to the present disclosure include an elongate drink tube, such as tube 190, it is also within the scope of the present disclosure that the downstream assembly defined by the drink tube and mouthpiece may optionally include one or more quick-connect assemblies and/or flow-regulating devices and accessories, such as disclosed in U.S. Patent No. 6,908,015, U.S. Patent No.7,073,688, and U.S. Patent Application Publication No. 2004/0089301, the complete disclosures of which are hereby incorporated by reference herein for all purposes.

The previously discussed Figs. 7-9 schematically illustrate a variety of components and structures that may (but are not required to be) incorporated into drink bottles according to the present disclosure. It is within the scope of the present disclosure that these components and structures, when present, may have any suitable structure meeting the functional criteria set forth herein and may be implemented individually or in combination with others of these or other components and structures.

Figs. 21-27 show a less schematic example of a suitable cap assembly 14 that may be used with drink bottles 10 according to the present disclosure. The example shown in Figs. 21-27 includes non-exclusive examples of various ones of the previously discussed components and structures. However, it is with the scope of the present disclosure that other components and/or structures may be utilized in place of or in addition to the illustrated components and structures. Accordingly, the depicted example is not intended to require the selected examples and combination of components and structures. Instead, it is intended to provide an illustrative, non-exclusive example of a suitable construction for cap assemblies according to the present

Zak Designs, Inc. Exhibit 1003
55 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 236 of 857

disclosure. The other components, structures, and variants thereof that are illustrated, described and/or incorporated herein may be selectively utilized with the illustrated cap assembly without departing from the scope of the present disclosure. Similarly, the illustrated cap assembly may be used with any of the drink bottles described, illustrated, and/or incorporated herein, as may the other cap assemblies and/or mouthpieces described, illustrated and/or incorporated herein.

In the example shown in Figs. 21-27, the cap assembly includes a base 70 from which a mount, or drink spout, 100 extends. The mount is pivotally coupled to the base of the cap assembly and is selectively pivoted within a range of positions relative to the base of the cap assembly. In Figs. 21, 23, and 26, the mount is shown in a stowed configuration, while in Figs. 22, 24-25 and 27, the mount is shown in illustrative dispensing configurations within the range of positions. The dispensing configurations of the mount may also be described as deployed and/or ready-to-drink configurations. The cap assembly includes a bite-actuated mouthpiece 72 that is mounted on mount 100 and is in fluid communication therewith. The illustrative mouthpiece includes a dispensing face 90 having a self-sealing opening 86 through which drink fluid may be selectively dispensed when the mount and mouthpiece are both in dispensing configurations.

In the illustrative example shown in Figs. 21-27, the mount includes an optional flange, or lever arm, 122 that projects from the mount and provides a surface that may be grasped or otherwise suitably engaged by a user, such as by a user's finger or thumb, to draw the mouthpiece and its mount from the stowed configuration toward, or to, a ready-to-drink configuration. Flange 122 may optionally be utilized with any of the other pivotal (or otherwise selectively stowable) mounts that are described, illustrated and/or incorporated herein.

Zak Designs, Inc. Exhibit 1003
56 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 237 of 857

The illustrative example of a cap assembly 14 shown in Figs. 21-27 also includes a handle 140 that extends from the base of the cap assembly. Handle 140 may take any other suitable form, may have a rigid or flexible construction, and may be (but is not required to be) used with any of the other cap assemblies that are disclosed, illustrated and/or incorporated herein. When present, handle 140 may, but is not required to, define a closed perimeter, or boundary, 142 through which a lanyard, karabineer, belt, strap, user's finger, or other structure may extend to hold and/or retain the drink bottle in a selected position. It is within the scope of the present disclosure that this closed boundary is perhaps best seen in Fig. 25. The closed boundary may be defined entirely by the handle or that it may be defined by the handle and the base of the cap assembly. Regardless, the closed boundary refers to a closed perimeter around an opening through which an object may be inserted, such as to position or coupled to the drink container. Additionally or alternatively, when the drink bottle includes a tether than interconnects the cap assembly and the fluid container, the tether may also define (when the cap assembly is properly mounted on the fluid container) a (or another) closed boundary through which a strap or other securing or positioning structure may extend.

Fig. 25 also illustrates a non-exclusive example for a suitable pivotal mounting mechanism for mount 100, with the mount including lateral projections 150 that are received into sockets 152 defined by portions of the base 70 and handle 140 of the cap assembly. The projections are rotatable within the sockets, and thereby function as rotatable supports, or axles, upon which the mount and any attached mouthpiece may be pivotally moved relative to the base of the cap assembly, such as between stowed and dispensing configurations and/or otherwise within the previously discussed range of positions. This illustrative mounting configuration is

Zak Designs, Inc. Exhibit 1003
57 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 238 of 857

intended to provide a non-exclusive example of a suitable configuration, and it is within the scope of the present disclosure that other configurations may be utilized.

In the illustrated example, and as indicated in Figs. 21-22 and 25, the handle also provides guards 144 that are positioned to protect the bite-actuated mouthpiece from unintentional contact and/or exposure at least when the mouthpiece is in its stowed configuration. In the illustrated example, handle 140 provides a pair of lateral guards 146 that extend on opposing sides of the mouthpiece, as well as a dispensing face guard, or cover, 148 that is adapted to protect the dispensing face of the bite-actuated mouthpiece when the mouthpiece is in its stowed configuration. For example, guard 148 may provide a form of dust cover that protects the dispensing face, and thus the slit or other opening formed therein, from being contacted by dirt, grime, and other substances when the mouthpiece is in its stowed configuration. As handle 140 is itself optional and thereby not required to all embodiments of drink bottles according to the present disclosure, it follows that handle 140, when present, may be formed with only one or more of the illustrated guards, with one or more additional guards, and/or without any guards.

In Figs. 26 and 27, the internal structure of the cap assembly shown in Figs. 21-25 is shown in more detail. For example, the illustrated cap assembly includes a coupling structure 45 in the form of threads 46. As discussed, any other suitable coupling structures may be utilized without departing from the scope of the present disclosure. Figs. 26 and 27 provide a graphical illustration of a pivotal mount 100 that defines a portion of fluid conduit 74 and therefore may be referred to as a drink spout through which drink fluid may selectively flow from the drink container, through an inlet 80 of the fluid conduit defined by the cap assembly, and thereafter through an outlet 104 of the mount into the internal chamber 110 of the bite-actuated mouthpiece

Zak Designs, Inc. Exhibit 1003
58 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 239 of 857

72. When the mouthpiece is urged to a dispensing configuration, such as by a user biting upon the mouthpiece, the drink fluid may be dispensed through the self-sealing opening 86 in the mouthpiece.

The illustrated example of a cap assembly 14 includes a manual on/off valve, or shutoff valve, 120 that is defined at least in part by the mount. As shown in Fig. 26, fluid conduit 74 is obstructed by a portion of the body 154 of the mount when the mount is in a stowed configuration. As shown with consideration of Figs. 26 and 27, the mount's body includes an inlet 156 that is selectively aligned in fluid communication with the inlet 80 of the fluid conduit. In Fig. 26, the mount is in a stowed configuration and the fluid inlet to the mount is not aligned in fluid communication with the inlet of the fluid conduit. As such, drink fluid is prevented from flowing from the fluid container and through the fluid conduit to the mouthpiece. Therefore, drink fluid from the fluid container will not be dispensed through the fluid conduit and mouthpiece regardless of the configuration of the mouthpiece. When the mount is pivoted to a dispensing configuration, such as shown in Fig. 27, drink fluid may flow through the entire fluid conduit. Figs. 26 and 27 include an optional gasket, or sealing member, 158. As illustrated, the gasket takes the form of a compressible o-ring, but any other suitable structure may be utilized when sealing member 158 is included in cap assembly 14.

In Figs. 26 and 27, the inlet 80 of the fluid conduit is defined by an optional mount 182 for an internal straw that may be selectively attached to the mount. When attached, the inlet for the fluid conduit would be defined by the distal end of the straw. When mount 182 is not present, the inlet to the fluid conduit may be defined by a portion of the cap assembly beneath the mount, or optionally, by the fluid inlet to the mount itself.

Zak Designs, Inc. Exhibit 1003
59 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 240 of 857

Figs. 26 and 27 also provide a graphical example of a cap assembly 14 that includes an air return assembly 160. In the illustrative, non-exclusive example, the air return assembly includes an air return valve 168 that has an umbrella valve configuration, in which the valve assembly includes an internally deflectable flap or perimeter region 170 that is biased to seal against a region 172 of the underside (or other suitable portion) of the cap assembly that contains an aperture or other passage or conduit 162 through which air may selectively flow when the air return valve is in a open, or deflected configuration.

Figs. 28 and 29 generally correspond to the cap assembly shown in Figs. 26 and 27. Figs. 28 and 29 provide a graphical demonstration that cap assemblies 14 that include an on/off valve 120 may implement the shutoff mechanism with structure other than the structure shown in Figs. 26 and 27. For example, in Figs. 28 and 29, the on/off valve includes a flexible tube, or conduit 124 that in Fig. 28 fluidly interconnects the inlet 80 of the fluid conduit with the internal chamber 110 of the mouthpiece. However, when the mount is pivoted to a stowed configuration, such as shown in Fig. 29, the body 154 of the mount engages the tube and collapses or otherwise compresses or crimps the tube to obstruct the fluid conduit, thereby preventing the flow of drink fluid from the fluid container, through the fluid conduit, and out of the mouthpiece, regardless of the configuration of the mouthpiece. As the mount is pivoted from the stowed configuration shown in Fig. 29 to a dispensing configuration, such as the illustrative configuration shown in Fig. 28, the constrictive pressure applied by the body of the mount is correspondingly reduced, and a fluid flow path through the fluid conduit is reestablished.

Zak Designs, Inc. Exhibit 1003
60 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 241 of 857

Industrial Applicability

The drink bottles and drink containers of the present disclosure are applicable to the hydration fields, and are specifically applicable to portable bottles and similar containers from which users may selectively drink potable drink fluid.

It is believed that the disclosure set forth above encompasses multiple distinct inventions with independent utility. While each of these inventions has been disclosed in its preferred form, the specific embodiments thereof as disclosed and illustrated herein are not to be considered in a limiting sense as numerous variations are possible. The subject matter of the inventions includes all novel and non-obvious combinations and subcombinations of the various elements, features, functions and/or properties disclosed herein. Similarly, where the claims recite "a" or "a first" element or the equivalent thereof, such claims should be understood to include incorporation of one or more such elements, neither requiring nor excluding two or more such elements.

It is believed that the following claims particularly point out certain combinations and subcombinations that are directed to one of the disclosed inventions and are novel and non-obvious. Inventions embodied in other combinations and subcombinations of features, functions, elements and/or properties may be claimed through amendment of the present claims or presentation of new claims in this or a related application. Such amended or new claims, whether they are directed to a different invention or directed to the same invention, whether different, broader, narrower, or equal in scope to the original claims, are also regarded as included within the subject matter of the inventions of the present disclosure.

Zak Designs, Inc. Exhibit 1003
61 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 242 of 857

Claims

1. A drink container, comprising:

a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes an inlet through which drink fluid from the fluid container may enter the fluid conduit, and a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base;

a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base; wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet; wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position; wherein the resilient mouthpiece is adapted to resiliently

Zak Designs, Inc. Exhibit 1003
62 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 243 of 857

compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet; wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit; wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

2. The drink container of claim 1, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend, and wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets.

3. The drink container of claim 2, wherein the cap assembly base further comprises a handle that extends from the cap assembly base, and further wherein the handle is secured to the cap assembly base in a position that obstructs removal of the pair of lateral projections from the pair of sockets.

Zak Designs, Inc. Exhibit 1003
63 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 244 of 857

4. The drink container of claim 1, wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position, and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

5. The drink container of claim 4, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

6. The drink container of claim 4, wherein the dust cover projects above an upper surface of the cap assembly base.

7. The drink container of claim 4, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

8. The drink container of claim 1, wherein the cap assembly further comprises a handle that extends in a fixed orientation from the cap assembly base and which defines at least a portion of a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

Zak Designs, Inc. Exhibit 1003
64 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 245 of 857

9. The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

10. The drink container of claim 1, wherein the resilient mouthpiece includes projections that extend generally transverse to the portion of the fluid conduit that extends through the resilient mouthpiece, and further wherein the projections engage an end region of the pivotal mount.

11. The drink container of claim 10, wherein the projections are internal projections.

12. The drink container of claim 1, wherein the resilient mouthpiece is configured to be selectively removed from and recoupled to the pivotal mount.

13. The drink container of claim 12, wherein the resilient mouthpiece includes a mouthpiece base with an end distal the dispensing outlet that has a contoured configuration that does not extend at a constant distance from the dispensing outlet, wherein the end of the resilient mouthpiece base includes a projecting region and a concave region, wherein the projecting region of the end of the mouthpiece base extends a greater distance away from the dispensing outlet than the concave region of the end of the mouthpiece base, and further wherein the pivotal mount is configured to engage the projecting region and the concave region of the mouthpiece base to restrict rotation of the resilient mouthpiece relative to the pivotal mount.

Zak Designs, Inc. Exhibit 1003
65 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 246 of 857

14. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

15. The drink container of claim 14, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

16. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face that defines the dispensing outlet, wherein the resilient mouthpiece includes opposed bite regions, wherein the dispensing face includes opposed lips between which the dispensing outlet is defined, and further wherein when a user applies compressive forces to the opposed bite regions, the lips are urged away from each other to enlarge the dispensing outlet.

17. The drink container of claim 16, wherein the opposed lips seal against each other when the opposed bite regions are not urged toward each other.

18. The drink container of claim 1, wherein the pivotal mount further includes a projecting flange that extends away from a portion of the fluid conduit that extends through the pivotal mount, wherein the projecting flange provides a lever arm that is configured to be engaged by a user's finger to pivot the pivotal mount from the stowed position to the dispensing position.

Zak Designs, Inc. Exhibit 1003
66 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 247 of 857

19. The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

20. The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

Zak Designs, Inc. Exhibit 1003
67 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 248 of 857

Abstract of the Disclosure

Drink bottles, or drink containers with cap assemblies that include a drink spout. In some embodiments, the drink spout is pivotally coupled to a base of the cap assembly. In some embodiments, the drink spouts include mouthpieces, including self-sealing and/or bite-actuated mouthpieces. In some embodiments, the cap assembly includes a handle, which may include at least one guard for the drink spout and/or mouthpiece. In some embodiments, the drink containers include a manual on/off valve. In some embodiments, the dispensing spout includes a mount for the mouthpiece and/or cooperates with the cap to provide a manual on/off valve to selectively restrict flow of drink fluid from the drink container regardless of the drink spout's and/or mouthpiece's configuration. In some embodiments, the drink containers include a drink tube extending from external of the drink containers and/or an air return system.

Zak Designs, Inc. Exhibit 1003
68 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 249 of 857

Fig. 1

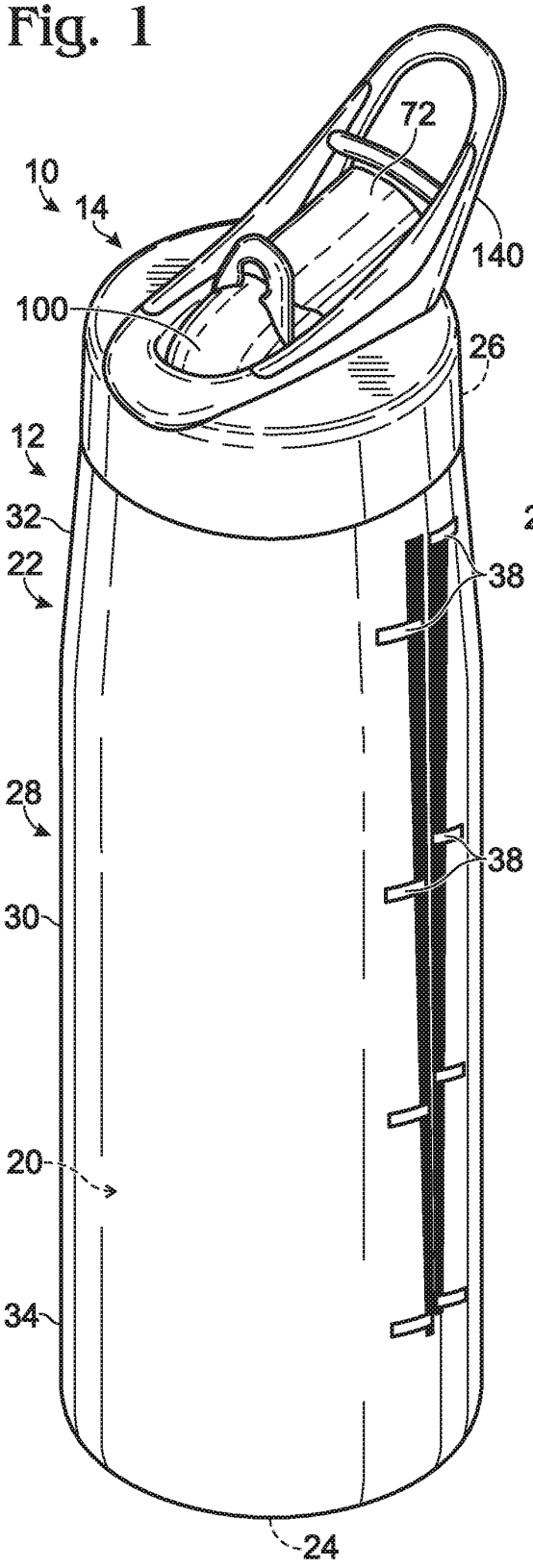

72
10
14
140
100
26
12
32
22
38
28
38
30
20
34
24

Fig. 2

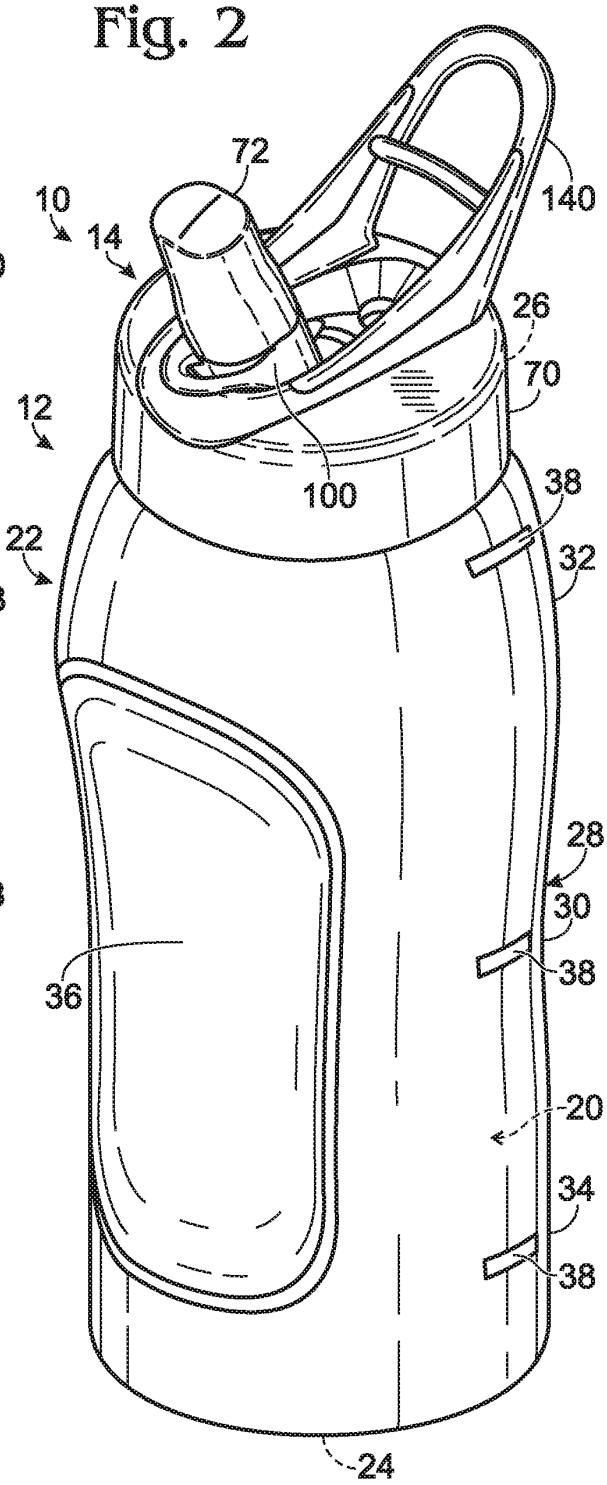

72
10
14
140
26
70
12
100
38
22
32
28
30
36
38
20
34
38
24

Fig. 3

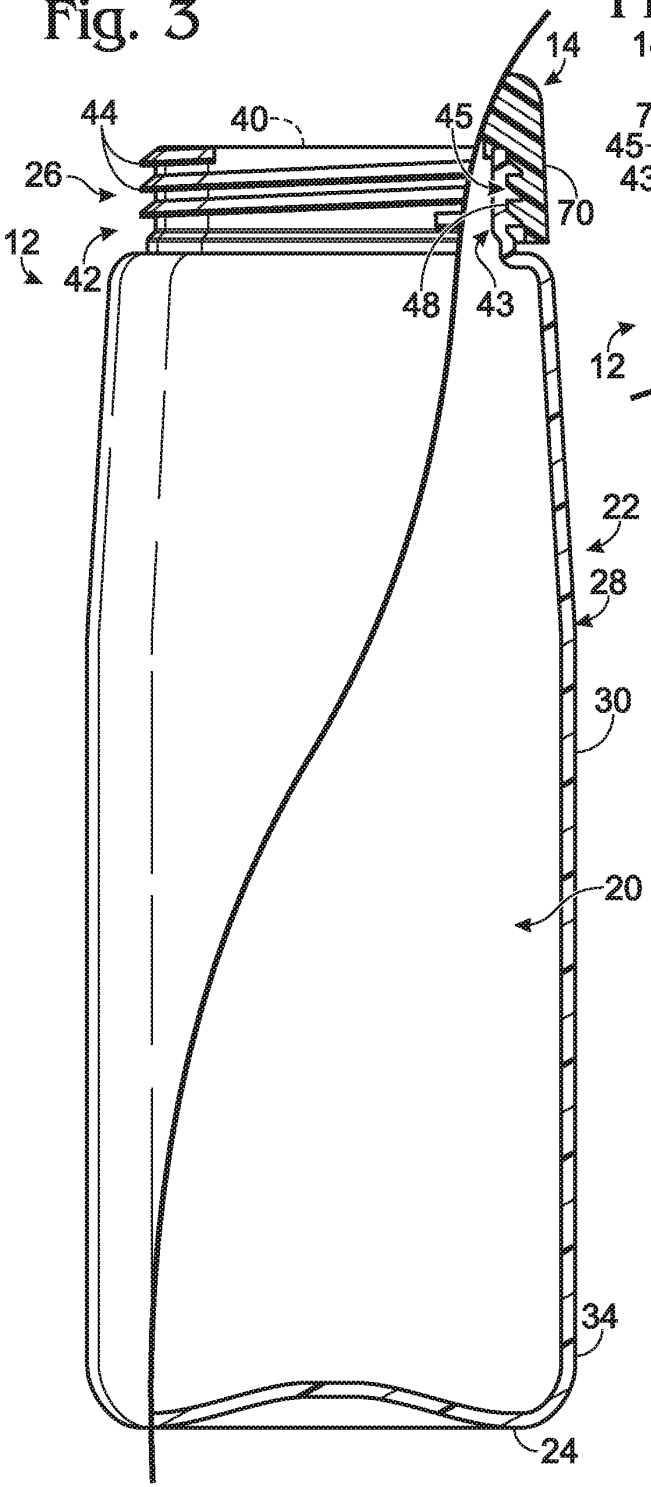
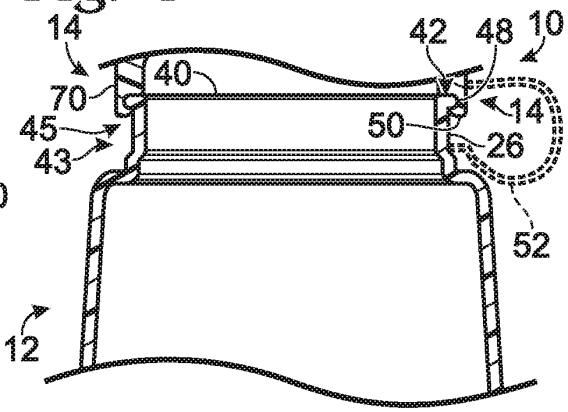


Fig. 4



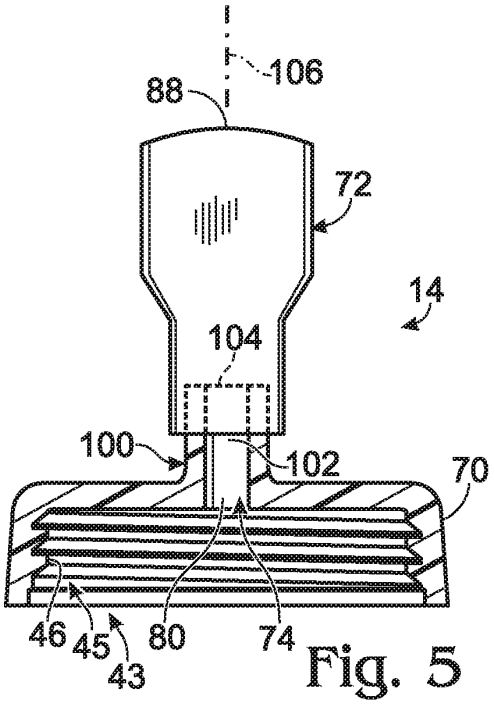


Fig. 5

Fig. 6

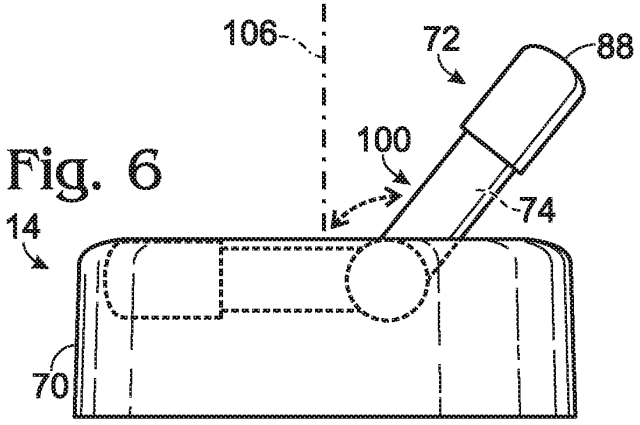


Fig. 7

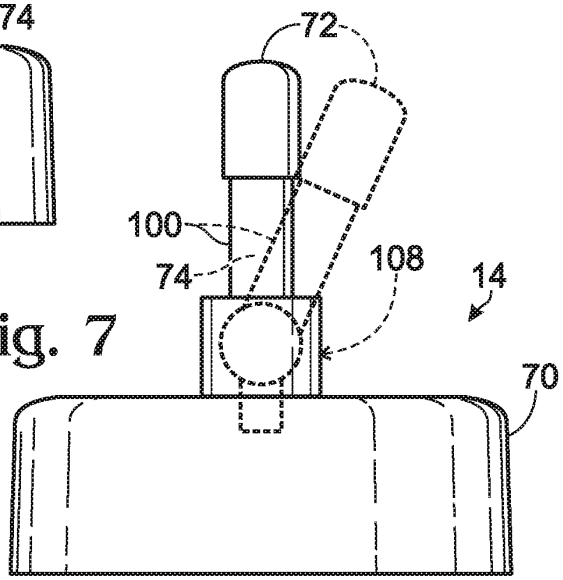


Fig. 8

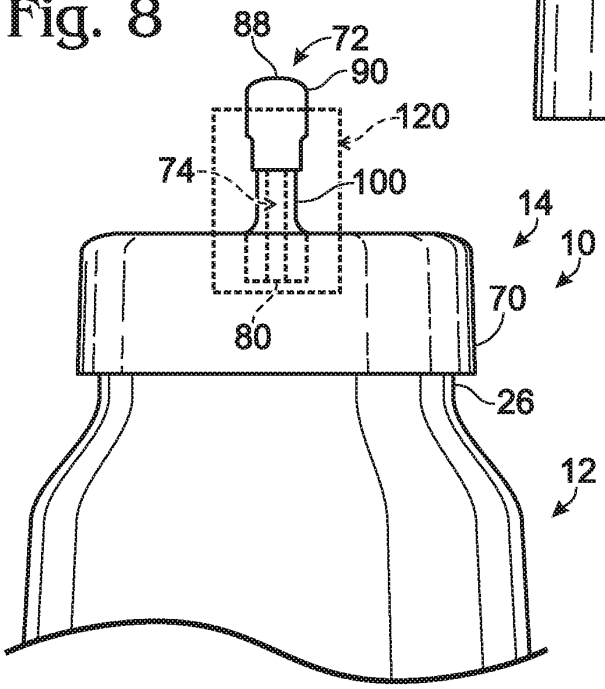
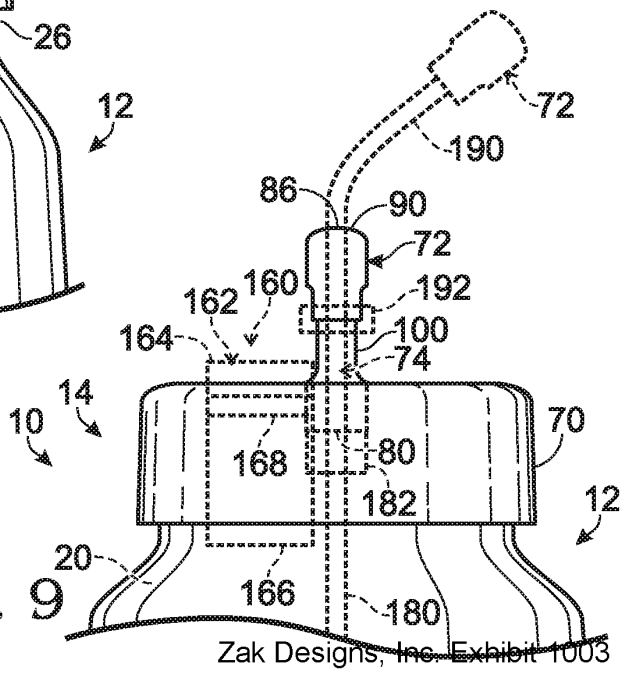


Fig. 9



Zak Designs, Inc. Exhibit 1003
71 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 252 of 857

Fig. 10

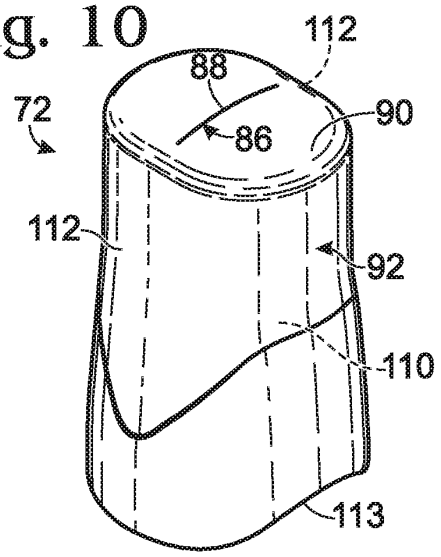


Fig. 11

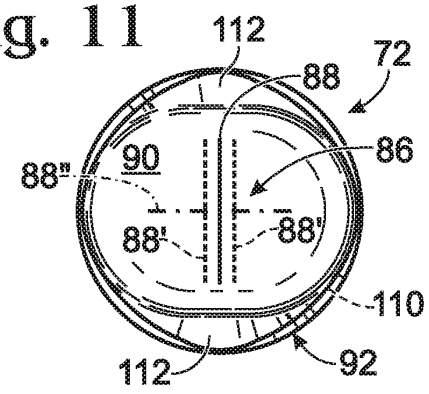


Fig. 12

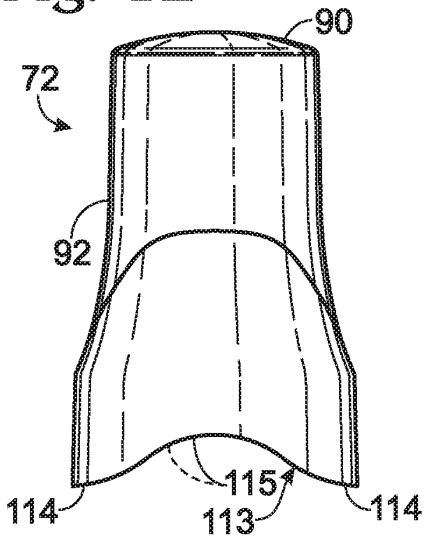


Fig. 13

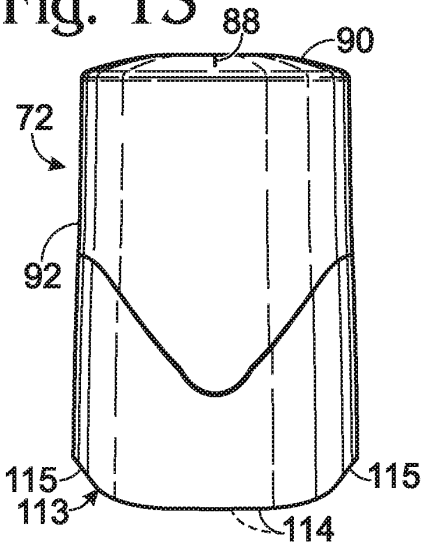


Fig. 14

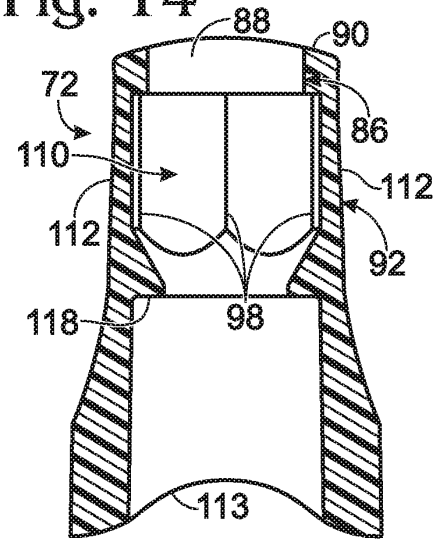


Fig. 15

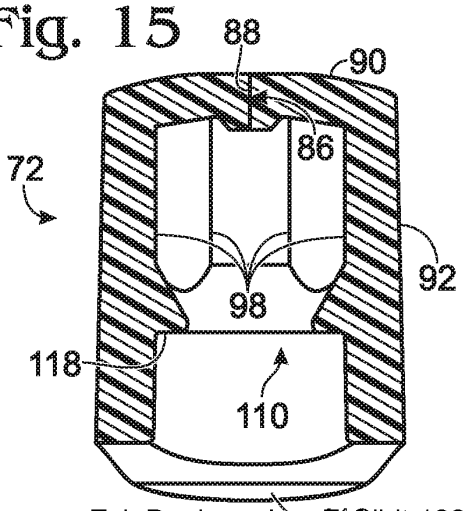


Fig. 16

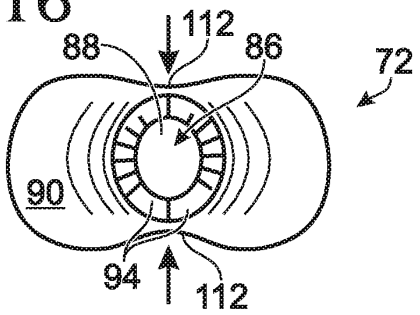


Fig. 17

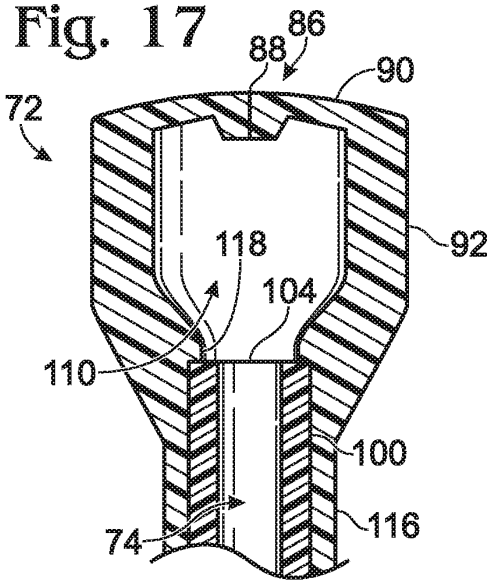


Fig. 18

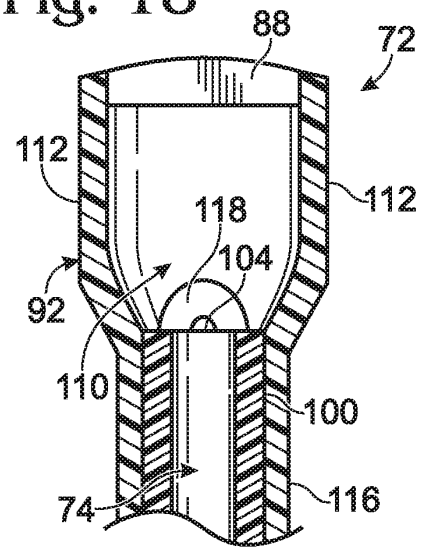


Fig. 19

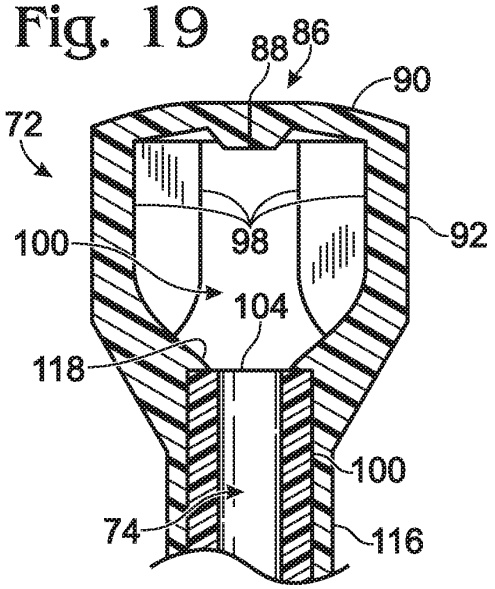


Fig. 20

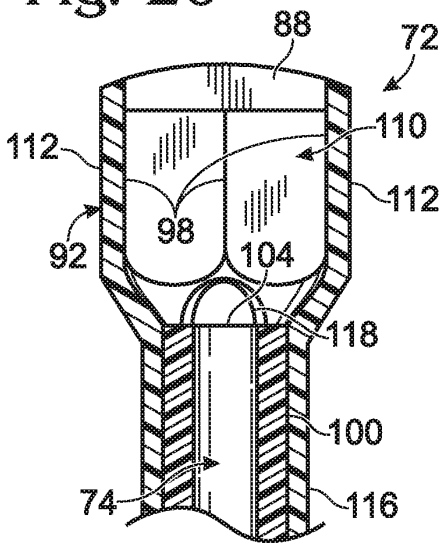


Fig. 21

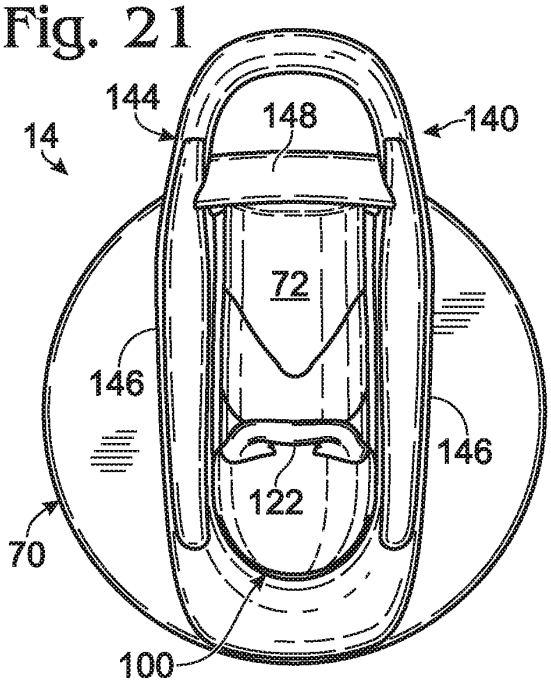


Fig. 22

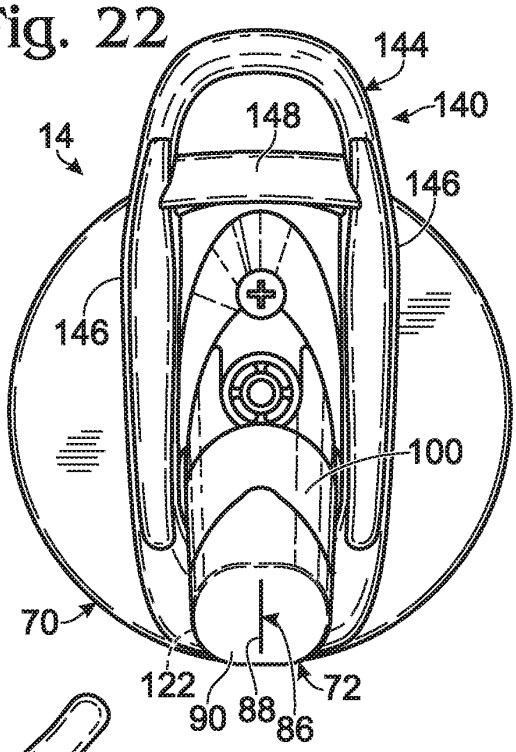
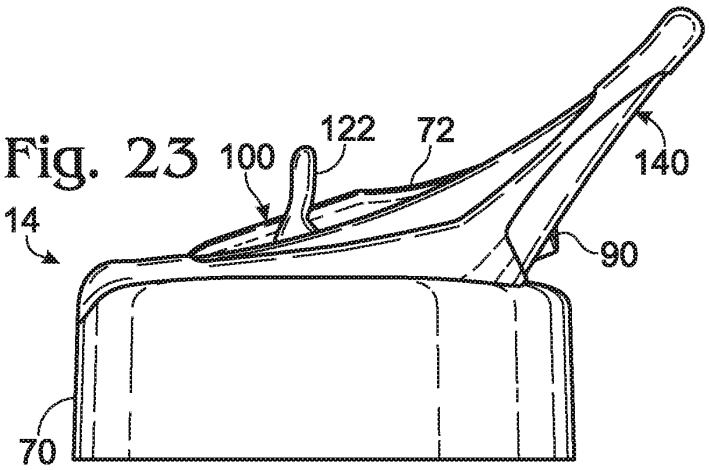


Fig. 23



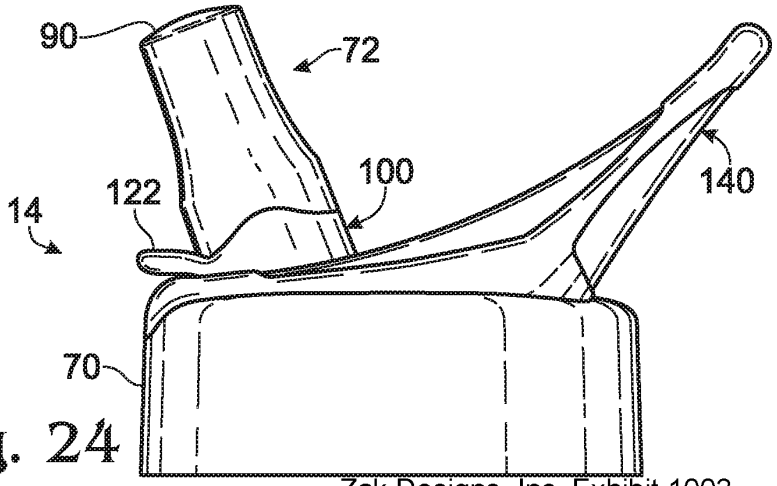
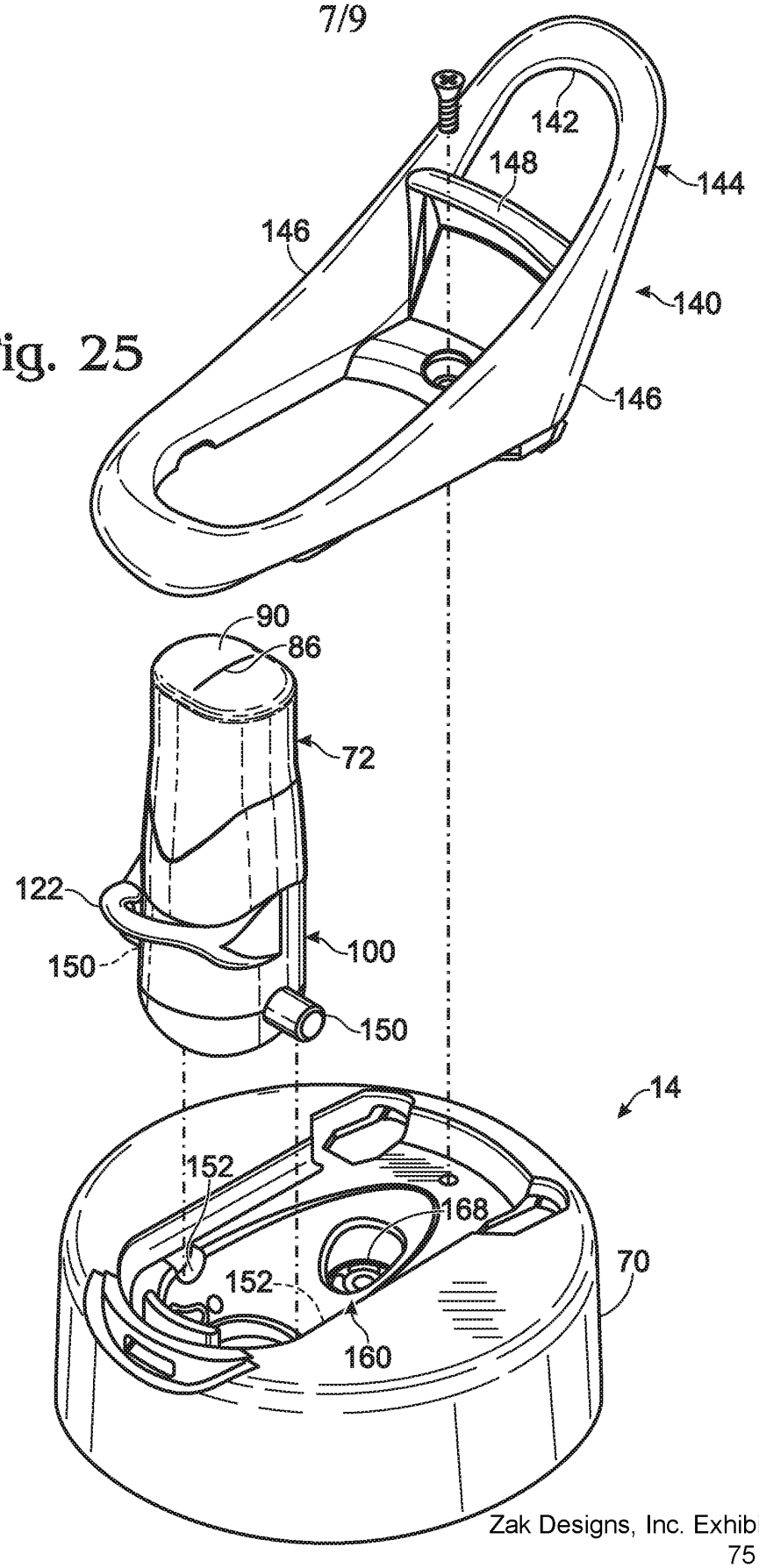


Fig. 24

Fig. 25


142
148
144
146
140
146
90
86
72
122
150
100
150
14
152
168
70
152
160

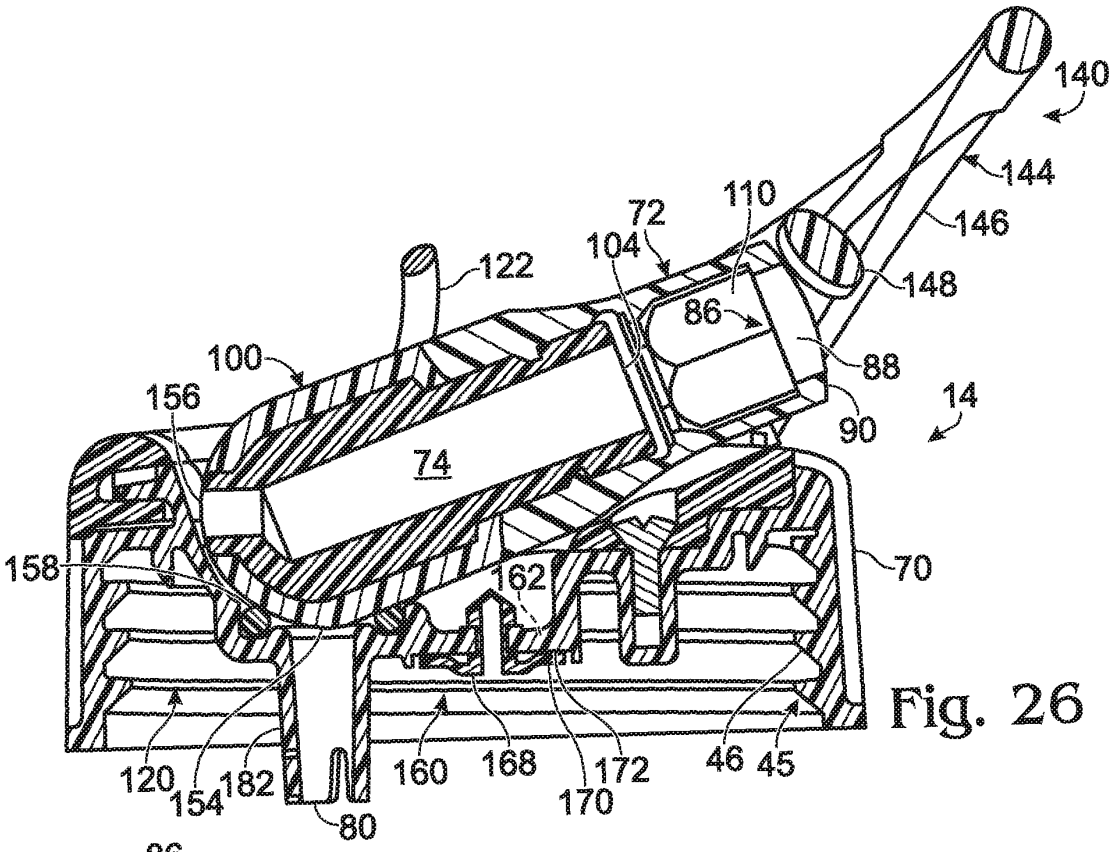

140
144
146
148
110
72
104
122
86
88
100
156
14
90
74
158
70
162
120
154
182
160
168
172
170
46
45
80

Fig. 26

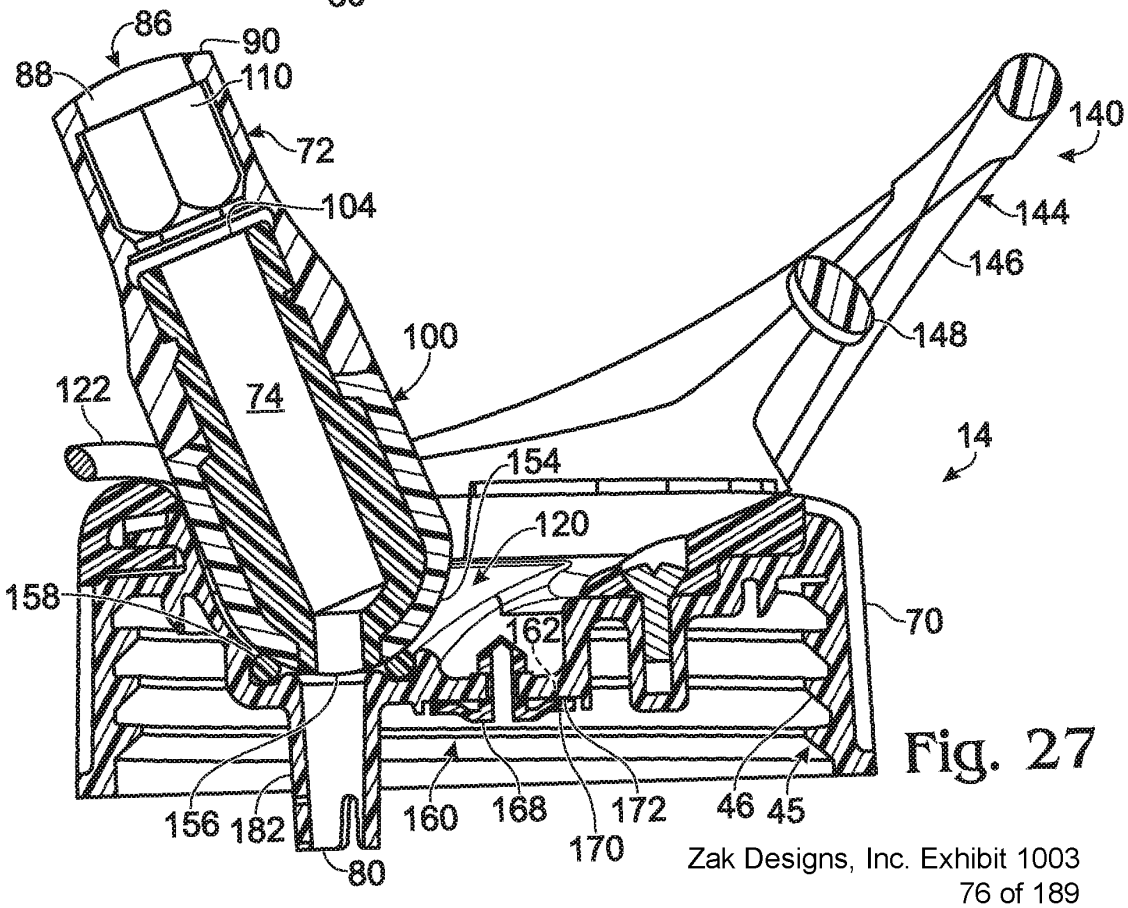

86
90
88
110
72
104
140
144
146
148
100
122
74
14
154
120
158
70
162
156
182
160
168
172
170
46
45
80

Fig. 27

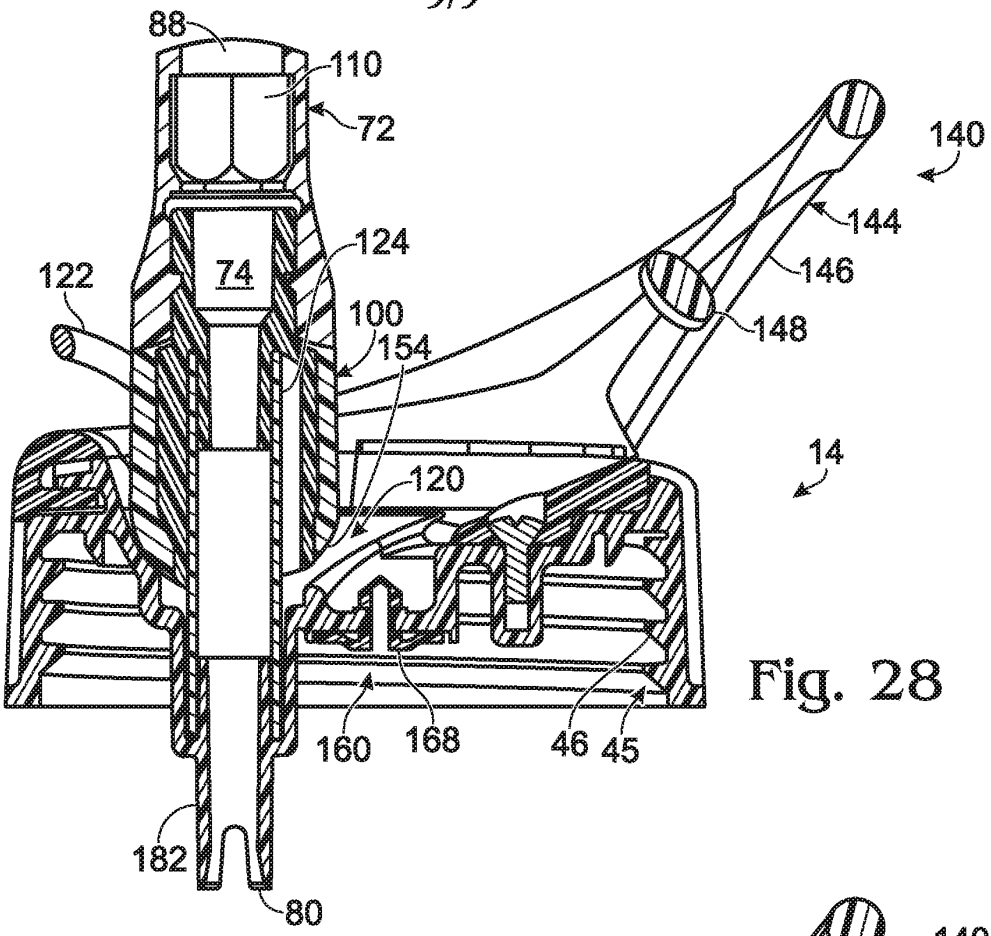

88
110
72
140
144
124
74
122
146
100
154
148
14
120
160
168
46
45
182
80

Fig. 28

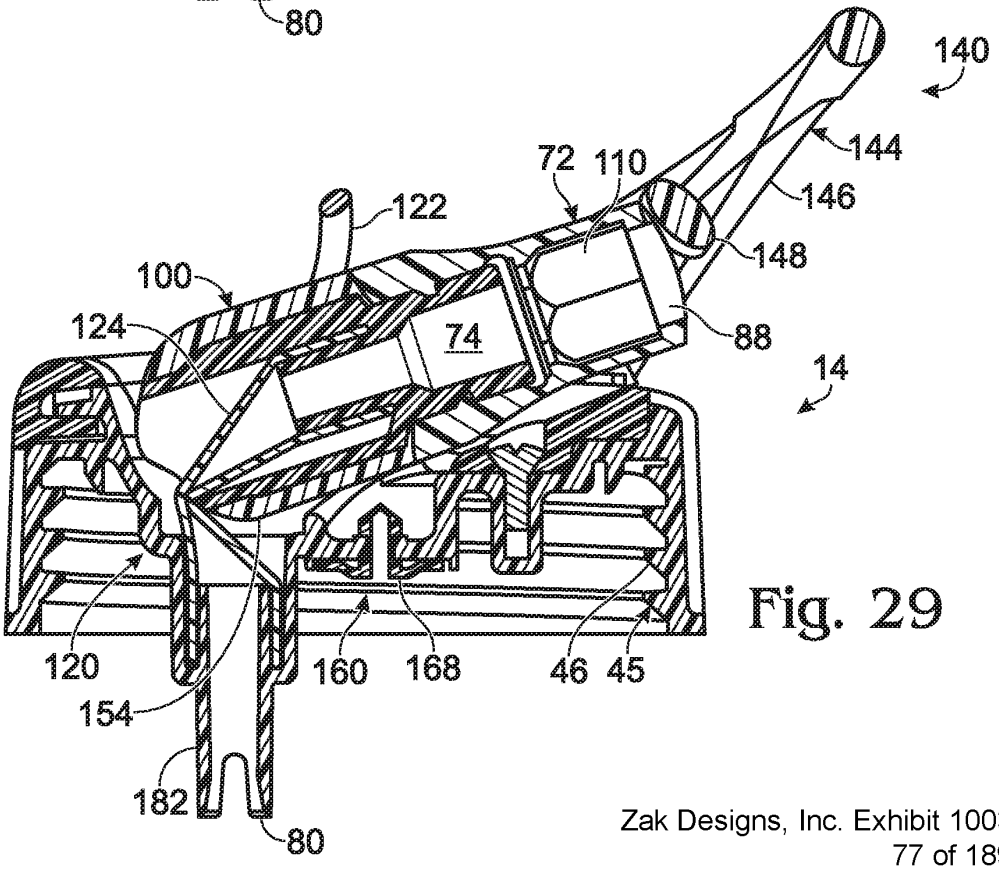

140
144
72
110
122
146
100
148
124
74
88
14
120
160
168
46
45
154
182
80

Fig. 29

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Date: July 13, 2018

Atty. Docket No.: KRN 330E

In re Application of:
CAMELBAK PRODUCTS, LLC

Inventors : Robert CHOI, Barley A. FORSMAN, and Jeremy GALTEN

Serial No. : Not yet assigned.

Filed : July 13, 2018

For : DRINK BOTTLES

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§ 1.56, 1.97, and 1.98

Applicant is submitting this Information Disclosure Statement pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98 to disclose to the U.S. Patent and Trademark Office the patents, publications, applications, and/or other references listed on the enclosed, completed PTO-1449 forms. The filing of this Information Disclosure Statement should not be construed as a representation that a search has been made or as an admission that the listed references are prior art for this application. Applicant respectfully requests that the listed references be expressly considered during prosecution of the application, and that the references be made of record therein and appear among the "references cited" on any patents issuing therefrom.

CONTENT OF DISCLOSURE

This Information Disclosure Statement includes ten pages of PTO-1449 forms; however, it does not include copies of the references listed on the forms, as permitted under

Zak Designs, Inc. Exhibit 1003
78 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 259 of 857

37 C.F.R. § 1.98(d), because copies already were provided in an earlier U.S. application (Serial No. 15/287,915), or a priority application thereto, that is relied upon here for an earlier effective filing date under 35 U.S.C. § 120.

FOREIGN LANGUAGE REFERENCES

For each foreign document for which there is no English translation, an English language abstract is already of record in the previously cited patents and applications identified above.

TIMING OF DISCLOSURE/FEE INFORMATION

This Information Disclosure Statement is being filed with the application, or with a Request for Continued Examination of the application under 37 C.F.R. § 1.114. Therefore, in accordance with 37 C.F.R. § 1.97(b), no fee or statement under 37 C.F.R. § 1.97(e) is required.

Please contact the undersigned with any questions or comments regarding this Information Disclosure Statement.

Respectfully submitted,

DASCENZO INTELLECTUAL PROPERTY LAW, P.C.



David S. D'Ascenzo
Registration No. 39,952
Customer No. 139868
DASCENZO INTELLECTUAL PROPERTY LAW, P.C.
1000 S.W. Broadway, Suite 1555
Portland, Oregon 97205
Telephone: (503) 224-7529
Facsimile: (503) 224-7329

CERTIFICATE OF E-FILING

I hereby certify that this correspondence and the accompanying PTO-1449 forms are being transmitted electronically via the United States Patent and Trademark Office's EFS-Web System on July 13, 2018.



David S. D'Ascenzo

Zak Designs, Inc. Exhibit 1003
79 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 260 of 857

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒ Practitioners associated with Customer Number: 139868

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒ The address associated with Customer Number: 139868

OR

☐	Firm or Individual Name		
	Address		
	City	State	Zip
	Country		
	Telephone	Email	

Assignee Name and Address: CamelBak Products, LLC
2000 S. McDowell, Suite 200
Petaluma, California 94954

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	D J Kelly	Date	6-15-2017
Name	Daniel J. Kelly	Telephone	(913) 752-3472
Title	Assistant Secretary		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CamelBak Products, LLC

Application No./Patent No.: 16/035,418 Filed/Issue Date: July 13, 2018

Titled: DRINK BOTTLES

CamelBak Products, LLC, a limited liability company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/David S. D'Ascenzo/	July 13, 2018
Signature	Date
David S. D'Ascenzo	39,952
Printed or Typed Name	Title or Registration Number

ASSIGNMENT

WHEREAS, WE, ROBERT CHOI, of Santa Rosa, County of Sonoma, State of California, BARLEY A. FORSMAN, of San Rafael, County of Marin, State of California, and JEREMY GALTEN, of Petaluma, County of Sonoma, State of California, have invented certain improvements in DRINK BOTTLES WITH BITE-ACTUATED MOUTHPIECES, for which we have executed an application for Letters Patent of the United States on the date we executed this Assignment as hereinafter set forth; and

WHEREAS, CAMELBAK PRODUCTS, LLC, a Delaware limited liability company, having its principal place of business in Petaluma, County of Sonoma, State of California, is desirous of acquiring an interest therein;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which hereby are acknowledged, we, ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN, have sold, assigned and transferred, and by these presents do sell, assign and transfer unto CAMELBAK PRODUCTS, LLC the full and exclusive right to the said invention in the United States and its territorial possessions and in any and all foreign countries and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all related applications, divisionals, reissues, continuations and extensions thereof.

We hereby authorize and request the Patent Office officials in the United States and any and all foreign countries to issue any and all of said Letters Patent, when granted, to

Zak Designs, Inc. Exhibit 1003
83 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 264 of 857

CAMELBAK PRODUCTS, LLC, as the assignee of our entire right, title and interest in and to the same, for the sole use of CAMELBAK PRODUCTS, LLC, its successors and assigns.

Further, we agree that we will communicate to the said CAMELBAK PRODUCTS, LLC or its representatives any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all related, divisional, continuation, substitution, renewal, reissue, PCT, and foreign applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to CAMELBAK PRODUCTS, LLC, make all rightful oaths and generally do everything possible to aid CAMELBAK PRODUCTS, LLC, its successors and assigns, to obtain and enforce proper protection for said invention in the United States and in any and all foreign countries.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 16th day of December, 2005.

Robert Choi
ROBERT CHOI

Witness:

Jeremy Galten
(Printed Name)

(Signature)

1623 Shenandoah Ct
(Address)

Petaluma, CA 94954
(City, State)

Zak Designs, Inc. Exhibit 1003
84 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 265 of 857

IN TESTIMONY WHEREOF, I have hereunto set my hand this 16TH

day of DEC., 2005.

BARLEY A. FORSMAN

Witness:

JEREMY GALTEN
(Printed Name)

(Signature)

1623 SHENANDOAH CT
(Address)

PETALUMA, CA 94954
(City, State)

IN TESTIMONY WHEREOF, I have hereunto set my hand this 16TH

day of DECEMBER, 2005.

JEREMY GALTEN

Witness:

BARLEY FORSMAN
(Printed Name)

(Signature)

1961 LAS GALLINAS AVE
(Address)

SAN RAFAEL CA 94903
(City, State)

Zak Designs, Inc. Exhibit 1003
85 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 266 of 857

Electronic Acknowledgement Receipt

EFS ID:	33178545
Application Number:	16035418
International Application Number:	
Confirmation Number:	4623
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	139868
Filer:	David S. D'Ascenzo/Robin Davin
Filer Authorized By:	David S. D'Ascenzo
Attorney Docket Number:	KRN 330E
Receipt Date:	13-JUL-2018
Filing Date:	
Time Stamp:	18:58:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	General_Power_of_Attorney_KRN330E_7-13-18.pdf	268518 8df40d8dab3d0f2ed5f22147c189e3206622c79b	no	1

Warnings:

Zak Designs, Inc. Exhibit 1003
86 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 267 of 857

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	Statement_Under_37_CFR_3_73c_with_Assignment_KRN330E_7-13-18.pdf	262134 1d2c0f7bfd554095228e45ba4ee417b4bccd8acc	no	5
Warnings:					
Information:					
			Total Files Size (in bytes):	530652	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/035,418

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*				x 460 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1720

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/035,418	07/13/2018	3781	1720	KRN 330E	20	1

CONFIRMATION NO. 4623

139868
DASCENZO Intellectual Property Law, P.C.
1000 SW Broadway, Suite 1555
Portland, OR 97205

FILING RECEIPT

OC000000101450290

Date Mailed: 08/06/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Robert Choi, Ogden, UT;
Barley A. Forsman, Cotati, CA;
Jeremy Galten, Petaluma, CA;

Applicant(s)

CamelBak Products, LLC, Petaluma, CA;

Power of Attorney: The patent practitioners associated with Customer Number 139868

Domestic Priority data as claimed by applicant

This application is a CON of 15/287,915 10/07/2016 PAT 10023365
which is a CON of 14/329,096 07/11/2014 PAT 9463911
which is a CON of 12/133,954 06/05/2008 PAT 8777048
which is a CON of 11/588,476 10/26/2006 PAT 8622237
which is a CON of 11/313,488 12/20/2005 PAT 7533783
which claims benefit of 60/706,700 08/08/2005
and claims benefit of 60/670,828 04/11/2005

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Zak Designs, Inc. Exhibit 1003
89 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 270 of 857

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/02/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/035,418**

Projected Publication Date: 11/15/2018

Non-Publication Request: No

Early Publication Request: No

Title

DRINK BOTTLES

Preliminary Class

220

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

Zak Designs, Inc. Exhibit 1003
90 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 271 of 857

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

Zak Designs, Inc. Exhibit 1003
91 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 272 of 857

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Zak Designs, Inc. Exhibit 1003
92 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 273 of 857

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER 16/035,418
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT 3736

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2002/0040909	4/11/2002	Goto et al.			
	5,125,543	6/30/1992	Rohrabacher et al.			
	6,837,400	1/4/2005	Leoncavallo et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED

Electronic Acknowledgement Receipt

EFS ID:	33953317
Application Number:	16035418
International Application Number:	
Confirmation Number:	4623
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	139868
Filer:	David S. D'Ascenzo/Robin Davin
Filer Authorized By:	David S. D'Ascenzo
Attorney Docket Number:	KRN 330E
Receipt Date:	09-OCT-2018
Filing Date:	13-JUL-2018
Time Stamp:	13:10:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Supplemental_Information_Disclosure_Statement_KRN330E_10-9-18.pdf	147375 56784346c552c7cb21e94dc4849cc2c4967c6fef	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	147375	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Date: October 9, 2018

Atty. Docket No.: KRN 330E

In re Application of:
CAMELBAK PRODUCTS, LLC

Inventors	:	Robert CHOI, Barley A. FORSMAN, and Jeremy GALTEN	
Serial No.	:	16/035,418	Group Art Unit: 3736
Filed	:	July 13, 2018	Examiner: Shawn M. Braden
For	:	DRINK BOTTLES	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §§ 1.56, 1.97, and 1.98

Applicant is submitting this Information Disclosure Statement pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98 to disclose to the U.S. Patent and Trademark Office the patents, publications, applications, and/or other references listed on the enclosed, completed PTO-1449 forms. The filing of this Information Disclosure Statement should not be construed as a representation that a search has been made or as an admission that the listed references are prior art for this application. Applicant respectfully requests that the listed references be expressly considered during prosecution of the application, and that the references be made of record therein and appear among the "references cited" on any patents issuing therefrom.

CONTENT OF DISCLOSURE

This Information Disclosure Statement includes (1) one page of PTO-1449 forms, and (2) a legible copy of each foreign and non-patent reference, if any, listed on the form(s). However,

Zak Designs, Inc. Exhibit 1003
96 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 277 of 857

because this application was filed on or after July 1, 2003, no copies of U.S. patents or published U.S. patent applications are included.

TIMING OF DISCLOSURE/FEE INFORMATION

This Information Disclosure Statement is being filed (1) within three months of the filing date of a national application other than a continued prosecution application under 37 C.F.R. § 1.53(d), or (2) before the mailing of a first Office action on the merits. Therefore, in accordance with 37 C.F.R. § 1.97(b), no fee or statement under 37 C.F.R. § 1.97(e) is required.

Please contact the undersigned with any questions or comments regarding this Information Disclosure Statement.

Respectfully submitted,

DASCENZO INTELLECTUAL PROPERTY LAW, P.C.



David S. D'Ascenzo
Registration No. 39,952
Customer No. 139868
DASCENZO INTELLECTUAL PROPERTY LAW, P.C.
1000 S.W. Broadway, Suite 1555
Portland, Oregon 97205
Telephone: (503) 224-7529
Facsimile: (503) 224-7329

CERTIFICATE OF E-FILING

I hereby certify that this correspondence and the accompanying PTO-1449 forms are being transmitted electronically via the United States Patent and Trademark Office's EFS-Web System on October 9, 2018.



David S. D'Ascenzo

Zak Designs, Inc. Exhibit 1003
97 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 278 of 857

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/035,418	07/13/2018	Robert Choi	KRN 330E

CONFIRMATION NO. 4623

139868
DASCENZO Intellectual Property Law, P.C.
1000 SW Broadway, Suite 1555
Portland, OR 97205

PUBLICATION NOTICE

OC000000103832348

Title:DRINK BOTTLES

Publication No.US-2018-0327151-A1
Publication Date:11/15/2018

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Zak Designs, Inc. Exhibit 1003
98 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 279 of 857

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

139868 7590 08/02/2019

DASCENZO Intellectual Property Law, P.C.
1000 SW Broadway, Suite 1555
Portland, OR 97205

EXAMINER	
BRADEN, SHAWN M	

ART UNIT	PAPER NUMBER
3736	

MAIL DATE	DELIVERY MODE
08/02/2019	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 16/035,418	**Applicant(s)** Choi et al.	
	Examiner SHAWN M BRADEN	**Art Unit** 3736	**AIA (FITF) Status** No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 7/13/18.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file

provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1-20, are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-23 of U.S. Patent No. 10,023,365. Although the claims at issue are not identical, they are not patentably distinct from each other because a quick review shows that all of the current claim structure has been included in the parent claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim(s) 1-3,19,20, is/are rejected under pre-AIA 35 U.S.C. 102b as being anticipated by Dark (USPN 6,116,458).

6. With respect to claim 1, Dark shows a fluid container (2) having a neck with an opening (shown under cap) and having an internal compartment sized to hold a volume of potable drink fluid; a cap assembly (fig. 1) removably coupled to the fluid container to cover the opening, wherein the cap assembly defines a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes an inlet(bottom of 8) through which drink fluid from the fluid container may enter the fluid conduit, and a dispensing outlet (at 3a) through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises: a cap assembly base (7c) removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled (threaded connection meets this limitation) to the neck of the fluid container; a pivotal mount (4b) coupled to the cap assembly base for pivotal movement relative to the cap assembly base; a resilient mouthpiece (3a) coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base; wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet; wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position (fig. 1) and a dispensing position (fig. 2), and further in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base

than when the resilient mouthpiece and the pivotal mount are in the stowed position; wherein the resilient mouthpiece (3a) is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth (a user can bite the plastic mouth piece and the natural tendencies of plastic make it resilient); and a manual on/off valve (closing the spout to crimp 12 make the valve closed) having a closed configuration (see fig. 6), in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and an open configuration (see fig. 5), in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet; wherein the manual on/off valve includes a flexible tube (8,3 make up the tube) that defines a portion of the fluid conduit; wherein when the manual on/off valve is in the closed configuration (fig. 6), the tube is crimped (12) to obstruct the flow of drink fluid through the fluid conduit; and wherein when the manual on/off valve is in the open configuration (fig. 5), the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

With respect to claim 2, Dark shows wherein the pivotal mount includes a pair of lateral projections (15), wherein the cap assembly base defines a pair of sockets (16) into which the pair of lateral projections extend, and wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of

sockets (this rotation is accomplished when the cap un-screws to remove the cap)

With respect to claim 3, Dark shows wherein the cap assembly base further comprises a handle (7b) that extends from the cap assembly base, and further wherein the handle (7b) is secured to the cap assembly base in a position that obstructs removal of the pair of lateral projections from the pair of sockets (7b surrounds the pair of lateral projections 15).

With respect to claim 19, Dark shows wherein the pivotal mount (4b) is adapted to selectively engage the flexible tube to apply crimping (12) forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position (fig. 6).

With respect to claim 20, Dark the flexible tube is secured (they are directly connected) to the pivotal mount (4b).

Claim Rejections - 35 USC § 103

7. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dark in view of Forsman (US D547,607).

Dark discloses the invention substantially as claimed.

However Dark does not disclose claim 4, the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position, and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position, claim 5, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover, claim 4, wherein the dust cover projects above an upper surface of the cap assembly base, claim 7, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover, claim 8, wherein the cap assembly further comprises a handle that extends in a fixed orientation from the cap assembly base and which defines at least a portion of a closed loop with an aperture through which a user's finger may be inserted to carry the drink container, claim 12, shows the resilient mouthpiece is configured to be selectively removed from and recoupled to the pivotal mount, claim 13, wherein the resilient mouthpiece includes a mouthpiece base with an end distal the dispensing outlet that has a contoured configuration that does not extend at a constant distance from the dispensing outlet, wherein the end of the resilient mouthpiece base includes a projecting region and a concave region, wherein the projecting region of the end of the mouthpiece base

extends a greater distance away from the dispensing outlet than the concave region of the end of the mouthpiece base, and further wherein the pivotal mount is configured to engage the projecting region and the concave region of the mouthpiece base to restrict rotation of the resilient mouthpiece relative to the pivotal mount, claim 14, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece, claim 15, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece, claim 16, wherein the resilient mouthpiece includes a dispensing face that defines the dispensing outlet, wherein the resilient mouthpiece includes opposed bite regions, wherein the dispensing face includes opposed lips between which the dispensing outlet is defined, and further wherein when a user applies compressive forces to the opposed bite regions, the lips are urged away from each other to enlarge the dispensing outlet, claim 17, wherein the opposed lips seal against each other when the opposed bite regions are not urged toward each other, claim 18, wherein the pivotal mount further includes a projecting flange that extends away from a portion of the fluid conduit that extends through the pivotal mount, wherein the projecting flange provides a lever arm that is configured to be engaged by a user's finger to pivot the pivotal mount from the stowed position to the dispensing position.

Forsman in (figs. 1-10) shows the same dust guard, handle, resilient mouth piece including the slit, and the projecting flange as current application, in the same field of endeavor for the purpose of keeping dust out of the mouth piece and the handle is to carry the container, the components are separable in order to take apart and clean, the flange is to help grasping and extending the spout, the resilient mouth piece is an additional valve that can be operated by the users mouth that allows for hands free operation.

It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to add a dust guard and handle, the more complex resilient mouth piece with the flang as taught by Forsman to the container of Dark in order to have a convenient loop to grasp as a handle and the dust guard keep the outlet free of dust and dirt, making the components separable for easier cleaning and easier for a user to open the valve and hands free operation of the claimed resilient mouth piece.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHAWN M BRADEN whose telephone number is (571)272-8026. The examiner can normally be reached on M-F 8am-5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Picket can be reached on 571 272-4560. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SHAWN M BRADEN/
Primary Examiner, Art Unit 3736

Notice of References Cited	Application/Control No. 16/035,418	Applicant(s)/Patent Under Reexamination Choi et al.	
	Examiner SHAWN M BRADEN	Art Unit 3736	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-D547607-S	07-2007	Forsman; Barley A.		D7/396.2
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/035,418	Choi et al.
	Examiner	Art Unit
	SHAWN M BRADEN	3736

CPC - Searched*		
Symbol	Date	Examiner
A47G19/2266, A47G19/2272 , B65D47/066	07/31/2019	smb

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
215	11.4,11.5	07/31/2019	smb
220	254.3,704,705,707,714		

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
text search and inventor search	07/31/2019	smb

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736	

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER 16/035,418
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT 3736

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2002/0040909	4/11/2002	Goto et al.			
	5,125,543	6/30/1992	Rohrabacher et al.			
	6,837,400	1/4/2005	Leoncavallo et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED
/SHAWN M BRADEN/	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

Bibliographic Data

Application No: 16/035,418

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /SHAWN M BRADEN/ (Examiner's Signature) | (Initials)

Title: DRINK BOTTLES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/13/2018	215	3736	KRN 330E
RULE			

APPLICANTS

CamelBak Products, LLC, Petaluma, CA, UNITED STATES

INVENTORS

Robert Choi Ogden, UT, UNITED STATES

Barley A. Forsman Cotati, CA, UNITED STATES

Jeremy Galten Petaluma, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 15287915 10/07/2016 PAT 10023365

15287915 is a CON of 14329096 07/11/2014 PAT 9463911

14329096 is a CON of 12133954 06/05/2008 PAT 8777048

12133954 is a CON of 11588476 10/26/2006 PAT 8622237

11588476 is a CON of 11313488 12/20/2005 PAT 7533783

11313488 has PRO of 60706700 08/08/2005

11313488 has PRO of 60670828 04/11/2005

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/02/2018

STATE OR COUNTRY

UNITED STATES

ADDRESS

DASCENZO Intellectual Property Law, P.C.
1000 SW Broadway, Suite 1555
Portland, OR 97205
UNITED STATES

FILING FEE RECEIVED

$1,720

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2002/0033399	3/21/2002	Manganiello et al.			
	2002/0092858	7/18/2002	Bowman			
	2002/0092877	7/18/2002	Bowman			
	2002/0148806	10/17/2002	Cheng			
	2002/0166990	11/14/2002	Yang			
	2002/0185495	12/12/2002	Manganiello			
	2003/0085232	5/8/2003	Leinenweber			
	2003/0102318	6/5/2003	Lee			
	2003/0116573	6/26/2003	Clark et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO
	~~CN 85106703 A~~	~~5/10/1986~~	~~CN~~				~~X~~
	EP 0266067 A1	5/4/1988	EP			X	
	GB 2279130 A	12/21/1994	GB			X	
	WO 97/05055	2/13/1997	WO			X	
	WO 98/46106	10/22/1998	WO			X	
	~~CN 1198083 A~~	~~11/4/1998~~	~~CN~~				~~X~~

OTHER DOCUMENTS

		English-language abstract of Chinese Patent No. CN 85106703 A, European Patent Office, May 10, 1986.
		English-language abstract of Chinese Patent No. CN 1198083 A, European Patent Office, November 4, 1998.

EXAMINER	/SHAWN M BRADEN/	DATE CONSIDERED	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2003/0168462	9/11/2003	Kiyota			
	2003/0173536	9/18/2003	Christensen et al.			
	2003/0218015	11/27/2003	Randolph et al.			
	2003/0222238	12/4/2003	Getzewich et al.			
	2004/0000551	1/1/2004	Flink et al.			
	2004/0069783	4/15/2004	Chen			
	2004/0079775	4/29/2004	Choi et al.			
	2004/0089301	5/13/2004	Choi et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO
	WO 00/03946	1/27/2000	WO			X	
	WO 00/49922	8/31/2000	WO			X	
	EP 1095599	5/2/2001	EP			X	
	JP 2002-326655 A	11/12/2002	JP				X
	CN 1394186 A	1/29/2003	CN				X
	WO 03/031315	4/17/2003	WIPO			X	

OTHER DOCUMENTS

		English-language abstract of Japanese Patent No. 2002-326655 A, European Patent Office, November 12, 2002.
		English-language abstract of Chinese Patent No. CN 1394186 A, European Patent Office, January 29, 2003.

EXAMINER	/SHAWN M BRADEN/	DATE CONSIDERED	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2004/0159820	8/19/2004	Yang			
	2004/0164043	8/26/2004	Hakim			
	2004/0217139	11/4/2004	Roth			
	2004/0217187	11/4/2004	Renz et al.			
	2004/0222230	11/11/2004	Samson et al.			
	2005/0029271	2/10/2005	McDonough			
	2005/0029313	2/10/2005	Robins et al.			
	2005/0045647	3/3/2005	Hession et al.			
	2005/0056610	3/17/2005	Randolph et al.			
	2005/0056652	3/17/2005	Cezeaux			
	2005/0072788	4/7/2005	Lieberman et al.			
	2005/0072804	4/7/2005	Brown			
	2005/0115966	6/2/2005	Leoncavallo et al.			
	2005/0133505	6/23/2005	Yoneoka et al.			
	2005/0133519	6/23/2005	McDonough			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER /SHAWN M BRADEN/	DATE CONSIDERED 07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	2005/0184075	8/25/2005	Belcastro			
	2005/0205587	9/22/2005	Samson et al.			
	2005/0218242	10/6/2005	Renz et al.			
	1,788,795	1/13/1931	Hoban			
	2,844,267	7/22/1958	Petriccione			
	2,936,934	5/17/1960	Kubiliunas			
	3,179,301	4/20/1965	Lucht			
	3,181,743	5/4/1965	Libit et al.			
	3,283,967	11/8/1966	Akers			
	3,294,293	12/27/1966	Johns			
	3,392,887	7/16/1968	Bross			
	3,739,938	6/19/1973	Paz			
	3,972,443	8/3/1976	Albert			
	4,090,650	5/23/1978	Gotta			
	4,212,408	7/15/1980	Valenzona			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED
/SHAWN M BRADEN/	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	4,485,963	12/4/1984	Panicci			
	4,607,755	8/26/1986	Andreozzi			
	4,836,404	6/6/1989	Coy			
	4,852,762	8/1/1989	Coy			
	4,860,934	8/29/1989	Komischke			
	4,925,042	5/15/1990	Chong			
	5,060,833	10/29/1991	Edison et al.			
	5,065,909	11/19/1991	Pino et al.			
	5,085,336	2/4/1992	Lynd			
	5,085,349	2/4/1992	Fawcett			
	5,101,991	4/7/1992	Morifuji et al.			
	5,203,468	4/20/1993	Hsu			
	5,242,079	9/7/1993	Stephens et al.			
	5,273,172	12/28/1993	Rossbach et al.			
	5,301,858	4/12/1994	Hollander			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED
/SHAWN M BRADEN/	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	5,307,950	5/3/1994	Li			
	5,332,131	7/26/1994	Pehr			
	5,392,968	2/28/1995	Dark			
	5,433,353	7/18/1995	Flinn			
	5,433,535	7/18/1995	Hah			
	5,465,866	11/14/1995	Belcastro			
	5,518,142	5/21/1996	Lin			
	5,520,304	5/28/1996	Lin			
	5,553,726	9/10/1996	Park			
	5,582,315	12/10/1996	Reid			
	5,601,207	2/11/1997	Paczonay			
	5,607,087	3/4/1997	Wery et al.			
	5,699,933	12/23/1997	Ho et al.			
	5,730,336	3/24/1998	Lerner			
	5,755,368	5/26/1998	Bekkedahl			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	/SHAWN M BRADEN/	DATE CONSIDERED	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	5,791,510	8/11/1998	Paczonay			
	5,806,726	9/15/1998	Ho			
	5,873,478	2/23/1999	Sullivan et al.			
	5,884,793	3/23/1999	Wang			
	5,897,013	4/27/1999	Manganiello			
	5,911,406	6/15/1999	Winefordner et al.			
	6,021,801	2/8/2000	Sheppard			
	6,032,831	3/7/2000	Gardner et al.			
	6,050,433	4/18/2000	Russell et al.			
	6,050,445	4/18/2000	Manganiello			
	6,059,154	5/9/2000	Bigotte et al.			
	6,070,767	6/6/2000	Gardner et al.			
	6,095,382	8/1/2000	Gross			
	6,116,458	9/12/2000	Dark			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED
/SHAWN M BRADEN/	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	6,196,413	3/6/2001	Tung			
	6,199,729	3/13/2001	Drzymkowski			
	6,212,959	4/10/2001	Perkins			
	6,264,166	7/24/2001	Bowland et al.			
	6,276,560	8/21/2001	Belcastro			
	6,279,772	8/28/2001	Bowman			
	6,279,773	8/28/2001	Kiyota			
	6,283,344	9/4/2001	Bradley			
	6,290,108	9/18/2001	Gross			
	6,364,168	4/2/2002	Gardner et al.			
	6,390,341	5/21/2002	Ohmi et al.			
	6,422,415	7/23/2002	Manganiello			
	6,446,844	9/10/2002	Gross			
	6,497,348	12/24/2002	Forsman			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER /SHAWN M BRADEN/	DATE CONSIDERED 07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	6,513,686	2/4/2003	Ben-Sasson			
	6,523,711	2/25/2003	Hughes et al.			
	6,557,721	5/6/2003	Yang			
	6,607,092	8/19/2003	Manganiello et al.			
	6,609,624	8/26/2003	Goto et al.			
	6,675,998	1/13/2004	Forsman et al.			
	6,698,716	3/2/2004	Yang			
	6,708,950	3/23/2004	Christensen et al.			
	6,719,273	4/13/2004	Yang			
	D489,978	5/18/2004	Brown			
	6,742,681	6/1/2004	Yang			
	6,745,915	6/8/2004	Rees			
	6,764,064	7/20/2004	Sturm et al.			
	6,783,115	8/31/2004	Yang			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	TRANSLATION NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED
/SHAWN M BRADEN/	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

FORM PTO-1449 INFORMATION DISCLOSURE CITATION IN AN APPLICATION	DOCKET NUMBER KRN 330E	APPLICATION NUMBER Not yet assigned.
	APPLICANT: CAMELBAK PRODUCTS, LLC INVENTORS: ROBERT CHOI, BARLEY A. FORSMAN, and JEREMY GALTEN	
	FILING DATE July 13, 2018	GROUP ART UNIT

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FIL. DATE IF APPROP.
	6,854,888	2/15/2005	Brown et al.			
	6,908,015	6/21/2005	Choi et al.			
	6,915,961	7/12/2005	Renz et al.			
	6,994,225	2/7/2006	Hakim			
	7,014,077	3/21/2006	Brown			
	7,032,764	4/25/2006	Viggiano			
	7,048,137	5/23/2006	Leoncavallo et al.			
	7,059,490	6/13/2006	Son			
	7,073,688	7/11/2006	Choi et al.			
	8,701,928	4/22/2014	Samson			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO

OTHER DOCUMENTS

EXAMINER	DATE CONSIDERED
/SHAWN M BRADEN/	07/31/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.M.B./

PTO/AIA/80 (07-17)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 165846

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 165846

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: CamelBak Products, LLC
2000 S. McDowell, Suite 200
Petaluma, California 94954

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature /Daniel J. Kelly/	Date 4 Nov. 2019
Name Daniel J. Kelly	Telephone (913) 752-3472
Title Assistant Secretary	

This collection of information is required by 37 CFR 3.31, 3.32, and 3.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	37753004
Application Number:	16035418
International Application Number:	
Confirmation Number:	4623
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	139868
Filer:	Amardeep S. Grewal/Christa Shaffer
Filer Authorized By:	Amardeep S. Grewal
Attorney Docket Number:	KRN 330E
Receipt Date:	14-NOV-2019
Filing Date:	13-JUL-2018
Time Stamp:	14:55:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73	23025-07_-_Statement_Under_37CFR373c.pdf	119077 46b0b9ca2b0f83166ef41160eb0e11370bb57cb3	no	3

Warnings:

Information:					
2	Power of Attorney	Power_of_Attorney.pdf	345989 75c808fc83bf1951e8dcff8be972964ee9d705f3	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	465066	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: CAMELBAK PRODUCTS, LLC

Application No./Patent No.: 16/035,418 Filed/Issue Date: July 13, 2018

Titled: DRINK BOTTLES

CAMELBAK PRODUCTS, LLC, a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 046348, Frame 0227, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Amardeep S. Grewal/	11/14/19
Signature	Date
Amardeep S. Grewal	Attorney of Record
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

139868 7590 11/15/2019

DASCENZO Intellectual Property Law, P.C.
1000 SW Broadway, Suite 1555
Portland, OR 97205

EXAMINER	
BRADEN, SHAWN M	

ART UNIT	PAPER NUMBER
3736	

MAIL DATE	DELIVERY MODE
11/15/2019	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Zak Designs, Inc. Exhibit 1003
131 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 312 of 857

Applicant-Initiated Interview Summary	**Application No.** 16/035,418	**Applicant(s)** Choi et al.	
	Examiner SHAWN M BRADEN	**Art Unit** 3736	**AIA (FITF) Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) SHAWN M. BRADEN. (3) _____.

(2) Amardeep (Sonny) Grewal. (4) _____.

Date of Interview: 12 November 2019.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☑102 ☑103 ☑Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: all pending.

Identification of prior art discussed: The Dark reference as applied.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

We discussed the double patenting rejection. Applicant pointed out the the parent patent 10,023,365 does NOT define a "crimp". Examiner agreed this claimed feature is not in the parent and this DP rejection should be removed. Applicant and Examiner noted that 4 other similar cases should be re reviewed for this feature and double checked for double patenting. We also discussed the differences between the Dark reference and the current application. No allowable claim language was agreed upon..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/035,418	07/13/2018	Robert Choi	KRN 330E

CONFIRMATION NO. 4623

139868
DASCENZO Intellectual Property Law, P.C.
1000 SW Broadway, Suite 1555
Portland, OR 97205

POWER OF ATTORNEY NOTICE

OC000000112709566

Date Mailed: 11/19/2019

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/14/2019.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sibrahim/

Zak Designs, Inc. Exhibit 1003
134 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 315 of 857

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/035,418	07/13/2018	Robert Choi	KRN 330E

CONFIRMATION NO. 4623

165846
Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

POA ACCEPTANCE LETTER

OC000000112709596

Date Mailed: 11/19/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/14/2019.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sibrahim/

Zak Designs, Inc. Exhibit 1003
135 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 316 of 857

Electronic Patent Application Fee Transmittal

Application Number:	16035418
Filing Date:	13-Jul-2018
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Filer:	Amardeep S. Grewal
Attorney Docket Number:	KRN 330E

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 1 month with $0 paid	1251	1	200	200
Miscellaneous:				
		Total in USD ($)		**200**

Electronic Acknowledgement Receipt

EFS ID:	37901482
Application Number:	16035418
International Application Number:	
Confirmation Number:	4623
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	165846
Filer:	Amardeep S. Grewal
Filer Authorized By:	
Attorney Docket Number:	KRN 330E
Receipt Date:	02-DEC-2019
Filing Date:	13-JUL-2018
Time Stamp:	16:21:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$200
RAM confirmation Number	E2019B2G27003573
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	P23808US05_-_2019-12-02_-_Response_to_OA.pdf	529031 712bf10bd24779e6a633b8b08b7464d52b87ecad	no	10
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30499 558d2b8435d64793cfdf96300e8e8e12acfbe28d	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	559530		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:	)	Confirmation No. 4623
	)	
Serial No. 16/035,418	)	Group Art Unit: 3736
Filed: July 13, 2018	)	Examiner: Shawn M. Braden
	)	
For: **DRINK BOTTLES**	)	Date: **December 2, 2019**

RESPONSE TO OFFICE ACTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Office Action dated August 2, 2019, Applicant respectfully requests entry of the following amendment and remarks.

Amendments to the Claims begin on page 2 of this paper.

Remarks begin on page 7 of this paper.

Zak Designs, Inc. Exhibit 1003
140 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 321 of 857

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A drink container, comprising:

a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes an inlet through which drink fluid from the fluid container may enter the fluid conduit, and a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base, wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

Zak Designs, Inc. Exhibit 1003
141 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 322 of 857

wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet; wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;

wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and

wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

2. (Canceled)

3. (Currently Amended) The drink container of claim 1, [[2,]] wherein the cap assembly base further comprises a handle that extends from the cap assembly base, and further wherein the handle is secured to the cap assembly base in a position that obstructs removal of the pair of lateral projections from the pair of sockets.

4. (Original) The drink container of claim 1, wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position, and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

5. (Original) The drink container of claim 4, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

Zak Designs, Inc. Exhibit 1003
142 of 189
IPR 2024-01137
CamelBak - Ex 2001
Page 323 of 857

6. (Original) The drink container of claim 4, wherein the dust cover projects above an upper surface of the cap assembly base.

7. (Original) The drink container of claim 4, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

8. (Original) The drink container of claim 1, wherein the cap assembly further comprises a handle that extends in a fixed orientation from the cap assembly base and which defines at least a portion of a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

9. (Original) The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

10. (Original) The drink container of claim 1, wherein the resilient mouthpiece includes projections that extend generally transverse to the portion of the fluid conduit that extends through the resilient mouthpiece, and further wherein the projections engage an end region of the pivotal mount.

11. (Original) The drink container of claim 10, wherein the projections are internal projections.

12. (Original) The drink container of claim 1, wherein the resilient mouthpiece is configured to be selectively removed from and recoupled to the pivotal mount.

13. (Original) The drink container of claim 12, wherein the resilient mouthpiece includes a mouthpiece base with an end distal the dispensing outlet that has a contoured configuration that does not extend at a constant distance from the dispensing outlet, wherein the end of the resilient

Zak Designs, Inc. Exhibit 1003
143 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 324 of 857

mouthpiece base includes a projecting region and a concave region, wherein the projecting region of the end of the mouthpiece base extends a greater distance away from the dispensing outlet than the concave region of the end of the mouthpiece base, and further wherein the pivotal mount is configured to engage the projecting region and the concave region of the mouthpiece base to restrict rotation of the resilient mouthpiece relative to the pivotal mount.

14. (Original) The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

15. (Original) The drink container of claim 14, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

16. (Original) The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face that defines the dispensing outlet, wherein the resilient mouthpiece includes opposed bite regions, wherein the dispensing face includes opposed lips between which the dispensing outlet is defined, and further wherein when a user applies compressive forces to the opposed bite regions, the lips are urged away from each other to enlarge the dispensing outlet.

17. (Original) The drink container of claim 16, wherein the opposed lips seal against each other when the opposed bite regions are not urged toward each other.

18. (Original) The drink container of claim 1, wherein the pivotal mount further includes a projecting flange that extends away from a portion of the fluid conduit that extends through the pivotal mount, wherein the projecting flange provides a lever arm that is configured to be engaged by a user's finger to pivot the pivotal mount from the stowed position to the dispensing position.

19. (Original) The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the

Zak Designs, Inc. Exhibit 1003
144 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 325 of 857

manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

20. (Original) The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

Zak Designs, Inc. Exhibit 1003
145 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 326 of 857

REMARKS

Claims 1-20 were pending in this application prior to the Office Action dated August 2, 2019 ("Office Action"). Claim 1 is amended to incorporate the elements previously recited in dependent claim 2 and claim 3 is amended to depend from claim 1. Claim 2 is canceled. In view of the above amendments and the following remarks, Applicant respectfully requests reconsideration and allowance of this application.

I. Summary of Interviews with the Examiner

Applicant's representative, Sonny Grewal, thanks Examiner Braden for discussing this application with him on November 12, 2019 and again on November 27, 2019.

During the first interview, Applicant's representative and the Examiner discussed the non-statutory double patenting rejection and differences between the present application and the applied Dark reference. The Examiner agreed that the claims of U.S. Patent No. 10,023,065 (the '365 Patent) do not disclose or teach all of limitations recited in at least the independent claims and agreed to withdraw the double patenting rejection.

During the second interview, Applicant's representative and the Examiner discussed proposed claim amendments to the independent claims. The Examiner agreed that Dark did not disclose at least the feature "wherein the pivotal mount includes a pair of lateral projections" previously recited in dependent claim 2 and currently incorporated into independent claim 1.

Applicant's representative again thanks Examiner Braden for discussing this application with him multiple times and helping to meaningfully advance prosecution.

II. Double Patenting Rejection

Claims 1-20 stand rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-23 of the '365 Patent. As discussed with the Examiner during the first interview, the claims of the '365 Patent do not disclose, suggest, or teach at least the following limitations recited in the independent claims:

Zak Designs, Inc. Exhibit 1003
146 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 327 of 857

- *wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;*
- *wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and*
- *wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.*

Accordingly, Applicant respectfully requests withdrawal of the nonstatutory double patenting rejection.

III. Rejections under 35 U.S.C. § 102(b)

Claims 1-3 and 19-20 stand rejected as being anticipated by U.S. Patent No. 6,116,458 to Dark ("Dark"). As agreed with the Examiner during the second interview, Dark does not disclose or suggest at least the recited limitation *"wherein the pivotal mount includes a pair of lateral projections"* previously recited in dependent claim 2 and currently recited in independent claim 1. Applicant additionally submits that Dark does not disclose or suggest at least the additional limitation "wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets."

For at least the above-stated reasons, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 102(b).

III. Rejections under 35 U.S.C. § 103

Claims 4-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dark in view of U.S. Design Patent US D547,607 to Forsman ("Forsman").

As a preliminary matter, Applicant respectfully submits that Forsman is not prior art to the pending application. As stated in the priority claim, the "present application is a continuation of, and claims priority under 35 U.S.C. § 120 to, U.S. Patent Application No. 15/287,915, which was filed on October 7, 2016, issued on July 17, 2018 as U.S. Patent No.

Zak Designs, Inc. Exhibit 1003
147 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 328 of 857

10,023,365, and which claims priority to U.S. Patent Application Serial No. 14/329,096, which was filed on July 11, 2014, issued on October 11, 2016 as U.S. Patent No. 9,463,911, and which claims priority to U.S. Patent Application Serial No. 12/133,954, which was filed on June 5, 2008, issued on July 15, 2014 as U.S. Patent No. 8,777,048, and which claims priority to U.S. Patent Application Serial No. 11/588,476, which was filed on 10 October 26, 2006, issued on January 7, 2014 as U.S. Patent No. 8,622,237, and which claims priority to U.S. Patent Application Serial No. 11/313,488, which was filed on December 20, 2005, and issued on May 19, 2009 as U.S. Patent No. 7,533,783. U.S. Patent Application Serial No. 11/313,488 claims priority to U.S. Provisional Patent Application Serial Nos. 60/670,828 and 60/706,700, which were filed on April 11, 2005 and August 8, 2005, respectively." *See* Application, ¶ 1. Forsman was filed August 9, 2005 and published on July 31, 2007.

Additionally, as discussed in the previous section, Dark does not disclose, suggest, or teach each and every limitation of at least independent claim 1, as presented herein.

Accordingly, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. § 103(a).

In view of the above remarks, this application is believed to be in condition for allowance. If any issues remain, the Examiner is kindly invited to contact the undersigned attorney.

Except for issue fees payable under 37 C.F.R. § 1.18, Applicant hereby authorizes the Commissioner to charge any additional fees during the entire pendency of this application, including fees due under 37 C.F.R. §§ 1.16 and 1.17, which may be required, including any required extension of time fees, or credit any overpayment, to Deposit Account No. 50-1529. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a) (3).

Respectfully submitted,

/Amardeep S. Grewal, Reg. No. 62,798/
Amardeep S. Grewal

Zak Designs, Inc. Exhibit 1003
148 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 329 of 857

Reg. No. 62,798

REED SMITH LLP
CUSTOMER NO.: 98804
1301 K Street N.W.
Suite 1000 – East Tower
Washington, D.C. 20005
(202) 414-9272

Zak Designs, Inc. Exhibit 1003
149 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 330 of 857

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/035,418	Filing Date 07/13/2018	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/02/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 19	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0		x $460 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/DEBORAH A POLLARD/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

165846 7590 12/09/2019

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

EXAMINER	
BRADEN, SHAWN M	

ART UNIT	PAPER NUMBER
3736	

NOTIFICATION DATE	DELIVERY MODE
12/09/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gdonovan@reedsmith.com
ptoipinbox@reedsmith.com

Zak Designs, Inc. Exhibit 1003
151 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 332 of 857

Applicant-Initiated Interview Summary	**Application No.** 16/035,418	**Applicant(s)** Choi et al.	
	Examiner SHAWN M BRADEN	**Art Unit** 3736	**AIA (FITF) Status** No

All participants (applicant, applicants representative, PTO personnel):

(1) SHAWN M. BRADEN. (3) _____.

(2) Sonny Grewal. (4) _____.

Date of Interview: 27 November 2019.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☑Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: pending.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant presented some possible amendments for discussion purposes only. One key point applicant raised is that the pivotal mount of the Dark reference does not include a pair of lateral projections. The projections of Dark are more on the straw then the pivotal mount. Applicant stated that the will submit a response..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736	

Zak Designs, Inc. Exhibit 1003
152 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 333 of 857

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

165846 7590 01/29/2020

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

EXAMINER	
BRADEN, SHAWN M	
ART UNIT	PAPER NUMBER
3736	

DATE MAILED: 01/29/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

TITLE OF INVENTION: DRINK BOTTLES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/29/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

Zak Designs, Inc. Exhibit 1003
154 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 335 of 857

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

165846 7590 01/29/2020
Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

TITLE OF INVENTION: DRINK BOTTLES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
BRADEN, SHAWN M	3736	215-381000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Zak Designs, Inc. Exhibit 1003
155 of 189
IPR 2024-01137
CamelBak - Ex 2001
Page 336 of 857

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

165846 7590 01/29/2020

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

EXAMINER	
BRADEN, SHAWN M	
ART UNIT	PAPER NUMBER
3736	

DATE MAILED: 01/29/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Zak Designs, Inc. Exhibit 1003
156 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 337 of 857

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/035,418	Applicant(s) Choi et al.	
	Examiner SHAWN M BRADEN	Art Unit 3736	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 12/2/19.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1 and 3-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/SHAWN M BRADEN/
Primary Examiner, Art Unit 3736

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/035,418	Choi et al.
	Examiner	Art Unit
	SHAWN M BRADEN	3736

CPC - Searched*		
Symbol	Date	Examiner
A47G19/2266, A47G19/2272 , B65D47/066	07/31/2019	smb

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
215	11.4,11.5	07/31/2019	smb
220	254.3,704,705,707,714		
	updated previous search	01/23/2020	smb

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
text search and inventor search	07/31/2019	smb

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	PGPUB text search, see interference search printout	01/23/2020	smb

/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736	

Zak Designs, Inc. Exhibit 1003
159 of 189
IPR 2024-01137
CamelBak - Ex 2001
Page 340 of 857

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/035,418	Choi et al.
	Examiner	**Art Unit**
	SHAWN M BRADEN	3736

CPC						
Symbol					**Type**	**Version**
B65D	/	47	/	065	F	2013-01-01
B65D	/	47	/	066	I	2013-01-01
A47G	/	19	/	2266	I	2013-01-01
A45F	/	3	/	20	I	2013-01-01
A47G	/	19	/	2272	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736	23 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20200123

Zak Designs, Inc. Exhibit 1003
160 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 341 of 857

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/035,418	Choi et al.
	Examiner	**Art Unit**
	SHAWN M BRADEN	3736

INTERNATIONAL CLASSIFICATION				
CLAIMED				
B65D47/06	/	47	/	06

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	19	
/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736	23 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20200123

Zak Designs, Inc. Exhibit 1003
161 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 342 of 857

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/035,418	Choi et al.
	Examiner	Art Unit
	SHAWN M BRADEN	3736

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	11	19	20										
2	3	11	12												
3	4	12	13												
4	5	13	14												
5	6	14	15												
6	7	15	16												
7	8	16	17												
8	9	17	18												
9	10	18	19												

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 19	
/SHAWN M BRADEN/ Primary Examiner, Art Unit 3736 (Primary Examiner)	23 January 2020 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office

Part of Paper No.: 20200123

Zak Designs, Inc. Exhibit 1003
162 of 189

IPR 2024-01137
CamelBak - Ex 2001
Page 343 of 857

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	118	("1788795" | "2844267" | "20020033399" | "20020092858" | "20020092877" | "20020148806" | "20020166990" | "20020185495" | "20030116573" | "20030168462" | "20030173536" | "20030218015" | "20030222238" | "20040000551" | "20040069783" | "20040079775" | "20040089301" | "20040159820" | "20040164043" | "20040217139" | "20040217187" | "20040222230" | "20050029271" | "20050029313" | "20050045647" | "20050056610" | "20050056652" | "20050072788" | "20050072804" | "20050115966" | "20050133505" | "20050133519" | "20050205587" | "20050218242" | "3179301" | "3181743" | "3294293" | "3392887" | "3792443" | "4090650" | "4485963" | "4607755" | "4836404" | "4852762" | "4860934" | "4925042" | "5060833" | "5065909" | "5085336" | "5085349" | "5101991" | "5203468" | "5242079" | "5273172" | "5301858" | "5332131" | "5392968" | "5465866" | "5518142" | "5520304" | "5582315" | "5601207" | "5607087" | "5699933" | "5730336" | "5755368" | "5791510" | "5806726" | "5873478" | "5884793" | "5897013" | "5911406" | "6021801" | "6032831" | "6050433" | "6050445" | "6059154" | "6070767" | "6116458" | "6196413" | "6199729" | "6212959" | "6264166" | "6276560" | "6279772" | "6279773" | "6283344" | "6364168" | "6390341" | "6422415" | "6497348" | "6513686" | "6523711" | "6557721" | "6607092" | "6609624" | "6675998" | "6698716" | "6708950" | "6719273" | "6742681" | "6745915" | "6764064" | "6783115" | "6854888" | "6908015" | "6915961" | "7014077" | "7048137" | "D489978").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/07/25 14:14
S2	262	("1166551" | "2529817" | "2573378" | "2622922" | "2800245" | "2844267" | "2893611" | "2893612" | "3045880" | "3094255" | "3111245" | "3181743" | "3278095" | "3294293" | "3323689" | "3323694" | "3337098" | "3371827" | "3372832" | "3392887" | "3490659" | "3516581" | "3655103" | "3718238" | "3739938" | "3776428" | "3782577" | "3840153" | "3847313" | "3858773" | "3907179" | "3924775" | "3949897" |	US-PGPUB; USPAT; USOCR	AND	ON	2008/07/25 14:36

		"4133446" | "4165816" | "4209114" | "4239132" | "4291814" | "4407425" | "4440327" | "4448316" | "4485963" | "4505312" | "4560081" | "4589569" | "4591079" | "4607755" | "4630333" | "4632266" | "4684032" | "4693399" | "4726479" | "4732303" | "4776494" | "4779773" | "4852762" | "4860934" | "4881668" | "4887747" | "4892234" | "4903870" | "4925043" | "4986437" | "4998649" | "5065909" | "5078289" | "5079013" | "5085335" | "5085347" | "5133482" | "5150815" | "5188283" | "5203468" | "5203841" | "5242079" | "5259538" | "5265757" | "5273172" | "5294018" | "5332131" | "5337918" | "5339982" | "5346081" | "5361934" | "5392968" | "5415312" | "5465866" | "5509551" | "5518142" | "5520304" | "5540341" | "5542585" | "5542670" | "5579948" | "5582315" | "5582320" | "5655686" | "5884793" | "5897013" | "5908126" | "6050433" | "6196413" | "6276560" | "6279773" | "D315103" | "D351761" | "D358301" | "D369943").PN. OR ("2003/0173536" | "2004/0069783" | "2004/0159820" | "2005/0029271" | "2005/0029313" | "2005/0072804" | "2005/0133505" | "2005/0133519" | "3181743" | "3392887" | "5085336" | "5203468" | "5392968" | "5520304" | "5582315" | "5873478" | "5884793" | "6050433" | "6059154" | "6116458" | "6279773" | "6390341" | "6609624").URPN.				
S3	16	("5203468" | "5242079" | "5339982" | "5346081" | "5361934" | "5392968" | "5465866" | "5520304" | "5897013").PN. OR ("6116458").URPN.	US-PGPUB; USPAT; USOCR	AND	ON	2008/07/25 14:49
S4	229	(220/709).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2008/07/25 15:05
S5	543	(220/254.3).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2008/07/25 15:28
S6	256	(220/705).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2008/07/25 16:04
S7	2	("2003/0085232").URPN.	USPAT	AND	ON	2008/07/25 16:09
S8	87	(220/707).CCLS.	US-PGPUB; USPAT;	OR	OFF	2008/07/25 16:18

			USOCR; EPO; JPO			
S9	281	(220/714).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2008/09/25 22:32
S10	175	(220/711).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2008/09/26 11:40
S11	10739	pivot bite	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/09/26 11:41
S12	0	S10 S11	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/09/26 11:41
S13	1093154	pivot or tilt	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/09/26 11:41
S14	35	S10 S13	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/09/26 11:41
S15	281	(220/714).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2008/09/26 12:04
S16	2	S11 S15	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/09/26 12:04
S17	60	S13 S15	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2008/09/26 12:05
S18	118	("1788795" | "2844267" | "20020033399" | "20020092858" | "20020092877" | "20020148806" | "20020166990" |	US-PGPUB; USPAT;	AND	ON	2008/09/28 23:09

		"20020185495" | "20030116573" | "20030168462" | "20030173536" | "20030218015" | "20030222238" | "20040000551" | "20040069783" | "20040079775" | "20040089301" | "20040159820" | "20040164043" | "20040217139" | "20040217187" | "20040222230" | "20050029271" | "20050029313" | "20050045647" | "20050056610" | "20050056652" | "20050072788" | "20050072804" | "20050115966" | "20050133505" | "20050133519" | "20050205587" | "20050218242" | "3179301" | "3181743" | "3294293" | "3392887" | "3792443" | "4090650" | "4485963" | "4607755" | "4836404" | "4852762" | "4860934" | "4925042" | "5060833" | "5065909" | "5085336" | "5085349" | "5101991" | "5203468" | "5242079" | "5273172" | "5301858" | "5332131" | "5392968" | "5465866" | "5518142" | "5520304" | "5582315" | "5601207" | "5607087" | "5699933" | "5730336" | "5755368" | "5791510" | "5806726" | "5873478" | "5884793" | "5897013" | "5911406" | "6021801" | "6032831" | "6050433" | "6050445" | "6059154" | "6070767" | "6116458" | "6196413" | "6199729" | "6212959" | "6264166" | "6276560" | "6279772" | "6279773" | "6283344" | "6364168" | "6390341" | "6422415" | "6497348" | "6513686" | "6523711" | "6557721" | "6607092" | "6609624" | "6675998" | "6698716" | "6708950" | "6719273" | "6742681" | "6745915" | "6764064" | "6783115" | "6854888" | "6908015" | "6915961" | "7014077" | "7048137" | "D489978").PN.	USOCR; EPO; JPO			
S19	119	("1788795" | "2844267" | "20020033399" | "20020092858" | "20020092877" | "20020148806" | "20020166990" | "20020185495" | "20030085232" | "20030085232" | "20030116573" | "20030168462" | "20030173536" | "20030218015" | "20030222238" | "20040000551" | "20040069783" | "20040079775" | "20040089301" | "20040159820" | "20040164043" | "20040217139" | "20040217187" | "20040222230" | "20050029271" | "20050029313" | "20050045647" | "20050056610" | "20050056652" | "20050072788" | "20050072804" | "20050115966" | "20050133505" | "20050133519" | "20050205587" | "20050218242" | "3179301" | "3181743" | "3294293" | "3392887" | "3792443" | "4090650" | "4485963" | "4607755" | "4836404" | "4852762" | "4860934" | "4925042" | "5060833" | "5065909" | "5085336" | "5085349" | "5101991" | "5203468" | "5242079" | "5273172" | "5301858" | "5332131" | "5392968" |	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2009/03/05 15:55

		"5465866" | "5518142" | "5520304" | "5582315" | "5601207" | "5607087" | "5699933" | "5730336" | "5755368" | "5791510" | "5806726" | "5873478" | "5884793" | "5897013" | "5911406" | "6021801" | "6032831" | "6050433" | "6050445" | "6059154" | "6070767" | "6116458" | "6196413" | "6199729" | "6212959" | "6264166" | "6276560" | "6279772" | "6279773" | "6283344" | "6364168" | "6390341" | "6422415" | "6497348" | "6513686" | "6523711" | "6557721" | "6607092" | "6609624" | "6675998" | "6698716" | "6708950" | "6719273" | "6742681" | "6745915" | "6764064" | "6783115" | "6854888" | "6908015" | "6915961" | "7014077" | "7048137" | "D489978").PN.				
S20	8	folding near nipple	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2009/03/05 16:33
S21	30	pivot near nipple	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2009/03/05 16:34
S22	286	(215/11.4).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2009/10/19 21:14
S23	0	Brown-craig.in. Brown-Robert.in.	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2009/10/19 21:22
S24	18	Brown-c$.in. Brown-r$.in.	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2009/10/19 21:22
S25	595	(215/11.5).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2009/10/20 08:06
S26	0	("("1788795" | "2844267" | "20020033399" | "20020092858" | "20020092877" | "20020148806" | "20020166990" | "20020185495" | "20030085232" | "20030116573" | "20030168462" | "20030173536" | "20030218015" | "20030222238" | "20040000551" | "20040069783" |	US-PGPUB; USPAT; USOCR; EPO; JPO	OR	OFF	2009/10/20 14:14

		"20040079775" | "20040089301" | "20040159820" | "20040164043" | "20040217139" | "20040217187" | "20040222230" | "20050029271" | "20050029313" | "20050045647" | "20050056610" | "20050056652" | "20050072788" | "20050072804" | "20050115966" | "20050133505" | "20050133519" | "20050205587" | "20050218242" | "3179301" | "3181743" | "3294293" | "3392887" | "3972443" | "4090650" | "4485963" | "4607755" | "4836404" | "4852762" | "4860934" | "4925042" | "5060833" | "5065909" | "5085336" | "5085349" | "5101991" | "5203468" | "5242079" | "5273172" | "5301858" | "5332131" | "5392968" | "5465866" | "5518142" | "5520304" | "5582315" | "5601207" | "5607087" | "5699933" | "5730336" | "5755368" | "5791510" | "5806726" | "5873478" | "5884793" | "5897013" | "5911406" | "6021801" | "6032831" | "6050433" | "6050445" | "6059154" | "6070767" | "6116458" | "6196413" | "6199729" | "6212959" | "6264166" | "6276560" | "6279772" | "6279773" | "6283344" | "6364168" | "6390341" | "6422415" | "6497348" | "6513686" | "6523711" | "6557721" | "6607092" | "6609624" | "6675998" | "6698716" | "6708950" | "6719273" | "6742681" | "6745915" | "6764064" | "6783115" | "6854888" | "6908015" | "6915961" | "7014077" | "7048137" | "D489978").PN.").PN.				
S27	119	("1788795" | "2844267" | "20020033399" | "20020092858" | "20020092877" | "20020148806" | "20020166990" | "20020185495" | "20030085232" | "20030116573" | "20030168462" | "20030173536" | "20030218015" | "20030222238" | "20040000551" | "20040069783" | "20040079775" | "20040089301" | "20040159820" | "20040164043" | "20040217139" | "20040217187" | "20040222230" | "20050029271" | "20050029313" | "20050045647" | "20050056610" | "20050056652" | "20050072788" | "20050072804" | "20050115966" | "20050133505" | "20050133519" | "20050205587" | "20050218242" | "3179301" | "3181743" | "3294293" | "3392887" | "3972443" | "4090650" | "4485963" | "4607755" | "4836404" | "4852762" | "4860934" | "4925042" | "5060833" | "5065909" | "5085336" | "5085349" | "5101991" | "5203468" | "5242079" | "5273172" | "5301858" | "5332131" | "5392968" | "5465866" | "5518142" | "5520304" | "5582315" | "5601207" | "5607087" | "5699933" | "5730336" | "5755368" | "5791510" | "5806726" | "5873478" | "5884793" |	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2009/10/20 14:16

		"5897013" | "5911406" | "6021801" | "6032831" | "6050433" | "6050445" | "6059154" | "6070767" | "6116458" | "6196413" | "6199729" | "6212959" | "6264166" | "6276560" | "6279772" | "6279773" | "6283344" | "6364168" | "6390341" | "6422415" | "6497348" | "6513686" | "6523711" | "6557721" | "6607092" | "6609624" | "6675998" | "6698716" | "6708950" | "6719273" | "6742681" | "6745915" | "6764064" | "6783115" | "6854888" | "6908015" | "6915961" | "7014077" | "7048137" | "D489978").PN.				
S28	0	Leinenweber (US Pub No 2003/0085232) Yang (US Pub "No." 2004/0159820)	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2010/04/16 10:32
S29	2	Leinenweber "2003" "0085232"	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2010/04/16 10:32
S30	7	Leinenweber.in.	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2010/04/16 10:33
S31	1	"6116458".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2010/04/16 10:37
S32	1	"5791510".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2010/04/16 10:37
S33	686	squeeze bottle drink	US-PGPUB; USPAT; USOCR; EPO; JPO	AND	ON	2010/08/17 14:13
S34	71	squeeze bottle drink	US-PGPUB; USPAT; USOCR; EPO; JPO	SAME	ON	2010/08/17 14:13
S35	31	("2537545" | "2625302" | "2653736" | "2666555" | "3118577" | "3222037" | "3643704" | "3696977" | "3731855" | "3757981" | "4015602" | "4274562" | "4382529" | "4441638" | "4541551" |	US-PGPUB; USPAT; USOCR	AND	ON	2010/08/17 14:27

		"4807786" | "5145094" | "5289945" | "5295597" | "5358132" | "5425483" | "5458274").PN. OR ("5620114").URPN.				
S36	127	("20040217139" | "20050045647" | "4925042" | "5203468" | "5806726" | "6059154" | "6196413" | "6212959" | "6497348" | "6708950" | "6908015" | "7032764" | "5332131" | "6116458" | "20040000551" | "20050029271" | "20050056652" | "3392887" | "5553726" | "5607087" | "6050433" | "6276560" | "6523771" | "6675998" | "6854888" | "7048137" | "7059490" | "1788795" | "20020148806" | "20020166990" | "20030173536" | "20050029313" | "20050072804" | "20050115966" | "20050205587" | "5332131" | "5582315" | "5699933" | "6070767" | "6279772" | "6279773" | "7073688" | "20030102318" | "20020185495" | "20030218015" | "20040079775" | "20040089301" | "20040164043" | "20050056610" | "3972443" | "4090650" | "4485963" | "4836404" | "5433535" | "5520304" | "5730336" | "6021801" | "6283344" | "6364168" | "6557721" | "6609624" | "6745915" | "6783115" | "4212408" | "2844267" | "20020092858" | "20030222238" | "20050072788" | "20050128242" | "3179301" | "3181743" | "5085336" | "5273172" | "5301858" | "5601207" | "5873478" | "5884793" | "6032831" | "6179273" | "6199729" | "6513686" | "6764064" | "6915961" | "20020092877" | "20030116573" | "20040217187" | "20050133505" | "20050133519" | "4852762" | "5060833" | "5085349" | "5101991" | "5242079" | "5755368" | "5791510" | "5911406" | "6390341" | "6742681" | "D489978" | "3739938" | "6609624" | "20040222230" | "5065909" | "5433353" | "5518142" | "5897013" | "6050445" | "6116458" | "6264166" | "6698716" | "20020033399" | "20030085232" | "20030168462" | "20040069783" | "20040159820" | "3294293" | "4607755" | "4860934" | "5392968" | "5465866" | "6422415" | "6607092" | "7014077" | "5307950").PN.	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/11 07:47
S37	9108	(mouth or bitevalve) hexagonal	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 07:59
S38	588	(mouthpiece or bitevalve) hexagonal	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 07:59
S39	75	(mouthpiece or bitevalve) same hexagonal	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:00
S40	0	(bitevalve) same hexagonal	US-	AND	ON	2015/11/12

			PGPUB; USPAT; USOCR			08:10
S41	0	(bitevalve) hexagonal	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:10
S42	588	(mouthpiece) hexagonal	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:10
S43	75	(mouthpiece) same hexagonal	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:10
S44	0	bitevalve.ti.	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:37
S45	0	bitevalve	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:38
S46	0	bitevalve	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:38
S47	376	bite adj valve	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:39
S48	24	bite adj valve .ti.	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 08:39
S49	105	(US-20050133519-$ or US-20050133505-$ or US-20050072804-$ or US-20050029313-$ or US-20050029271-$ or US-20040159820-$ or US-20040069783-$ or US-20030173536-$ or US-20070045217-$ or US-20070039959-$ or US-20050115967-$ or US-20070108214-$ or US-20030085232-$ or US-20030102318-$ or US-20030222238-$ or US-20020092877-$ or US-20070051727-$ or US-20050115966-$ or US-20040222230-$ or US-20040217139-$ or US-20030218015-$ or US-20020148806-$ or US-20050045647-$ or US-20060237387-$ or US-20060201902-$ or US-20080093323-$).did. or (US-20050258124-$ or US-20040118801-$ or US-20060129127-$ or US-20060081552-$ or US-20050121405-$ or US-20040188372-$ or US-20040118858-$ or US-20040035815-$ or US-20020033399-$ or US-20100127005-$ or US-20060226171-$ or US-20060180594-$ or US-20050269337-$ or US-20050167439-$ or US-20020036176-$ or US-20140319183-$).did. or (US-6609624-$ or US-6390341-$ or US-6279773-$ or US-6116458-$ or US-	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 15:21

		6059154-$ or US-6050433-$ or US-5884793-$ or US-5873478-$ or US-5582315-$ or US-5520304-$ or US-5392968-$ or US-5203468-$ or US-5085336-$ or US-3392887-$ or US-3181743-$ or US-D547607-$ or US-7140509-$ or US-7124907-$ or US-7059490-$ or US-6523711-$ or US-6161728-$ or US-5339982-$ or US-5624062-$ or US-5332131-$ or US-5131571-$ or US-3045880-$).did. or (US-6745949-$ or US-6698716-$ or US-6557721-$ or US-5242079-$ or US-5065909-$ or US-2844267-$ or US-6783115-$ or US-6764064-$ or US-5911406-$ or US-5897013-$ or US-5101991-$ or US-1788795-$ or US-7419069-$ or US-7134564-$ or US-7032764-$ or US-6957744-$ or US-6176380-$ or US-5791510-$ or US-5788097-$ or US-5601207-$ or US-5553726-$ or US-4301934-$ or US-6742665-$ or US-6286697-$ or US-5927565-$ or US-5620114-$ or US-5295597-$).did. or (US-4382529-$ or US-5433353-$ or US-4976364-$ or US-6279772-$ or US-5730336-$ or US-7267245-$ or US-6874760-$ or US-6886807-$).did. or (US-3392887-$ or US-3181743-$).did.				
S50	1319	((A47G19/2266 OR A47G19/2272 OR B65D47/066).CPC.)	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 15:23
S51	1319	((A47G19/2266, A47G19/2272 , B65D47/066).CPC.)	US-PGPUB; USPAT; USOCR	AND	ON	2015/11/12 15:23
S52	0	("8777048.pn.").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/06/14 13:55
S53	1	"8777048".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2016/06/14 13:55
S54	46	(("CHOI") near3 ("Robert")).INV.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 09:20
S55	39	(("FORSMAN") near3 ("Barley")).INV.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 09:25
S56	19	(("GALTEN") near3 ("Jeremy")).INV.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 09:26
S57	16	(("CAMELBAK") near3 ("PRODUCTS") near3 ("LLC")).AANM.	USPAT	AND	ON	2018/02/22 09:27
S58	16	(("CAMELBAK") near3 ("PRODUCTS")	USPAT	AND	ON	2018/02/22

		near3 ("LLC")).AANM.				09:27
S59	0	"87770488".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 11:50
S60	1	"8622237".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 11:50
S61	31	"37082196".FMID.	US-PGPUB; USPAT; FPRS	AND	ON	2018/02/22 11:52
S62	142672	squeeze	US-PGPUB; USPAT; FPRS	AND	ON	2018/02/22 12:06
S63	9	S61 S62	US-PGPUB; USPAT; FPRS	AND	ON	2018/02/22 12:06
S64	109	(US-20050133519-$ or US-20050133505-$ or US-20050072804-$ or US-20050029313-$ or US-20050029271-$ or US-20040159820-$ or US-20040069783-$ or US-20030173536-$ or US-20070045217-$ or US-20070039959-$ or US-20050115967-$ or US-20070108214-$ or US-20030085232-$ or US-20030102318-$ or US-20030222238-$ or US-20020092877-$ or US-20070051727-$ or US-20050115966-$ or US-20040222230-$ or US-20040217139-$ or US-20030218015-$ or US-20020148806-$ or US-20050045647-$ or US-20060237387-$ or US-20060201902-$ or US-20080093323-$).did. or (US-20050258124-$ or US-20040118801-$ or US-20060129127-$ or US-20060081552-$ or US-20050121405-$ or US-20040188372-$ or US-20040118858-$ or US-20040035815-$ or US-20020033399-$ or US-20100127005-$ or US-20060226171-$ or US-20060180594-$ or US-20050269337-$ or US-20050167439-$ or US-20020036176-$ or US-20140319183-$).did. or (US-6609624-$ or US-6390341-$ or US-6279773-$ or US-6116458-$ or US-6059154-$ or US-6050433-$ or US-5884793-$ or US-5873478-$ or US-5582315-$ or US-5520304-$ or US-5392968-$ or US-5203468-$ or US-5085336-$ or US-3392887-$ or US-3181743-$ or US-D547607-$ or US-7140509-$ or US-7124907-$ or US-7059490-$ or US-6523711-$ or US-6161728-$ or US-5339982-$ or US-5624062-$ or US-5332131-$ or US-5131571-$ or US-3045880-$).did. or (US-6745949-$ or US-6698716-$ or US-6557721-$ or US-5242079-$ or US-5065909-$ or US-2844267-$ or US-6783115-$ or US-6764064-$ or US-	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:13

		5911406-$ or US-5897013-$ or US-5101991-$ or US-1788795-$ or US-7419069-$ or US-7134564-$ or US-7032764-$ or US-6957744-$ or US-6176380-$ or US-5791510-$ or US-5788097-$ or US-5601207-$ or US-5553726-$ or US-4301934-$ or US-6742665-$ or US-6286697-$ or US-5927565-$ or US-5620114-$ or US-5295597-$).did. or (US-4382529-$ or US-5433353-$ or US-4976364-$ or US-6279772-$ or US-5730336-$ or US-7267245-$ or US-6874760-$ or US-6886807-$ or US-7533783-$ or US-9463911-$ or US-9113698-$ or US-8622237-$).did. or (US-3392887-$ or US-3181743-$).did.				
S65	28	S62 S64	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:13
S66	501	bite adj valve	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:51
S67	6328	squeeze adj bottle	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:51
S68	598373	"910"	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:51
S69	921393	"91" "0"	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:51
S70	12	S66 S67	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 12:51
S71	3986	squeeze beverage	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:17
S72	675614	outlet valve	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:17
S73	13	(squeeze beverage outlet valve).clm.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:38
S74	2	2003/0102318 "2,936,934" "3,283,967" "6,116,458" "6,609,624" "7,059,490"	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:51
S75	0	2003/0102318.pn. "2,936,934".pn. "3,283,967".pn. "6,116,458".pn. "6,609,624".pn. "7,059,490".pn.	US-PGPUB; USPAT;	AND	ON	2018/02/22 15:51

			USOCR			
S76	0	2003/0102318.pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:52
S77	1	"20030102318".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:52
S78	0	"2,936,934".pn. "3,283,967".pn. "6,116,458".pn. "6,609,624".pn. "7,059,490".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:52
S79	2	"2,936,934".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:52
S80	2	"3,283,967".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:52
S81	1	"6,116,458".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:53
S82	1	"6,609,624".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:53
S83	1	"7,059,490".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 15:53
S84	1	"6290108".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 16:01
S85	1	"6446844".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 16:01
S86	1	"6095382".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2018/02/22 16:02
S87	932	("0470776" | "1166551" | "1588218" | "1788795" | "20020033399" | "20020092858" | "20020092877" | "20020148806" | "20020166990" | "20020185495" | "20030016370" | "20030085232" | "20030116573" | "20030168462" | "20030173536" | "20030218015" | "20030222238" | "20040000551" | "20040069783" | "20040079775" | "20040089301" | "20040159820" | "20040164043" | "20040217139" | "20040217187" | "20040222230" | "20050029271" | "20050029313" | "20050045647" | "20050056610" | "20050056652" |	US-PGPUB; USPAT; USOCR	AND	ON	2019/07/30 18:59

		"20050072788" | "20050072804" |							
		"20050115966" | "20050133505" |							
		"20050133519" | "20050205587" |							
		"20050218242" | "2098128" | "2529817" |							
		"2573378" | "2622922" | "2641376" |							
		"2684793" | "2773631" | "2792976" |							
		"2800245" | "2844267" | "2869816" |							
		"2893611" | "2893612" | "3023939" |							
		"3034504" | "3045880" | "3055556" |							
		"3094255" | "3111245" | "3179301" |							
		"3181743" | "3199742" | "3278095" |							
		"3294293" | "3323689" | "3323694" |							
		"3337098" | "3371827" | "3372832" |							
		"3392887" | "3489307" | "3490659" |							
		"3516581" | "3537623" | "3655099" |							
		"3655103" | "3718238" | "3739938" |							
		"3776428" | "3782577" | "3840153" |							
		"3847313" | "3858773" | "3863818" |							
		"3874568" | "3881643" | "3884392" |							
		"3907179" | "3924775" | "3949897" |							
		"3972443" | "4077601" | "4080989" |							
		"4090650" | "4133446" | "4165816" |							
		"4209100" | "4209114" | "4216880" |							
		"4236655" | "4239132" | "4282991" |							
		"4291814" | "4407425" | "4408702" |							
		"4426027" | "4440327" | "4444328" |							
		"4446994" | "4448316" | "4485963" |							
		"4505312" | "4513891" | "4533058" |							
		"4560081").PN. OR ("4589569" |							
		"4591079" | "4602728" | "4607755" |							
		"4630333" | "4632266" | "4684032" |							
		"4693399" | "4714173" | "4714550" |							
		"4726479" | "4732303" | "4776494" |							
		"4779764" | "4779773" | "4832238" |							
		"4836404" | "4852762" | "4860934" |							
		"4881668" | "4887747" | "4892234" |							
		"4903870" | "4925042" | "4925043" |							
		"4940167" | "4941590" | "4986437" |							
		"4991745" | "4998649" | "5048705" |							
		"5060833" | "5065909" | "5065913" |							
		"5065914" | "5078289" | "5079013" |							
		"5085335" | "5085336" | "5085347" |							
		"5085349" | "5101991" | "5131571" |							
		"5133482" | "5150815" | "5156335" |							
		"5188283" | "5203468" | "5203841" |							
		"5240149" | "5242079" | "5252206" |							
		"5259538" | "5265757" | "5273172" |							
		"5273649" | "5294018" | "5301858" |							
		"5332131" | "5337918" | "5339982" |							
		"5346081" | "5361934" | "5370279" |							
		"5392968" | "5413230" | "5415312" |							
		"5439143" | "5465866" | "5477994" |							
		"5488451" | "5494445" | "5509551" |							
		"5509605" | "5518142" | "5520304" |							
		"5540341" | "5542585" | "5542670" |							
		"5545315" | "5579948" | "5582315" |							
		"5582320" | "5601207" | "5607087" |							
		"5609759" | "5617178" | "5653878" |							
		"5655686" | "5676289" | "5688397" |							
		"5688588" | "5695346" | "5699933" |							
		"5730336" | "5755368" | "5791510" |							
		"5806726" | "5823400" | "5873478" |							
		"5884793" | "5890621" | "5896230" |							
		"5897013" | "5908126" | "5911406" |							

		"5919365" | "6021801" | "6024102" | "6032831" | "6039305" | "6050433" | "6050444" | "6050445" | "6059154" | "6065635" | "6070767" | "6116446" | "6116458" | "6123219" | "6142384" | "6145695" | "6196413" | "6199729" | "6212959").PN. OR ("6213339" | "6237817" | "6251566" | "6264166" | "6276560" | "6279772" | "6279773" | "6283344" | "6364168" | "6390341" | "6422415" | "6424467" | "6490092" | "6497348" | "6513686" | "6523711" | "6557721" | "6598768" | "6607092" | "6609624" | "6675998" | "6698716" | "6708950" | "6718664" | "6719273" | "6742681" | "6745915" | "6764064" | "6783115" | "6854888" | "6908015" | "6915961" | "7014077" | "7048137" | "D182556" | "D298717" | "D315103" | "D334341" | "D351761" | "D358301" | "D363414" | "D364314" | "D364315" | "D364316" | "D364317" | "D366809" | "D367206" | "D369943" | "D370828" | "D371048" | "D382170" | "D387621" | "D397906" | "D408220" | "D412085" | "D416755" | "D419029" | "D431159" | "D434272" | "D434273" | "D440465" | "D448242" | "D448976" | "D457384" | "D457778" | "D463216" | "D489978" | "D533061" | "RE37016").PN. OR ("2003/0085232" | "2003/0173536" | "2004/0069783" | "2005/0029271" | "2005/0029313" | "2005/0072804" | "2005/0133505" | "2007/0045217" | "2007/0108214" | "3045880" | "3181743" | "3392887" | "5085336" | "5131571" | "5203468" | "5332131" | "5339982" | "5392968" | "5520304" | "5582315" | "5624062" | "5873478" | "5884793" | "6050433" | "6059154" | "6116458" | "6161728" | "6279773" | "6390341" | "6523711" | "6609624" | "6783115" | "7059490" | "7124907" | "7140509" | "7533783" | "D547607").URPN.				
S88	1	"10023365".pn.	US-PGPUB; USPAT; USOCR	AND	ON	2019/07/31 09:54
S89	5	(US-0040909-$ | US-20020040909-$ | US-5125543-$ | US-6837400-$).DID.	US-PGPUB; USPAT; USOCR	AND	ON	2019/07/31 11:34
S90	217	(US-0000551-$ | US-0029271-$ | US-0029313-$ | US-0033399-$ | US-0045647-$ | US-0056610-$ | US-0056652-$ | US-0069783-$ | US-0072788-$ | US-0072804-$ | US-0079775-$ | US-0085232-$ | US-0089301-$ | US-0092858-$ | US-0092877-$ | US-0102318-$ | US-0115966-$ | US-0116573-$ | US-0133505-$ | US-0133519-$ | US-0148806-$ | US-0159820-$ | US-0164043-$ | US-0166990-$ | US-0168462-$ | US-0173536-$ | US-0184075-$ | US-	US-PGPUB; USPAT; USOCR	AND	ON	2019/07/31 11:42

		0185495-$ | US-0205587-$ | US-0217139-$ | US-0217187-$ | US-0218015-$ | US-0218242-$ | US-0222230-$ | US-0222238-$ | US-0266067-$ | US-1788795-$ | US-1095599-$ | US-1198083-$ | US-1394186-$ | US-2844267-$ | US-2936934-$ | US-20020033399-$ | US-20020092858-$ | US-20020092877-$ | US-20020148806-$ | US-20020166990-$ | US-20020185495-$ | US-20030085232-$ | US-20030102318-$ | US-20030116573-$ | US-20030168462-$ | US-20030173536-$ | US-20030218015-$ | US-20030222238-$ | US-20040000551-$ | US-20040069783-$ | US-20040079775-$ | US-20040089301-$ | US-20040159820-$ | US-20040164043-$ | US-20040217139-$ | US-20040217187-$ | US-20040222230-$ | US-20050029271-$ | US-20050029313-$ | US-20050045647-$ | US-20050056610-$ | US-20050056652-$ | US-20050072788-$ | US-20050072804-$ | US-20050115966-$ | US-20050133505-$ | US-20050133519-$ | US-20050184075-$ | US-20050205587-$ | US-20050218242-$ | US-2279130-$ | US-3179301-$ | US-3181743-$ | US-3283967-$ | US-3294293-$ | US-3392887-$ | US-3739938-$ | US-3972443-$ | US-4090650-$ | US-4212408-$ | US-4485963-$ | US-4607755-$ | US-4836404-$ | US-4852762-$ | US-4860934-$ | US-4925042-$ | US-5060833-$ | US-5065909-$ | US-5085336-$ | US-5085349-$ | US-5101991-$ | US-5203468-$ | US-5242079-$ | US-5273172-$ | US-5301858-$ | US-5307950-$ | US-5332131-$ | US-5392968-$ | US-5433353-$ | US-5433535-$ | US-5465866-$ | US-5518142-$ | US-5520304-$ | US-5553726-$ | US-5582315-$ | US-5601207-$ | US-5607087-$ | US-5699933-$ | US-5730336-$ | US-5755368-$ | US-5791510-$ | US-5806726-$ | US-5873478-$ | US-5884793-$ | US-5897013-$ | US-5911406-$ | US-6021801-$ | US-6032831-$ | US-6050433-$ | US-6050445-$ | US-6059154-$ | US-6070767-$ | US-6095382-$ | US-6116458-$ | US-6196413-$ | US-6199729-$ | US-6212959-$ | US-6264166-$ | US-6276560-$ | US-6279772-$ | US-6279773-$ | US-6283344-$ | US-6290108-$ | US-6364168-$ | US-6390341-$ | US-6422415-$ | US-6446844-$ | US-6497348-$ | US-6513686-$ | US-6523711-$ | US-6557721-$ | US-6607092-$ | US-6609624-$ | US-6675998-$ | US-6698716-$ | US-6708950-$ | US-6719273-$ | US-6742681-$ | US-6745915-$ | US-6764064-$ | US-6783115-$ | US-6854888-$ | US-6908015-$ | US-6915961-$ | US-6994225-$ | US-7014077-$ | US-7032764-$ | US-7048137-$ | US-7059490-$ | US-7073688-$ | US-8701928-$ | US-85106703-$ | US-D489978-$).DID.				
S91	113	(US-20050133519-$ or US-20050133505-$ or US-20050072804-$ or US-20050029313-$ or US-20050029271-$ or US-	US-PGPUB; USPAT;	AND	ON	2019/07/31 20:22

		20040159820-$ or US-20040069783-$ or US-20030173536-$ or US-20070045217-$ or US-20070039959-$ or US-20050115967-$ or US-20070108214-$ or US-20030085232-$ or US-20030102318-$ or US-20030222238-$ or US-20020092877-$ or US-20070051727-$ or US-20050115966-$ or US-20040222230-$ or US-20040217139-$ or US-20030218015-$ or US-20020148806-$ or US-20050045647-$ or US-20060237387-$ or US-20060201902-$ or US-20080093323-$).did. or (US-20050258124-$ or US-20040118801-$ or US-20060129127-$ or US-20060081552-$ or US-20050121405-$ or US-20040188372-$ or US-20040118858-$ or US-20040035815-$ or US-20020033399-$ or US-20100127005-$ or US-20060226171-$ or US-20060180594-$ or US-20050269337-$ or US-20050167439-$ or US-20020036176-$ or US-20140319183-$ or US-20130075430-$ or US-20020040909-$).did. or (US-6609624-$ or US-6390341-$ or US-6279773-$ or US-6116458-$ or US-6059154-$ or US-6050433-$ or US-5884793-$ or US-5873478-$ or US-5582315-$ or US-5520304-$ or US-5392968-$ or US-5203468-$ or US-5085336-$ or US-3392887-$ or US-3181743-$ or US-D547607-$ or US-7140509-$ or US-7124907-$ or US-7059490-$ or US-6523711-$ or US-6161728-$ or US-5339982-$ or US-5624062-$ or US-5332131-$ or US-5131571-$ or US-3045880-$).did. or (US-6745949-$ or US-6698716-$ or US-6557721-$ or US-5242079-$ or US-5065909-$ or US-2844267-$ or US-6783115-$ or US-6764064-$ or US-5911406-$ or US-5897013-$ or US-5101991-$ or US-1788795-$ or US-7419069-$ or US-7134564-$ or US-7032764-$ or US-6957744-$ or US-6176380-$ or US-5791510-$ or US-5788097-$ or US-5601207-$ or US-5553726-$ or US-4301934-$ or US-6742665-$ or US-6286697-$ or US-5927565-$ or US-5620114-$ or US-5295597-$).did. or (US-4382529-$ or US-5433353-$ or US-4976364-$ or US-6279772-$ or US-5730336-$ or US-7267245-$ or US-6874760-$ or US-6886807-$ or US-7533783-$ or US-9463911-$ or US-9113698-$ or US-8622237-$ or US-8727244-$ or US-6666360-$).did. or (US-3392887-$ or US-3181743-$).did.	USOCR			
S92	3085	((A47G19/2266 OR A47G19/2272 OR B65D47/066 OR B65D47/2031).CPC.)	US-PGPUB; USPAT; USOCR	AND	ON	2019/07/31 20:23
S93	1	"10023365".pn.	US-PGPUB; USPAT;	AND	ON	2019/11/12 13:58

			USOCR			
S94	0	lateral sides pivot mount mouth piece crimp	US-PGPUB; USPAT; USOCR	SAME	ON	2020/01/23 23:11

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	lateral sides pivot mount mouth projection resilient cap dispence	US-PGPUB	AND	ON	2020/01/24 10:39
L2	178	lateral sides pivot mount mouth projection resilient cap	US-PGPUB	AND	ON	2020/01/24 10:39
S95	0	lateral sides pivot mount mouth piece crimp	US-PGPUB; USPAT	SAME	ON	2020/01/23 23:12
S96	0	lateral sides pivot mount mouth piece crimp	US-PGPUB	SAME	ON	2020/01/23 23:12
S97	0	lateral sides pivot mount mouth piece	US-PGPUB	SAME	ON	2020/01/23 23:12
S98	0	lateral sides pivot mount mouth piece	US-PGPUB	WITH	ON	2020/01/23 23:12
S99	1324	lateral sides pivot mount mouth piece	US-PGPUB	AND	ON	2020/01/23 23:12
S100	0	lateral sides pivot mount mouth piece projection resilient cap dispence	US-PGPUB	AND	ON	2020/01/23 23:12

1/24/2020 10:46:18 AM
C:\Users\sbraden\Documents\EAST\Workspaces\15287915 camel back latest of 5 cases squeeze to dispence.wsp

Doc Code: MFEE.C.AD

Document Description: Maintenance Fee Address Change

PTO/SB/47 (10-18)
Approved for use through 09/30/2021. OMB 0651-0016
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

"FEE ADDRESS" INDICATION FORM

Address to:
Mail Stop M Correspondence
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

- OR -

Fax to:
571-273-6500

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. **When to check the first box below**: If you have a Customer Number to represent the fee address. **When to check the second box below**: If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

☑ Customer Number: 137531

OR

☐ The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
	16/035,418

Completed by (check one):

☐ Applicant/Inventor

☑ Attorney or Agent of record 62,798 (Reg. No.)

☐ Assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) (Form PTO/SB/96) is enclosed or was filed on _____ (Date)

/Amardeep S. Grewal/
Signature

Amardeep S. Grewal
Typed or printed name

202-414-9272
Requester's telephone number

4/29/2020
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. If the assignee is a juristic entity, this form must be signed by a patent practitioner (attorney or agent) of record. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.363. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 5 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop M Correspondence, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16035418
Filing Date:	13-Jul-2018
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Filer:	Amardeep S. Grewal/Stacey Horne
Attorney Docket Number:	P23808US05

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1000**

Electronic Acknowledgement Receipt	
EFS ID:	39305213
Application Number:	16035418
International Application Number:	
Confirmation Number:	4623
Title of Invention:	DRINK BOTTLES
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	165846
Filer:	Amardeep S. Grewal/Stacey Horne
Filer Authorized By:	Amardeep S. Grewal
Attorney Docket Number:	P23808US05
Receipt Date:	29-APR-2020
Filing Date:	13-JUL-2018
Time Stamp:	17:29:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	E20204SH29303592
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	P23808US05_-_PTOL85.pdf	502924 43152cb3ff36e0927b500b6b265edb13d49b77a2	no	1
Warnings:					
Information:					
2	Maintenance Fee Address Change	P23808US05_-_Fee_Address_Indication_Form.pdf	527800 cc920c2a38d0ff55108544fead8360877b97145b	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30494 c1efd289cdf8844a52725d1fe26f8659a5a2ddb3	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1061218		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

165846 7590 01/29/2020
Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Amardeep S. Grewal	(Typed or printed name)
/Amardeep S. Grewal, Reg. No. 62,798/	(Signature)
April 29, 2020	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	07/13/2018	Robert Choi	KRN 330E	4623

TITLE OF INVENTION: DRINK BOTTLES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/29/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
BRADEN, SHAWN M	3736	215-381000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☒ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Amardeep S. Grewal
2 Gerard M. Donovan
3 Reed Smith LLP

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: CamelBak Products, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Petaluma, CA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-1529

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Amaradeep S. Grewal, Reg. No. 62,798/ Date April 29, 2020

Typed or printed name Amardeep S. Grewal Registration No. 62,798

Zak Designs, Inc. Exhibit 1003
187 of 189
IPR 2024-01137
CamelBak - Ex 2001
Page 368 of 857

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/035,418	06/09/2020	10676255	P23808US05	4623

165846 7590 05/20/2020

Reed Smith LLP
P.O. Box 488
Pittsburgh, PA 15230

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Robert Choi, Ogden, UT;
CamelBak Products, LLC, Petaluma, CA;
Barley A. Forsman, Cotati, CA;
Jeremy Galten, Petaluma, CA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Arkansas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
5:21-cv-05109	6/11/2021	Western District of Arkansas

PLAINTIFF	DEFENDANT
Camelbak Products, LLC	Zak Designs, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,463,911	10/11/2016	Camelbak
2	9,782,028	10/10/2017	Camelbak
3	9,820,595	11/21/2017	Camelbak
4	10,165,879	1/1/2019	Camelbak
5	10,542,833	1/28/2020	Camelbak

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY			
6/11/2021	☐ Amendment	☐ Answer	☐ Cross Bill	☑ Other Pleading

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,676,255	6/9/2020	Camelbak
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	DRINK CONTAINERS
First Named Inventor/Applicant Name:	Robert Choi
Filer:	R. Bruce Bower/Gwendolyn Ramsey
Attorney Docket Number:	Z036-0005RE

Filed as Large Entity

Filing Fees for ex parte reexam

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
EX PARTE REEXAMINATION (1.510(A)) NON-STREAMLINED	1812	1	12600	12600
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**12600**

Electronic Acknowledgement Receipt

EFS ID:	47368498
Application Number:	90015192
International Application Number:	
Confirmation Number:	7437
Title of Invention:	DRINK CONTAINERS
First Named Inventor/Applicant Name:	Robert Choi
Customer Number:	29150
Filer:	R. Bruce Bower/Gwendolyn Ramsey
Filer Authorized By:	R. Bruce Bower
Attorney Docket Number:	Z036-0005RE
Receipt Date:	13-JAN-2023
Filing Date:	
Time Stamp:	13:45:05
Application Type:	Reexam (Third Party)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$12600
RAM confirmation Number	E20231CD46411207
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	2TU6682.PDF	159525 c6861bcbb0e04fbf779becc4dc09e48a1145cd27	no	3
Warnings:					
Information:					
2	Power of Attorney	2SZ7991.PDF	101540 93b33e3afcbb1fb69a783727344fb0cc3dd3ba5f	no	1
Warnings:					
Information:					
3	Reexam Miscellaneous Incoming Letter	2TU6488.PDF	5589706 2158cc1f1407015ca32a98e1098648d1a16a7a7a	no	115
Warnings:					
Information:					
4	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5930.PDF	25287299 a1053e2717cc8d97e9991ae18600f6e1be94768d	no	23
Warnings:					
Information:					
5	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5939.PDF	64638 093d238da4e0cb116dd6d75f7847c91bd209e3ad	no	3
Warnings:					
Information:					
6	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5959.PDF	11207336 b9b510af8937e6b9e6cf6686ad3722267ba2733c	no	9
Warnings:					
Information:					

7	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5969.PDF	2634511 210a5ec2fcfa7659705397388252cd596feef874	no	5
Warnings:					
Information:					
8	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5974.PDF	7141024 fde8c0a995483c7a76979ccbeb8679430dc7d5d3	no	10
Warnings:					
Information:					
9	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5976.PDF	10480448 66a46dc8b3215775e9f5a87bcbc4bd00f76201be	no	16
Warnings:					
Information:					
10	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5988.PDF	808243 f8f7e657f952d1502c08439a4321299cd1680d33	no	17
Warnings:					
Information:					
11	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5994.PDF	11470153 93e8a3eeb80d9be12d3a621dbe397aaafa8c67b9	no	21
Warnings:					
Information:					
12	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5998.PDF	6594816 3ab9219d3a477b2d2f8797072377d2fde9b6654e	no	8
Warnings:					
Information:					
13	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6001.PDF	4334820 e891e261163194687b9f3a0b5552862bed003653	no	4
Warnings:					
Information:					

14	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6005.PDF	3921420 d9f1ed5adecd79e3117bcdacc57cb62b5782d500	no	3
Warnings:					
Information:					
15	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6012.PDF	2624504 c7bf92a0d50afe1ed47a6cb90d45ec39b79a31a6	no	3
Warnings:					
Information:					
16	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6016.PDF	6738547 de8f5a4b55e8a3c9fcdbd31070152fd077359060	no	5
Warnings:					
Information:					
17	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6018.PDF	9227571 ad1e4baa79ce0e31994d30b47c5783abe61013f0	no	11
Warnings:					
Information:					
18	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6022.PDF	4017313 5c52d2593cfdceb92455a771d7f0ccea904c22eb	no	5
Warnings:					
Information:					
19	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU6028.PDF	835446 babd45b8367d05ee0b13cc6b50c18e1dc5491900	no	37
Warnings:					
Information:					
20	Reexam - Affidavit/Declaration/Exhibit Filed by 3rd Party	2TU5954B.pdf	9568278 695bba731dbb04c281804739c7daee5803e5ee4b	no	189
Warnings:					
Information:					

21	Fee Worksheet (SB06)	fee-info.pdf	37995 b9f309752ee0a25accf2a8ffd7f40c5a6647715c	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	122845133	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/57 (01-18)
Approved for use through 11/30/2021. OMB 0651-0064
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

(Also referred to as FORM PTO-1465)

REQUEST FOR *EX PARTE* REEXAMINATION TRANSMITTAL FORM

Address to:
Mail Stop *Ex Parte* Reexam
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attorney Docket No.: Z036-0005RE

Date: _____

1. ☒ This is a request for *ex parte* reexamination pursuant to 37 CFR 1.510 of patent number 10,676,255 issued June 9, 2020. The request is made by:
   ☐ patent owner. ☒ third party requester.

2. ☒ The name and address of the person requesting reexamination is:
   Zak Designs, Inc.
   1603 S. Garfield Road
   Airway Heights, WA 99001

3. Requester ☐ asserts small entity status (37 CFR 1.27) or ☐ certifies micro entity status (37 CFR 1.29). Only a patent owner requester can certify micro entity status. Form PTO/SB/15A or B must be attached to certify micro entity status.

4. This request is accompanied by payment of the reexamination fee as set forth in:
   ☒ 37 CFR 1.20(c)(2); **or**
   ☐ 37 CFR 1.20(c)(1). **In checking this box for payment of the fee set forth in 37 CFR 1.20(c)(1), requester asserts that this request has forty (40) or fewer pages and complies with all other requirements of 37 CFR 1.20(c)(1).**

   Payment of the reexamination fee is made by the method set forth below.
   a. ☐ A check in the amount of $_____ is enclosed to cover the reexamination fee;
   b. ☐ The Director is hereby authorized to charge the reexamination fee to Deposit Account No. _____;
   c. ☐ Payment by credit card. Form PTO-2038 is attached; **or**
   d. ☒ Payment made via EFS-Web.

   ☒ In addition, the Director is hereby authorized to charge any fee deficiencies to Deposit Account No. 12-0769.

5. ☒ Any refund should be made by ☐ check or ☒ credit to Deposit Account No. 12-0769. 37 CFR 1.26(c). If payment is made by credit card, refund must be to credit card account.

6. ☒ A copy of the patent to be reexamined having a double column format on one side of a separate paper is enclosed. 37 CFR 1.510(b)(4).

7. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table
   ☐ Landscape Table on CD

This collection of information is required by 37 CFR 1.510. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) a request for reexamination. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop *Ex Parte* Reexam, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

8. ☐ Nucleotide and/or Amino Acid Sequence Submission
If applicable, items a. – c. are required.

a. ☐ Computer Readable Form (CRF)

b. Specification Sequence Listing on:

i. ☐ CD-ROM (2 copies) or CD-R (2 copies) **or**

ii. ☐ paper

c. ☐ Statements verifying identity of above copies.

9. ☐ A copy of any disclaimer, certificate of correction or reexamination certificate issued in the patent is included.

10. ☒ Reexamination of claim(s) 1, 3-8, 13, 14, 18, and 19 is requested.

11. ☒ A copy of every patent or printed publication relied upon is submitted herewith including a listing thereof on Form PTO/SB/08, PTO-1449, or equivalent.

12. ☐ An English language translation of all necessary and pertinent non-English language patents and/or printed publications is attached.

13. ☒ The attached detailed request includes at least the following items:

a. A statement identifying each substantial new question of patentability based on prior patents and printed publications. 37 CFR 1.510(b)(1).

b. An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested. 37 CFR1.510(b)(2).

14. ☐ A proposed amendment is included (only where the patent owner is the requester). 37 CFR 1.510(e).

15. ☒ It is certified that the statutory estoppel provisions of 35 U.S.C. 315(e)(1) or 35 U.S.C. 325(e)(1) do not prohibit requester from filing this *ex parte* reexamination request. 37 CFR 1.510(b)(6).

16. Service

a. ☒ It is certified that a copy of this request (if filed by other than the patent owner) has been served in its entirety on the patent owner as provided in 37 CFR 1.33(c).

The name and address of the party served are:

PTO Address of Record: REED SMITH LLP, IP Docketing Dept., P.O. Box 488, Pittsburgh, PA 15230

District Court Counsel: David T. Pollock, Jonathan I. Detrixhe, and Christopher J. Pulido,

REED SMITH LLP, 101 Second Street, Ste. 1800, San Francisco, CA 94105-3659

Date of Service: _____

OR

b. ☐ A duplicate copy is enclosed since service on patent owner was not possible. An explanation of the efforts made to serve patent owner **is attached**. See MPEP 2220.

17. Correspondence Address: Direct all communication about the reexamination to:

☒ The address associated with Customer Number: 29150

OR

☐ Firm or Individual Name _____
(at the address identified below)

Address

City	State	Zip

Country

Telephone	Email

18. ☒ The patent is currently the subject of the following concurrent proceeding(s):

a. ☐ Copending reissue Application No. _____

b. ☐ Copending reexamination Control No. _____

c. ☐ Copending Interference No. _____

d. ☒ Copending litigation styled:

CamelBak Products, LLC v. Zak Designs, Inc., Case No. 5:21-cv-05109 (W.D. Ark.) (Jun. 11, 2021)

WARNING : Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

/R. Bruce Bower/ — Authorized Signature

January 13, 2023 — Date

R. Bruce Bower — Typed/Printed Name

37099 — Registration No.

☐ For Patent Owner Requester ☒ For Third Party Requester

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of Robert Choi et al.	§	Attorney Docket No.: Z036-0005RE
	§	
U.S. Patent No. 10,676,255	§	
	§	
Issue Date: June 9, 2020	§	Customer No.: 29150
	§	
Filing Date: July 13, 2018	§	
	§	
For: DRINK BOTTLES	§	

Mail Stop "*Ex Parte* Reexam"
Attn: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR *EX PARTE* REEXAMINATION OF U.S. PATENT NO. 10,676,255

Dear Commissioner:

Zak Designs, Inc. ("Requester") requests an *ex parte* reexamination of claims 1, 3-8, 13, 14, 18, and 19 (the "Challenged Claims") of U.S. Patent No. 10,676,255 (the "'255 Patent," Ex. 1001) under 35 U.S.C. §§ 301-307. The '255 Patent issued on June 9, 2020, to CamelBak Products, LLC as Applicant and Robert Choi et al. as inventors. The '255 Patent issued from U.S. Patent Application No. 16/035,418 (the "'418 Application"), filed on July 13, 2018, which claimed priority to applications dating to 2005.

Requester submits that this Request presents prior art references and analyses that are noncumulative of the prior art that was considered by the Examiner during the original prosecution of the '255 Patent, or are presented in a new light or a different way that escaped review during earlier examination, and that the Challenged Claims are invalid over these references under 35 U.S.C. §§ 102(a), (b), and/or (e) (pre-AIA) or under 35 U.S.C. §§ 103(a) (pre-AIA). Requester therefore requests issuance of an order for reexamination and an Office Action rejecting claims 1, 3-8, 13, 14, 18, and 19.

Ex Parte Patent Reexamination Filing Requirements

Section III of this Request contains statements pointing out at least one substantial new question of patentability based on material, non-cumulative reference patents and printed publications for the Challenged Claims of the '255 Patent, in compliance with 37 C.F.R. § 1.510(b)(1).

Reexamination of the Challenged Claims of the '255 Patent is requested, and Section IV of this Request contains a detailed explanation of the pertinence and manner of applying the cited references to the Challenged Claims, in compliance with 37 C.F.R. § 1.510(b)(2).

Exhibits 1006-1015 of this Request contain copies of every patent or printed publication relied upon or referred to in the statement pointing out each substantial new question of patentability (Section IV) or in the detailed explanation of the pertinence and manner of applying the cited references (Section V), in compliance with 37 C.F.R. § 1.510(b)(3).

A copy of the '255 Patent is provided as Exhibit 1001 of this Request, along with a copy of any disclaimer, certificate of correction, and reexamination certificate issued corresponding to the patent, in compliance with 37 C.F.R. §1.510(b)(4),

The attached Certificate of Service indicates that a copy of this Request, in its entirety, has been served on Patent Owner at the following address of record for Patent Owner, in compliance with 37 C.F.R. §§ 1.510(b)(5) and 1.33(c):

REED SMITH LLP
IP Docketing Dept.
P.O. Box 488
Pittsburgh, PA 15230

Requester also submits the fee set forth in 37 C.F.R. § 1.20(c)(2).

Requester hereby certifies that the statutory estoppel provisions of 35 U.S.C. § 315(e)(1) and 35 U.S.C. § 325(e)(1) do not prohibit Requester from filing this Request, in compliance with 37 C.F.R. § 1.510(b)(6).

IPR 2024-01137
CamelBak - Ex 2001
Page 382 of 857

Table of Contents

I. Preliminary Statement 8

II. U.S. Patent No. 10,676,255 9

A. Summary 9

B. Prosecution History 11

1. Office Action of August 2, 2019 14

2. Response to Office Action 16

C. Challenged Claims as Issued 16

D. Level of Ordinary Skill in the Art 19

E. Claim Construction 19

III. Listing of Prior Art Patents and Printed Publications 22

A. Primary References Disclosing a Pivotal Mount with a Pair of Lateral Projections Extending into a Pair of Sockets as Claimed 22

1. McDonough 22

2. Toudou 23

B. Secondary References Teaching Resilient Mouthpieces as Claimed 25

1. Wright 25

2. Phlaphongphanich 25

3. Tupper 26

4. Heise 27

5. Canham 28

6. Hurst 28

C. Secondary References Teaching Handles as Claimed 29

1. Anderson 29

2. Roth 30

IV. Substantial New Questions of Patentability 31

A. Questions Based on McDonough 31

B. Questions Based on Toudou 31

V. Detailed Application of Challenged Claims to Prior Art 33

A. Ground 1: McDonough Anticipates, or Would Have Rendered Obvious, Claims 1, 3-5, 13, 18, and 19 33

1. Claim 1 34

2. Claim 3 42

3. Claim 4 44

4. Claim 5 45

5. Claim 13 45

6. Claim 18 46

7. Claim 19 47

B. Ground 2: McDonough in View of Anderson Would Have Rendered Obvious Claim 6 48

C. Ground 3: McDonough in View of Anderson or Roth Would Have Rendered Obvious Claim 7 51

D. Ground 4: Toudou Anticipates, or Would Have Rendered Obvious, Claims 1, 3-5, 8, 13, 18, and 19 55

1. Claim 1 55

2. Claim 3 71

3. Claim 4 73

4. Claim 5 75

5. Claim 8 75

6. Claim 13 76

7. Claim 18 76

8. Claim 19 78

E. Ground 5: Toudou in View of Anderson Would Have Rendered Obvious Claim 6 79

F. Ground 6: Toudou in View of Anderson or Roth Would Have Rendered Obvious Claim 7 82

G. Ground 7: Toudou in View of Wright or Tupper Would Have Rendered Obvious Claim 14 85

H. Ground 8: Alternatively, Toudou in View of Wright Would Have Rendered Obvious Claims 1, 3-5, 8, 13, 14, 18, and 19 88

1. Claim 1 88

2. Claim 3 94

3. Claim 4 95

4. Claim 5 95

5. Claim 8 95

6. Claim 13 96

7. Claim 14 97

8. Claim 18 98

9. Claim 19 98

I. Ground 9: Alternatively, Toudou in View of Wright, Further in View of Anderson, Would Have Rendered Obvious Claim 6 98

J. Ground 10: Alternatively, Toudou in View of Wright, Further in View of Anderson or Roth, Would Have Rendered Obvious Claim 7 99

K. Ground 11: Alternatively, Toudou in View of Canham, Further in View of Heise, Would Have Rendered Obvious Claims 1, 3-5, 13, 18, and 19 99

1. Claim 1 100

2. Claim 3 105

3. Claim 4 106

4. Claim 5 107

5. Claim 13 107

6. Claim 18 107

7. Claim 19 108

L. Ground 12: Alternatively, Toudou in View of Canham and Heise, Further in View of Anderson, Would Have Rendered Obvious Claim 6 108

M. Ground 13: Alternatively, Toudou in View of Canham and Heise, Further in View of Anderson or Roth, Would Have Rendered Obvious Claim 7 108

N. Ground 14: Alternatively, Toudou in View of Canham and Heise, Further in View of Phlaphongphanich, Would Have Rendered Obvious Claim 8 109

O. Ground 15: Alternatively, Toudou in View of Canham and Heise, Further in View of Hurst or Tupper, Would Have Rendered Obvious Claim 14 111

VI. Secondary Considerations 113

VII. Disclosure of Concurrent Litigation, Reexamination, and Related Proceedings 113

VIII. Conclusion 114

IPR 2024-01137
CamelBak - Ex 2001
Page 386 of 857

Table of Exhibits

Exhibit	Description
Ex. 1001	U.S. Patent No. 10,676,255 to Choi et al. ("the '255 Patent")
Ex. 1002	Patent Family for Application No. 16/035,418 ("the '096 Application)
Ex. 1003	Prosecution History of the '255 Patent
Ex. 1004	U.S. Patent No. 6,116,458 ("Dark")
Ex. 1005	U.S. Design Patent No. D547,607 ("Forsman")
Ex. 1006	U.S. Patent App. Pub. No. 2005/0029271 ("McDonough")
Ex. 1007	Japanese Patent App. Pub. No. 2001-294252 ("Toudou")
Ex. 1008	Certified English Translation of Toudou (Ex. 1007)
Ex. 1009	International Patent App. Pub. No. WO03/101261A1 ("Wright")
Ex. 1010	U.S. Patent No. 4,676,386 ("Phlaphongphanich")
Ex. 1011	U.S. Patent No. 2,816,548 ("Tupper")
Ex. 1012	U.S. Patent No. 2,001,842 ("Heise")
Ex. 1013	U.S. Patent No. 2,467,463 ("Canham")
Ex. 1014	U.S. Patent No. 3,307,752 ("Anderson")
Ex. 1015	U.S. Patent App. Pub. No. 2004/0217139 ("Roth")
Ex. 1016	U.S. Patent No. 4,020,964 ("Hurst")
Ex. 1017	Memorandum Opinion and Order Dated Jan. 9, 2023, from *CamelBak Products, LLC v. Zak Designs, Inc.*, Case No. 5-21-cv-05109 (W.D. Ark.) (Jun. 11, 2021).

I. Preliminary Statement

The '255 Patent is generally directed to a drink bottle having a resilient mouthpiece pivotal within a removable cap assembly. The mouthpiece may be selectively pivoted between a stowed position, where a manual on/off valve obstructs a fluid conduit to restrict drink fluid from flowing to the mouthpiece, and a dispensing position, where the manual on/off valve permits the drink fluid to flow to the mouthpiece.

Faced with an anticipation rejection for independent claim 1, the Applicant incorporated subject matter from a dependent claim relating to structure for a pivotal mount for the mouthpiece. In particular, the Applicant amended the claims to recite an axle-type mechanism for the pivotal mount: "wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend … wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets." These amendments led to allowance of the claims.

At least two prior-art documents, however, disclose exactly those features for a pivotal mount of drink bottle: U.S. Patent App. Pub. No. 2005/0029271 ("McDonough," Ex. 1006) and Japanese Patent App. Pub. No. 2001-294252 ("Toudou," Ex. 1007 and Ex. 1008). These references, either alone or in combination with other teachings, render independent claim 1 unpatentable. The other Challenged Claims are also unpatentable in view of prior art not considered by the Office. For example, claims 6 and 7 are directed to a handle for the bottle, but U.S. Patent No. 3,307,752 ("Anderson," Ex. 1014) discloses this precise structure for a drink bottle, noting that its handle enables ready grasping for carrying the bottle without interfering with the cap.

In short, the Challenged Claims are not patentable. Accordingly, the Office should issue an Action rejecting the Challenged Claims over at least these references based on one or more of the grounds discussed below.

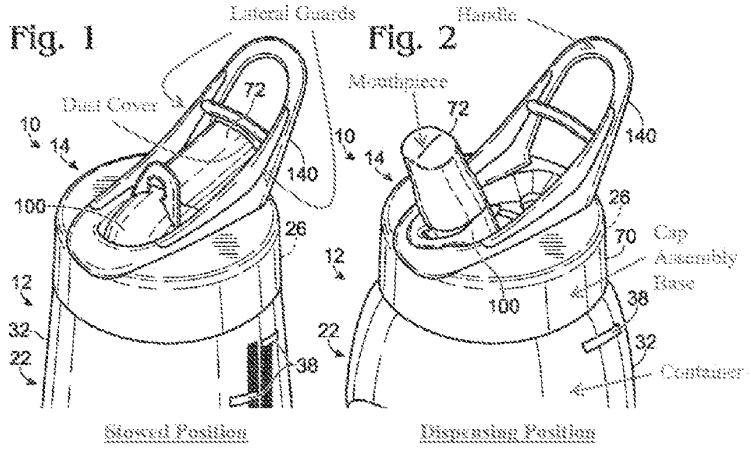
II. U.S. Patent No. 10,676,255

A. Summary

The '255 Patent is generally directed to drink bottles having removably attached cap assemblies. In an example, a cap assembly on a drink container has a fluid conduit for passing drink fluid from an inlet inside the container to a dispensing outlet outside the container. At the dispensing outlet, a user can extract the drink fluid using a resilient, compressible mouthpiece.

As shown in FIG. 3 of the '255 Patent, an exemplary container 12 may have a body 22 for holding a fluid, an opening or portal 40 at a top of the body, and a neck 26 surrounding the opening. Ex. 1001 ('255 Patent) at FIG. 3, 4:45-49, 5:42-48. The neck may include a coupling structure, such as threads 44, configured to engage with corresponding threads on a cap assembly 14. *Id.* at 5:45-59. Accordingly, after fluid is poured into opening 40, the cap assembly is screwed onto neck 26, making it removably connected. *Id.* at 6:7-12.

FIGS. 1 and 2 of the '255 Patent illustrate an example cap assembly on a container, and portions of those figures are reproduced below with annotations. As shown in both figures, a mouthpiece 72 provides a dispensing outlet for the user. The mouthpiece is pivotal relative to a base 70 of the cap assembly 14 between a stowed position (FIG. 1) against the cap assembly and a dispensing position (FIG. 2) away from the cap assembly, as shown here in reproductions of FIGS. 1 and 2 with annotations:



When mouthpiece 72 is in the stowed position in FIG. 1, a pair of lateral guards extend on opposite sides of the mouthpiece. *Id.* at 17:8-10. In addition, a dust cover extends between the lateral guards and across at least a portion of the dispensing outlet. The dust cover purportedly

"protects the dispensing face, and thus the slit or other opening formed therein, from being contacted by dirt, grime, and other substances when the mouthpiece is in its stowed configuration." *Id.* at 17:13-18.

With mouthpiece 72 in the stowed position, a manual on/off valve obstructs the fluid conduit to restrict the drink fluid from flowing. According to the '255 Patent, the manual on/off valve "may be located at any suitable position downstream (i.e., toward the internal compartment of the fluid container) of the mouthpiece's face." *Id.* at 10:46-48. Any mechanism may suffice: "The on/off valve may utilize any suitable actuation mechanism to selectively configure the valve between its open and closed configurations." *Id.* at 11:8-11.

The '255 Patent provides several examples for a manual on/off valve. These include pivoting a spout associated with the mouthpiece (*id.* at 11:12-64), employing a push-pull mechanism with a baffle within the fluid conduit (*id.* at 11:65-12:19), and crimping "a foldable, collapsible, resiliently deformable, and/or crimpable region" of the fluid conduit (*id.* at 12:28-38, 18:23-30). According to the patent, a suitable material for a crimpable region "is silicone or another material that does not readily take a compression set and therefore may be repeatedly folded, flattened, crimped, and the like without leaking or otherwise being permanently deformed or failing." *Id.* at 12:39-43. With any of the examples, "when the on/off valve is in its closed configuration, drink fluid cannot be dispensed from the fluid container through the mouthpiece…." *Id.* at 10:59-61.

When pivoted from the stowed position (FIG. 1) to the dispensing position (FIG. 2), the mouthpiece pivots away from the dust cover for access by the user. In the dispensing position, mouthpiece 72 is positioned farther away from the cap assembly base 70 than in the stowed position (FIG. 1). In this dispensing position, "the constrictive pressure applied" by the manual on/off valve is reduced, "and a fluid flow path through the fluid conduit is reestablished." *Id.* at 18:30-35.

FIGS. 28 and 29 of the '255 Patent illustrate one example of the manual on/off valve causing a crimp in flexible tube 124, which are annotated below. In the stowed position at right (FIG. 29), the pivoted mouthpiece 72 leads to the crimp as shown, while in the dispensing position at left (FIG. 28), the erect mouthpiece 72 removes the crimp and allows fluid to flow through flexible tube 124.

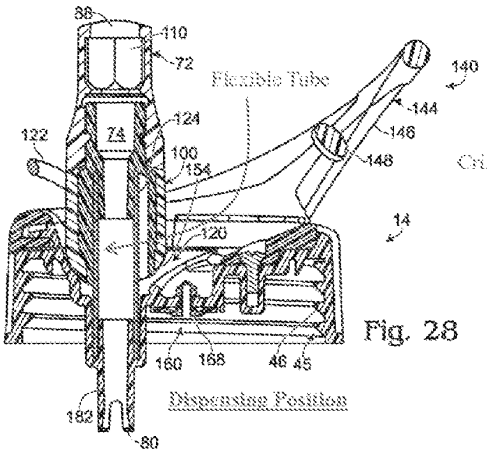


Fig. 28

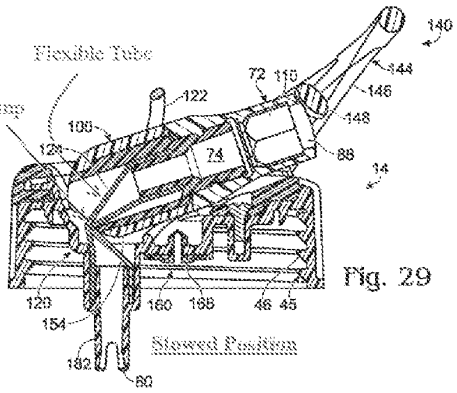


Fig. 29

The '255 Patent describes several options for fluid conduit 74 and mouthpiece 72. For example, mouthpiece 72 may be coupled to the cap assembly via a pivotal mount, such as mount 100 shown in FIGS. 2 and 3 above. The mount has lateral projections that rotate in sockets within the cap assembly base "and thereby function as rotatable supports, or axles, upon which the mount and any attached mouthpiece may be pivotally moved relative to the base of the cap assembly...." *Id.* at 16:62-65.

Finally, as also shown in FIGS. 1 and 2 above, the drink bottle includes a handle "that extends from the base of the cap assembly." *Id.* at 16:33-35. The handle and the cap assembly base define a closed loop with an aperture through which a user's finger may be inserted to carry the drink container. *Id.* at 16:33-56, FIG. 25. While handle 140 in FIG. 25 is an example, the '255 Patent indicates that "[h]andle 140 may take any other suitable form, may have a rigid or flexible construction, and may be (but is not required to be) used with any of the other cap assemblies that are disclosed, illustrated and/or incorporated herein." *Id.* at 16:35-39.

B. Prosecution History

As stated above, the '255 Patent issued from the '418 Application, which was filed July 13, 2018. The '418 Application was filed as a continuation that claimed priority to a string of five nonprovisional applications. The earliest of those applications, filed December 20, 2005, claimed the benefit of two provisional applications respectively filed August 8, 2005, and April 11, 2005. Because the priority dates for the '255 Patent were before March 16, 2013, when the America Invents Act became effective, the "pre-AIA" patent laws of Title 35 define the prior art for the '255 Patent.

Because the '255 Patent claims the benefit of an original application filed April 11, 2005, that date is the constructive date of invention for determining whether a document is prior art under 35 U.S.C. §§ 102(a) and (e) (pre-AIA), assuming that the original application provides adequate support under 35 U.S.C. § 112 (pre-AIA) for the Challenged Claims.[1] As well, the critical date for determining prior art under 35 U.S.C. § 102(b) is April 11, 2004.

Subsequent to the '418 Application, two other continuation applications have been filed, resulting in the following chronology of applications in a family that includes the '255 Patent:

Filing Date	*App. No.*	*App. Type*	*Status*
April 11, 2005	60/670,828	Provisional	Expired
August 8, 2005	60,706,700	Provisional	Expired
December 20, 2005	11/313,488	Nonprovisional	U.S. Patent No. 7,533,783
October 26, 2006	11/588,476	Continuation	U.S. Patent No. 8,622,237
June 5, 2008	12/133,954	Continuation	U.S. Patent No. 8,777,048
July 11, 2014	14/329,096	Continuation	U.S. Patent No. 9,463,911
October 7, 2016	15/287,915	Continuation	U.S. Patent No. 10,023,365
July 13, 2018	***16/035,418***	***Continuation***	***U.S. Patent No. 10,676,255***
April 29, 2020	16/862,105	Continuation	U.S. Patent No. 11,242,178
December 29, 2021	17/565,354	Continuation	Pending

See Ex. 1002 (Patent Family for App. 16/035,418 from USPTO's Global Dossier, available at https://globaldossier.uspto.gov/#/result/application/US/16035418/104942).

When filed, the '418 Application contained 20 claims. Ex. 1003 (Prosecution History of '255 Patent) at 62-67. Application claim 1 was the sole independent claim and was directed to a cap assembly for the drink container including a cap assembly base, a pivotal mount, a resilient mouthpiece, and a manual on/off valve. It recited:

> 1. (Application) A drink container, comprising:
>
> a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;
>
> a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines a fluid conduit for drink fluid to flow from the fluid container and through

[1] For purposes of this Request, Requester assumes the '255 Patent is entitled to its claimed earliest priority date of April 11, 2005.

> the cap assembly to a user, wherein the fluid conduit includes an inlet through which drink fluid from the fluid container may enter the fluid conduit, and a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:
>
> a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;
>
> a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base;
>
> a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base; wherein the resilient mouthpiece defines a portion of the fluid conduit, and including the dispensing outlet; wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position; wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and
>
> a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet; wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit; wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

Id. at 62-63. The claims depending from independent application claim 1 specified other features of the drink container. For example, application claim 2 recited the pivotal mount having a pair of lateral projections and the cap assembly base having a pair of sockets into which the pair of lateral projections extend:

> 2. (Application) The drink container of claim 1, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend, and wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets.

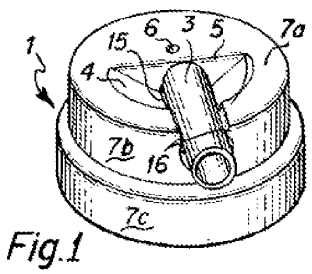
Id. at 63.

1. Office Action of August 2, 2019

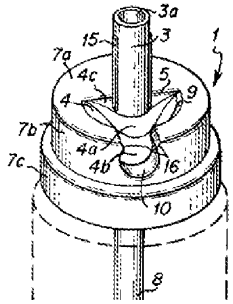
The Examiner issued a non-final Office Action dated August 2, 2019, that, in pertinent part, rejected application claims 1-3, 19, and 20 as being anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 6,116,458 ("Dark," Ex. 1004) and rejected application claims 4-18 as being unpatentable under 35 U.S.C. § 103(a) over Dark in view of U.S. Design Patent No. D547,607 ("Forsman," Ex. 1005). Ex. 1003 at 103-08.

Dark is generally directed to a sport drinking bottle having a cap with a valved straw. A drinking spout 3 extends horizontally in a closed position when pivoted down into a U-shaped recess 10 within a cap base 7. Ex. 1004 at 4:7-10. Spout 3 may be formed of polypropylene and is "inwardly resiliently compress[able]." *Id.* at 5:53-56.

In a closed position, an elastic tube 8 feeding a liquid from within the bottle to spout 3 is pinched at a bend to form a block against fluid passage. *Id.* at 6:52-63. A hinge 5 is integrally formed in the upper surface of cap base 7, and a diaphragm 4 enables pivotal movement of spout 3 about hinge 5 into a vertical open position, releasing the block. FIG. 1 and a portion of FIG. 2 from Dark, shown below, illustrate the closed and open positions for spout 3.



Dark, FIG. 1



Dark, FIG. 2

The Examiner mapped every limitation of claim 1 to Dark. Ex. 1003 at 103-04. For example, the Office Action identified the claimed fluid container, cap assembly, and cap assembly base as Dark's liquid container 2, cup cap 1, and cylindrical walled collar 7c, respectively. *Id.* According to the Office Action, Dark discloses the claimed pivotal mount in lower flexible portion 4b of diaphragm 4, which performs pivotal movement relative to cap base 7b. *Id.* Spout 3, which is coupled to the diaphragm for pivotal movement between a stowed position (FIG. 1) and a dispensing position (FIG. 2), corresponds to the claimed resilient mouthpiece. Spout 3 is adapted "to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth," as claimed, because "a user can bite the plastic mouth piece and the natural tendencies of plastic make it resilient." *Id.* at 104. Additionally, the Examiner concluded that Dark discloses the claimed manual on/off valve in that closing spout 3 causes tube 8 to crimp against interference rib 12 (*see* FIG. 6) to obstruct the fluid conduit and that opening spout 3 releases the crimp to permit the flow of flu*id. Id.*

Among several dependent claims anticipated by Dark, the Examiner further found that Dark discloses the subject matter of application claim 2. According to the Office Action, the pivotal mount in Dark includes a pair of lateral projections as claimed in splines 15 protruding radially from spout 3. *Id.* at 104-05. Splines 15 mate with a pair of elongated barbs 16 formed in opposed side walls of U-shaped region 10 (FIGS. 1 and 2), corresponding to the claimed pair of sockets in dependent claim 2. *Id.*

Finally, the Examiner concluded that various features of the cap assembly base and the resilient mouthpiece recited in application claims 4-18 not disclosed in Dark would have been obvious in view of Forsman. As with the '255 Patent, Forsman is assigned to CamelBak Products, LLC and illustrates essentially the same drink bottle cap as described in the '255 Patent. Forsman was filed on August 8, 2005.

2. Response to Office Action

Following several telephone interviews (Ex. 1003 at 132, 152), Applicant filed a Response to Office Action on December 2, 2019. The Response canceled dependent application claim 2 and incorporated its subject matter into amended independent application claim 1. *Id.* at 141-42. Accordingly, application claim 1 was amended as follows, with underlines indicating additions:

> a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;
>
> a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base, wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets; …

Ex. 1003 at 141. According to the Response, Applicant and the Examiner had agreed in the interviews that Dark does not disclose or suggest this subject matter incorporated from claim 2. *Id.* at 146. As indicated in an Examiner's Interview Summary, "One key point applicant raised is that the pivotal mount of the Dark reference does not include a pair of lateral projections. The projections of Dark are more on the straw than the pivotal mount." *Id.* at 152.

In addition, Applicant traversed the obviousness rejections of claims 4-18 because Forsman purportedly did not qualify as prior art. Forsman was filed on August 9, 2005, and published on July 31, 2007, but the '418 Application claimed priority to provisional applications filed April 11, 2005, and August 8, 2005. *Id.* at 147-48.

The Notice of Allowance was mailed January 29, 2020. Ex. 1003 at 154. While the Examiner had applied only Dark and Forsman against the Challenged Claims, 134 other potential references had also been provided or cited during prosecution. *See id.* at 110, 112, 115-124; Ex. 1001 at pp. 1-3.

C. Challenged Claims as Issued

The '255 Patent issued on June 9, 2020, with application claims 1 and 3-20 becoming patent claims 1-19. Ex. 1003 at 162. Challenged Claims 1, 3-8, 13, 14, 18, and 19 recite:

1. A drink container, comprising:

a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes an inlet through which drink fluid from the fluid container may enter the fluid conduit, and a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base, wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid

IPR 2024-01137
CamelBak - Ex 2001
Page 397 of 857

conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet; wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;

wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and

wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

3. The drink container of claim 1, wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position, and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

4. The drink container of claim 3, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

5. The drink container of claim 3, wherein the dust cover projects above an upper surface of the cap assembly base.

6. The drink container of claim 3, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

7. The drink container of claim 1, wherein the cap assembly further comprises a handle that extends in a fixed orientation from the cap assembly base and which defines at least a portion of a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

8. The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

13. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the

dispensing outlet extends through the dispensing face of the resilient mouthpiece.

14. The drink container of claim 13, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

18. The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

19. The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

D. Level of Ordinary Skill in the Art

An expert in the relevant field, a person of ordinary skill in the art ("POSITA") of the '255 Patent in April 2005, would have had at least a degree in mechanical engineering or equivalent coursework, and a year or more of experience in designing, prototyping, and/or manufacturing containers produced from thermoplastic resins, such as polyethylene terephthalate (PET), including injection molding and/or blow molding such containers from preforms. Less work experience may be compensated by a higher level of education and vice versa.

E. Claim Construction

Because the '255 Patent has not expired, the Challenged Claims should be given their "broadest reasonable interpretation consistent with the specification." 37 CFR §1.75(d)(1); *see also* MPEP § 2111; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005). Under this standard, "[t]he Patent and Trademark Office … determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (quotation and citation omitted). "Because applicant has the opportunity to amend the claims during prosecution, giving a claim its broadest reasonable interpretation will reduce the possibility that the claim, once issued, will be interpreted more broadly than is justified." MPEP § 2111 (citing *In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984)).

Requester does not believe that the Challenged Claims require express construction for purposes of reexamination. Because several terms appear repeatedly in the claims and bear on the prior art, however, Requester presents the following discussion of these terms supporting their broadest reasonable construction. Requester reserves the right to advocate a different interpretation of the claims in another forum, if necessary or as dictated by different legal standards.[2]

First, the Challenged Claims recite in many instances that a mouthpiece for a drink container must be "resilient." For instance, claim 14 recites a "resilient mouthpiece" that is "adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth." Ex. 1001 at 21:35-37. Claims 21 and 22 further specify that the resilient mouthpiece have opposed lips within a dispensing face such that "when a user applies compressive forces to the opposed bite regions, the lips are urged away from each other to enlarge the opening" (*id.* at 22:47-49) and "seal against each other when the opposed bite regions are not urged toward each other" (*id.* at 22:51-52).

In its ordinary meaning, a "resilient" material generally is deformable under applied forces and is capable of returning, at least in part, "to the original form or position after being bent, compressed, or stretched." *See Dictionary.com* available at https://www.dictionary.com/browse/resilient; *see also Merriam-Webster Online Dictionary* available at https://www.merriam-webster.com/dictionary/resilient ("a: capable of withstanding shock without permanent deformation or rupture b: tending to recover from or adjust easily to misfortune or change."). The specification of the '255 Patent does not use "resilient" differently from its ordinary meaning. *See, e.g.*, Ex. 1001 at 8:44-45 ("Mouthpiece 72 is resilient and biased to its closed configuration, such as is shown in FIGS. 10-15."); *id.* at 12:24-27 ("a fluid conduit having a foldable, collapsible, resiliently deformable, and/or crimpable region and suitable structure for selectively folding, flattening, resiliently deforming, and/or crimping that region"). Materials known to a POSITA to be "resilient," particularly for tubing and mouthpieces, include silicone. *See id.* at 12:31-36 ("An illustrative, non-exclusive example of a suitable material for such a portion of the fluid conduit is silicone or another material that does not readily take a

[2] As indicated in Section VII below, the '255 Patent is currently involved in litigation in the Western District of Arkansas. *See also* Ex. 1003 at 189. Although the parties largely do not dispute the meaning of claim terms in the '255 Patent, a Memorandum and Order from the Court dated January 9, 2023, addressing claim construction for all patents in the litigation is included for information as Exhibit 1017.

compression set and therefore may be repeatedly folded, flattened, crimped, and the like without leaking or otherwise being permanently deformed or failing.").

Second, the Challenged Claims recite forms of the word "pivoting," such as the resilient mouthpiece being "pivotal relative to the cap assembly base" or configured to be "selectively pivoted between a stowed position and dispensing position," and "when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover" in independent claim 14. Dependent claim 16 recites that the "resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets." In its ordinary usage, a "pivot" is "a shaft or pin on which something turns," and the act of "pivoting" is "to turn on or as if on a pivot." *See Merriam-Webster Online Dictionary* available at https://www.merriam-webster.com/dictionary/pivot. Thus, "pivoting," being "pivoted," or "being pivotal," generally refers to turning as if on a shaft or pin.

Third, claim 11 recites "coupled to" in the phrase "a resilient mouthpiece coupled to the pivotal mount for pivotal movement." In its broadest reasonable interpretation, "coupled to" generally refers to two items that are paired together for combined effect and treated as one, such as a married couple, or two structures that are associated, joined, or combined to operate together as one. *See Merriam-Webster Online Dictionary* available at https://www.merriam-webster.com/dictionary/coupled ("to connect for consideration together … to join for combined effect"). In the '255 Patent, two items may be removably coupled (i.e., "designed to be repeatedly connected and disconnected without destruction of the corresponding structures," Ex. 1001 at 14:65-15:1) or permanently coupled (i.e., "structures that are not designed to be separated without destruction of at least a portion of the structures and/or the mechanism that joins the structures," *id.* at 15:3-5).

Fourth, claim 8 recites that the resilient mouthpiece is "permanently secured" to the pivotal mount. In its broadest reasonable interpretation, "permanently secured" implies a joinder between two items that is not possible to breach. The '255 Patent does not define the phrase "permanently secured," but it does define a similar phrase of "permanently coupled," as noted above. According to the '255 Patent, "fixedly connected or permanently coupled structures refer to structures that are not designed to be separated without destruction of at least a portion of the structures and/or the mechanism that joins the structures." Ex. 1001 at 15:1-5. In a similar passage, the '255 Patent equates being "permanently secured" with being "integrated with": "Although it is within the

scope of the present disclosure that the drink tube may be integrated with or otherwise permanently secured to one or both of the cap assembly or the bite-actuated mouthpiece, it may be desirable for each of these components to be removably coupled to the drink tube." *Id.* at 15:17-21. Thus, "permanently secured" generally refers to two structures connected or integrated together that cannot be separated without destroying at least one of them or the mechanism that joins them.

Fifth, claim 3 recites "a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece is in the stowed position." The specification of the '255 Patent explains that a dust cover is "a dispensing face guard, or cover, 148 that is adapted to protect the dispensing face of the bite-actuated mouthpiece when the mouthpiece is in its stowed configuration." Ex. at 17:11-13. In the example provided in FIGS. 21 and 22-29, a dust cover 148 is part of an optional handle 140. But the claims of the '255 Patent do not require that a "dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet" be connected with or otherwise a part of either a handle or a pair of lateral guards.

III. Listing of Prior Art Patents and Printed Publications

Requester requests reexamination of the Challenged Claims in view of the following prior art documents and new technological teachings.

A. Primary References Disclosing a Pivotal Mount with a Pair of Lateral Projections Extending into a Pair of Sockets as Claimed

1. McDonough

U.S. Patent App. Pub. No. 2005/0029271 ("McDonough," Ex. 1006) was filed August 8, 2003, and published February 10, 2005. Accordingly, McDonough is prior art to the '255 Patent under 35 U.S.C. §§ 102(a) and 102(e) (pre-AIA). McDonough was cited in an Information Disclosure Statement during prosecution but was not applied in an Office Action. Ex. 1003 at 117.

At the least, McDonough presents a new technological teaching of "a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend" and "wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral

projections rotate within the pair of sockets," alleged by the Applicant to be missing from the art in allowance of claim 1. *See* Ex. 1003 at 147.

McDonough discloses a drinking cup having a container, a detachable lid, and a flexible straw having a drinking end for delivering liquid from within the container to a user. The cup includes a straw positioning mechanism pivotally attached to the lid through "a pair of axle projections 30 that are journaled into a corresponding pair of holes 32." Ex. 1006 (McDonough) ¶ [0021]. A recess 36 at a distal end of the straw positioning mechanism receives the flexible straw 24, and movement of the straw positioning mechanism pivots the flexible straw 24 between a downward storage position and an upward dispensing position, where it is "presented for sipping by a consumer." *Id.* ¶ [0010]. The flexible straw is "preferably fabricated from a resilient elastomeric material such as silicone." *Id.* ¶ [0025]. "When the straw positioning mechanism 20 is in the second, closed position shown in FIG. 3, the flexible straw 14 will be bent into a horizontal S-shaped configuration by the downwardly extending arm 35 so as to be crimped in a first location 44 and also in a second location 46 that is adjacent to the recess 36. This minimizes the potential for leakage through the flexible straw 16 in the storage position...." *Id.* ¶ [0021]. In the storage position, portion 38 of straw positioning mechanism 20 covers the outlet of flexible straw 14 and serves as "a protective shelf portion for precluding external contact with said first end of said flexible straw." *Id.* at Claim 8.

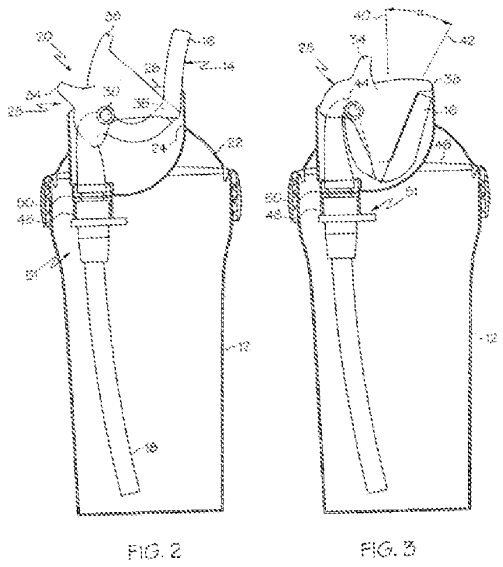


FIG. 2 FIG. 3

2. Toudou

Japanese Patent App. Pub. No. 2001-294252 ("Toudou," Ex. 1007) was published October 23, 2001, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). A certified English translation of Toudou is provided as Ex. 1008 (certification on last page).[3] Toudou was not cited

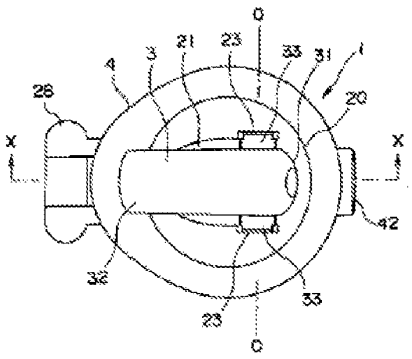
[3] JP2001-294252 includes the published Japanese patent application on pages 1-10 and, beginning on page 10 of Ex. 1008, certain amendments also having numbered paragraphs. Citations in this Request refer to the numbered paragraphs and figures on pages 1-9 of Ex. 1008.

or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

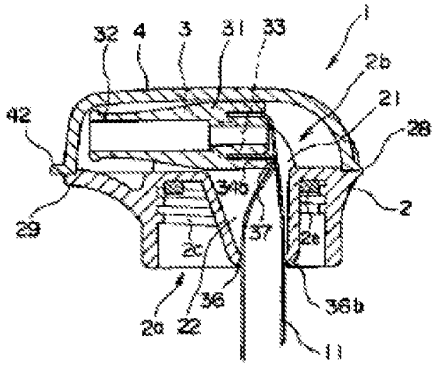
At the least, Toudou presents a new technological teaching of "a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend" and "wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets," alleged by the Applicant to be missing from the art in allowance of claim 1. *See* Ex. 1003 at 147.

Toudou discloses three embodiments for a detachable cap of polypropylene or the like for a drinking bottle in which a straw feeds liquid from within the bottle to a pivotal nozzle within the cap. Ex. 1008 ¶ [0011]. In a first and third embodiment, a pair of rotation shafts 33 extend from a base portion 31 of the nozzle 3 orthogonal to the length of the nozzle. *Id.* ¶ [0012]. The nozzle is mounted via the shafts 33 into pair of substantially U-shaped bearings 23 and pivotally rotates about the shafts 33. *Id.* ¶¶ [0012]-[0014], FIGS. 1 and 7.

[FIG. 1]



[FIG. 7]



In the third embodiment illustrated in FIG. 7, which expressly adopts the same pivotal structure as the first embodiment, the pivotal nozzle 3 includes a suction port 32 at a longitudinal end opposite base portion 31 for extracting liquid from the bottle. The straw 11 of "a rubber-like elastic resin such as a silicone tube" is connected within a cylindrical groove 35b within the base portion 31 of the nozzle 3. Closing a lid 4 forces nozzle 3 to pivot into a horizontal stowed position, causing straw 11 to become crimped to prevent leaking. *Id.* ¶ [0024]. Opening lid 4 allows elasticity of straw 11 to move nozzle 3 into an upright position for drinking, while releasing the crimp within straw 11. *Id.* ¶ [0025]. When the nozzle is stowed, a storage groove 21 and vertical walls of lid 4

protect the nozzle. *Id.* ¶ [0018] ("Since the nozzle 3 is covered with the lid 4 in the stored state, no contact with clothes or the like occurs and dust is not attached, so that the hygienic state can be maintained.").

B. Secondary References Teaching Resilient Mouthpieces as Claimed

1. Wright

International Patent App. Pub. No. WO03/101261A1 ("Wright," Ex. 1009) was published May 31, 2002, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Wright was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

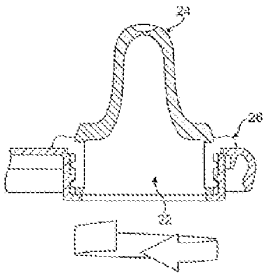


FIG. 1C

Wright discloses a cover for a drinking vessel that includes a flexible mouthpiece made of a resilient elastomeric material such as polyurethane rubber that deforms from biting forces and "hence does not damage the user's teeth." Ex. 1009 at Abstract, 2:7-8, 2:18-21, 4:21-22. The spout for the mouthpiece is removable for cleaning. *Id.* at 2:27, 8:3-7. The resilient mouthpiece may be molded onto a polypropylene base "via a second shot process" for removal from the cover, as shown in FIG. 1C. In one configuration, such as shown in FIG. 2C, the resilient mouthpiece has an upper mouthpiece portion 40 with a duck bill valve 44. "The mouth of the user is guided between the rim (82) and the dimples (84) so that the biting or stripping action occurs such that a sideways force is applied in the same direction on the duck bill valve to ensure opening of the duck bill valve and resulting flow of liquid." *Id.* at 5:20-24. According to Wright, "[t]he mouthpiece can be provided with a portion of the mouthpiece for example the top portion being flexible. Alternatively, the whole of the mouthpiece may be flexible." *Id.* at 7:8-10.

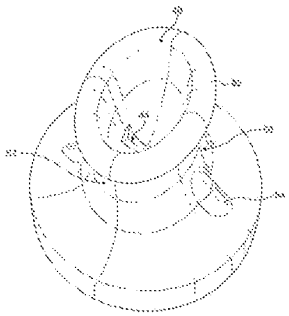
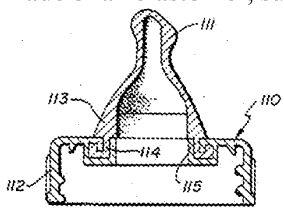


FIG. 2A

2. Phlaphongphanich

U.S. Patent No. 4,676,386 ("Phlaphongphanich," Ex. 1010) issued June 30, 1987, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Phlaphongphanich was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

Phlaphongphanich discloses a "traditional" baby bottle nipple having a mouth portion made of an elastomer, such as liquid silicone rubber. The mouth portion is coupled to a base portion

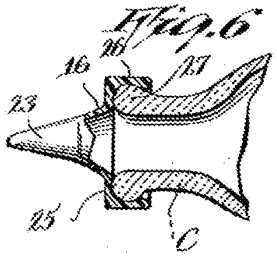


of semi-rigid thermoplastic, such as polypropylene, in a two-mold process. Ex. 1010 at Abstract, 3:30-34. The base portion is configured for attachment to the source of liquid, such as a baby bottle. The unitary construction avoids the pulling of the mouth portion from the base portion.

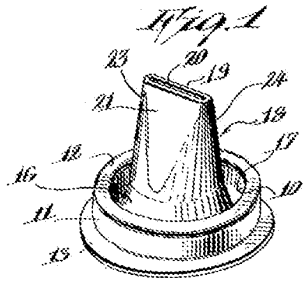
3. Tupper

U.S. Patent No. 2,816,548 ("Tupper," Ex. 1011) issued December 17, 1957, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Tupper was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

Tupper discloses a removable sipper-type of seal of "resilient plastic material" for consuming fluid contents from vessels or containers. Ex. 1011 at 1:15-17, 3:45. "The device serves



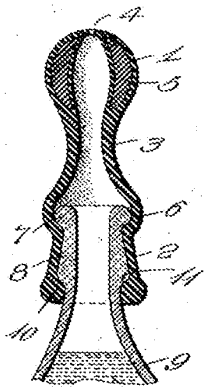
to sealably engage the vessel neck … to act simultaneously as a sipper for withdrawal of fluid contents, …" *Id.* at 1:26-31. The seal has an engaging groove 14 with a side wall 11 or flange 26 capable of being applied around the outside of vessel rim "for complete hermetical engagement" (*id.* at 2:44-49, FIGS. 4, 6) or a cylindrical section 28 to frictionally engage the inside of a passageway "in the form of a stopper" (*id.* at 2:67-3:2, FIG. 9). A feature "of the invention resides in the provision of a seal of this type wherein the sipping or drawing operation is capable of functioning … by alternate lip or teeth compression of the tubular structure to force fluid contents therethrough based on the principle of nipple feeding." *Id.* at 1:41-49; *id.* at 3:40-42 (the dispensing end of the sipper seal "is capable of being squeezed or deformed by the mouth or teeth of the user"). Further, the dispensing end culminates in a "narrow and elongated rim 19 for a slot 20" (*id.* at 2:38-39), as shown in FIG. 1. The slot functions "to check spillage by reason of fluid capillarity and surface tension" (*id.* at 3:29-34), acting "to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position" (*id.* at 4:16-19).



4. Heise

U.S. Patent No. 2,001,842 ("Heise," Ex. 1012) issued May 21, 1935, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Heise was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

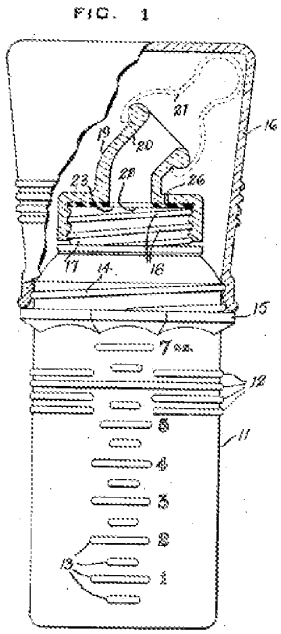
Heise discloses a combined teething and feeding nipple for use on the spout of a baby bottle. In a first embodiment, "[t]he body is of soft rubber of sufficient thickness to normally retain the shape disclosed in Figure 1 and its outer end 1 which is formed with an outlet opening 4 at its center, is substantially spherical in shape and molded about a reinforcement 5 formed of tough resilient rubber." Ex. 1012 at 2:8-14. The two-layered resilient mouthpiece of FIG. 1 therefore doubles as a teething and feeding nipple: "By this arrangement, the head will have a soft outer surface so that it will not hurt a baby's tender gums but at the same time the head will have sufficient resiliency and toughness to permit it to be used as a teething device." *Id.* at 2:18-23. In a second embodiment of FIG. 5, the mouthpiece is made entirely of soft rubber. *Id.* at 3:39-42.



The nipple resiliently adapts to compressive forces from the baby's mouth. During feeding, "pressure of the lips will cause the nipple to be constricted inwardly of its reinforced outer end portion as suction is applied." *Id.* at 1:14-16. And "[w]hen a baby is cutting teeth the nipple can be used as a teething device as the reinforcement is sufficiently tough and resilient to permit the head to be chewed upon without losing its spherical shape." *Id.* at 3:27-31.

5. Canham

U.S. Patent No. 2,467,463 ("Canham," Ex. 1013) issued April 19, 1949, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Canham was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

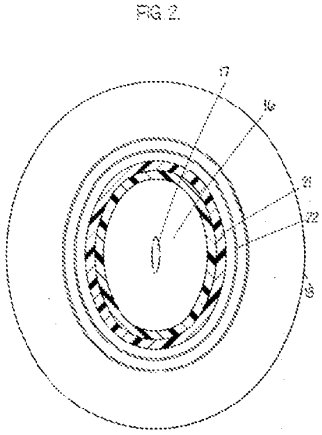


Canham discloses a bottle 11 that has a reduced neck portion 17 that is capped by a nipple adapter member 19 engaged with threads 18 to a neck of bottle 11, as shown in FIG. 1. Ex. 1013 at 1:39-52. Nipple adapter member 19, which is "preferably of molded plastic," is "formed with an outlet passage 20 inclined at about 45° to the axis of the container." *Id.* at 1:53-55. "The top end of adapter member 19 is formed to receive a conventional nipple 21," as shown in FIGS. 1 and 5. *Id.* at 1:55-56. According to Canham, "[t]he inclined relation of passage 20 of adapter 19 to the axis of the container makes it possible to feed the infant in many different positions comfortably." *Id.* at 2:21-23; *id.* at 2:29-31 ("The angle top makes it easy to handle the container regardless of which way the baby turns.").

6. Hurst

U.S. Patent No. 4,020,964 ("Hurst," Ex. 1016) issued May 3, 1977, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Hurst was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

Hurst is directed to an "infants feeding bottle" comprising a container for liquid and a teat securable onto the container. Ex. 1016 at Abstract. The teat, as well as other components of the bottle, has an oval shape. "The longer dimensions of the oval sections are moreover aligned so that the whole assembly is narrower in one direction than it is in the other." *Id.* at 2:49-51. Outlet 17 for passing liquid from the bottle is "in the form of a slit in the center of the end of teat 16" (*id.* at 1:45-46) and "extends in the direction of the longer dimensions of the oval sections" (*id.* at 2:52-54), as shown in cross-sectional top view of FIG. 2. According to Hurst, advantages in the oval shape of teat 16 and slit opening 17 include: "The slit provides means for regulating the rate at which feeding takes place, and the oval section of the feeding bottle allows the orientation of the slit to be readily recognised." *Id.* at 4:3-6. Additionally, according to Hurst, oval teats can be manufactured in larger numbers simultaneously than can teats with circular cross-section. *Id.* at 4:7-14.

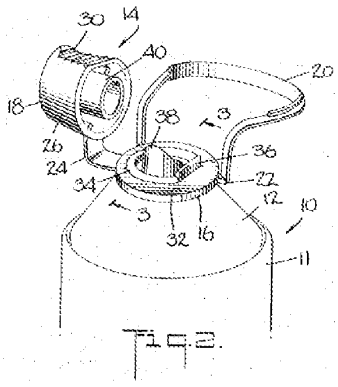


C. Secondary References Teaching Handles as Claimed

1. Anderson

U.S. Patent No. 3,307,752 ("Anderson," Ex. 1014) issued March 15, 1965, and is prior art to the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA). Anderson was not cited or otherwise considered during prosecution of the '255 Patent. *See* Ex. 1001 at pp. 1-3; Ex. 1003 at 110, 112, 115-124.

Among other features, Anderson describes a handle for a liquid container that is molded as an integral part of a cap base. One function for the handle is "providing a carrying means thus eliminating the need for a waist shaped or small necked container...." Ex. 1014 (Anderson) at 2:13-20. As depicted in FIG. 1, "handle 20 is affixed to and may be integrally molded with the base portion 16 at outwardly protruding lugs 22 located at its periphery." *Id.* at 2:69-72.



Being generally U-shaped, the handle "extends upwardly from the lugs 22 for a short distance and then outwardly away from

the overcap 18 so that its maximum height does not exceed that of the overcap.... [T]his handle configuration enables the containers to [] be grasped quite readily both for pouring and for carrying." *Id.* at 3:15-23. Made of plastic and moving horizontally away from the overcap 18, handle 20 can "provide full finger access without interference with movements of said overcap." *Id.* at 5:35-41.

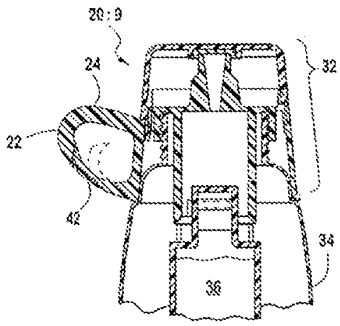
2. Roth

U.S. Patent App. Pub. No. 2004/0217139 ("Roth," Ex. 1015) was filed November 5, 2003, claims the benefit of a design patent application filed April 30, 2003, and was published November 4, 2004. Accordingly, Roth is prior art to the '255 Patent under 35 U.S.C. §§ 102(a) and 102(e) (pre-AIA). Roth was cited in an Information Disclosure Statement during prosecution but was not applied in an Office Action. *See* Ex. 1001 at pp. 2-3; Ex. 1003 at 117.

In Roth, a mouth of a bottle 34 mates with a base portion 26 of a closure body 32 that includes a liquid passageway. Ex. 1015 at Abstract. An annular shroud 64 covers a periphery of base portion 26. Ex. 1015 ¶ [0028], FIG. 3. In a first embodiment shown in Roth's FIG. 2, a looped connector 24 is formed on a pivotal lid 28 of the closure body and may incorporate a snap hook 22 for attaching the bottle to an object such as a backpack.

Roth explains that the looped connector may be positioned elsewhere on closure body 32, such as laterally from annular shroud 64 of base portion 26: "As shown in FIG. 1 the connector 24 preferably extends generally upwardly from the lid 28. However, those of ordinary skill in the art will appreciate from this disclosure that the connector 24 can extend from a lateral side of the closure body 32 or from a lateral side of the annular shroud 64 without departing from the scope of the present invention." *Id.* ¶ [0031]. FIG. 11A illustrates an embodiment in which the looped connector extends from the annular shroud 64 of base portion 26 separate from and beneath lid 28: "FIG. 11A is [in] cross-section a view similar to that of FIG. 3 illustrating an alternative embodiment of a closure according to the present invention in which the snap hook is disposed on a side of the closure;..." *Id.* ¶ [0018]. According to Roth, "[i]t is preferred that the snap hook 22 is integrally formed with the closure body 32 ... [and] that the closure body 32 and the snap hook 22 are formed by a suitable polymer." *Id.* ¶ [0032].

FIG. 11A



IV. Substantial New Questions of Patentability

This Request identifies the following fifteen substantial new questions of patentability for the Challenged Claims based on two primary references: McDonough and Toudou.

A. Questions Based on McDonough

As noted in the previous section and detailed below, McDonough at the least presents a new technological teaching of "a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections, wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend" and "wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets," alleged by the Applicant to be missing from the art in allowance of claim 1. *See* Ex. 1003 at 147. Therefore, "the teaching of the (prior art) patents and printed publications is such that a reasonable examiner would consider the teaching to be important in deciding whether or not the claim is patentable." *See* MPEP 2242. Further, McDonough was cited among 136 references during prosecution but was not applied in an Office Action. 35 U.S.C. 303(a) ("The existence of a substantial new question of patentability is not precluded by the fact that a patent or printed publication was previously cited by or to the Office or considered by the Office."). Nor was the art applied (i.e., Dark (Ex. 1004)) cumulative to McDonough. Thus, the "same question of patentability as to the claim has not been decided by the Office in an earlier concluded examination or review of the patent." MPEP § 2642. In addition, to Requester's knowledge, the '255 Patent has not been challenged in a prior post-grant proceeding. The following grounds of rejection flow from this substantial new question of patentability:

1. Anticipation or obviousness of claims 1, 3-5, 13, 18, and 19 in view of McDonough
2. Obviousness of claim 6 over McDonough in view of Anderson
3. Obviousness of claim 7 over McDonough in view of Anderson or Roth

B. Questions Based on Toudou

As noted in the previous section and detailed below, Toudou at the least presents a new technological teaching of "a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base, wherein the pivotal mount includes a pair of lateral projections,

wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend" and "wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets," alleged by the Applicant to be missing from the art in allowance of claim 1. *See* Ex. 1003 at 147. Therefore, "the teaching of the (prior art) patents and printed publications is such that a reasonable examiner would consider the teaching to be important in deciding whether or not the claim is patentable." *See* MPEP 2242. Nor was the art applied (i.e., Dark (Ex. 1004)) cumulative to Toudou. Further, Toudou was not cited during prosecution and was not applied in an Office Action. Thus, the "same question of patentability as to the claim has not been decided by the Office in an earlier concluded examination or review of the patent." MPEP § 2642. In addition, to Requester's knowledge, the '255 Patent has not been challenged in a prior post-grant proceeding. The following grounds of rejection flow from this substantial new question of patentability:

4. Anticipation or obviousness of claims 1, 3-5, 8, 13, 18, and 19 in view of Toudou

5. Obviousness of claim 6 over Toudou in view of Anderson

6. Obviousness of claim 7 over Toudou in view of Anderson or Roth

7. Obviousness of claim 14 over Toudou in view of Wright

In addition to Toudou inherently disclosing the resilient mouthpiece recited in the Challenged Claims, the following alternative grounds of rejection establish the obviousness of the claimed subject matter based on Toudou and Wright for a resilient mouthpiece integrally coupled to a pivotal spout:

8. Alternatively, obviousness of claims 1, 3-5, 8, 13, 14, 18, and 19 over Toudou in view of Wright

9. Alternatively, obviousness of claim 6 over Toudou in view of Wright, further in view of Anderson

10. Alternatively, obviousness of claim 7 over Toudou in view of Wright, further in view of Anderson or Roth

In addition to Toudou inherently disclosing the resilient mouthpiece recited in the Challenged Claims, and Toudou and Wright rendering obvious a resilient mouthpiece integrally coupled to a pivotal spout within the scope of the claims, the following alternative grounds of rejection establish the obviousness of the claimed subject matter based on Toudou, Canham, and

Heise for a resilient mouthpiece removably coupled to a pivotal spout:

11. Alternatively, obviousness of claims 1, 3-5, 13, 18, and 19 over Toudou in view of Canham, further in view of Heise

12. Alternatively, obviousness of claim 6 over Toudou in view of Canham and Heise, further in view of Anderson

13. Alternatively, obviousness of claim 7 over Toudou in view of Canham and Heise, further in view of Anderson or Roth

14. Alternatively, obviousness of claim 8 over Toudou in view of Canham and Heise, further in view of Phlaphongphanich

15. Alternatively, obviousness of claim 14 over Toudou in view of Canham and Heise, further in view of Hurst or Tupper

V. Detailed Application of Challenged Claims to Prior Art

In Grounds 1-15 below, Requester explains in detail and on an element-by-element basis how the prior-art references listed above establish the unpatentability of the Challenged Claims under 35 U.S.C. §§ 102(a), (b), and/or (e) (pre-AIA) or under 35 U.S.C. §§ 103(a) (pre-AIA). To aid the analysis and more easily identify claim limitations, Requester has added numbers within square brackets to certain phrases within the claims. Requester respectfully requests the issuance of an Office Action rejecting the Challenged Claims based on one or more of Grounds 1-15.

A. Ground 1: McDonough Anticipates, or Would Have Rendered Obvious, Claims 1, 3-5, 13, 18, and 19

As explained below on an element-by-element basis, McDonough discloses all limitations and therefore anticipates claims 1, 3-5, 13, 18, and 19 of the '255 Patent under 35 U.S.C. §§ 102(a)/(e) (pre-AIA) or, in the alternative, would have rendered obvious those claims under 35 U.S.C. § 103(a) (pre-AIA).

1. Claim 1

[1.pre] A drink container, comprising: [1.1] a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

To the extent the preamble is limiting, McDonough describes the claimed drink container in the form of container 12, as shown in FIG. 3. *See* Ex. 1006 (McDonough) ¶ [0002] ("This invention relates broadly to sealed drinking containers for serving beverages…."); *id.* ¶ [0022] (straw 14 "is in communication with the container 12 for serving a beverage from the container 12").

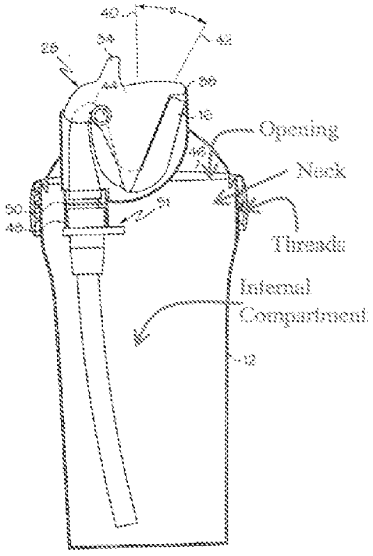


FIG. 3

In McDonough, container 12 has a neck and opening that is covered with lid 22, as recited in [1.1] and shown in the cross-section of FIG. 3, reproduced and annotated here. As well, the internal compartment 12 is part of a "straw drinking cup" configured to hold potable drink fluid, such that straw 14 "is in communication with the container 12 for serving a beverage from the container 12." *Id.* ¶ [0022].

[1.2] a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines

McDonough includes a cap assembly as lid 22, labeled in FIG. 2, that is removably coupled to the fluid container 12 to cover its opening. As stated in McDonough, "Referring now to FIG. 2, it will be seen that container 12 is constructed so as to includ[e] a lid 22 that is screwable onto the main body portion of the container 12…." *Id.* ¶ [0020].

[1.2.1] a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes [1.2.2] an inlet through which drink fluid from the fluid container may enter the fluid conduit, and [1.2.3] a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

McDonough includes the claimed fluid conduit of claim 1. Lid 22 in McDonough defines a fluid conduit as "a flexible elastomeric straw 14 having a first, drinking end 16 and a second end

18 that is positioned within the container 12, as shown in FIG. 2." *Id.* ¶ [0019]. Through this fluid conduit 14, drink fluid will flow from the container 12 through lid 22 to a user: "In operation, a consumer will suck on the draining [sic, drinking] end 16 of the flexible straw 14, which will induce a pressure differential between the drinking end 16 and the second end 18 of the flexible straw 14. This, in turn, will draw the beverage upwardly through the flexible straw 14 into the mouth of the consumer." *Id.* ¶ [0022]. Thus, an inlet of straw 14 for drink fluid from the container is second end 18 in FIG. 2, while a dispensing outlet through which drink fluid may be dispensed from the cap assembly to a user is drinking end 16 of straw 14 in FIG. 2, as recited in [1.2.2] and [1.2.3].

[1.3] a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

McDonough discloses a cap assembly base as a lower portion of lid 22 shown screwed onto container 12 in FIG. 2. Lid 22 is removably coupled to the upper portion or neck of fluid container 12 and configured to be selectively and repeatedly decoupled from and re-coupled to the neck through the use of threads for screwing and unscrewing: "Referring now to FIG. 2, it will be seen that container 12 is constructed so as to includ[e] a lid 22 that is screwable onto the main body portion of the container 12 …." *Id.* ¶ [0020]. A lid that is "screwable" with threads is configured to be "selectively and repeatedly decoupled" as claimed.

[1.4] a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base,

McDonough discloses that lid 22 further includes a pivotal mount in the form of straw positioning member 28 and recess 36 within its downwardly extending arm 35. And straw positioning member 28 pivots within lid 22: "As may best be seen in FIGS. 2 and 3, straw positioning mechanism 20 is preferably embodied as a straw positioning member 28 that is pivotally mounted to the lid 22 and is substantially positioned within the opening 26 that is defined by the upstanding wall 23." Ex. 1006 ¶ [0021]. A comparison of FIG. 2 and FIG. 3 shows the pivotal movement of the pivotal mount, i.e., straw positioning member 28, relative to the cap assembly base, i.e. the lower portion of lid 22.

[1.4.1] wherein the pivotal mount includes a pair of lateral projections, [1.4.2] wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

According to McDonough, straw positioning structure 28 pivots around a pair of lateral projections, i.e., axle projections 30, which are shown in FIG. 1. Moreover, tracking the language of [1.4.2], lid 22 includes a pair of sockets in the form of holes 32 into which the pair of axle projections 30 extend. As stated in McDonough, "Straw positioning member 28 includes a pair of axle projections 30 that are journaled into a corresponding pair of holes 32 that are defined in the upstanding wall 23, as shown in FIG. 1." *Id.* ¶ [0021]. Accordingly, McDonough discloses the subject matter of [1.4.1] and [1.4.2].

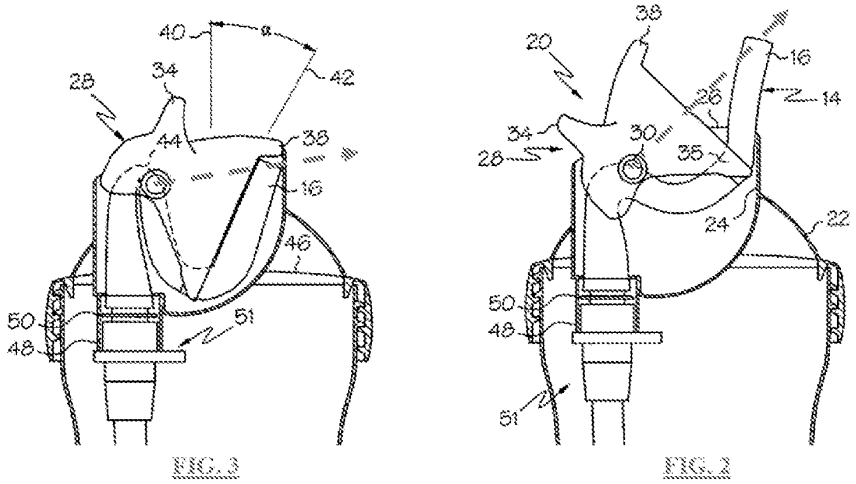
[1.5] a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base,

Drinking cup 10 in McDonough includes a resilient mouthpiece in the form of drinking end 16 of flexible straw 14. As stated in the reference, "The entire flexible straw 14 … is preferably fabricated from a resilient elastomeric material such as silicone." Ex. 1006 ¶ [0025]. The resilient mouthpiece 16 includes a dispensing outlet at its tip: "In operation, a consumer will suck on the draining [sic, drinking] end 16 of the flexible straw 14, which … will draw the beverage upwardly through the flexible straw 14 into the mouth of the consumer." *Id.* ¶ [0022].

Straw 14 is "coupled to" straw positioning member 28 (straw positioning member 20) by being received within its recess 36. Ex. 1006 ¶ [0021] ("Straw positioning member 28 preferably includes a downwardly extending arm 35 that has a recess 36 defined at its distal end for receiving the flexible straw 14."). Thus, straw 14 is joined to straw positioning member 28 through a mating within recess 36, a coupling that McDonough refers to as an "interlocking arrangement." *Id.* ¶ [0027]. This interlocking of resilient mouthpiece 16 in recess 36 of pivotal mount 28 enables the pivotal positioning of resilient mouthpiece 16: "The flexible straw 14 in conjunction with the pivotal straw positioning structure 28 further provides a positive interlocking arrangement for positioning the straw 14, while minimizing the complexity of assembly with the other components." *Id.* ¶ [0027].

In addition, the interlocking between straw 14 and straw positioning member 28 causes the resilient mouthpiece, i.e., drinking end 16, to pivot with the pivotal mount, i.e., straw positioning member 28, relative to the cap assembly base. Portions of FIGS. 2 and 3, annotated below, show

that resilient mouthpiece 16 is pivotal relative to the base of lid 22 as straw positioning mechanism 20 pivots about axle projections 30:



Therefore, McDonough discloses the subject matter of [1.5].

[1.5.1] wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

A comparison of FIG. 2 and 3 in McDonough shows that as axle projections 30 journaled into holes 32 are rotated, straw positioning member 28 pivots, causing resilient mouthpiece 16 to pivot about an axis defined by the axle projections 30 (*see* dashed arrows), meeting the requirements of [1.5.1]. Specifically, pivoting of pivotal mount 28 moves downwardly extending arm 35 and recess 36, as shown in FIGS. 2 and 3, which in turn causes resilient mouthpiece 16 mounted on pivotal mount 28 to pivot upwardly and downwardly between an open, dispensing position (FIG. 3) and a closed, stowed position (FIG. 2). *See id.* ¶ [0021].

Accordingly, McDonough discloses the subject matter of [1.5.1].

[1.5.2] wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

As indicated above for [1.2.1]-[1.2.3], McDonough defines a fluid conduit as "a flexible elastomeric straw 14 having a first, drinking end 16 and a second end 18 that is positioned within the container 12, as shown in FIG. 2." Ex. 1006 ¶ [0019]. "The entire flexible straw 14 … is preferably fabricated from a resilient elastomeric material such as silicone." *Id.* ¶ [0025]. Drinking end 16 of this resilient elastomeric straw 14 is a dispensing outlet through which drink fluid may

be dispensed to a user. As stated in the reference, "In operation, a consumer will suck on the draining [sic, drinking] end 16 of the flexible straw 14, which … will draw the beverage upwardly through the flexible straw 14 into the mouth of the consumer." *Id.* ¶ [0022].

As a result, McDonough discloses the subject matter of [1.5.2].

[1.6] wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further [1.6.1] in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

As annotated above, McDonough illustrates in FIGS. 2 and 3 the selective pivoting of the resilient mouthpiece, i.e. drinking end 16, and pivotal mount, i.e., straw positioning member 28 or straw positioning mechanism 20, between a stowed position (FIG. 3) and a dispensing position (FIG. 2). "Straw drinking cup 10 further includes a straw positioning mechanism 20 for positioning the flexible straw 14 with respect to the container 12 between a first drinking position, shown in FIG. 2, and a second storage position, shown in FIG. 3." Ex. 1006 ¶ [0019]. Straw positioning mechanism 20 adjusts the resilient mouthpiece 16 between the stowed position and the dispensing position and "is pivotally mounted to the lid 22…." *Id.* ¶ [0021]. Moreover, as shown in comparing FIGS. 2 and 3, resilient mouthpiece 16 is farther from the cap assembly base, i.e., lower portion of lid 22, in the dispensing position of FIG. 2 than in the storage position of FIG. 3.

Therefore, McDonough discloses the subject matter of [1.6] and [1.6.1].

[1.6.2] wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

As pointed out above for [1.2.1], in McDonough, "The entire flexible straw 14" including drinking end 16 "is preferably fabricated from a resilient elastomeric material such as silicone." Ex. 1006 ¶ [0025]. McDonough does not expressly state that flexible straw 14 will "compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth," as recited in [1.6.2].

It necessarily follows from McDonough, however, that flexible straw 14 formed from an elastomeric material such as silicone would be compressible from forces applied to a user's teeth. *See Titanium Metals Corp. v. Banner*, 778 F.2d 775, 781 (Fed. Cir. 1985) ("good corrosion resistance in hot brine environments" was inherent and necessary property of alloy insufficient to

avoid anticipation). For example, McDonough explains that compressive forces will readily bend and crimp its flexible, resilient straw in multiple locations. *Id.* ¶ [0021] ("the flexible straw 14 will be bent into a horizontal S-shaped configuration by the downwardly extending arm 35 so as to be crimped"); *id.* ¶ [0026] ("crimping the flexible straw 14 in two different positions"). Thus, McDonough teaches that flexible straw 14 is compressible enough not only to deform, but to collapse in multiple locations and form a seal to block the flow of liquid. That compression of flexible straw 14 occurs from the movement of straw positioning mechanism 20, an action expected to be performed by "small children." *Id.* at 1:9-11 ("This invention relates broadly to sealed drinking containers for serving beverages, especially to small children and individuals who are disabled."). Moreover, the forces required to cause crimping of flexible straw 14 into a seal as shown in McDonough would be less than biting forces that could be applied by a user's teeth, and it would be a natural result from McDonough that compressive forces from either straw positioning mechanism 20 or a user's teeth would cause flexible straw 14 "to resiliently compress" as claimed.

Additionally, other prior-art documents confirm that a mouthpiece "fabricated from a resilient elastomeric material such as silicone" as in McDonough (Ex. 1006 ¶ [0025]) "is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth," as recited in [1.6.2]. *See Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991) ("To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence."); MPEP § 2131.01 (using multiple references for inherency). For example, Wright (Ex. 1009) teaches that with a mouthpiece "formed of a flexible, resilient flexible elastomer material" (*id.* at 4:21-22), after application of a biting force "to the sides of the mouthpiece, the mouthpiece deforms inwardly." *Id.* at 2:7-8. Wright recognizes a concern with rigid or semi-rigid mouthpieces potentially causing damage to a user's teeth, particularly an infant. *Id.* at 1:18-19 ("It will be appreciated that biting or prolonged sucking on a spout can lead to tooth damage for the infant during the important teething stage, especially for infants up to 9 months of age."). To address this risk, Wright discloses using a "resilient flexible elastomer material"—as with flexible straw 14 in McDonough—to enable resilient deformation of the mouthpiece when bitten. *Id.* at 2:18-19 ("The flexibility of the mouthpiece also reduces the risk of damage to the infant's teeth."). The mouthpiece of resilient flexible elastomer material is "arranged such that on application of a force to the sides of the mouthpiece, the mouthpiece deforms inwardly" to open a duck bill valve. *Id.* at

Abstract. That force to the sides of the mouthpiece is delivered by compression from a user's teeth, as claimed: "[T]he duck bill valve opens under a pursing, biting or stripping action …." *Id.* at 2:16-17; *id.* at 5:20-24 ("The mouth of the user is guided between the rim (82) and the dimples (84) so that the biting or stripping action occurs such that a sideways force is applied in the same direction on the duck bill valve to ensure opening of the duck bill valve and resulting flow of liquid.").

Thus, to the extent McDonough alone is not deemed to inherently disclose the properties of a resilient flexible elastomer material "to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth," those inherent properties are evident in view of Wright.

Accordingly, McDonough inherently discloses the subject matter of [1.6.2].

[1.7] a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and [1.7.1] an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet;

In addition to the mouthpiece of the drink container being compressible, claim 1 separately recites a manual on/off valve that can obstruct the fluid conduit. At least downward extending arm 35 of straw positioning mechanism 20 (or straw positioning member 28) in FIGS. 2 and 3 of McDonough corresponds to the claimed manual on/off valve of the '255 Patent in [1.7]. Shown best in FIGS. 2 and 3, "straw positioning mechanism 20 is preferably embodied as a straw positioning member 28 that is pivotally mounted to the lid 22 and is substantially positioned within the opening 26 that is defined by the upstanding wall 23.… Straw positioning member 28 preferably includes a downwardly extending arm 35 that has a recess 36 defined at its distal end for receiving the flexible straw 14." Ex. 1006 ¶ [0021]. When the manual on/off valve of downward extending arm 35 is in the closed position of FIG. 3 as in [1.7], the fluid conduit or flexible straw 14 will be crimped to obstruct drink fluid flowing from container 12 to drinking end 16: "[T]he flexible straw 14 will be bent into a horizontal S-shaped configuration by the downwardly extending arm 35 so as to be crimped in a first location 44 and also in a second location 46 that is adjacent to the recess 36. This minimizes the potential for leakage through the flexible straw 16 in the storage position…." *Id.*

As to [1.7.1], manual on/off valve 20 has an open position shown in FIG. 2 that permits drink fluid to flow through straw 14 from container 12 to drinking end 16. *Id.* ¶ [0019] ("Straw

drinking cup 10 further includes a straw positioning mechanism 20 for positioning the flexible straw 14 with respect to the container 12 between a first drinking position, shown in FIG. 2, and a second storage position, shown in FIG. 3."); *id.* ¶ [0010] ("[T]he straw positioning mechanism being movable between a first operative position wherein the first end of the flexible straw is presented for sipping by a consumer and a second storage position.").

[1.7.2] wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;

McDonough discloses that its manual on/off valve 20 includes a flexible tube, i.e., flexible straw 14, as shown in FIGS. 2 and 3, coupled to recess 36 within downwardly extending arm 35.

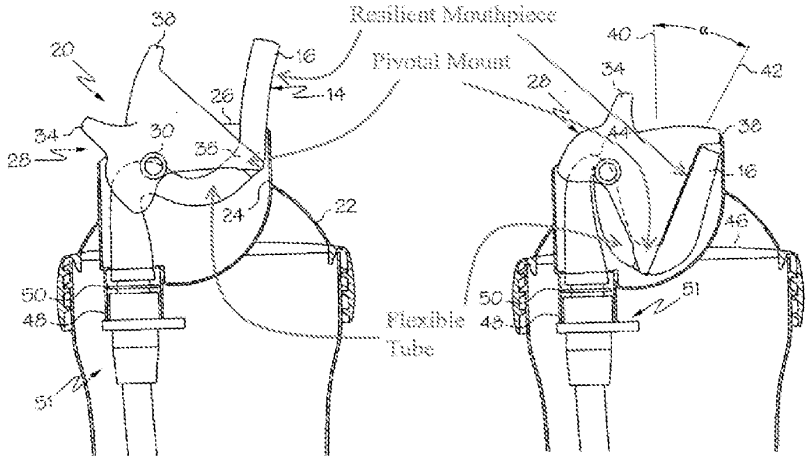


FIG. 2 FIG. 3

"Straw positioning member 28 preferably includes a downwardly extending arm 35 that has a recess 36 defined at its distal end for receiving the flexible straw 14." Ex. 1006 ¶ [0021]. Flexible straw 14 defines a portion of the fluid conduit, as recited in [1.7.2]: "The inner surface 64 of the flexible straw 14 defines a first passage that is in communication with the container 12 for serving a beverage from the container 12." *Id.* ¶ [0022]. With the manual on/off valve, crimping of the flexible straw by the downwardly extending arm 35 "minimizes the potential for leakage through the flexible straw 16 [sic, 14] in the storage position." *Id.* ¶ [0021].

[1.7.3] wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and [1.7.4] wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

With respect to [1.7.3], McDonough explains that pivoting the on/off valve 20 to the closed position crimps flexible tube 14 in multiple locations to obstruct the flow of drink fluid: "When the straw positioning mechanism 20 is in the second, closed position shown in FIG. 3, the flexible straw 14 will be bent into a horizontal S-shaped configuration by the downwardly extending arm 35 so as to be crimped in a first location 44 and also in a second location 46 that is adjacent to the recess 36. This minimizes the potential for leakage through the flexible straw 16 in the storage position…." Ex. 1006 ¶ [0021].

Further, as required by [1.7.4], counterclockwise pivoting of straw positioning mechanism 20 into the open position in McDonough releases and extends flexible tube 14 for drinking, as shown in FIG. 2. *Id.* ¶ [0019] ("Straw drinking cup 10 further includes a straw positioning mechanism 20 for positioning the flexible straw 14 with respect to the container 12 between a first drinking position, shown in FIG. 2, and a second storage position, shown in FIG. 3."); *id.* ¶ [0010] ("[T]he straw positioning mechanism being movable between a first operative position wherein the first end of the flexible straw is presented for sipping by a consumer and a second storage position.").

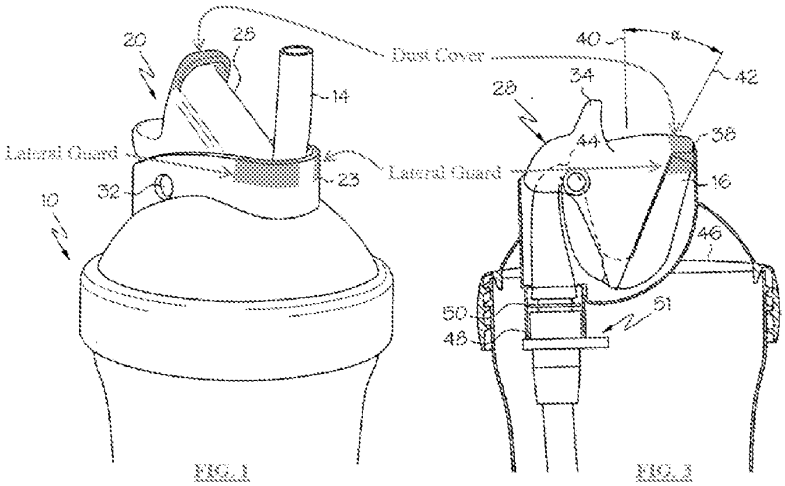
As a result, McDonough expressly or inherently discloses all limitations of claim 1 and, therefore, anticipates that claim under 35 U.S.C. § 102(a) (pre-AIA). To the extent it is deemed that McDonough does not disclose one or more limitations of claim 1, those limitations would have been obvious modifications of McDonough based at least on McDonough's other teachings and the knowledge of one or ordinary skill in the art, rendering the claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

2. Claim 3

3. The drink container of claim 1, [3.1] wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position,

The inner surface 24 of upstanding wall 23 that extends on opposite sides of flexible straw 14 and drinking end 16 when the manual on/off valve 20 is in second storage position in FIG. 3 of McDonough corresponds to the pair of lateral guards recited in [3.1]. Upstanding wall 23 is formed within lid 23 and defines a space for receiving manual on/off valve, i.e., straw positioning mechanism 20. *Id.* ¶ [0020]. "Upstanding wall 23 has an inner surface 24 that is positioned, as may

be seen in FIG. 2, to be frictionally engaged by the outer surface of the flexible straw 14 as the straw positioning mechanism 20 is moved between the first and second positions." *Id.* When manual on/off valve 20 is closed in FIG. 3, inner surface 24 of upstanding wall 23 extends on opposed sides of resilient mouthpiece 16. FIGS. 1 and 3 of McDonough, portions of which are reproduced and annotated below, illustrate the sides of upstanding wall 23 as the claimed lateral guards on opposed sides of resilient mouthpiece 14:



[3.2] and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

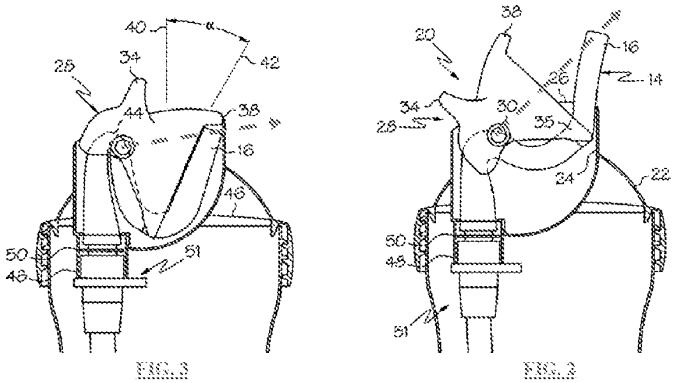
Portion 38 of the manual on/off valve, i.e., straw positioning mechanism 20, in McDonough corresponds to the dust cover in [3.2]. Element 3.2 recites "a dust cover extending between the pair of lateral guards," but does not require that the dust cover be connected to or integral with the lateral guards. As shown above annotated in FIG. 3, in the closed position, portion 38 extends between a pair of lateral guards, i.e., the opposing sides of upstanding wall 23, and is positioned as a shelf above straw 14 to protect the tip of resilient mouthpiece 16. Indeed, McDonough specifically refers to this overhang as "a protective shelf portion": "[W]herein said straw positioning member further includes a protective shelf portion for precluding external contact with said first end of said flexible straw when said straw positioning mechanism is in the second storage position." *Id.* at Claim 8.

Accordingly, McDonough expressly or inherently discloses all limitations of claim 3 and, therefore, anticipates that claim under 35 U.S.C. § 102(e) (pre-AIA). Alternatively, the subject matter of claim 3 would have been obvious at least from McDonough itself.

3. Claim 4

4. The drink container of claim 3, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

For claim 4, a comparison of FIGS. 2 and 3 in McDonough shows that when straw positioning mechanism 20 pivots from the storage position (FIG. 3) to the drinking position (FIG. 2), resilient mouthpiece 16 is pivoted upward from within opening 26 defined by upstanding wall 23.



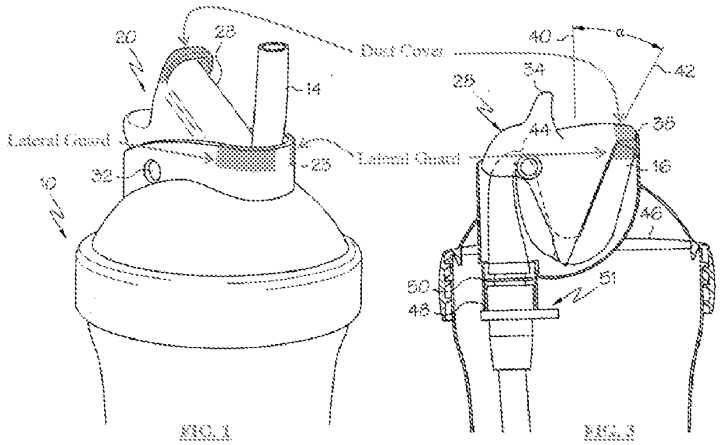
After this pivoting, resilient mouthpiece 16 of flexible straw 14 is farther away from the dust cover, i.e., portion 38 of straw positioning mechanism 20 (FIG. 2), than before pivoting when in the storage position (FIG. 3). Indeed, in the closed position of FIG. 3, dust cover 38 is nearly in contact with the end of resilient mouthpiece 16, whereas in the open position of FIG. 2 dust cover 38 is a larger distance apart from resilient mouthpiece 16.

Accordingly, McDonough expressly or inherently discloses all limitations of claim 4 and, therefore, anticipates that claim under 35 U.S.C. § 102(e) (pre-AIA). Alternatively, the subject matter of claim 4 would have been obvious at least from McDonough itself.

4. Claim 5

5. The drink container of claim 3, wherein the dust cover projects above an upper surface of the cap assembly base.

As indicated above for claim element [3.2] and as shown below in annotated figures, McDonough discloses a dust cover in the form of portion 38 of straw positioning mechanism 20. In the closed position, portion 38 is positioned as a shelf above straw 14 and above an upper surface of the cap assembly base, such as lid 22. *Id.* at Claim 8. ("[W]herein said straw positioning member further includes a protective shelf portion for precluding external contact with said first end of said flexible straw when said straw positioning mechanism is in the second storage position.")

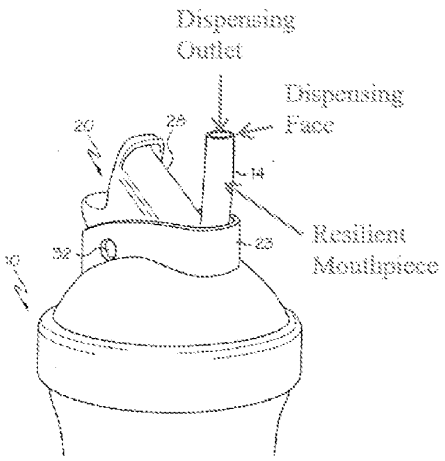


Accordingly, McDonough expressly or inherently discloses all limitations of claim 5 and, therefore, anticipates that claim under 35 U.S.C. § 102(e) (pre-AIA). Alternatively, the subject matter of claim 5 would have been obvious at least from McDonough itself.

5. Claim 13

13. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

To the extent the broadest reasonable interpretation of a "dispensing face" of a mouthpiece includes a cut end of a straw, McDonough discloses a dispensing face at the terminus of drinking end 16 on straw 14. The dispensing face or end of straw 14 includes a hole where a dispensing outlet extends through the dispensing face. Annotations of a portion of FIG. 1 from McDonough below illustrate these components.



Accordingly, McDonough expressly or inherently discloses all limitations of claim 13 and, therefore, anticipates that claim under 35 U.S.C. § 102(e) (pre-AIA). Alternatively, the subject matter of claim 13 would have been obvious at least from McDonough itself.

6. Claim 18

18. The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

McDonough also discloses all subject matter of dependent claim 18. As explained above for element [1.4], McDonough discloses a pivotal mount in the form of straw positioning mechanism 20 or straw positioning member 28 and recess 36 within its downwardly extending arm 35. Regarding the recited flexible tube, McDonough discloses that its manual on/off valve 20 may include flexible tube 14 within opening 26 defined by upstanding wall 23 in lid 22, as shown in FIGS. 2 and 3. According to McDonough, the pivotal mount, i.e., straw positioning member 28, is adapted to selectively engage the flexible tube, i.e. straw 14, via recess 36. Ex. 1006 ¶ [0021] ("Straw positioning member 28 preferably includes a downwardly extending arm 35 that has a recess 36 defined at its distal end for receiving the flexible straw 14."). Moreover, McDonough explains that pivoting the on/off valve 20 to the closed position as it moves from a dispensing position to a stowed position crimps flexible tube 14 in multiple locations to obstruct the flow of drink fluid: "When the straw positioning mechanism 20 is in the second, closed position shown in FIG. 3, the flexible straw 14 will be bent into a horizontal S-shaped configuration by the downwardly extending arm 35 so as to be crimped in a first location 44 and also in a second

location 46 that is adjacent to the recess 36. This minimizes the potential for leakage through the flexible straw 16 in the storage position…." *Id.* ¶ [0021].

Accordingly, McDonough expressly or inherently discloses all limitations of claim 18 and, therefore, anticipates that claim under 35 U.S.C. § 102(e) (pre-AIA). Alternatively, the subject matter of claim 18 would have been obvious at least from McDonough itself.

7. Claim 19

19. The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

McDonough further discloses that its flexible tube, i.e., lower portion of straw 14, is secured to the pivotal mount, i.e., straw positioning mechanism 20 or straw positioning member 28 and recess 36 within downwardly extending arm 35. Straw 14 is secured to downwardly extending arm 35 at recess 36 at least to the extent that a frictional coupling is required for downwardly extending arm 35 to move straw 14 between a crimped (closed) and uncrimped (open) position by pulling or lifting, as illustrated below for FIGS. 2 and 3:

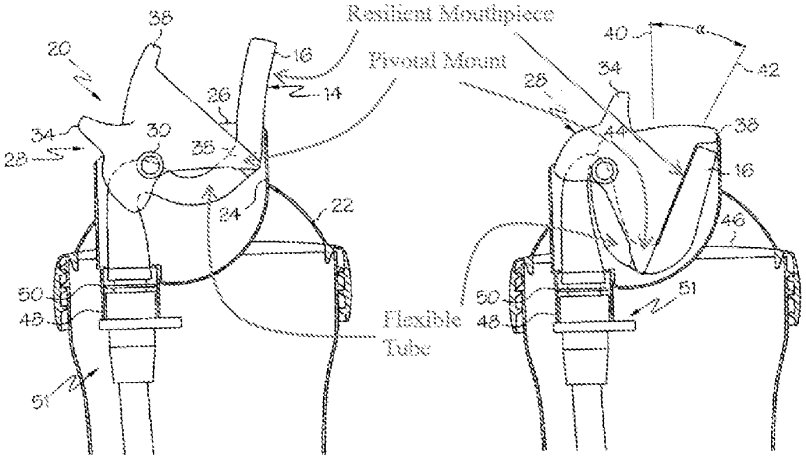


FIG. 2 FIG. 3

McDonough describes this relationship, explaining that flexible straw 24 is received into recess 36 to form a "a positive *interlocking* arrangement for positioning the straw 14." Ex 1006 ¶ [0027] (emphasis added). This interlocking secures straw 14 to straw positioning structure 28 so that the straw can be forced into a bent position in multiple locations when finger-gripping structure 34 is pushed by a user. *Id.* ¶ [0021] ("When the straw positioning mechanism 20 is in the second, closed position shown in FIG. 3, the flexible straw 14 will be bent into a horizontal S-shaped configuration by the downwardly extending arm 35 so as to be crimped in a first location

44 and also in a second location 46 that is adjacent to the recess 36. This minimizes the potential for leakage through the flexible straw 16 in the storage position…").

Accordingly, McDonough expressly or inherently discloses all limitations of claim 19 and, therefore, anticipates that claim under 35 U.S.C. § 102(e) (pre-AIA). Alternatively, the subject matter of claim 19 would have been obvious at least from McDonough itself.

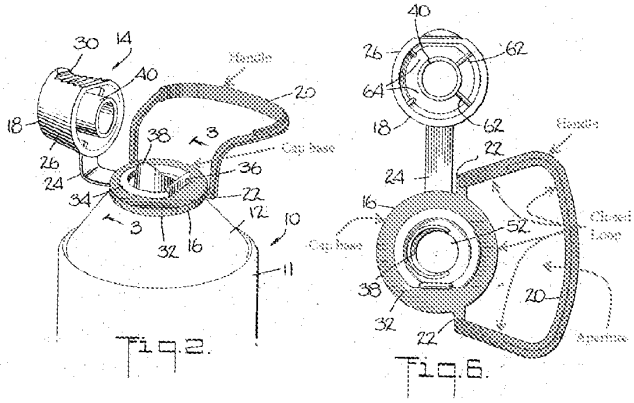
B. Ground 2: McDonough in View of Anderson Would Have Rendered Obvious Claim 6

As explained below, McDonough in view of Anderson would have rendered obvious claim 6 under 35 U.S.C. § 103(a) (pre-AIA).

6. The drink container of claim 3, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

While disclosing all subject matter of independent claim 1, McDonough does not expressly disclose a handle associated with drinking cup 10 as recited in dependent claim 6. Anderson, which also discloses a closure for a liquid-dispensing container in the same field of endeavor as McDonough and the '255 Patent, discloses the handle for a container with the features recited in claim 6.

Specifically, Anderson discloses "a container closure for use in connection with spouted containers" that "neatly seal[s] and protect[s] a spouted container opening." Ex. 1014 at 1:47-52. "On the top of the container 10, … [a] novel cap arrangement is formed of a plastic material such as polyethylene and includes a circular base 16, fitted onto the top wall 12" of the container 10. *Id.* at 2:64-68. A handle 20 extends from the cap assembly base, i.e., from circular base 16, as claimed and shown below:



The "handle 20 is affixed to and may be integrally molded with the base portion 16 at outwardly protruding lugs 22 located at its periphery." *Id.* at 2:66-67; *see id.* at 2:13-15 ("In one of its aspects, my invention includes the provision of a specially shaped handle preferably molded as an integral part of the base and captive cap."). Ex. 1014 at 2:69-72.

It would have been obvious to have included the handle as disclosed in Anderson on the cup 10 of McDonough at least to provide a more convenient means for carrying the container than simply grasping its body—especially for children who have small hands. As noted in Anderson, its U-shaped handle that extends outwardly "enables the containers to [] be grasped quite readily" for carrying and provides "full finger access without interference with movements of said overcap." *Id.* at 3:15-23, 5:35-41. Applied to McDonough, such a handle would make carrying more efficient and avoid interference with lid 22 and, particularly, straw positioning mechanism 20 and straw 14 to minimize the risk of contamination by handling. In addition, by being molded together as plastic with its cap in one option of Anderson, handle 20 would combine efficiently with lid 22 in McDonough.

Moreover, it would have been readily apparent that the relationships recited in claim 6 relating to the handle and the resilient mouthpiece would have resulted from combining the handle 20 of Anderson with the lid 22 of McDonough. Indeed, the handle 140 in the '255 patent and handle 20 in McDonough are highly similar:

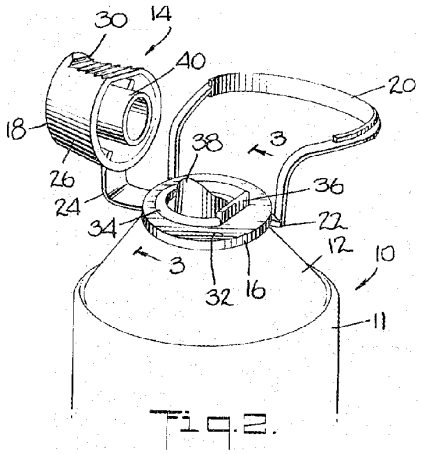
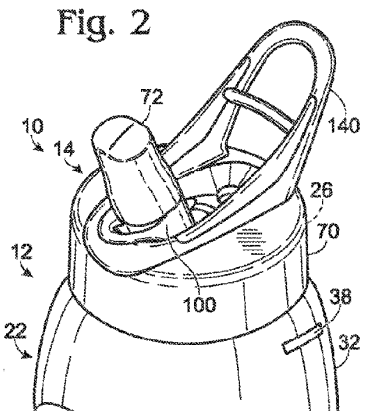


FIG. 2 of Anderson

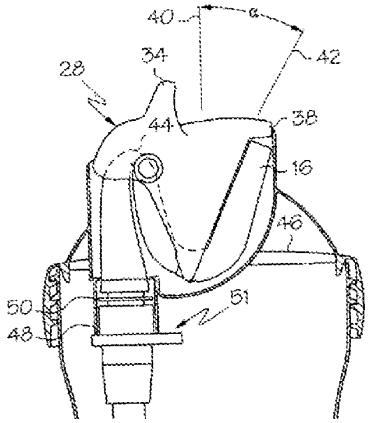


Portion of FIG. 2 of '255 Patent

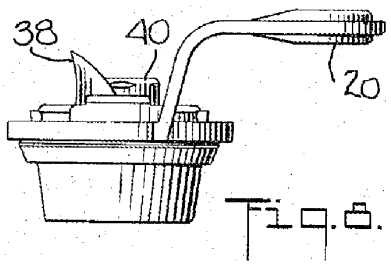
For instance, in many implementations, applying handle 20 of Anderson to lid 22 of McDonough would have resulted in the sides of handle 20 being positioned on opposite sides of

drinking end 16 of straw 14 in McDonough and the outer end of handle 20 extending across at least a portion of the dispensing outlet of dispensing end 16 of straw 14, when straw positioning mechanism 20 and straw 14 are in the stowed position. Thus, the sides of handle 20 would qualify as "the pair of lateral guards" and the outer end of handle 20 would qualify as "the dust cover," as recited in claims 3 and 6.

The figures below illustrate this combination. The figure on the left is a cross-sectional side view of the lid of McDonough in a stowed position, and the figure on the right is a side view of the cap and handle 20 of Anderson.

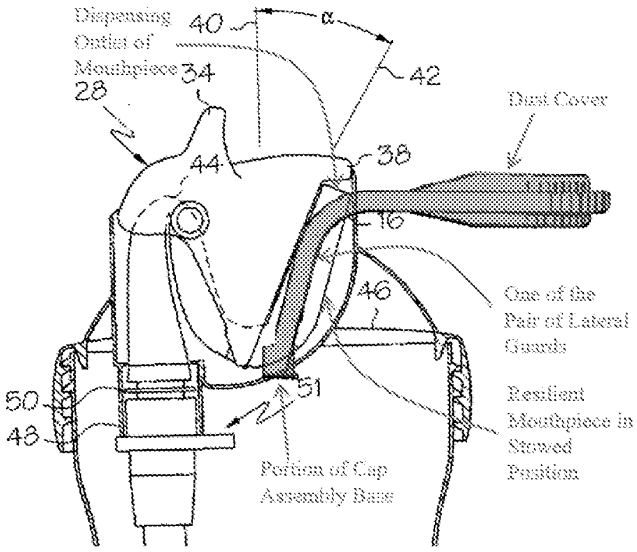


McDonough: Portion of FIG. 3 in Stowed Position



Anderson: FIG. 8 Side View

Implementing handle 20 on lid 22 would result in the following mockup of these figures:



Mockup of Anderson Handle 20 Applied to McDonough Lid 22

As indicated in this mockup, handle 20 from Anderson has arms rising angularly above the cap base on lateral sides of the container opening (as with handle 140 in the '255 Patent) and a looped end to the handle extending to the side and above the cap base (as with handle 140 in the '255 Patent). Accordingly, the rising arms of handle 20 on opposed sides of resilient mouthpiece 16 equate to the claimed "pair of lateral guards" and the looped end of handle 20, which extends between these pair of lateral guards, extends across at least a portion of the dispensing outlet of resilient mouthpiece 16 as the claimed "dust cover."

Therefore, the combination of McDonough and Anderson teaches and suggests all limitations of claim 6 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

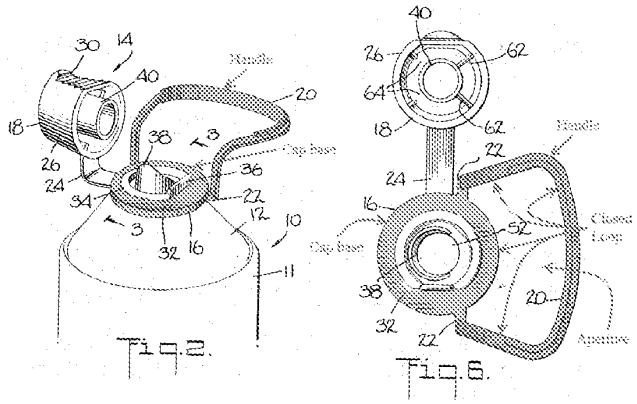
C. Ground 3: McDonough in View of Anderson or Roth Would Have Rendered Obvious Claim 7

As explained below, McDonough in view of Anderson or Roth would have rendered obvious claim 7 under 35 U.S.C. § 103(a) (pre-AIA).

> **7. The drink container of claim 1, wherein the cap assembly further comprises a handle [7.1] that extends in a fixed orientation from the cap assembly base and, [7.2] which defines a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.**

While disclosing all subject matter of independent claim 1, McDonough does not expressly disclose a handle associated with drinking cup 10 as recited in dependent claim 7. Anderson, which also discloses a closure for a container in the same field of endeavor as McDonough and the '255 Patent, discloses the handle with the features recited in claim 7. In particular, for [7.1], Anderson discloses a "novel cap arrangement" in which a handle 20 "is affixed to and may be integrally molded with the base portion 16 at outwardly protruding lugs 22 located at its periphery." Ex. 1014 at 2:69-72. This fixed orientation is set by being molded in plastic. *Id.* at 2:66-67; *see id.* at 2:13-20 ("In one of its aspects, my invention includes the provision of a specially shaped handle preferably molded as an integral part of the base and captive cap. This handle serves a dual function; first, that of providing a carrying means thus eliminating the need for a waist shaped or small necked container....").

Additionally, handle 20 in Anderson defines a closed loop with an aperture through which a user's finger may be inserted to carry the drink container 10, as recited in [7.2]. FIG. 2 (isometric view) and FIG. 6 (top view), annotated below, illustrate this form most clearly.

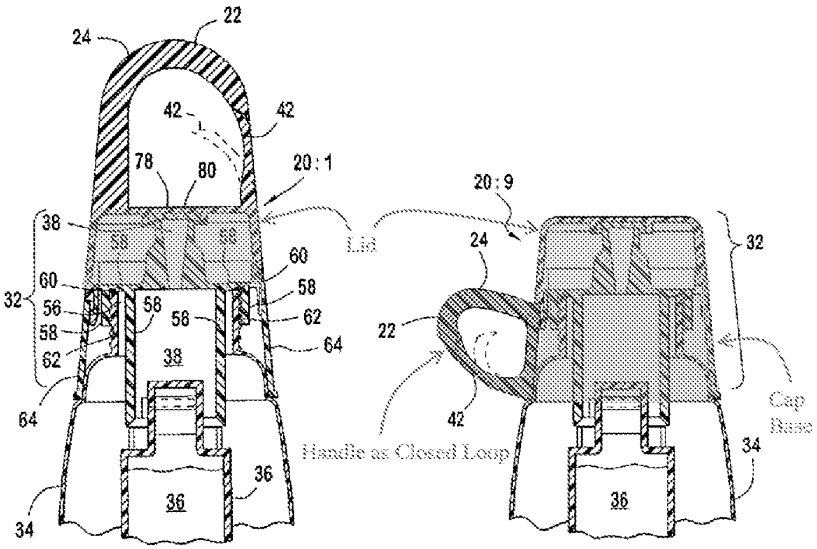


As shown above, "handle 20 is generally U-shaped." Ex. 1014 at 2:69-70. "In the preferred embodiment handle 20, as can be seen in FIG. 2, extends upwardly from the lugs 22 for a short distance and then outwardly away from the overcap 18 so that its maximum height does not exceed that of the overcap.... Also, this handle configuration enables the containers to [] be grasped quite readily both for pouring and for carrying." *Id.* at 3:15-23. Anderson directly addresses accessibility by a user's finger into the closed-loop handle 20, as recited in [7.2]: "[A] plastic handle of generally U-shaped configuration and attached at its ends to points along the edge of said base, said handle rising upwardly from said base to the height of said overcap, and then horizontally away from said

cap to provide full finger access without interference with movements of said overcap." *Id.* at 5:35-41.

It would have been obvious to have included the handle as disclosed in Anderson on the cup 10 of McDonough at least to provide a more convenient means for carrying the container than simply grasping its body. As noted in Anderson, its U-shaped handle that extends outwardly "enables the containers to [] be grasped quite readily" for carrying and provides "full finger access without interference with movements of said overcap." *Id.* at 3:15-23, 5:35-41. Applied to McDonough, such a handle would make carrying more efficient and avoid interference with lid 22 and, particularly, straw positioning mechanism 20 and straw 14 to minimize the risk of contamination by handling. In addition, by being molded together as plastic with its cap in one option of Anderson, handle 20 would combine efficiently with lid 22 in McDonough.

Roth also teaches and suggests the subject matter of claim 7. Roth discloses a closure for a beverage container in the same field of endeavor as McDonough and the '255 Patent. In a first embodiment shown in Roth's FIG. 2, a looped connector 24 is formed on a pivotal lid 28 of the closure body and may incorporate a snap hook 22 for attaching the bottle 34 to an object such as a backpack. But Roth explains that the looped connector may be positioned elsewhere on closure body 32, such as laterally from annular shroud 64 of base portion 26: "As shown in FIG. 1 the connector 24 preferably extends generally upwardly from the lid 28. However, those of ordinary skill in the art will appreciate from this disclosure that the connector 24 can extend from a lateral side of the closure body 32 or from a lateral side of the annular shroud 64 without departing from the scope of the present invention." Ex. 1015 ¶ [0031]. FIG. 11A illustrates an embodiment in which the looped connector extends laterally from the annular shroud 64 of base portion 26 separate from and beneath lid 28: "FIG. 11A is [in] cross-section a view similar to that of FIG. 3 illustrating an alternative embodiment of a closure according to the present invention in which the snap hook is disposed on a side of the closure." *Id.* ¶ [0018]. A comparison of FIGS. 3 and 11A in Roth shows the positioning of connector 24 extending laterally from the cap assembly base, i.e., base portion 26, as claimed:



Roth FIG. 3 **Roth FIG. 11A**

Additionally, connector 22 in FIG. 11A extends in the claimed "fixed orientation" of [7.1] as Roth teaches that "[i]t is preferred that the snap hook 22 is integrally formed with the closure body 32" (*id.* ¶ [0032]), and FIG. 11A shows connector 22 having its snap lever 42 lateral to and apart from base portion 26. And as illustrated in FIG. 11A, connector 22 has the shape of a closed loop on the cap assembly base and forms an aperture, as required by [7.2]. An object, including a user's finger, may be inserted through the aperture to carry bottle 34. *See, e.g.*, *id.* ¶ [0034] ("A user attaches the bottle closure 20:1 to an object, such as a backpack strap, by depressing the snap lever 42 to allow the back pack strap or the like to be placed within the snap connector 22. Once the closure 20:1 and any accompanying bottle is secured, a user may carry the closure 20:1 with ease.").

It would have been obvious to have included the handle as disclosed in Roth on the cup 10 of McDonough at least to provide a more convenient means for carrying the container than simply grasping its body. In addition to providing a loop for handling drinking cup 10 of McDonough, the snap hook 22 within connector 24 in Roth would provide an additional incentive for more easily and securely attaching and detaching the cup to an object such as a belt loop or purse strap, as explained at length in Roth. *See, e.g.*, Ex. 1015 ¶¶ [0004], [0044]. Further, Roth teaches that "the closure body 32 and the snap hook 22 are formed by a suitable polymer" (*id.* ¶ [0032]), making the handle in Roth a natural combination for use with lid 22 in McDonough.

Therefore, McDonough in view of Anderson or Roth teaches and suggests all limitations of claim 7 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

D. Ground 4: Toudou Anticipates, or Would Have Rendered Obvious, Claims 1, 3-5, 8, 13, 18, and 19

As explained below, Toudou anticipates claims 1, 3-5, 8, 13, 18, and 19 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious those claims under 35 U.S.C. § 103(a) (pre-AIA).

1. Claim 1

[1.pre] A drink container, comprising: [1.1] a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

To the extent the preamble is limiting, Toudou describes the claimed drink container in the form of PET bottle 12, as shown in FIG. 4, for example. Ex. 1008 ¶ [0011] ("The reference numeral 12 is a PET bottle, and 13 is an internal liquid filled in the PET bottle 12."). As to [1.1], FIG. 4 illustrates a standard bottle holding water that narrows into a neck leading to a threaded opening. As stated in the reference: "Each of the abovementioned embodiments describes the case where the present invention is applied to a pouring opening provided with a male screw of a PET bottle filled with natural water or the like as an example; however, if an alternative structure of a female screw is used, it can also be applied to other bottles such as water bottles and baby bottles." *Id.* ¶ [0027]; *id.* at Abstract ("The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, …").

[1.2] a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines

Toudou discloses a cap assembly in the form of bottle cap 1 that is removably coupled by screwing to cover the opening of a bottle 12. *Id.* at Abstract ("The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle, …"). The reference explicitly explains the removability of its cap assembly over the opening of the fluid container: "After removing the dedicated cap covering the pouring portion of the PET bottle 12, the straw 11 connected to the liquid passing cylinder 2d is inserted into the pouring portion. The female screw 2c of the bottle

cap 1 in the closed state as shown in FIG. 2 is screwed into the male screw of the pouring portion, and the packing 2e interposed on the surface in contact with the pouring portion is attached by tightening." Ex. 1008 ¶ [0016].

[1.2.1] a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes [1.2.2] an inlet through which drink fluid from the fluid container may enter the fluid conduit, and [1.2.3] a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

Toudou discloses the claimed fluid conduit for drink fluid to flow from the container to the user via bottle cap 1. In particular, a flow path for liquid 13 to flow upward from bottle 12 to a user passes through straw 11, through vertical liquid passing cylinder 2d (illustrated for first embodiment in FIG. 4), and through spout 3 and out suction port 32, as shown in annotated FIGS. 4 (first embodiment) and 8(b) (third embodiment) below.

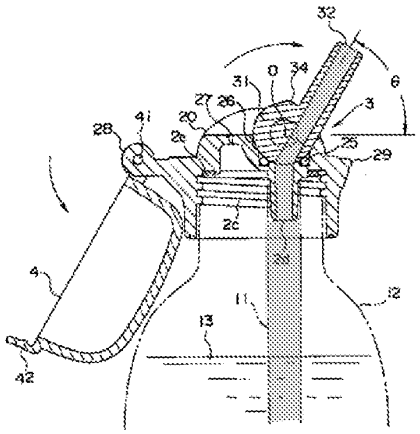


FIG. 4: First Embodiment

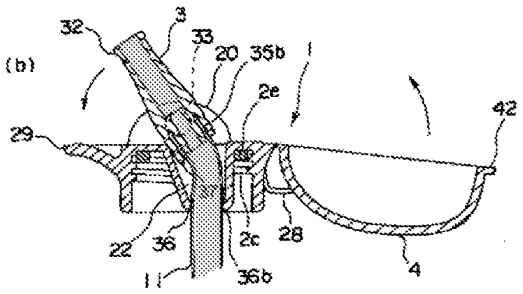


FIG. 8(b): Third Embodiment

As for [1.2.2], the inlet through which drink fluid may enter the fluid conduit is the tip of straw 11 immersed in the water 13. "[T]he tip of the straw 11 inserted into the PET bottle 12 is sunk to the bottom and immersed in the deepest part of the internal liquid 13 (not shown here)." Ex. 1008 ¶ [0016]. Along the flow path, the end of straw 11 opposite the tip immersed in the liquid 13 is attached to a liquid passing cylinder 2d of the cap in the first embodiment or to a cylindrical groove 35b of the base portion 31 of nozzle 3 in the third embodiment. For the first embodiment: "The straw 11 is detachably connected to the liquid passing cylinder 2d, and the tip thereof is immersed in the internal liquid 13, …" *Id.* ¶ [0012]; *id.* ¶ [0012] ("2d is a vertical liquid passing

cylinder protruding downward and provided with a passage for the internal liquid 13 penetrating therethrough …"). For the third embodiment: "A cylindrical groove 35b is formed in the base portion 31 of the nozzle 3, and the straw 11 is slightly rigidly connected to the inner cylinder surrounded by the cylindrical groove 35b." *Id.* ¶ [0023].

With respect to [1.2.3], a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user in Toudou is the tip of suction port 32 on nozzle 3. *Id.* ¶ [0014] ("The other end of the flow path … penetrates through the suction port 32 and opens at the tip, …"). Annotated figures for several embodiments below illustrate the dispensing outlet for the fluid conduit in Toudou.

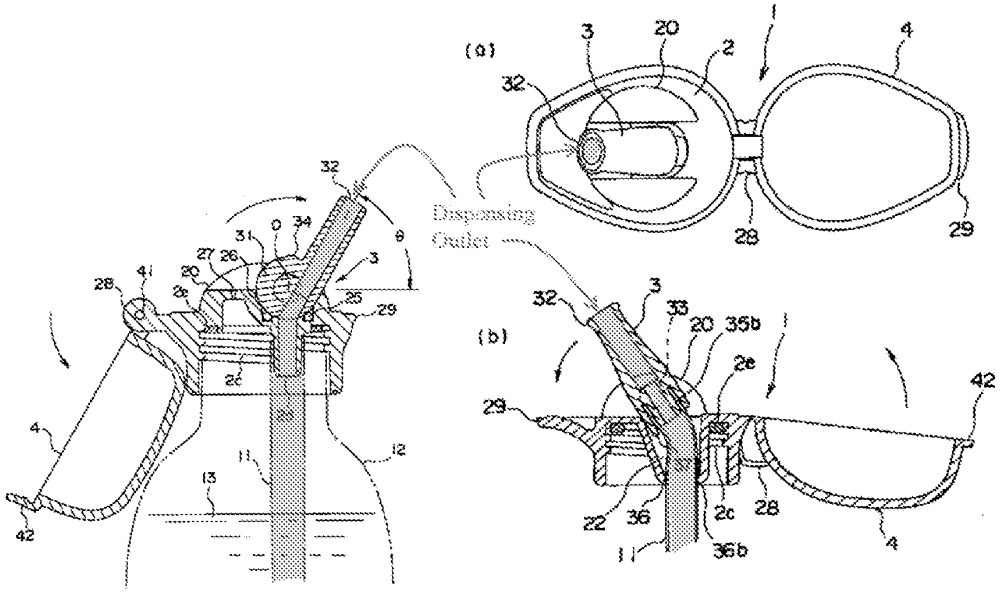


FIG. 4: First Embodiment FIGS. 8(a) and (b): Third Embodiment

[1.3] a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

Toudou discloses the claimed cap assembly base in the form of main body 2 of a bottle cap 1 that is removably coupled and decoupled with threads to the pouring opening of fluid container 12, as shown in FIGS. 4 and 7 below. "The reference numeral 2 is the main body of the bottle cap 1…. Reference numeral 2a is the inner surface side of the cap-type main body 2, and 2b is the outer surface side. Reference numeral 2c is a female screw provided on the inner surface side 2a,…" Ex. 1008 ¶ [0012].

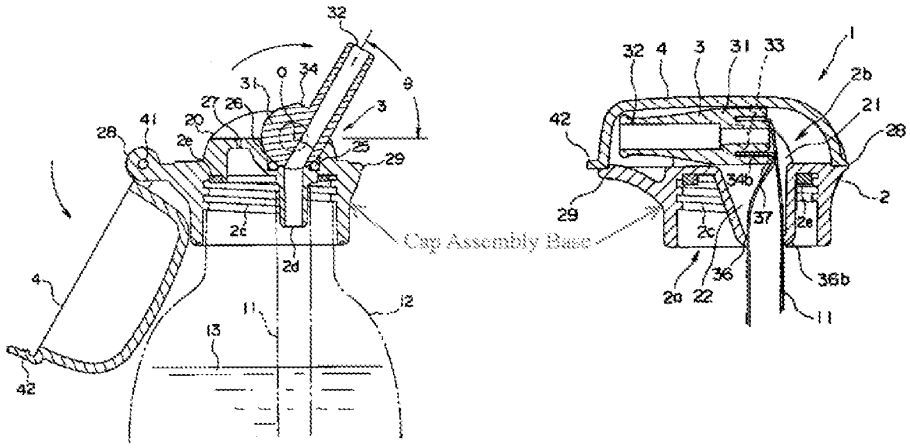


FIG. 4: First Embodiment FIG. 7: Third Embodiment

The main body 2 of the bottle cap 1 is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container, as claimed, using threads. *Id.* at Abstract ("The present invention is constituted of a bottle cap with a nozzle, which is detachably installed by screwing a female screw into the pouring opening of the internal liquid of a bottle."). *See id.* ¶ [0016] ("After removing the dedicated cap covering the pouring portion of the PET bottle 12, the straw 11 connected to the liquid passing cylinder 2d is inserted into the pouring portion. The female screw 2c of the bottle cap 1 in the closed state as shown in FIG. 2 is screwed into the male screw of the pouring portion, and the packing 2e interposed on the surface in contact with the pouring portion is attached by tightening.").

[1.4] a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base,

Toudou discloses the claimed pivotal mount in the form of pivotal nozzle 3. Nozzle 3 is coupled to cap base 2 via rotation shafts 33 within bearings 23, as shown on annotated FIGS. 1 and 7 below.

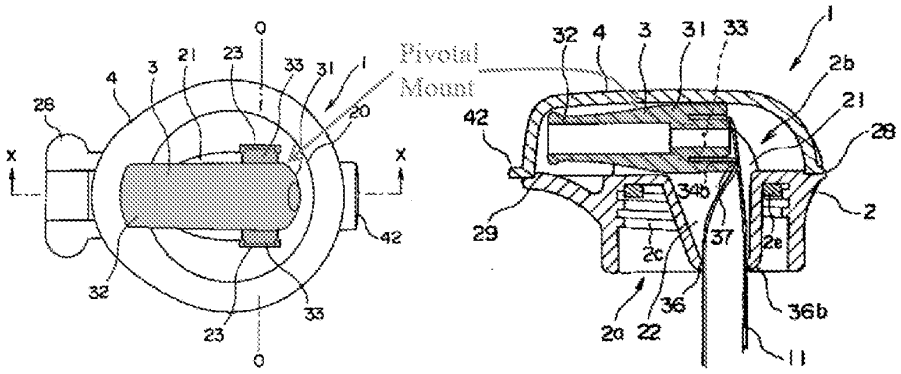


FIG. 1 FIG. 7

A comparison of FIGS. 7 and 8b in Toudou, for instance, illustrates the pivotal movement of nozzle 3 about shaft 33 and axis O-O relative to the cap assembly base, i.e., main portion 2 of cap 1. The reference further explains the pivotal movement: "The base portion 31 is formed of a spherical surface corresponding to storage portion 22 of the main body 2, and on the spherical surface, a pair of boss-shaped rotation shafts 33 are symmetrically projected in the direction intersecting with the extending direction of the suction port 32." Ex. 1008 ¶ [0014]. "In this way, the nozzle 3 mounted on the outer surface side 2b of the main body 2 rotates about the rotation shaft 33 in an angular range of about 120 degrees…." *Id.* ¶ [0015]. "In addition, the shaft support structure of the nozzle 3 in which the nozzle 3 rotates around the rotation shaft 33 up and down is similar to that of the first embodiment." *Id.* ¶ [0023]. "When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33." *Id.* ¶ [0024]; *compare* Ex. 1008 (Toudou), FIGS. 7 and 8(b) *with* Ex. 1001 ('255 Patent), FIGS. 29 and 28.

[1.4.1] wherein the pivotal mount includes a pair of lateral projections, [1.4.2] wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

The pivotal mount in Toudou, i.e., nozzle 3, includes a pair of lateral projections as recited in [1.4.1] in the form of rotation shafts 33. Annotated FIGS. 1 and 7 below illustrate the rotation shafts 33 that extend along axis O-O orthogonally to the longitudinal direction of nozzle 3 and central shaft axis Y1-Y1 that passes through straw 11. FIG. 1 is a top view of the first embodiment showing rotation shafts 33, or projections, at the sides of nozzle 3; FIG. 7 is a cross-sectional side view of the third embodiment showing one of the rotation shafts 33 coming from a side of nozzle

3 in plane out of the page. Toudou confirms this aspect of the bottle cap applies to both the first and third embodiments: "In addition, the shaft support structure of the nozzle 3 [for the third embodiment] in which the nozzle 3 rotates around the rotation shaft 33 up and down is similar to that of the first embodiment." Ex. 1008 ¶ [0023].

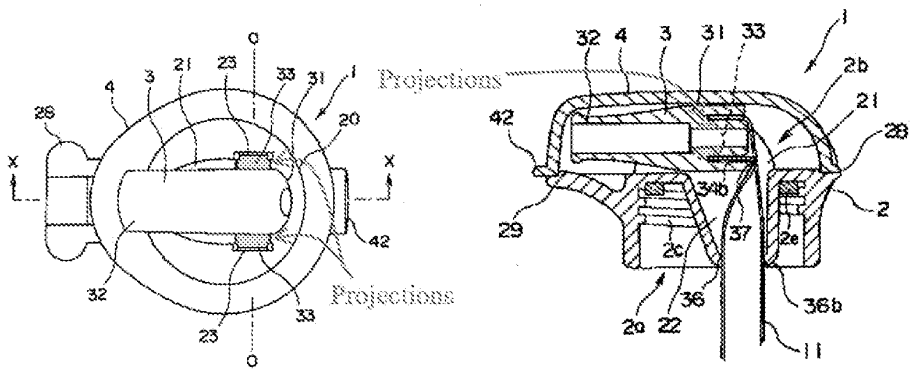


FIG. 1 FIG. 2

The text of Toudou elaborates on the presence of a pair of lateral projections, i.e., shafts 33, as part of a pivotal mount within cap body 2 and how they rotate. "The present invention is constituted of a bottle cap with a nozzle … provided with a suction port at its tip and rotation shafts on both sides of the base portion…." *Id.* at Abstract. "The base portion 31 is formed of a spherical surface corresponding to storage portion 22 of the main body 2, and on the spherical surface, a pair of boss-shaped rotation shafts 33 are symmetrically projected in the direction intersecting with the extending direction of the suction port 32." *Id.* ¶ [0014].

As to [1.4.2], the pair of lateral projections 33 in Toudou extend into a pair of sockets 23 defined by the cap base, as claimed. Toudou describes sockets 23 as substantially U-shaped grooves formed in a support portion 20 of the cap base aligned with a rotational axis O-O of shafts 33: "Reference numeral 23 is a substantially U-shaped groove-like bearing formed to face the horizontal direction (the front-back direction in FIG. 3) and is orthogonal to the central shaft Y1-Y1 and constitutes the shaft center O-O of the rotation shaft of the nozzle 3 described below." *Id.* ¶ [0013]. The rotation shafts are inserted into the bearings. *Id.* at [Claim 1] ("a bearing formed on the opposing side of the support portion, through which the rotation shaft can be inserted,…").

FIGS. 1 and 3, annotated below, show the pair of sockets, i.e., bearings 33, into which a pair of lateral projections, i.e., shafts 33, extend, as claimed in [1.4.2]. FIG. 3 is a cross-sectional side view of the cap body without nozzle 3 showing one a U-shaped bearing 23, i.e., a socket; FIG.

1 is a top view of the first embodiment showing rotation shafts 33, or projections, at the sides of nozzle 3 extending into bearings 33, or sockets, for rotation. "[T]he shaft support structure of the nozzle 3 [for the third embodiment] in which the nozzle 3 rotates around the rotation shaft 33 up and down is similar to that of the first embodiment." *Id.* ¶ [0023]; *compare* Ex. 1008 (Toudou), FIGS. 7 and 8(b) *with* Ex. 1001 ('255 Patent), FIGS. 29 and 28.

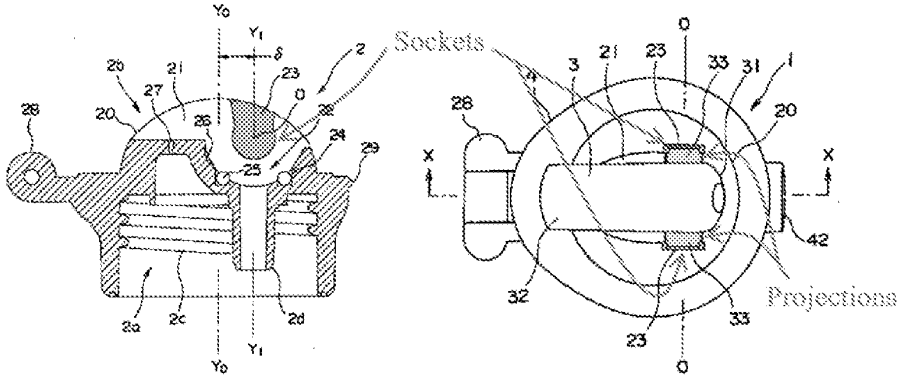


FIG. 3 FIG. 1

[1.5] a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base,

Toudou discloses a resilient mouthpiece in the form of suction port 32 coupled to the pivotal mount, i.e., nozzle 3, by being integrated with nozzle 3 for pivotal movement with nozzle 3 relative to the cap assembly base, i.e., main body 2 of bottle cap 1. *See* Ex. 1008 at Abstract ("bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion … wherein the flow path of the internal liquid is opened or closed in connection with tup and down motion associated with the rotation of the nozzle."). Toudou states that its bottle cap 1 is made of soft polypropylene or similar materials: "Polypropylene or the like is used as the material of the bottle cap 1 and is molded with a slightly soft resin material that is hard to break." Ex. 1008 ¶ [0011]. Moreover, Toudou indicates that its bottle cap "can also be applied to other bottles such as water bottles and baby bottles." *Id.* ¶ [0027].

Toudou discloses, suggests, and renders obvious that its mouthpiece is "resilient" as claimed. Indeed, it necessarily follows that a "suction port" for sucking liquid from a bottle, "molded with a slightly soft resin material," and applicable to "baby bottles" is a resilient mouthpiece as claimed. *See Titanium Metals*, 778 F.2d at 781. As a material such as polypropylene

molded from a slightly soft resin material, suction port 32 would be plastic deformable from compressive forces. Moreover, to accommodate use by infants using a baby bottle, suction port 32 must necessarily have a resilient composition to permit pliable suction and biting for a young mouth, as is conventionally known for teats and other mouthpieces on baby bottles. *See, e.g.,* Ex. 1009 (Wright), Ex. 1010 (Phlaphongphanich), Ex. 1011 (Tupper), Ex. 1012 (Heise), Ex. 1013 (Canham). Therefore, it would have been a natural, and obvious, property of suction port 32 based on the disclosure of Toudou for suction port 32 made of slightly soft resin material to be resilient in response to compressive forces.

Additionally, other prior-art documents confirm that a polypropylene mouthpiece on a drink bottle as in Toudou would be resilient. *See Continental Can*, 948 F.2d at 1268; MPEP § 2131.01. For example, Dark (Ex. 1004) discloses a sport drinking bottle having a cap with a valved straw leading to a drinking spout 3. Spout 3 extends horizontally in a closed position when pivoted down into a U-shaped recess 10 within a cap base 7, where splines 15 on the spout help latch the spout into the recess. *Id.* at 4:7-10, 5:22-30. The bottle cap including spout 3 is "formed of one-piece of plastic material, suitably polypropylene" (*id.* at 3:8-10, 8:50-54), which Dark describes as being resilient: "The downward force exerted by the user must be sufficient to … through the splines, inwardly resiliently compress the spout, in order to move the spout down past the horizontal portion of barbs 16 and latch it in place." *Id.* at 5:51-56. The polypropylene mouthpiece then resiliently returns to its original shape: "Once splines 15 have moved past the tapered portion of the barbs, the flexed surfaces [on the spout] elastically return to their original shape and the barbs overlie the splines." *Id.* at 5:57-69. Accordingly, the Office concluded during prosecution of the '255 Patent that the polypropylene spout in Dark is a "resilient mouthpiece," as claimed (Ex. 1003 at 104), and the Applicant did not traverse this conclusion. *Id.* at 140-49.

Thus, Toudou inherently discloses and renders obvious the properties of its suction port 32 being a "resilient" mouthpiece in view of its formation from "slightly soft resin material" such as polypropylene and being applicable to "baby bottles." In addition, this inherent property of [1.5] for suction port 32 would have been evident in view of Dark for a spout having similar structure, composition, and function.

[1.5.1] wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

Toudou discloses that suction port 32 within nozzle 3 pivots about axis O-O defined by rotation shafts 33 rotating in bearings 23. Ex. 1008 ¶ [0013] ("Reference numeral 23 is a substantially U-shaped groove-like bearing formed to face the horizontal direction (the front-back direction in FIG. 3) and is orthogonal to the central shaft Y1-Y1 and constitutes the shaft center O-O of the rotation shaft of the nozzle 3 described below."). In the annotated figures below, FIG. 1 depicts the axis O-O through rotation shafts 33, and the dashed arrows show the pivoting of suction port 32 and nozzle 3 for the third embodiment as the pair of lateral projections, i.e., rotation shafts 33, rotate within the pair of sockets, i.e., bearings 33:

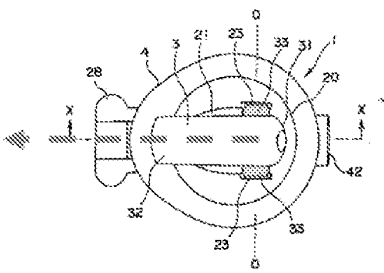


FIG. 1

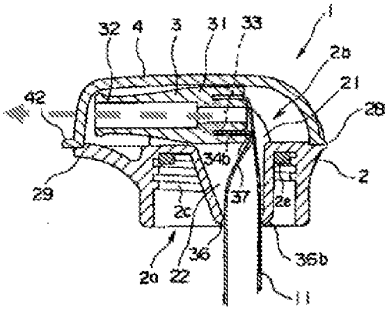


FIG. 7

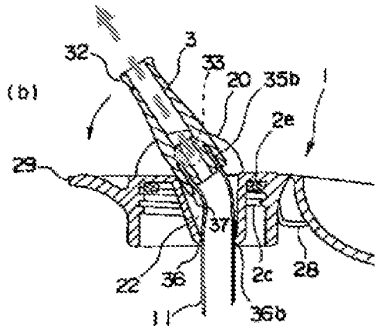


FIG. 8(b)

"In this way, the nozzle 3 mounted on the outer surface side 2b of the main body 2 rotates about the rotation shaft 33 in an angular range of about 120 degrees so that the upper limit of the rotation angle corresponds to a desired rising angle θ described below and makes the suction port 32 up and down." *Id.* ¶ [0015]; *compare* Ex. 1008 (Toudou), FIGS. 7 and 8(b) *with* Ex. 1001 ('255 Patent), FIGS. 29 and 28.

[1.5.2] wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

Pivotal mount, i.e., nozzle 3, in Toudou includes an opening at the end of resilient mouthpiece, i.e., suction port 32, for dispensing liquid extracted from bottle 12, as illustrated below in annotated figures from Toudou. Ex. 1008 at Abstract ("The present invention is constituted of a bottle cap with a nozzle, … comprising: a nozzle provided with a suction port at its tip …"); *id.*

¶ [0014] ("The other end of the flow path … penetrates through the suction port 32 and opens at the tip, …").

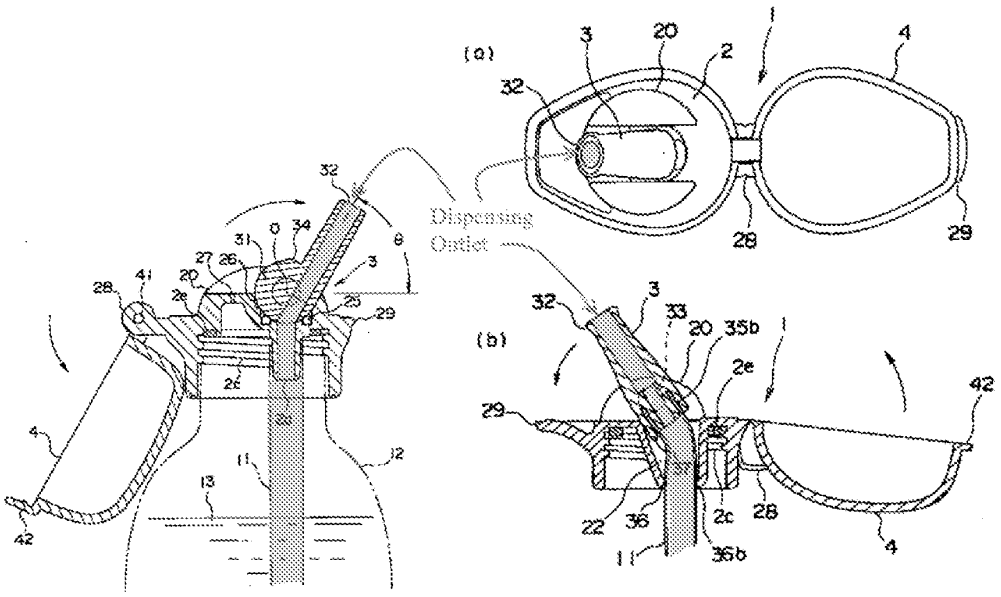
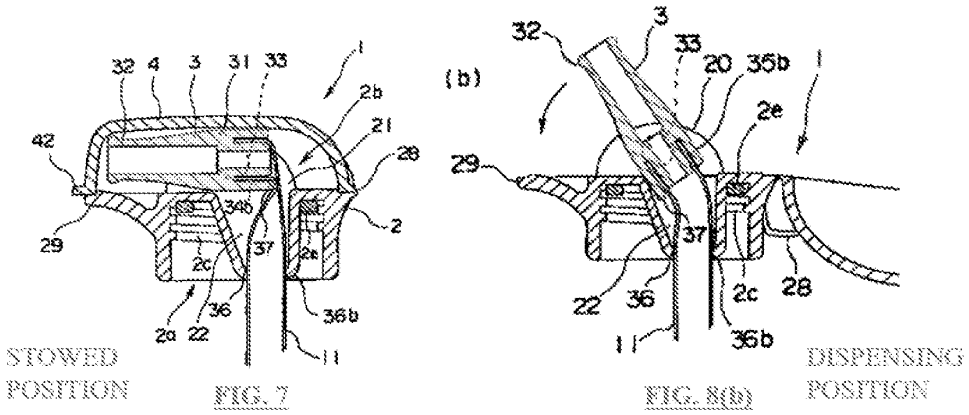


FIG. 4: First Embodiment FIGS. 8(a) and (b): Third Embodiment

[1.6] wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further [1.6.1] in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

Toudou discloses that resilient mouthpiece, i.e., suction port 32, and pivotal mount, i.e., nozzle 3, are selectively pivoted between a stowed position and a dispensing position, for example, as lid 4 is opened and closed in the third embodiment. FIGS. 7 and 8(b), annotated below, illustrate this movement:



The text of Toudou explains this pivoting. For moving into a stowed position:

> Now, as shown in FIG. 8 (b), when the lid 4 is rotated about 150 degrees in the direction of an arrow around the hinge 28 as the fulcrum when the nozzle 3 is standing in the open state, the inner surface of the lid 4 comes into contact with the suction port 32. When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33. Then, when the latching piece 42 of the lid 4 under the resistance force of the straw 11 is latched onto the latching portion 29, the nozzle 3 comes out of the inverted conical portion and becomes a prone state as shown in FIG. 7 to be stored in the storage groove 21.

Ex. 1008 ¶ [0024]. And, for moving into the dispensing position: "Conversely, when the latching of the hinge portion 28 is released, the nozzle 3 pressed by the lid 4 follows the opening of the lid 4 by the restoring force of the straw 11 and is automatically raised as shown in FIG. 8 (b) from the state shown in FIG. 7." *Id.* ¶ [0025].

With respect to [1.6.1], as shown at least FIGS. 7 and 8(b), the tip of suction port 32 coupled to nozzle 3 is positioned farther away from cap assembly base 2 when suction port 32 and nozzle 3 are in an open position (FIG. 8(b)) than when in a stowed or prone position (FIG. 7), as claimed.

[1.6.2] wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

As discussed above for [1.5], Toudou indicates that bottle cap 1 is made of soft polypropylene or the like. Ex. 1008 ¶ [0011]. ("Polypropylene or the like is used as the material of the bottle cap 1 and is molded with a slightly soft resin material that is hard to break….

Furthermore, 11 is a straw using a rubber-like elastic resin such as a silicone tube."). Toudou also teaches that its pivotal cap "can also be applied to other bottles such as water bottles and baby bottles." (*id.* ¶ [0027]), and baby bottles by definition have resilient nipples or other mouthpieces compressible by teeth. *See, e.g.*, Ex. 1009 (Wright), Ex. 1010 (Phlaphongphanich), Ex. 1011 (Tupper), Ex. 1012 (Heise). As a result, a natural and necessary—and obvious—property of the polypropylene in suction port 32 as taught by Toudou would be to "resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth," as claimed. Otherwise, suction port 32 would be effectively unusable on "baby bottles" as Toudou advocates.

Additionally, Dark (Ex. 1004) confirms this inherent (or obvious) property of a polypropylene mouthpiece as in Toudou. Dark discloses that a downward force from a user on its polypropylene spout must be sufficient to "inwardly resiliently compress the spout" as it is latched into a closed position, after which "the flexed surfaces elastically return to their original shape." Ex. 1004 at 5:51-69. These compressive forces in snapping closed the spout are likely much less than the compressive forces applied by a user's teeth. Thus, it follows from Dark, that a polypropylene spout as in Toudou would include the ability to deform or "to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth," as recited in [1.6.2].

Significantly, the Office concluded during prosecution of the '255 Patent that the polypropylene spout in Dark would possess the properties recited in [1.6.2]. Ex. 1003 at 104. As stated in the Office Action of August 2, 2019, "the resilient mouthpiece (3a) is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth (a user can bite the plastic mouth piece and the natural tendencies of plastic make it resilient)." *Id.* The Applicant did not traverse this conclusion from the Office and chose to incorporate dependent subject matter to obtain an allowance of the claims. *Id.* at 140-49, 152, 154.

Thus, Toudou inherently discloses and renders obvious the properties of its suction port 32 being "adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth" in view of its formation from "slightly soft resin material" such as polypropylene and being applicable to "baby bottles." In addition, these inherent properties of [1.6.2] for suction port 32 would have been evident in view of Dark for a spout having similar structure, composition, and function, particularly in view of the Office's positions regarding Dark during original prosecution.

[1.7] a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and [1.7.1] an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet;

Toudou discloses a manual on/off valve for its third embodiment in two variations. In the first variation, the manual on/off valve is a ridge or projecting portion 37 on the lower edge of base 31 of nozzle 3 and flexible straw 11 that obstructs the fluid conduit when in the stowed or prone position, as shown in annotated FIG. 7 here. As explained in Toudou, "In the third embodiment, … the flow path is closed by pressing the straw 11 with part of the nozzle 3, …" Ex. 1008 ¶ [0023]. "[I]n order to effectively block the flow path of the straw 11 when the nozzle 3 is prone, a projecting portion 37 is formed at least on the lower outer ring portion of the base portion 31." *Id.* Paragraph [0024] explains this manual on/off valve obstructing the fluid conduit as lid 4 is closed:

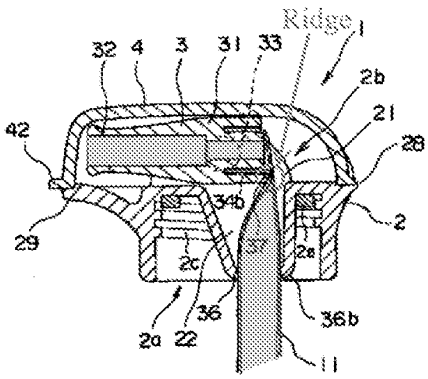


FIG. 7

> When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33. Then, when the latching piece 42 of the lid 4 under the resistance force of the straw 11 is latched onto the latching portion 29, the nozzle 3 comes out of the inverted conical portion and becomes a prone state as shown in FIG. 7 to be stored in the storage groove 21. At this time, the straw 11 near the connection portion is crushed based on the partial expansion difference due to the rotation of the nozzle 3, and the ridge 37 elastically presses the inner surface of the crushed portion to make it attached firmly. As a result, the internal flow path is automatically closed and thereby the internal liquid 13 is prevented from leaking.

In the second variation, Toudou discloses a manual on/off valve with an inclined tip or extended inner portion of the lower edge of base 31 of nozzle 3 and flexible straw 11 that obstructs the fluid conduit when in the stowed or prone position, as shown in annotated FIG. 8(c) here. Paragraph [0026] in Toudou thoroughly explains the operation of this second variation corresponding to claim element [1.7].

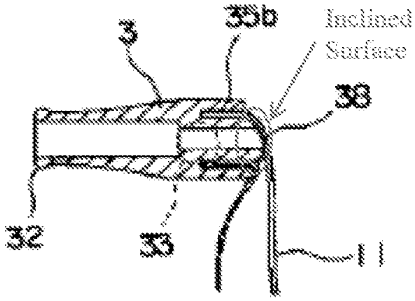


FIG. 8(c)

> FIG. 8 (c) shows a modified example of the flow path blocking mechanism according to the third embodiment. In other words, in FIG. 8 (c), an inclined surface 38 is formed at the cylinder tip of the inner ring portion of the base portion 31 of the nozzle 3 to which the straw 11 is connected. When the nozzle 3 is pressed by the closed lid 4 to lie down, the inner surface portion of the straw 11 which is strongly stretched due to the expansion difference in a manner similar to that described above is elastically pressed against the inclined surface 38. Therefore, by the pressure bonding of the inner surface portion, the flow path that is open to the inclined surface 38 is automatically closed, and the leakage of the inner liquid 13 is prevented.

Id. ¶ [0026]; *id.* ¶ [0010] ("The present invention is constituted of a bottle cap with a nozzle, … wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the pressing motion by the nozzle associated with the opening and closing of the lid member.").

For [1.7.1], Toudou also expressly explains that its manual on/off valve has an open configuration permitting drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet, as claimed. "[W]hen the latching of the hinge portion 28 is released, the nozzle 3 pressed by the lid 4 follows the opening of the lid 4 by the restoring force of the straw 11 and is automatically raised as shown in FIG. 8 (b) from the state shown in FIG. 7." *Id.* ¶ [0025]; *id.* ¶ [0023] ("when the lid is released, and an automatic undulating structure is employed in which the nozzle is automatically raised by the resilience of the straw 11"). "Now, as shown in FIG. 8 (b), when the lid 4 is rotated about 150 degrees in the direction of an arrow around the hinge 28 as the fulcrum when the nozzle 3 is standing in the open state…." *Id.* ¶ [0024]. FIG. 8(b), annotated here,

shows that the lifting of lid 4 leads to the rise of nozzle 3 and the release of elastic straw 11 by ridge 37, which clears the fluid conduit to pass liquid to the dispensing outlet at suction port 32. *Id.* ¶ [0028] ("The present invention is constituted of a bottle cap with a nozzle, … wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle."). This structure and function in Toudou is effectively the same as that disclosed in the '255 Patent for a manual on/off valve. *Compare* Ex. 1008 (Toudou), FIGS. 7 and 8(b) *with* Ex. 1001 ('255 Patent), FIGS. 29 and 28.

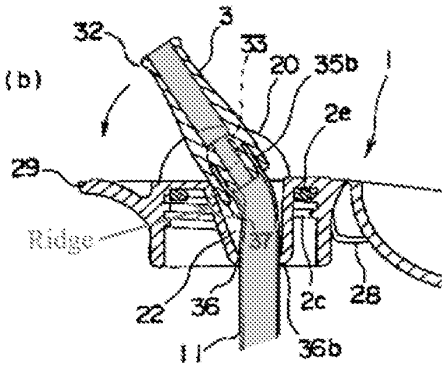


FIG. 8(b)

[1.7.2] wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;

The manual on/off valve in Toudou includes straw 11 that is part of the fluid conduit and is coupled to nozzle 3, as claimed in [1.7.2]. "[T]he flow path is closed by pressing the straw 11 with part of the nozzle 3, and when the lid is released, and an automatic undulating structure is employed in which the nozzle is automatically raised by the resilience of the straw 11." *Id.* ¶ [0023]; *see id.* ("A cylindrical groove 35b is formed in the base portion 31 of the nozzle 3, and the straw 11 is slightly rigidly connected to the inner cylinder surrounded by the cylindrical groove 35b."); *id.* ¶ [0012] ("The straw 11 is detachably connected to the liquid passing cylinder 2d, and the tip thereof is immersed in the internal liquid 13 …" *Id.* ¶ [0012].

Moreover, straw 11 is flexible: "Furthermore, 11 is a straw using a rubber-like elastic resin such as a silicone tube." *Id.* ¶ [0011]. "At this time, the straw 11 near the connection portion is crushed based on the partial expansion difference due to the rotation of the nozzle 3, and the ridge 37 elastically presses the inner surface of the crushed portion to make it attached firmly." *Id.* ¶ [0024].

[1.7.3] wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and [1.7.4] wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

See elements [1.7] and [1.7.1] above. Toudou discloses elements [1.7.3] and [1.7.4] at least in FIGS. 7 and 8(b), annotated below:

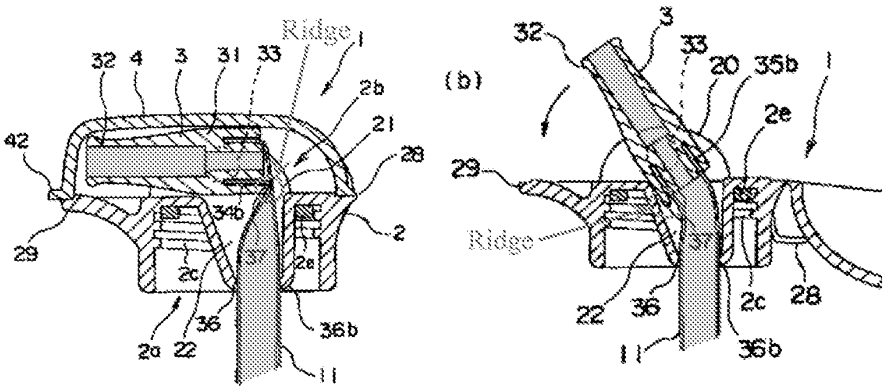


FIG. 7 FIG. 8(b)

For [1.7.3], Toudou describes that when nozzle 3 is closed into a prone position, flexible straw 11 is crimped to obstruct the flow of fluid, as shown in FIG. 7.

> When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33. Then, when the latching piece 42 of the lid 4 under the resistance force of the straw 11 is latched onto the latching portion 29, the nozzle 3 comes out of the inverted conical portion and becomes a prone state as shown in FIG. 7 to be stored in the storage groove 21. At this time, the straw 11 near the connection portion is crushed based on the partial expansion difference due to the rotation of the nozzle 3, and the ridge 37 elastically presses the inner surface of the crushed portion to make it attached firmly. As a result, the internal flow path is automatically closed and thereby the internal liquid 13 is prevented from leaking.

Id. ¶ [0024]; *id.* ¶ [0010] ("The present invention is constituted of a bottle cap with a nozzle, … wherein the flow path of the internal liquid is blocked by pressing the straw with part of the nozzle in connection with the pressing motion by the nozzle associated with the opening and closing of the lid member.").

For [1.7.4], Toudou describes that when nozzle 3 is in an open configuration flexible straw 11 is not crimped and does not obstruct the flow of drink fluid through the fluid conduit, as shown in FIG. 8(b). "Conversely, when the latching of the hinge portion 28 is released, the nozzle 3 pressed by the lid 4 follows the opening of the lid 4 by the restoring force of the straw 11 and is

automatically raised as shown in FIG. 8 (b) from the state shown in FIG. 7." *Id.* ¶ [0025]; *id.* ¶ [0024] ("Now, as shown in FIG. 8 (b), when the lid 4 is rotated about 150 degrees in the direction of an arrow around the hinge 28 as the fulcrum when the nozzle 3 is standing in the open state…"). "The present invention is constituted of a bottle cap with a nozzle, … wherein the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle." *Id.* ¶ [0028]. This structure and crimping action are effectively the same as the manual on/off valve disclosed in the '255 Patent. *Compare* Ex. 1008 (Toudou), FIGS. 7 and 8(b) *with* Ex. 1001 ('255 Patent), FIGS. 29 and 28.

As a result, Toudou anticipates claim 1 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

2. Claim 3

3. The drink container of claim 1, [3.1] wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position,

Toudou discloses two structures within its cap assembly, i.e., bottle cap 1, corresponding to the pair of lateral guards in claim 3. First, pivotal mount, i.e., nozzle 3, and its suction port 32 rests in a prone state within an arcuate storage groove 21 formed in support portion 20, and the "opposing wall surfaces" within groove 21 correspond with the claimed pair of lateral guards. "21 is an arcuate storage groove formed by horizontally cutting the top portion of the support portion 20 in the left-right direction. Due to the cutting of the storage groove 21, opposing wall surfaces in the front-rear direction are provided on the support portion 20." Toudou ¶ [0012]; *id.* ¶ [0015] ("the suction port 32 is stored in the storage groove 21 while lying down"); *id.* ¶ [0023] ("[A]s shown in FIG.1, the main body 2 has a substantially elliptical shape, and the support portion 20 having a circular dome shape is provided side by side on the outer surface side 2b to have a common structure."). FIG. 8(a), below right, indicates these support portions 20 with their horizontal cuts forming storage grooves 21 on lateral sides of nozzle 3 and suction port 32:

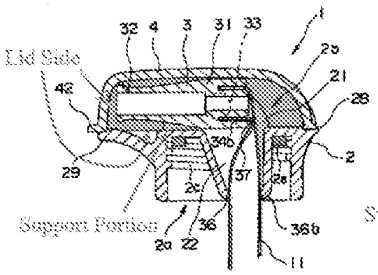


FIG. 7

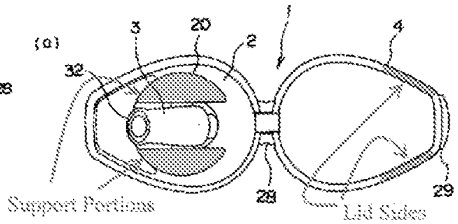


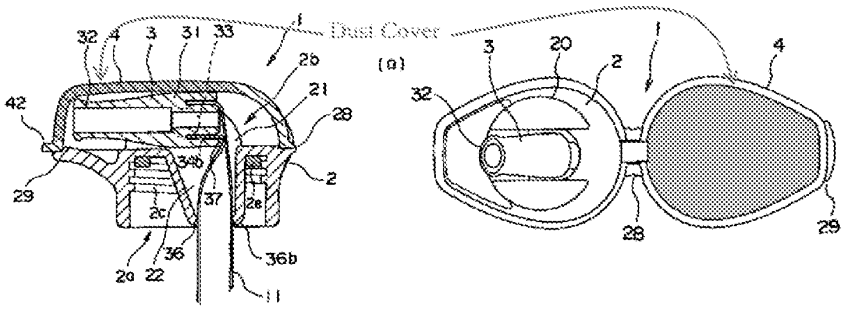
FIG. 8(a)

Second, Toudou includes a lid 4 that, when in a stowed position, has side walls extending laterally along nozzle 3 and suction port 32. FIG. 7 (prone state) and FIG. 8 (open state for first embodiment), shown above, illustrate the lid sides. *Id.* at Abstract ("a lid member mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body…."). As indicated at least in FIG. 8(a), these pair of lateral lid sides are not cylindrically shaped, but are substantially linear. Further, Toudou teaches that these lid structures help guard the mouthpiece: "Since the nozzle 3 is covered with the lid 4 in the stored state, no contact with clothes or the like occurs and dust is not attached, so that the hygienic state can be maintained." *Id.* ¶ [0018].

[3.2] and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

Toudou teaches that its cap assembly, i.e., bottle cap 1, includes a dust cover for a mouthpiece in the form of lid 4. A top surface and front surface of lid 4, shown below in annotated FIGS. 7 and 8(a), covers nozzle 3 and suction port 32 to protect them from dust and extends between the pair of lateral guards formed by opposing wall surfaces within storage groove 21. The claims do not require that the dust cover be connected to or integral with the lateral guards, and lid 4 when closed is positioned in the space separating the pair of opposing wall surfaces within storage groove 21. Alternatively, the top surface and front surface of lid 4 extends between the pair of lateral guards formed by the sides of lid 4, which also function as a "pair of lateral guards" and to which the top surface and the front surface are attached. Additionally, the top and front surfaces of lid 4 extend "across at least a portion of the dispensing outlet," as claimed. Toudou explicitly teaches that lid 4 protects the dispensing outlet of the mouthpiece, i.e. suction port 32,

as a cover from dust when in the stowed position: "After the drinking is finished, the upper space of the nozzle 3 stored in the storage groove 21 is covered with the lid 4 by the operation reversed to the above. Since the nozzle 3 is covered with the lid 4 in the stored state, no contact with clothes or the like occurs and *dust is not attached*, so that the hygienic state can be maintained." Ex. 1008 ¶ [0018] (emphasis added).



As a result, Toudou anticipates claim 3 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

3. Claim 4

4. The drink container of claim 3, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

In Toudou, when nozzle 3 is pivoted about shafts 33 as it rises from a stowed, or prone, position, to a dispensing position, suction port 32 pivots away from the dust cover, i.e., the top of lid 4. Specifically, FIGS. 7 and 8(b) illustrate that when nozzle 3 and suction port 32 pivot from the stowed position (FIG. 7) to the dispensing position (FIG. 8(b)), nozzle 3 pivots to be farther away from lid 4 comprising the dust cover to be accessible by the user, as annotated below.

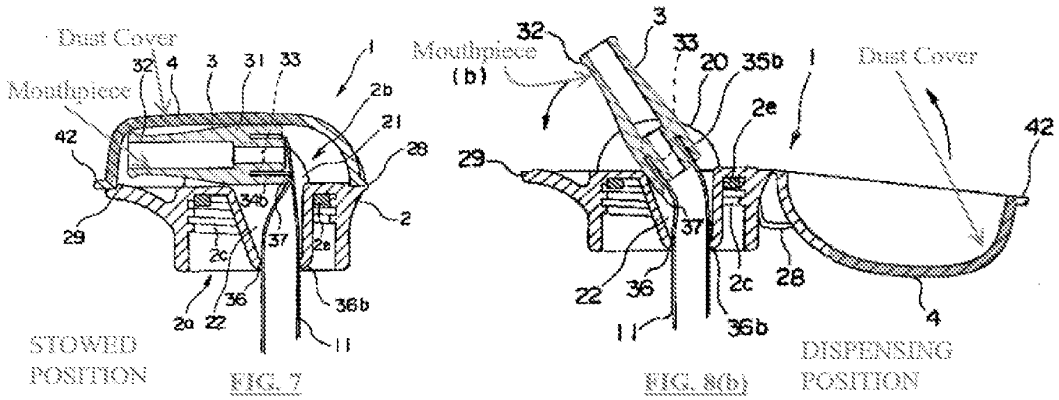


FIG. 7 FIG. 8(b)

According to Toudou, advantages follow from having an increased separation between suction port 32 and lid 4: "[S]ince the lid 4 in the open state and the sucking port 32 in a rising and inclined state face each other right and left and are held in opposite directions, nothing can interfere to drink the internal liquid 13 by sucking." Ex 1008 ¶ [0018]; *id.* ¶ [0027] ("[I]t is good enough as long as the suction port can be set on the opposite side of the lid and the rising angle θ of the nozzle 3 as described above may be set within an arbitrary acute angle, preferably at an angle of about 90 degrees."). For some embodiments, Toudou also teaches that a direction of pivoting as well as a distance for nozzle 3 from pivoting may be away from lid 4: "the rising direction of the nozzle is set to the direction opposite to the direction of the lid member when it is opened." *Id.* ¶ [0028].

As a result, Toudou anticipates claim 4 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

4. Claim 5

5. The drink container of claim 3, wherein the dust cover projects above an upper surface of the cap assembly base.

See [3.2] above. In Toudou, the dust cover, i.e., top of lid 4, projects above an upper surface of the cap assembly base, as shown here in annotated FIG. 7. "[A] lid member [is] mounted on the main body via a hinge in an openable and closable manner to cover the upper surface of the main body and thereby press the nozzle down when the lid is closed, …" Ex. 1008 ¶ [0030]. "Since the nozzle 3 is covered with the lid 4 in the stored state, no contact with clothes or the like occurs and dust is not attached, so that the hygienic state can be maintained." *Id.* ¶ [0018].

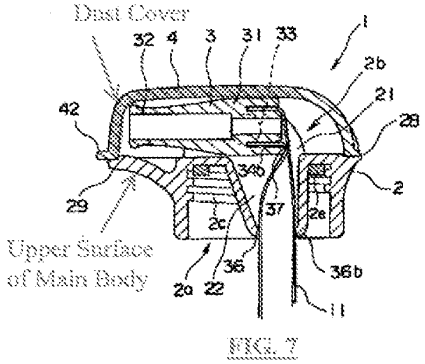


FIG. 7

As a result, Toudou anticipates claim 5 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

5. Claim 8

8. The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

For claim 8, Toudou discloses its resilient mouthpiece, i.e., suction port 32, being permanently secured to the pivotal mount, i.e., nozzle 3, by being integrated together in a single body. To be "permanently secured" generally refers to two structures connected or integrated together that cannot be separated without potentially destroying at least one of them or the mechanism that joins them. *See* Section II.E, *supra*. Toudou discloses a common structure of a nozzle 3 having a suction port 32 at its upper end and a base 31 at its lower end. Ex. 1008 ¶ [0014] ("the nozzle 3 is provided with a spherical base portion 31 and a suction port 32 extending tangentially from the base portion 31"); *id.* at FIGS. 7 and 8(b) (depicting contiguous structure for nozzle 3 and suction port 32). Being integrated into one piece, suction port 32 is "permanently secured" to nozzle 3 within the meaning of claim 8.

As a result, Toudou anticipates claim 8 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

6. Claim 13

13. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

With respect to claim 13, to the extent the broadest reasonable interpretation of a "dispensing face" of a mouthpiece includes a lipped rim of a tube, Toudou discloses a hole at the tip of suction port 32 on nozzle 3. As shown here in annotated FIG. 8(a), a tip of suction port 32 is a dispensing face of nozzle 3 under a broadest reasonable interpretation of "face," and the hole functions as the dispensing outlet for nozzle 3. As stated in Toudou, "The present invention is constituted of a bottle cap with a nozzle, … comprising: a nozzle provided with a suction port at its tip …" Toudou at Abstract. "The other end of the flow path … penetrates through the suction port 32 and opens at the tip, …" Ex. 1008 ¶ [0014].

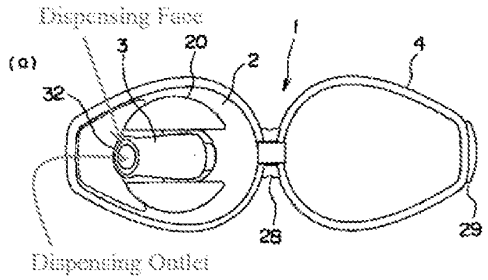


FIG. 8(a)

As a result, Toudou anticipates claim 13 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

7. Claim 18

18. The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

Toudou discloses that its pivotal mount [nozzle 3] is adapted to selectively engage the flexible tube [straw 11] to apply crimping forces and configure the manual on/off valve [lower edge of base 31 of nozzle 3 and straw 11] to the closed position as nozzle 3 is pivoted from a dispensing position to a stowed position. As explained in Toudou, "In the third embodiment, …

the flow path is closed by pressing the straw 11 with part of the nozzle 3, …" Ex. 1008 ¶ [0023]; Toudou at Abstract ("the flow path of the internal liquid is opened or closed in connection with the up and down motion associated with the rotation of the nozzle").

In one option, the manual on/off valve is a ridge or projecting portion 37 on the lower edge of base 31 of nozzle 3, which is illustrated in FIG. 7 below. Paragraph [0024] explains this manual on/off valve obstructing the fluid conduit as lid 4 is closed and nozzle 3 enters the stowed position, according to claim 18:

> When the lid 4 is further rotated, the nozzle 3 stretches the straw 11 having elasticity to apply resistance force to the lid 4 in the opposite direction and integrally rotates in the same direction around the rotating shaft 33. Then, when the latching piece 42 of the lid 4 under the resistance force of the straw 11 is latched onto the latching portion 29, the nozzle 3 comes out of the inverted conical portion and becomes a prone state as shown in FIG. 7 to be stored in the storage groove 21. At this time, the straw 11 near the connection portion is crushed based on the partial expansion difference due to the rotation of the nozzle 3, and the ridge 37 elastically presses the inner surface of the crushed portion to make it attached firmly. As a result, the internal flow path is automatically closed and thereby the internal liquid 13 is prevented from leaking.

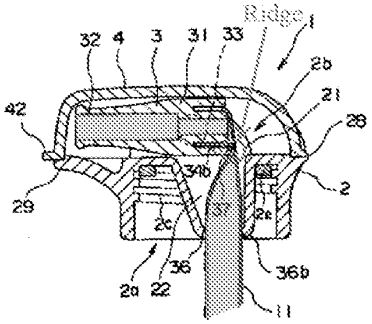


FIG. 7

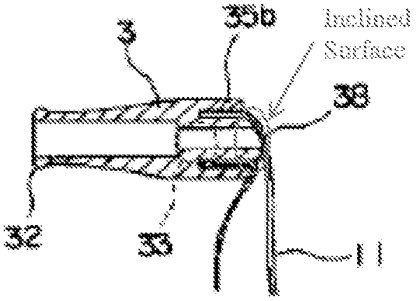


FIG. 8(c)

In another option, the manual on/off valve with an inclined tip or extended inner portion of the lower edge of base 31 of nozzle 3 and flexible straw 11 that obstructs the fluid conduit when in the stowed or prone position, which is shown in FIG. 8(c) above. Paragraph [0026] in Toudou explains the operation of this second variation corresponding to claim 18:

> FIG. 8 (c) shows a modified example of the flow path blocking mechanism according to the third embodiment. In other words, in FIG. 8 (c), an inclined surface 38 is formed at the cylinder tip of

> the inner ring portion of the base portion 31 of the nozzle 3 to which the straw 11 is connected. When the nozzle 3 is pressed by the closed lid 4 to lie down, the inner surface portion of the straw 11 which is strongly stretched due to the expansion difference in a manner similar to that described above is elastically pressed against the inclined surface 38. Therefore, by the pressure bonding of the inner surface portion, the flow path that is open to the inclined surface 38 is automatically closed, and the leakage of the inner liquid 13 is prevented.

As a result, Toudou anticipates claim 18 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

8. Claim 19

19. The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

As illustrated in FIGS. 7 and 8(b), the flexible tube, i.e., straw 11, in Toudou is secured to the pivotal mount of nozzle 3 by being rigidly connected within cylindrical groove 35b at the base 31 of nozzle 3. "A cylindrical groove 35b is formed in the base portion 31 of the nozzle 3, and the straw 11 is slightly rigidly connected to the inner cylinder surrounded by the cylindrical groove 35b." Ex. 1008 ¶ [0023]; *id.* ¶ [0019] ("35b denotes a cylindrical groove formed at the end portion [of base portion 31]. The cylinder surrounded by the cylindrical groove 35b constitutes a connecting portion with the straw 11."). FIGS. 7 and 8(b), annotated below, illustrate that tube 11 remains secured to base portion 31 as nozzle 3 pivots between a stowed position (FIG. 7) and a dispensing position (FIG. 8(b)):

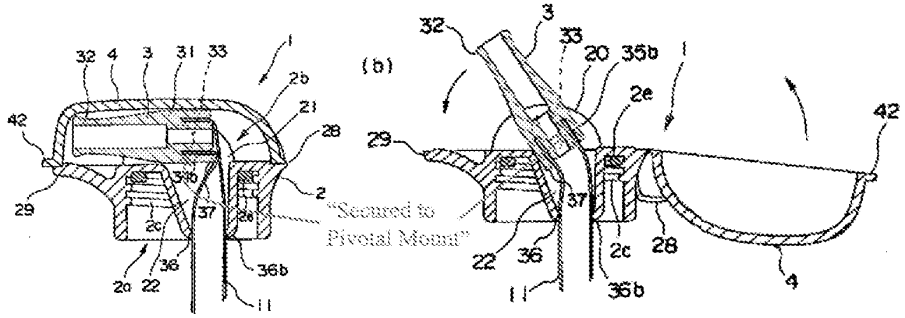


FIG. 7 FIG. 8(b)

As a result, Toudou anticipates claim 19 of the '255 Patent under 35 U.S.C. § 102(b) (pre-AIA) or, in the alternative, would have rendered obvious that claim under 35 U.S.C. § 103(a) (pre-AIA).

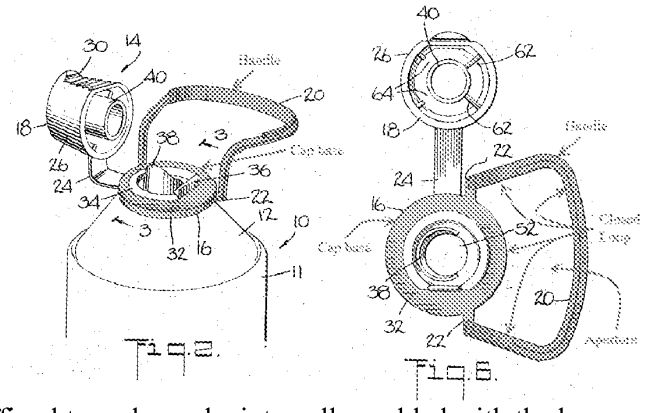
E. Ground 5: Toudou in View of Anderson Would Have Rendered Obvious Claim 6

As explained below, Toudou in view of Anderson would have rendered obvious claim 6 under 35 U.S.C. § 103(a) (pre-AIA).

6. The drink container of claim 3, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

Toudou and the alternative secondary references do not expressly disclose a handle associated with bottle cap 1 as recited in dependent claim 6. Anderson, which also discloses a closure for a liquid-dispensing container in the same field of endeavor as Toudou and the '255 Patent, discloses the handle for a container with the features recited in claim 6.

Specifically, Anderson discloses "a container closure for use in connection with spouted containers" that "neatly seal[s] and protect[s] a spouted container opening." Ex. 1014 at 1:47-52. "On the top of the container 10, … [a] novel cap arrangement is formed of a plastic material such as polyethylene and includes a circular base 16, fitted onto the top wall 12" of the container 10. *Id.* at 2:64-68. A handle 20 extends from the cap assembly base, i.e., from circular base 16, as claimed and shown below:



The "handle 20 is affixed to and may be integrally molded with the base portion 16 at outwardly protruding lugs 22 located at its periphery." *Id.* at 2:66-67; *see id.* at 2:13-15 ("In one of its aspects,

my invention includes the provision of a specially shaped handle preferably molded as an integral part of the base and captive cap."). Ex. 1014 at 2:69-72.

It would have been obvious to have included the handle as disclosed in Anderson on the bottle cap 1 of Toudou at least to provide a more convenient means for carrying the container than simply grasping its body—especially for children who have small hands. As noted in Anderson, its U-shaped handle that extends outwardly "enables the containers to [] be grasped quite readily" for carrying and provides "full finger access without interference with movements of said overcap." *Id.* at 3:15-23, 5:35-41. Applied to McDonough, such a handle would make carrying more efficient and avoid interference with lid 22 and, particularly, straw positioning mechanism 20 and straw 14 to minimize the risk of contamination by handling. In addition, by being molded together as plastic with its cap in one option of Anderson, handle 20 would combine efficiently with polypropylene main body 2 in Toudou.

Moreover, it would have been readily apparent that the relationships recited in claim 6 relating to the handle and the resilient mouthpiece would have resulted from combining the handle 20 of Anderson with the lid 22 of McDonough. Indeed, the handle 140 in the '255 patent and handle 20 in Anderson are highly similar:

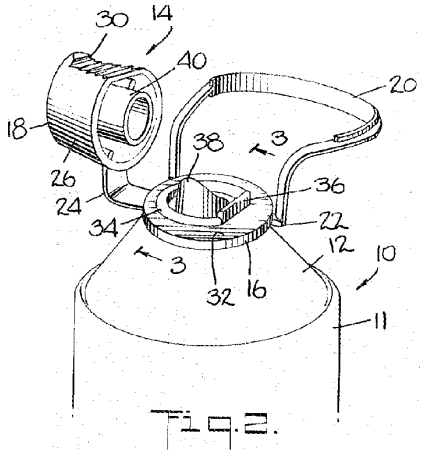
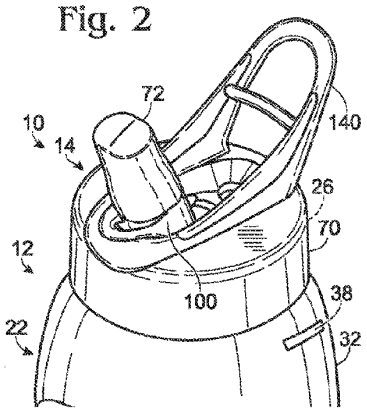


FIG. 2 of Anderson

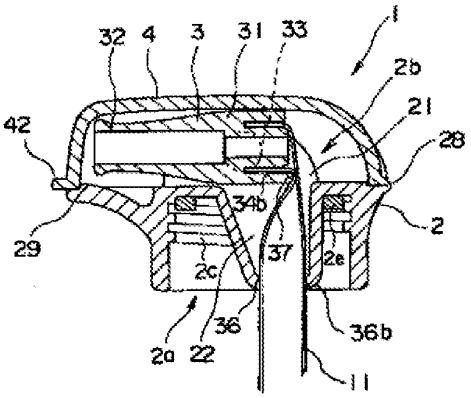


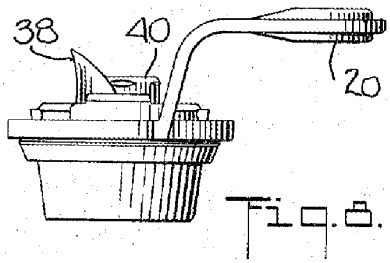
Portion of FIG. 2 of '255 Patent

For instance, in many implementations, applying handle 20 of Anderson to main body 2 of Toudou would have resulted in the sides of handle 20 being positioned on opposite sides of suction port 32 of nozzle 3 in Toudou and the outer end of handle 20 extending across at least a portion of the dispensing outlet of the tip of suction port 32, when nozzle 3 and suction port 32 are in the

stowed position. Thus, the sides of handle 20 would serve as "the pair of lateral guards" and the outer end of handle 20 would function as "the dust cover," as recited in claims 3 and 6.

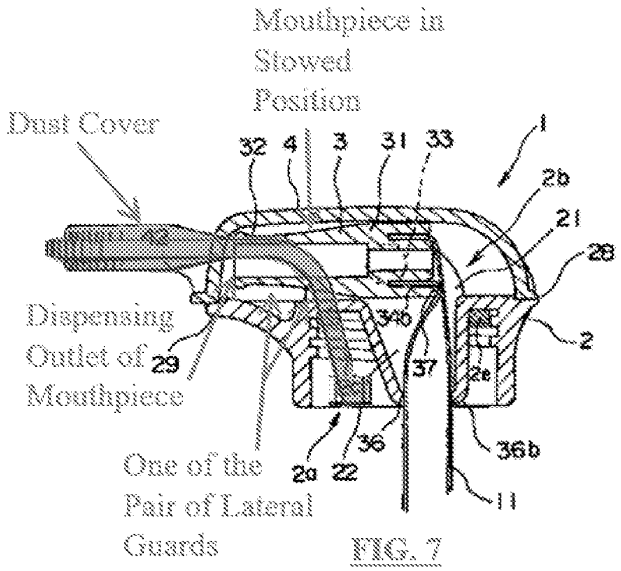
The figures below illustrate this combination. The figure on the left is a cross-sectional side view of the bottle cap 1 of Toudou in a stowed position, and the figure on the right is a side view of the cap and handle 20 of Anderson.





Toudou: FIG. 7 in Stowed Position **Anderson: FIG. 8 Side View**

Implementing handle 20 on main body 2 of Toudou would result in the following mockup of these figures:



Mockup of Anderson Handle 20 Applied to Toudou Main Body 2

As indicated in this mockup, handle 20 from Anderson has arms rising angularly above the cap base on lateral sides of the container opening (as with handle 140 in the '255 Patent) and a looped end to the handle extending to the side and above the cap base (as with handle 140 in the '255 Patent). Accordingly, the rising arms of handle 20 on opposed sides of mouthpiece 32 equate to the claimed "pair of lateral guards" and the looped end of handle 20, which extends between these pair of lateral guards, extends across at least a portion of the dispensing outlet of mouthpiece 32 and serve as the claimed "dust cover."

Therefore, Toudou in view of Anderson teaches and suggests all limitations of claim 6 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

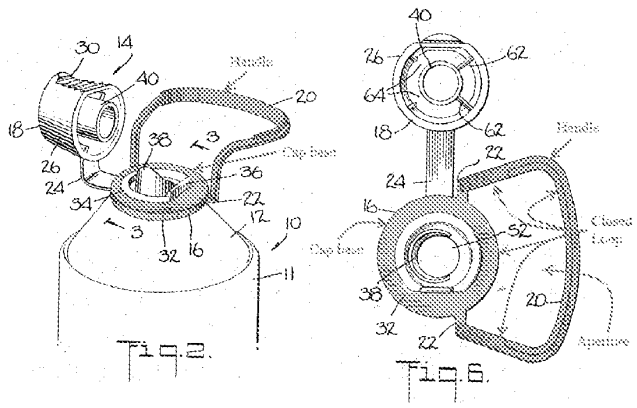
F. Ground 6: Toudou in View of Anderson or Roth Would Have Rendered Obvious Claim 7

As explained below, Toudou in view of Anderson or Roth would have rendered obvious claim 6 under 35 U.S.C. § 103(a) (pre-AIA).

7. The drink container of claim 1, wherein the cap assembly further comprises a handle [7.1] that extends in a fixed orientation from the cap assembly base and, [7.2] which defines a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

Toudou and the alternative secondary references do not expressly disclose a handle associated with bottle cap 1 as recited in dependent claim 7. Anderson, which also discloses a closure for a container in the same field of endeavor as Toudou and the '255 Patent, discloses the handle with the features recited in claim 7. In particular, for [7.1], Anderson discloses a "novel cap arrangement" in which a handle 20 "is affixed to and may be integrally molded with the base portion 16 at outwardly protruding lugs 22 located at its periphery." Ex. 1014 at 2:69-72. This fixed orientation is set by being molded in plastic. *Id.* at 2:66-67; *see id.* at 2:13-20 ("In one of its aspects, my invention includes the provision of a specially shaped handle preferably molded as an integral part of the base and captive cap. This handle serves a dual function; first, that of providing a carrying means thus eliminating the need for a waist shaped or small necked container....").

Additionally, handle 20 in Anderson defines a closed loop with an aperture through which a user's finger may be inserted to carry the drink container 10, as recited in [7.2]. FIG. 2 (isometric view) and FIG. 6 (top view), annotated below, illustrate this form most clearly.

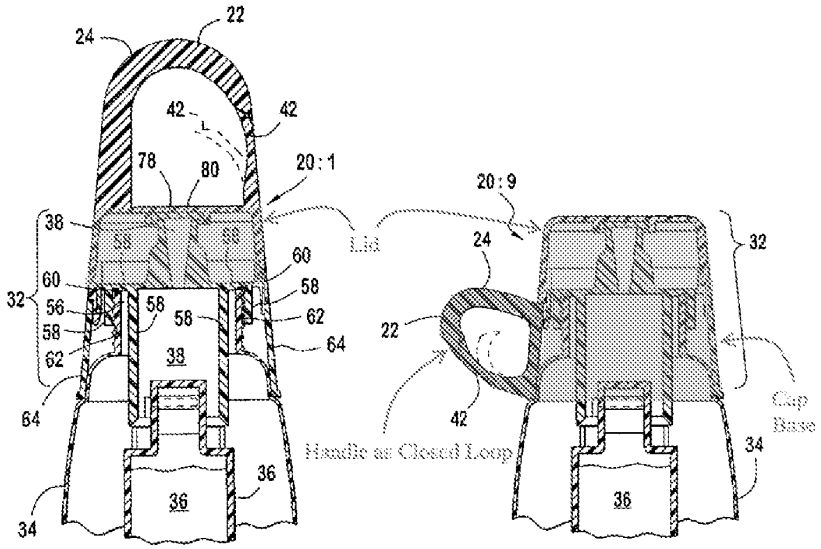


As shown above, "handle 20 is generally U-shaped." Ex. 1014 at 2:69-70. "In the preferred embodiment handle 20, as can be seen in FIG. 2, extends upwardly from the lugs 22 for a short distance and then outwardly away from the overcap 18 so that its maximum height does not exceed that of the overcap.... Also, this handle configuration enables the containers to [] be grasped quite readily both for pouring and for carrying." *Id.* at 3:15-23. Anderson directly addresses accessibility by a user's finger into the closed-loop handle 20, as recited in [7.2]: "[A] plastic handle of generally U-shaped configuration and attached at its ends to points along the edge of said base, said handle rising upwardly from said base to the height of said overcap, and then horizontally away from said cap to provide full finger access without interference with movements of said overcap." *Id.* at 5:35-41.

It would have been obvious to have included the handle as disclosed in Anderson on the bottle cap 1 of Toudou at least to provide a more convenient means for carrying the container than simply grasping its body. As noted in Anderson, its U-shaped handle that extends outwardly "enables the containers to [] be grasped quite readily" for carrying and provides "full finger access without interference with movements of said overcap." *Id.* at 3:15-23, 5:35-41. Applied to McDonough, such a handle would make carrying more efficient and avoid interference with lid 22 and, particularly, straw positioning mechanism 20 and straw 14 to minimize the risk of contamination by handling. In addition, by being molded together as plastic with its cap in one option of Anderson, handle 20 would combine efficiently with polypropylene main body 2 in Toudou.

Roth also teaches and suggests the subject matter of claim 7. Roth discloses a closure for a beverage container in the same field of endeavor as Toudou and the '255 Patent. In a first

embodiment shown in Roth's FIG. 2, a looped connector 24 is formed on a pivotal lid 28 of the closure body and may incorporate a snap hook 22 for attaching the bottle 34 to an object such as a backpack. But Roth explains that the looped connector may be positioned elsewhere on closure body 32, such as laterally from annular shroud 64 of base portion 26: "As shown in FIG. 1 the connector 24 preferably extends generally upwardly from the lid 28. However, those of ordinary skill in the art will appreciate from this disclosure that the connector 24 can extend from a lateral side of the closure body 32 or from a lateral side of the annular shroud 64 without departing from the scope of the present invention." Ex. 1015 ¶ [0031]. FIG. 11A illustrates an embodiment in which the looped connector extends laterally from the annular shroud 64 of base portion 26 separate from and beneath lid 28: "FIG. 11A is [in] cross-section a view similar to that of FIG. 3 illustrating an alternative embodiment of a closure according to the present invention in which the snap hook is disposed on a side of the closure." *Id.* ¶ [0018]. A comparison of FIGS. 3 and 11A in Roth shows the positioning of connector 24 extending laterally from the cap assembly base, i.e., base portion 26, as claimed:



Roth FIG. 3 **Roth FIG. 11A**

Additionally, connector 22 in FIG. 11A extends in the claimed "fixed orientation" of [7.1] as Roth teaches that "[i]t is preferred that the snap hook 22 is integrally formed with the closure body 32" (*id.* ¶ [0032]), and FIG. 11A shows connector 22 having its snap lever 42 lateral to and apart from base portion 26. And as illustrated in FIG. 11A, connector 22 has the shape of a closed

loop on the cap assembly base and forms an aperture, as required by [7.2]. An object, including a user's finger, may be inserted through the aperture to carry bottle 34. *See, e.g.*, *id.* ¶ [0034] ("A user attaches the bottle closure 20:1 to an object, such as a backpack strap, by depressing the snap lever 42 to allow the back pack strap or the like to be placed within the snap connector 22. Once the closure 20:1 and any accompanying bottle is secured, a user may carry the closure 20:1 with ease.").

It would have been obvious to have included the handle as disclosed in Roth on the bottle cap 1 of Toudou at least to provide a more convenient means for carrying the container than simply grasping its body. In addition to providing a loop for handling bottle cap 1 of Toudou, the snap hook 22 within connector 24 in Roth would provide an additional incentive for more easily and securely attaching and detaching the cup to an object such as a belt loop or purse strap, as explained at length in Roth. *See, e.g.*, Ex. 1015 ¶¶ [0004], [0044]. Further, Roth teaches that "the closure body 32 and the snap hook 22 are formed by a suitable polymer" (*id.* ¶ [0032]), making the handle in Roth a natural combination for use with polypropylene main body 2 in Toudou.

Therefore, Toudou in view of Anderson or Roth teaches and suggests all limitations of claim 7 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

G. Ground 7: Toudou in View of Wright or Tupper Would Have Rendered Obvious Claim 14

14. The drink container of claim 13, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

As indicated for claim 13 above, Toudou discloses that a hole at the tip of suction port 32 on nozzle 3 as a dispensing outlet. *See* Ex. 1008 at Abstract ("The present invention is constituted of a bottle cap with a nozzle, … comprising: a nozzle provided with a suction port at its tip …"); *id.* ¶ [0014] ("The other end of the flow path … penetrates through the suction port 32 and opens at the tip, …"). Wright and Tupper further teach openings within a dispensing end of a resilient mouthpiece that is defined by a slit.

Wright teaches a duck bill valve for a mouthpiece on a drinking cup. Ex. 1009. The mouthpiece is shaped similarly to suction port 32 in Toudou, having a flared end formed with a lipped rim. The mouthpiece includes an outlet defined by a slit 44, as illustrated in FIGS. 2A, 2D, and 2E below:

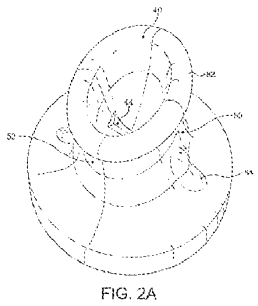


FIG. 2A

Wright Resilient Mouthpiece

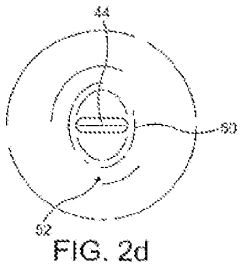


FIG. 2d

Slit 44 in Closed Position

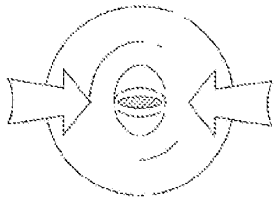


FIG. 2e

Slit 44 in Open Position

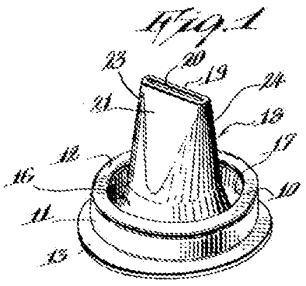
Wright explains that opening 44 corresponds to a slit: "Referring to figure 2D, the upper mouthpiece portion can be viewed as being substantially oval in cross-section having two 'long sidewalls' 50 visible in front cross-section and two 'short sidewalls' 52 visible in side cross-section terminating in a concave top. The duck bill valve 44 is located perpendicular to the long sidewalls 50." Ex. 1009 at 5:2-5.

It would have been obvious to have implemented a slit mouthpiece as taught by Wright in suction port 32 of Toudou to result in a dispensing outlet "defined by a slit that extends through the dispensing face of the resilient mouthpiece," as recited in claim 14. Toudou teaches that its bottle cap 1 can be applied to "baby bottles" (Ex. 1008 ¶ [0027]), while Wright explains that its duck bill mouthpiece with slit opening enables infants to drink more naturally:

> A particular advantage of the configuration according to the present invention is that it allows a natural drinking action especially in younger infants. In order to open the duck bill valve, lateral pressure on the mouthpiece by the infant's teeth, lips or gums is required. While this pressure can result from normal biting or squeezing, the 'stripping' action used by an infant when breastfeeding will also open the duck bill valve. It is well established that this stripping action is beneficial to the infant's dental development and that the transition to a pure sucking action too early can be detrimental.

Ex. 1009 at 6:15-22. Thus, an apparent reason to implement a slit mouthpiece as in Wright to suction port 32 in Toudou would have been to improve the "natural drinking action especially in younger infants" as taught by Wright when applying bottle cap 1 with suction port 32 of Toudou for use with "baby bottles" as taught by Toudou. Moreover, the shape of upper mouthpiece portion 40 in Wright is highly similar to the shape of suction port 32 in Toudou, further suggesting the interchangeability of the teachings regarding their mouthpieces for drinking bottles.

Tupper discloses an elongated slot 20 in the dispensing end of mouthpiece of "resilient plastic material" for consuming fluid contents from a container, as shown for example in FIG. 1. Ex. 1011 at 1:15-17, 3:45. The mouthpiece is primarily intended for use by infants and other children. The shape of slot 20 can aid in drawing liquid from the bottle when the mouthpiece is "squeezed or deformed by the mouth or teeth of the user," "wherein the sipping or drawing operation is capable of functioning … by alternate lip or teeth compression of the tubular structure to force fluid contents therethrough based on the principle of nipple feeding." Ex. 1011 at 1:41-49; *id.* at 3:40-42 ("the dispensing end is capable of being squeezed or deformed by the mouth or teeth of the user …").



In addition, slot 20 helps to retain liquid if the bottle is overturned. As explained in Tupper, "[W]hen the elongated slot 20 of the sipper seal is held in any non-drinking position capable of creating a gravity flow toward slot 20, the fluid tends to completely fill the entire area of the slot to check spillage by reason of fluid capillarity and surface tension." *Id.* at 3:29-34; *id.* at 4:16-19 ("said slot serving either as a withdrawing outlet for fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position").

It additionally would have been obvious to have implemented a slit mouthpiece as taught by Tupper in suction port 32 of Toudou to result in a dispensing outlet "defined by a slit that extends through the dispensing face of the resilient mouthpiece," as recited in claim 14. Toudou teaches that its bottle cap 1 can be applied to "baby bottles" (Ex. 1008 ¶ [0027]), while Tupper explains that the slot or slit within its mouthpiece opening provides several advantages, including promoting lip or teeth compression to force fluid contents out "based on the principle of nipple feeding" (Ex. 1011 at 1:41-49) and avoiding leakage through capillary action if the opened container is overturned (*id.* at 3:29-34). Thus, apparent reasons to implement a slot in a mouthpiece as in Tupper for suction port 32 in Toudou would have been to achieve these stated benefits of Tupper in suction port 32 of Toudou at least when bottle cap 1 of Toudou is applied to "baby bottles."

Therefore, Toudou in view of Wright or Tupper teaches and suggests all limitations of claim 14 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

H. Ground 8: Alternatively, Toudou in View of Wright Would Have Rendered Obvious Claims 1, 3-5, 8, 13, 14, 18, and 19

While Toudou inherently discloses a resilient mouthpiece as recited in independent claim 1 (or renders that subject matter obvious), Toudou in view of Wright would also have rendered obvious claims 1, 3-5, 8, 13, 14, 18, and 19 of the '255 Patent under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

1. Claim 1

[1.pre] A drink container, comprising: [1.1] a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

See Discussion of Toudou in Ground 4, [1.pre], *supra*, which is incorporated by reference.

[1.2] a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines

See Discussion of Toudou in Ground 4, [1.2], *supra*, which is incorporated by reference.

[1.2.1] a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes [1.2.2] an inlet through which drink fluid from the fluid container may enter the fluid conduit, and [1.2.3] a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

See Discussion of Toudou in Ground 4, [1.2.1], [1.2.2], and [1.2.3], *supra*, which are incorporated by reference.

[1.3] a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

See Discussion of Toudou in Ground 4, [1.3], *supra*, which is incorporated by reference.

[1.4] a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base,

See Discussion of Toudou in Ground 4, [1.4], *supra*, which is incorporated by reference.

[1.4.1] wherein the pivotal mount includes a pair of lateral projections, [1.4.2] wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

See Discussion of Toudou in Ground 4, [1.4.1] and [1.4.2], *supra*, which are incorporated by reference.

[1.5] a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base,

Toudou discloses a mouthpiece in the form of suction port 32 coupled to the pivotal mount, i.e., nozzle 3, by being integrated with nozzle 3 for pivotal movement with nozzle 3 relative to the cap assembly base, i.e., main body 2 of bottle cap 1. *See* Ex. 1008 at Abstract ("bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion … wherein the flow path of the internal liquid is opened or closed in connection with tup and down motion associated with the rotation of the nozzle."). As explained for Ground 4 above, Toudou alone inherently anticipates, or would have rendered obvious, that suction port 32 is a "resilient" mouthpiece in [1.5]. It also, or alternatively, would have been obvious over Toudou in view of Wright to have coupled a resilient mouthpiece to the pivotal mount by making integrated suction port 32 from resilient material for pivotal movement with nozzle 3 relative to cap base 2, as explained below.

In the same field of endeavor as Toudou and the '255 Patent, Wright discloses a cover for a drinking vessel and teaches a resilient mouthpiece coupled to a mount, as recited in [1.5]. According to Wright, "biting or prolonged sucking on a spout can lead to tooth damage" and, in response, Wright advocates use of a mouthpiece that deforms from biting forces on "flexible resilient material and hence does not damage the user's teeth." *Id.* at 1:17-18, 2:18-21. Wright teaches that such a flexible mouthpiece may be made of a resilient elastomeric material such as polyurethane rubber. Ex. 1009 at Abstract, 2:7-8, 2:18-21, 4:21-22.

Additionally, Wright teaches multiple configurations for coupling a resilient mouthpiece to a mount. First, Wright explains that only the tip of its mouthpiece could be made resilient—"[t]he mouthpiece can be provided with a portion of the mouthpiece for example the top portion being flexible" (*id.* at 7:8-9)—which would result in the resilient mouthpiece being integrated into its base as a mount. "Alternatively, the whole of the mouthpiece may be flexible." *Id.* at 7:8-10. In that situation, the resilient mouthpiece may be molded onto a polypropylene base "via a second shot process" as taught by Wright, which base may be part of the drinking vessel. *Id.* at 4:11-13. Third, the polypropylene base 26 on

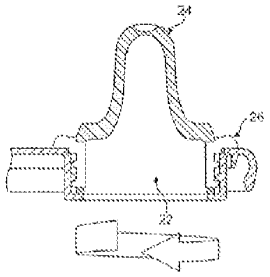
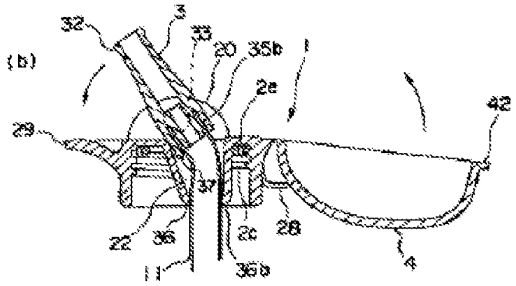


FIG. 1C

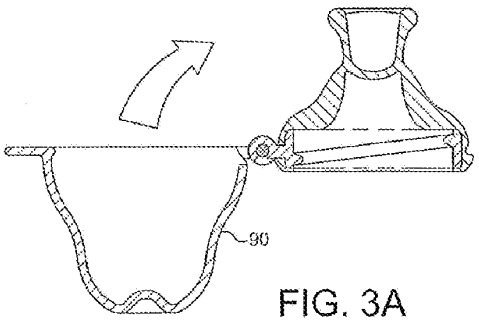
which the resilient mouthpiece 24 is molded may be configured for removal from the drinking vessel, such as by threading as shown in FIG. 1C.

Based on these teachings, it would have been obvious for a person of ordinary skill in the art to have modified bottle cap 1 in Toudou to have a resilient mouthpiece integrally coupled to nozzle 3 to avoid "tooth damage" from "biting or prolonged sucking on [the] spout" as taught by Wright. *Id.* at 1:16-21; *id.* at 6:24-26 ("In addition, because the mouthpiece is of flexible material ... physical damage to the infant's teeth is reduced or avoided."). The teachings of Wright provide a variety of options for implementing a resilient mouthpiece on nozzle 3. For instance, only "a portion of the mouthpiece for example the top portion," i.e., suction port 32 of nozzle 3, could be made of resilient material (*see id.* at 7:8-9), or "the whole of the mouthpiece may be flexible" (*id.* at 7:8-10), i.e., all of nozzle 3. Wright also contemplates the joinder of its resilient mouthpiece with other materials, such as polypropylene, which is the material of bottle cap 1 in Toudou (Ex. 1008 ¶ [0011]) and the material of cup body 12, cover 16, and threaded locking ring 26 in Wright (Ex. 1009 at 4:5-6, 4:11-17). With this joinder, the resilient mouthpiece in Wright may be fixed to the drinking vessel or to a detachable mount such as ring 26. Ex. 1009 at 4:11-17.

In addition, a modification of nozzle 3 in Toudou with a resilient mouthpiece as taught by Wright would have flowed from the similarity of mouthpieces taught in the two references. Both suction port 32 in Toudou and the resilient mouthpiece in Wright as a duckbill (*see* FIGS. 2A-E, 3A, and 3B) have a narrowed neck that culminates in a lipped outer rim, as shown in the figures below:



Toudou FIG. 8(b)



Wright FIG. 3A

This physical similarity between components for performing the same function of sucking liquid from a bottle further suggests the substitutability of at least the top portion of the resilient

mouthpiece in Wright for suction port 32 in Toudou. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-16 (2007) ("[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results."). Each mouthpiece is shaped in a way to facilitate manipulation of the mouthpiece with a user's lips and teeth. Ex. 1008 (Toudou) at FIGS. 5-8 ("suction port" 32); Ex. 1009 (Wright) at 5:19-24 ("To aid orientation of the mouthpiece in the mouth, the mouthpiece (40) may comprise a lipped rim (82) and one or more dimples (84). The mouth of the user is guided between the rim (82) and the dimples (84) so that the biting or stripping action occurs such that a sideways force is applied in the same direction …"); *id.* at 7:4-6 ("the user can control the flow rates by varying the force exerted on the mouthpiece"); *id.* at 7:6-8 ("In addition the responsiveness [of the mouthpiece] can be varied by altering the materials, their softness/hardness flexibility or their thickness.").

In short, Toudou and Wright together teach and suggest the subject matter recited in [1.5] for the purpose of protecting a user's teeth from damage by a non-resilient mouthpiece and for the purpose of enhancing the suction action on the mouthpiece to extract liquid from the bottle.

As a result, Toudou in view of Wright teaches and suggests the subject matter of claim element [1.5].

[1.5.1] wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

See Discussion of Toudou in Ground 4, [1.5.1], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being integral with nozzle 3, as discussed above for element [1.5], would move together with nozzle 3. Thus, a resilient mouthpiece as taught by Wright would likewise, and necessarily, be pivotal about an axis defined by the pair of lateral projections when nozzle 3 pivots as the pair of lateral projections rotate within the pair of sockets, as recited in [1.5.1].

[1.5.2] wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

See Discussion of Toudou in Ground 4, [1.5.2], *supra*, which is incorporated by reference.

In addition, Wright teaches and suggests a resilient mouthpiece integrally coupled to a spout or nozzle that defines a portion of the fluid conduit, including the dispensing outlet, as recited in [1.5.2]. The vessel cover in Wright includes "a flexible mouthpiece (24) defining a flow passage

from the vessel body." Ex. 1009 at Abstract. For an upper mouthpiece portion 40 with a duck bill valve 44 in Wright, "[a]s a sideways force is applied to the long sidewalls 50, the duck bill valve is forced open allowing the flow of fluid." *Id.* at 6:1-2; *see id.* at FIG. 2C. Indeed, a purpose of a mouthpiece for consuming liquids is to provide a portion of a fluid conduit including a dispensing outlet for the user. Thus, a resilient mouthpiece as taught by Wright further defines a portion of the fluid conduit, including the dispensing outlet, as recited in [1.5.2].

[1.6] wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further [1.6.1] in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

See Discussion of Toudou in Ground 4, [1.6] and [1.6.1], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being integral with nozzle 3 as discussed above for [1.5] would move together with nozzle 3. Thus, a resilient mouthpiece as taught by Wright would likewise, and necessarily, be selectively pivoted between a stowed and dispensing position as nozzle 3 moves, and, in the dispensing position, the dispensing outlet would be positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position, as recited in [1.6] and [1.6.1].

[1.6.2] wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

As explained for Ground 4 above, Toudou alone inherently anticipates, or would have rendered obvious, that suction port 32 is "adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth" in [1.6.2]. Element [1.6.2] also, or alternatively, would have been obvious over Toudou in view of Wright.

As discussed above for [1.5], it would have been obvious to have integrated a resilient mouthpiece to the pivotal mount, i.e., nozzle 3 and suction port 32, in view of Wright. This secondary reference teaches and suggests that its resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied by a user's teeth, as claimed.

For example, Wright is specifically directed to avoid "tooth damage" that can occur from "biting or prolonged sucking on a spout" and addresses that risk with a mouthpiece that has "flexible resilient material and hence does not damage the user's teeth." Ex. 1009 at 1:17-18, 2:18-21. Moreover, in some embodiments, Wright teaches the use of a duck bill valve that operates from compressive forces applied by a user's teeth on the resilient mouthpiece, as shown here by the arrows in FIG. 2C. *Id.* at 5:26-6:1 ("In use, the action of pursing, biting or stripping the mouthpiece in the direction of the duck bill valve causes the opening of the duck bill valve and allows fluid flow."), *id.* at 5:20-24 ("The mouth of the user is guided between the rim (82) and the dimples (84) so that the biting or stripping action occurs such that a sideways force is applied in the same direction on the duck bill valve to ensure opening of the duck bill valve and resulting flow of liquid."); *see* also *id.* at 5:10-11, 5:16-17.

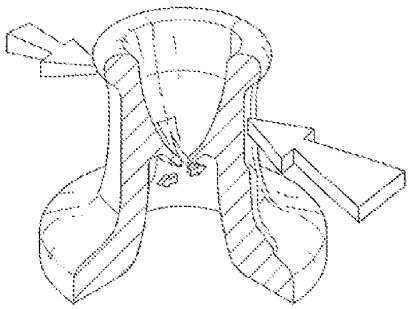


FIG. 2C

As a result, further to the discussion above for [1.5] regarding the combinability of Toudou with Wright, this secondary reference also teaches and suggests the subject matter of claim element [1.6.2].

[1.7] a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and [1.7.1] an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet;

See Discussion of Toudou in Ground 4, [1.7], *supra*, which is incorporated by reference.

[1.7.2] wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;

See Discussion of Toudou in Ground 4, [1.7.2], *supra*, which is incorporated by reference.

[1.7.3] wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and [1.7.4] wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.

See Discussion of Toudou in Ground 4, [1.7.3] and [1.7.4], *supra*, which are incorporated by reference.

In short, Toudou in view of Wright teaches and suggests all limitations of claim 1 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

2. Claim 3

3. The drink container of claim 1, [3.1] wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position,

See Discussion of Toudou in Ground 4, [3.1], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being integral with nozzle 3, as discussed above for element [1.5], would move together with nozzle 3 into its prone state. Thus, a pair of lateral guards in the form of "opposing wall surfaces" within storage groove 21 of support portion 20 and side walls of closed lid 4 would likewise, and necessarily, extend on lateral sides of a resilient mouthpiece as taught by Wright when the resilient mouthpiece and the pivotal mount are in the stowed position, as recited in [3.1].

[3.2] and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

See Discussion of Toudou in Ground 4, [3.2], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being integral with nozzle 3 would move together with nozzle 3 into its prone state. Thus, the dust cover of the top and front of lid 4, which extends between the pair of lateral guards in the form of "opposing wall surfaces" within storage groove 21 of support portion 20 and between side walls of closed lid 4, and each of which extends across at least a portion of the dispensing outlet, would be positioned to also protect a resilient mouthpiece as taught by Wright when the resilient mouthpiece and the pivotal mount are in the stowed position, as in [3.2].

As a result, Toudou in view of Wright teaches and suggests all limitations of claim 3 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

3. Claim 4

4. The drink container of claim 3, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

See Discussion of Toudou in Ground 4, [Claim 4], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being integral with nozzle 3, as discussed above for claim element [1.5], would move together with nozzle 3 from its prone state to its dispensing state. Thus, a resilient mouthpiece as taught by Wright would also pivot away from the dust cover along with suction port 32, as recited in claim 4.

As a result, Toudou in view of Wright teaches and suggests all limitations of claim 3 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

4. Claim 5

5. The drink container of claim 3, wherein the dust cover projects above an upper surface of the cap assembly base.

See Discussion of Toudou in Ground 4, [Claim 5], *supra*, which is incorporated by reference.

Accordingly, Toudou discloses the limitations recited in claim 5, and Toudou in view of Wright would have rendered obvious the subject matter of claim 5.

5. Claim 8

8. The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

Toudou discloses a pivotal mount as claimed (*see* discussion for element [1.4] above), while Toudou in view of Wright teaches and suggests a resilient mouthpiece, e.g., mouthpiece 24 in Wright, coupled to a pivotal mount (*see* discussion for element [1.5] above). Toudou in view of Wright further teaches and suggests the subject matter of dependent claim 8 in that the resilient mouthpiece is "permanently secured to the pivotal mount." As explained above for claim construction, "permanently secured" at least for purposes of the '255 Patent refers to two distinct or integrated structures (viz., a resilient mouthpiece and a pivotal mount) not intended to be

separated without destruction of at least a portion of the structures and/or the mechanism that joins the structures.

Wright teaches that a resilient mouthpiece for a user may be integrated with, and not intended to be separated from, a mount. For example, "the whole of the mouthpiece may be flexible" and then molded onto a polypropylene base "via a second shot process." Ex. 1009 at 4:11-17. Alternatively, the mouthpiece could be partially resilient and partially non-flexible: "[t]he mouthpiece can be provided with a portion of the mouthpiece for example the top portion being flexible." *Id.* at 7:8-10. In either embodiment, the resilient mouthpiece is integrated together with a polypropylene or other non-flexible base on which the mouthpiece is permanently mounted. *Id.* at 8:5-7 ("The components are of a size and shape that remove any choking hazard and again makes cleaning more easy - for example the mouthpiece comprises a single integral piece."), 3:1 ("Fig. 1c shows a sectional view of the cover with an integrally moulded spout"); 3:14 ("Fig. 3a shows a sectional view of the spout integrally moulded onto a screw ring …"). Therefore, Toudou in view of Wright teaches and suggests all limitations of claim 8.

It would have been obvious to have implemented the resilient mouthpiece as taught by Wright as suction port 32 within an integral structure of nozzle 3 in Toudou at least because a unitary nozzle and mouthpiece structure is what Toudou describes. Moreover, an integrated mouthpiece and pivotal mount or spout results in fewer parts, which as taught by Toudou eases disassembly and washing (Ex. 1008 ¶ [0018]) and reduces costs (*id.* at Abstract ("The present invention realizes a bottle cap with a nozzle that enables … the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact."), [0021] ("the number of parts and the number of assembling steps can be reduced, which can contribute to the cost reduction")). Therefore, Toudou in view of Wright renders claim 8 unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

6. Claim 13

13. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

See Ground 4, [Claim 13], *supra*, which is incorporated by reference.

As discussed above for [1.5], it would have been obvious to have integrated a resilient mouthpiece to the pivotal mount, i.e., nozzle 3 and suction port 32, in view of Wright. It follows

that a resilient mouthpiece coupled to nozzle 3 by being integral with nozzle 3, as discussed above for claim element [1.5], would further define a dispensing outlet so that the liquid could be extracted from the bottle by the user, as taught by Wright. Specifically, this secondary reference discloses a dispensing face within a resilient mouthpiece through which a dispensing outlet extends. *See* Ex. 1009 (Wright) at FIG. 2A (upper mouthpiece portion 40 above duck bill valve 44).

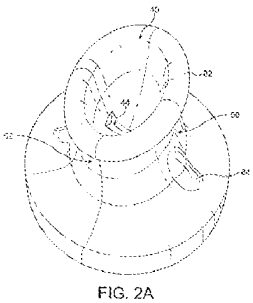
Accordingly, Toudou in view of Wright would have rendered obvious the subject matter recited in claim 13.

7. Claim 14

14. The drink container of claim 13, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

As indicated for claim 13 above, Toudou discloses that a hole at the tip of suction port 32 on nozzle 3 as a dispensing outlet. *See* Ex. 1008 at Abstract ("The present invention is constituted of a bottle cap with a nozzle, … comprising: a nozzle provided with a suction port at its tip …"); *id.* ¶ [0014] ("The other end of the flow path … penetrates through the suction port 32 and opens at the tip, …").

Wright further teaches an opening within a dispensing end of a resilient mouthpiece that is defined by a slit. Specifically, Wright teaches a duck bill valve, shaped similarly to suction port 32 in Toudou, as part of its resilient mouthpiece including an outlet defined by a slit 44, as illustrated in FIGS. 2A, 2D, and 2E below:


FIG. 2A

Wright Resilient Mouthpiece

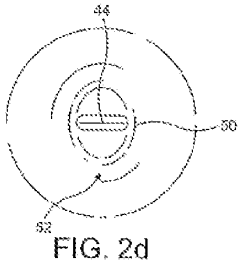
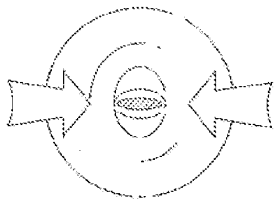


FIG. 2d

Slit 44 in Closed Position


FIG. 2e

Slit 44 in Open Position

Wright explains that opening 44 corresponds to a slit: "Referring to figure 2D, the upper mouthpiece portion can be viewed as being substantially oval in cross-section having two 'long sidewalls' 50 visible in front cross-section and two 'short sidewalls' 52 visible in side cross-section

terminating in a concave top. The duck bill valve 44 is located perpendicular to the long sidewalls 50." Ex. 1009 at 5:2-5. Therefore, Toudou in view of Wright teaches and suggests all limitations of claim 14.

It would have been obvious in view Wright to implement a slit opening within suction port 32 of Toudou, which is explicitly intended for possible use in "baby bottles." Ex. 1008 ¶ [0027]. In doing so, "the vessel promotes a healthy drinking action, especially for infants," which according to Wright occurs when the outlet "opens under a pursing, biting or stripping action rather than sucking. " Ex. 1009 at 2:13-18; 5:14-17; 6:15-24 ("It is well established that this stripping action is beneficial to the infant's dental development and that the transition to a pure sucking action too early can be detrimental."). Therefore, Toudou in view of Wright renders claim 14 unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

8. Claim 18

18. The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

See Discussion of Toudou in Ground 4, [Claim 18], *supra*, which is incorporated by reference.

Accordingly, Toudou discloses the limitations recited in dependent claim 18, and claim 18 would have been obvious over Toudou in view of Wright.

9. Claim 19

19. The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

See Discussion of Toudou in Ground 4, [Claim 19], *supra*, which is incorporated by reference.

As a result, Toudou discloses the limitations recited in dependent claim 19, and claim 19 would have been obvious over Toudou in view of Wright.

I. Ground 9: Alternatively, Toudou in View of Wright, Further in View of Anderson, Would Have Rendered Obvious Claim 6

As explained for Ground 5 above, Toudou in view of Anderson would have rendered obvious the subject matter of claim 6. Claim 6 also, or alternatively, would have been obvious over

Toudou in view of Wright, further in view of Anderson under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

6. The drink container of claim 3, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

See Discussion of Toudou and Anderson in Ground 5, [Claim 6], *supra*, which is incorporated by reference.

Accordingly, Toudou in view of Anderson teaches and suggests the limitations recited in claim 6, and Toudou in view of Wright, further in view of Anderson renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

J. Ground 10: Alternatively, Toudou in View of Wright, Further in View of Anderson or Roth, Would Have Rendered Obvious Claim 7

As explained for Ground 6 above, Toudou in view of Anderson or Roth would have rendered obvious the subject matter of claim 7. Claim 7 also, or alternatively, would have been obvious over Toudou in view of Wright, further in view of Anderson or Roth under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

7. The drink container of claim 1, wherein the cap assembly further comprises a handle [7.1] that extends in a fixed orientation from the cap assembly base and, [7.2] which defines a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

See Discussion of Toudou, Anderson, and Roth in Ground 6, [Claim 7], *supra*, which is incorporated by reference.

Therefore, Toudou in view of Anderson or Roth teaches and suggests the limitations recited in claim 7, and Toudou in view of Wright, further in view of Anderson or Roth renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

K. Ground 11: Alternatively, Toudou in View of Canham, Further in View of Heise, Would Have Rendered Obvious Claims 1, 3-5, 13, 18, and 19

While Toudou inherently discloses a resilient mouthpiece as recited in independent claim 1 (or renders that subject matter obvious), and Toudou and Wright render obvious a resilient mouthpiece integrally coupled to a pivotal spout within the scope of the claims, Toudou in view

of Canham, further in view of Heise, would also have rendered obvious claims 1, 3-5, 13, 18, and 19 of the '255 Patent under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

1. Claim 1

[1.pre] A drink container, comprising: [1.1] a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid;

See Discussion of Toudou in Ground 4, [1.pre], *supra*, which is incorporated by reference.

[1.2] a cap assembly removably coupled to the fluid container to cover the opening, wherein the cap assembly defines

See Discussion of Toudou in Ground 4, [1.2], *supra*, which is incorporated by reference.

[1.2.1] a fluid conduit for drink fluid to flow from the fluid container and through the cap assembly to a user, wherein the fluid conduit includes [1.2.2] an inlet through which drink fluid from the fluid container may enter the fluid conduit, and [1.2.3] a dispensing outlet through which drink fluid in the fluid conduit may be dispensed from the cap assembly to a user, and further wherein the cap assembly comprises:

See Discussion of Toudou in Ground 4, [1.2.1], [1.2.2], and [1.2.3], *supra*, which are incorporated by reference.

[1.3] a cap assembly base removably coupled to the neck of the fluid container, wherein the cap assembly base is configured to be selectively and repeatedly decoupled from and re-coupled to the neck of the fluid container;

See Discussion of Toudou in Ground 4, [1.3], *supra*, which is incorporated by reference.

[1.4] a pivotal mount coupled to the cap assembly base for pivotal movement relative to the cap assembly base,

See Discussion of Toudou in Ground 4, [1.4], *supra*, which is incorporated by reference.

[1.4.1] wherein the pivotal mount includes a pair of lateral projections, [1.4.2] wherein the cap assembly base defines a pair of sockets into which the pair of lateral projections extend;

See Discussion of Toudou in Ground 4, [1.4.1] and [1.4.2], *supra*, which are incorporated by reference.

[1.5] a resilient mouthpiece coupled to the pivotal mount for pivotal movement with the pivotal mount relative to the cap assembly base,

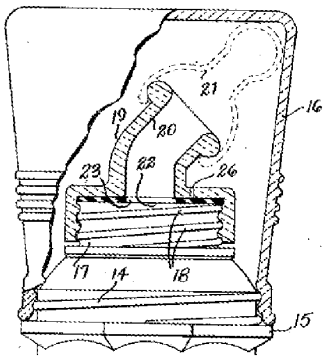
Toudou discloses a mouthpiece in the form of suction port 32 coupled to the pivotal mount, i.e., nozzle 3, by being integrated with nozzle 3 for pivotal movement with nozzle 3 relative to the cap assembly base, i.e., main body 2 of bottle cap 1. *See* Ex. 1008 at Abstract ("bottle cap with a nozzle comprising: a nozzle provided with a suction port at its tip and rotation shafts on both sides of the base portion … wherein the flow path of the internal liquid is opened or closed in connection with tup and down motion associated with the rotation of the nozzle."). As explained for Ground 4 above, Toudou alone inherently anticipates, or would have rendered obvious, that suction port 32 is a "resilient" mouthpiece in [1.5]. It also, or alternatively, would have been obvious over Toudou in view of Canham, further in view of Heise, to have coupled a resilient mouthpiece to the pivotal mount by attaching a resilient mouthpiece to suction port 32, for pivotal movement with nozzle 3 relative to cap base 2, as explained below.

In the same field of endeavor as Toudou and the '255 Patent, Canham discloses a bottle 11 for dispensing liquids with a cap threadedly engaged onto a reduced neck portion 17 of the bottle. The cap, termed nipple adapter member 19, is illustrated in FIGS. 1 and 5 of Canham as secured to the top of bottle 11. A "conventional nipple 21" is received onto the outlet end of adapter member 19, from which a baby may be fed. Ex. 1013 at 1:55-56, 2:21-23. Because conventional nursing nipples are resilient mouthpieces intended to promote and accommodate a baby's sucking, Canham teaches to couple a resilient mouthpiece in the form of nipple 21 to a dispensing mount pivoted "at about 45° to the axis of the container" and extending from within a cap threaded on the neck of the container, in accordance with [1.5].

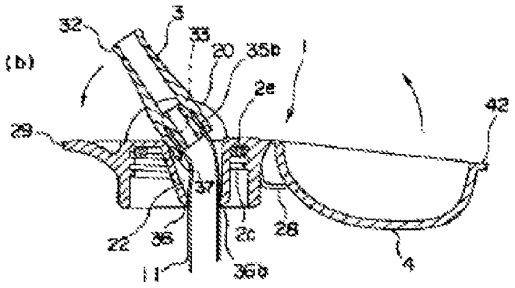
The reasons for mounting "a conventional nipple 21" of Canham on suction port 32 in Toudou flow from the two references. Toudou explains that pivoting nozzle 3 within its bottle cap so that suction port 32 is at an angle provides more comfortable drinking: "[S]ince the nozzle (straw) does not project vertically upward unlike the conventional containers shown in FIGS. 9 and 10, the internal liquid can conveniently be drunk in a comfortable posture without unreasonably tilting the head or upper body." *Id.* ¶ [0029]; *id.* at Abstract ("The present invention realizes a bottle cap with a nozzle that enables the nozzle to be tilted at an appropriate angle to facilitate drinking …."). Canham also recognizes the increased comfort in drinking from an angled spout and mouthpiece: "The inclined relation of passage 20 of adapter 19 to the axis of the container makes it possible to feed the infant in many different positions comfortably." *Id.* at 2:21-23; *id.* at 2:29-31 ("The angle top makes it easy to handle the container regardless of which way

the baby turns."). And while Toudou explains that its cap 1, with nozzle 3 and suction port 32, can be applied to "baby bottles" (Ex. 1008 ¶ [0027]), Canham teaches the improvement of coupling a nipple 21 to a pivoted spout that is screwed on to the neck of a baby bottle for comfortably feeding a baby. Thus, coupling nipple 21 of Canham to suction port 23 of Toudou would have extended the use of bottle cap 1 in Toudou to "baby bottles," while maintaining the comfort advantages from an angular spout recognized in both references.

The parallels between Canham and Toudou are evident from a comparison of the top portion of FIG. 1 in Canham and FIG. 8(b) of Toudou, as shown below:



Canham Portion of FIG. 1



Toudou FIG. 8(b)

Both caps feature an angled spout for dispensing liquid through a cap threaded onto their bottle. Both spouts culminate in a rimmed lip at the outlet. Shaped like suction port 32 in Toudou, the top end of spout, or nipple adapter member 19, in Canham "is formed to receive a conventional nipple 21" about its rimmed lip for nursing a baby. Ex. 1013 at 1:55-56.

While it is common knowledge—and common sense—that a "conventional nipple" for bottle-feeding a baby as taught by Canham is a "resilient mouthpiece" designed to simulate a mother's breast and to foster sucking behavior for the baby, Heise (Ex. 1012) confirms this fact. Contemporary to Canham, Heise discloses a nipple for use on the spout of a baby bottle. The nipple is made of resilient rubber: "The body is of soft rubber of sufficient thickness to normally retain the shape disclosed in Figure 1 and its outer end 1 which is formed with an outlet opening 4 at its center, is substantially spherical in shape and molded about a reinforcement 5 formed of tough resilient rubber." Ex. 1012 at 2:8-14.

In short, the combination of Toudou and Canham, further in view of Heise, teaches and suggests the subject matter recited in [1.5] for the purpose of comfortably feeding a baby through an angled spout within a bottle cap screwed onto a neck of the bottle.

[1.5.1] wherein the resilient mouthpiece is pivotal about an axis defined by the pair of lateral projections as the pair of lateral projections rotate within the pair of sockets;

See Discussion of Toudou in Ground 4, [1.5.1], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being attached to nozzle 3, as discussed above for element [1.5], would move together with nozzle 3. Thus, a resilient mouthpiece as taught by Canham and Heise would likewise, and necessarily, be pivotal about an axis defined by the pair of lateral projections when nozzle 3 pivots as the pair of lateral projections rotate within the pair of sockets, as recited in [1.5.1].

[1.5.2] wherein the resilient mouthpiece defines a portion of the fluid conduit, including the dispensing outlet;

See Discussion of Toudou in Ground 4, [1.5.2], *supra*, which is incorporated by reference.

In addition, Canham and Heise teach and suggest a resilient mouthpiece coupled to a spout or nozzle that defines a portion of the fluid conduit, including the dispensing outlet, as recited in [1.5.2]. In Canham, "withdrawal of fluid by the infant" occurs "a substantial continuous flow of fluid to the infant while nursing" occurs through an outlet passage 20 of nipple adapter member 19 and "a conventional nipple 21." Ex. 1013 at 1:7-9, 1:49-56. In Heise, "when this nipple is in its normal condition and applied to a bottle, milk can flow freely from the bottle through the neck 3 into the head or front end 1 and fill the interior of the nipple." Ex. 1012 at 2:43-47. Pressure and suction from the child "causes milk in this chamber to pass out through the discharge opening 4…." *Id.* at 3:3-5. Indeed, a purpose of any mouthpiece for consuming liquids from a bottle is to provide a portion of a fluid conduit leading to a dispensing outlet for the user. Thus, a resilient mouthpiece as taught by Canham and Heise further defines a portion of the fluid conduit, including the dispensing outlet, as recited in [1.5.2].

[1.6] wherein the resilient mouthpiece and the pivotal mount are configured to be selectively pivoted between a stowed position and a dispensing position, and further [1.6.1] in the dispensing position, the dispensing outlet is positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position;

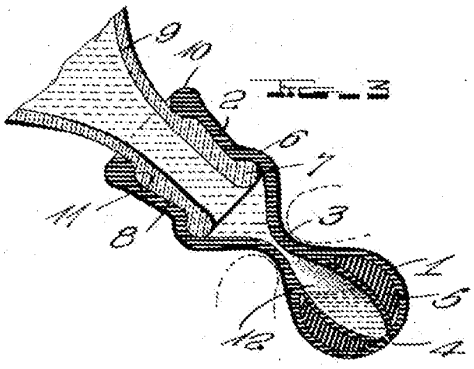
See Discussion of Toudou in Ground 4, [1.6] and [1.6.1], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being attached to nozzle 3 as discussed above for [1.5] would move together with nozzle 3 in Toudou. Thus, a resilient mouthpiece as taught by Canham and Heise would likewise, and necessarily, be selectively pivoted between a stowed and dispensing position as nozzle 3 moves, and, in the dispensing position, the dispensing outlet would be positioned further away from the cap assembly base than when the resilient mouthpiece and the pivotal mount are in the stowed position, as recited in [1.6] and [1.6.1].

[1.6.2] wherein the resilient mouthpiece is adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth; and

As explained for Ground 4 above, Toudou alone inherently anticipates, or would have rendered obvious, that suction port 32 is "adapted to resiliently compress responsive to compressive forces applied to the resilient mouthpiece by a user's teeth" in [1.6.2]. Element [1.6.2] also, or alternatively, would have been obvious over Toudou in view of Canham, further in view of Heise.

As discussed above for [1.5], it would have been obvious to have attached a resilient mouthpiece to the pivotal mount, i.e., nozzle 3 and suction port 32, in view of Canham further view of Heise. These secondary references further teach and suggest that their resilient mouthpieces are adapted to resiliently compress responsive to compressive forces applied by a user's teeth, as claimed. In particular, Canham discloses the coupling of a "conventional nipple



21" on the angled spout of a bottle cap for nursing, which necessarily indicates a mouthpiece of pliable and resilient consistency required for a baby. Heise further evidences a conventional nipple "of soft rubber of sufficient thickness to normally retain the shape" and explains that "[i]n drinking from the bottle, the baby sucks upon the nipple and pressure of the lips will cause the neck 3 to be constricted, thereby entirely or almost entirely closing the nipple intermediate the length of the neck ...." Ex. 1012 at 2:51-3:1. FIG. 3, shown here, illustrates that the nipple in Heise is adapted to resiliently compress at its neck 3 responsive to compressive forces applied to it from a baby's "lips indicated by dotted lines in

this view." *Id.* at 2:47-51. Moreover, Heise explains that its rubber mouthpiece resiliently responds to compressive forces from a user's teeth: "When a baby is cutting teeth the nipple can be used as a teething device as the reinforcement is sufficiently tough and resilient to permit the head to be chewed upon without losing its spherical shape." *Id.* at 3:27-31.

As a result, further to the discussion above for [1.5], the combination of Toudou with Canham and Heise also teaches and suggests the subject matter of claim element [1.6.2].

> **[1.7] a manual on/off valve having a closed configuration, in which the manual on/off valve obstructs the fluid conduit to restrict drink fluid from flowing between the inlet and the dispensing outlet, and [1.7.1] an open configuration, in which the manual on/off valve permits drink fluid to flow through the fluid conduit from the inlet to the dispensing outlet;**

See Discussion of Toudou in Ground 4, [1.7], *supra*, which is incorporated by reference.

> **[1.7.2] wherein the manual on/off valve includes a flexible tube that defines a portion of the fluid conduit;**

See Discussion of Toudou in Ground 4, [1.7.2], *supra*, which is incorporated by reference.

> **[1.7.3] wherein when the manual on/off valve is in the closed configuration, the tube is crimped to obstruct the flow of drink fluid through the fluid conduit; and [1.7.4] wherein when the manual on/off valve is in the open configuration, the tube is not crimped and does not obstruct the flow of drink fluid through the fluid conduit.**

See Discussion of Toudou in Ground 4, [1.7.3] and [1.7.4], *supra*, which are incorporated by reference.

In short, the combination of Toudou in view of Canham, further in view of Heise, teaches and suggests all limitations of claim 1 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

2. Claim 3

> **3. The drink container of claim 1, [3.1] wherein the cap assembly includes a pair of lateral guards that extend on opposed sides of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position,**

See Discussion of Toudou in Ground 4, [3.1], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being attached to nozzle 3, as discussed above for element [1.5], would move together with nozzle 3 into its prone

state. Thus, a pair of lateral guards in the form of "opposing wall surfaces" within storage groove 21 of support portion 20 and side walls of closed lid 4 in Toudou would likewise, and necessarily, extend on lateral sides of a resilient mouthpiece as taught by the combination of Canham and Heise when the resilient mouthpiece and the pivotal mount are in the stowed position, as recited in [3.1].

[3.2] and further wherein the cap assembly includes a dust cover extending between the pair of lateral guards and positioned to protect the dispensing outlet of the resilient mouthpiece by extending across at least a portion of the dispensing outlet of the resilient mouthpiece when the resilient mouthpiece and the pivotal mount are in the stowed position.

See Discussion of Toudou in Ground 4, [3.2], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being attached to nozzle 3 would move together with nozzle 3 into its prone state. Thus, the dust cover of the top and front of lid 4 in Toudou, which extends between the pair of lateral guards in the form of "opposing wall surfaces" within storage groove 21 of support portion 20 and between side walls of closed lid 4 and which extends across at least a portion of the dispensing outlet, would be positioned to also protect a resilient mouthpiece as taught by the combination of Canham and Heise when the resilient mouthpiece and the pivotal mount are in the stowed position, as in [3.2].

As a result, Toudou in view of Canham, further in view of Heise, teaches and suggests all limitations of claim 3 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

3. Claim 4

4. The drink container of claim 3, wherein when the resilient mouthpiece is pivoted from the stowed position to the dispensing position, the resilient mouthpiece pivots away from the dust cover.

See Discussion of Toudou in Ground 4, [Claim 4], *supra*, which is incorporated by reference.

It necessarily follows that a resilient mouthpiece coupled to nozzle 3 by being attached to nozzle 3 as discussed above for claim element [1.5] would move together with nozzle 3 from its prone state to its dispensing state. Thus, a resilient mouthpiece as taught by the combination of Canham and Heise would also pivot away from the dust cover along with suction port 32 on Toudou, as recited in claim 4.

As a result, Toudou in view of Canham, further in view of Heise, teaches and suggests all limitations of claim 3 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

4. Claim 5

5. The drink container of claim 3, wherein the dust cover projects above an upper surface of the cap assembly base.

See Discussion of Toudou in Ground 4, [Claim 5], *supra*, which is incorporated by reference.

Accordingly, Toudou discloses the limitations recited in claim 5, and Toudou in view of Canham, further in view of Heise, would have rendered obvious the subject matter of claim 5.

5. Claim 13

13. The drink container of claim 1, wherein the resilient mouthpiece includes a dispensing face, and further wherein the dispensing outlet extends through the dispensing face of the resilient mouthpiece.

See Ground 4, [Claim 13], *supra*, which is incorporated by reference.

As discussed above for [1.5], it would have been obvious to have attached a resilient mouthpiece to the pivotal mount, i.e., nozzle 3 and suction port 32, in view of Canham further view of Heise. It follows that a resilient mouthpiece coupled to nozzle 3 by being attached to nozzle 3, as discussed above for claim element [1.5], would further define a dispensing outlet so that the liquid could be extracted from the bottle by the user, as taught by the combination of Canham and Heise. Indeed, nursing nipples definitionally have a dispensing outlet for delivering liquid from the bottle to the baby through a dispensing face of the nipple. In addition, Heise evidences this structure for its resilient nipple, having an "outer end 1 which is formed with an outlet opening 4 at its center." Ex. 1012 at 2:10-11, FIGS. 1-3.

Accordingly, Toudou in view of Canham, further in view of Heise, would have rendered obvious the subject matter recited in claim 13.

6. Claim 18

18. The drink container of claim 1, wherein the pivotal mount is adapted to selectively engage the flexible tube to apply crimping forces thereto and thereby configure the manual on/off valve to the closed configuration as the pivotal mount is pivoted from the dispensing position to the stowed position.

See Discussion of Toudou in Ground 4, [Claim 18], *supra*, which is incorporated by reference.

Accordingly, Toudou discloses the limitations recited in dependent claim 18, and claim 18 would have been obvious over Toudou in view of Canham, further in view of Heise.

7. Claim 19

19. The drink container of claim 1, wherein the flexible tube is secured to the pivotal mount.

See Discussion of Toudou in Ground 4, [Claim 19], *supra*, which is incorporated by reference.

As a result, Toudou discloses the limitations recited in dependent claim 19, and claim 19 would have been obvious over Toudou in view of Canham, further in view of Heise.

L. Ground 12: Alternatively, Toudou in View of Canham and Heise, Further in View of Anderson, Would Have Rendered Obvious Claim 6

As explained for Ground 5 above, Toudou in view of Anderson would have rendered obvious the subject matter of claim 6. Claim 6 also, or alternatively, would have been obvious over Toudou in view of Canham and Heise, further in view of Anderson, under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

6. The drink container of claim 3, wherein the cap assembly further includes a handle that extends from the cap assembly base and includes the pair of lateral guards and the dust cover.

See Discussion of Toudou and Anderson in Ground 5, [Claim 6], *supra*, which is incorporated by reference.

Accordingly, Toudou in view of Anderson teaches and suggests the limitations recited in claim 6, and Toudou in view of Canham and Heise, further in view of Anderson, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

M. Ground 13: Alternatively, Toudou in View of Canham and Heise, Further in View of Anderson or Roth, Would Have Rendered Obvious Claim 7

As explained for Ground 6 above, Toudou in view of Anderson or Roth would have rendered obvious the subject matter of claim 7. Claim 7 also, or alternatively, would have been

obvious over Toudou in view of Canham and Heise, further in view of Anderson or Roth, under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

7. The drink container of claim 1, wherein the cap assembly further comprises a handle [7.1] that extends in a fixed orientation from the cap assembly base and, [7.2] which defines a closed loop with an aperture through which a user's finger may be inserted to carry the drink container.

See Discussion of Toudou, Anderson, and Roth in Ground 6, [Claim 7], *supra*, which is incorporated by reference.

Therefore, Toudou in view of Anderson or Roth teaches and suggests the limitations recited in claim 7, and Toudou in view of Canham and Heise, further in view of Anderson or Roth, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

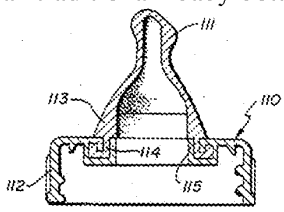
N. Ground 14: Alternatively, Toudou in View of Canham and Heise, Further in View of Phlaphongphanich, Would Have Rendered Obvious Claim 8

As explained for Ground 4 above, Toudou discloses the subject matter of claim 8. Claim 8 also, or alternatively, would have been obvious over Toudou in view of Canham and Heise, further in view of Phlaphongphanich, under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

8. The drink container of claim 1, wherein the resilient mouthpiece is permanently secured to the pivotal mount.

Toudou discloses a pivotal mount as claimed (*see* discussion for element [1.4] above), while Toudou in view of the combination of Canham and Heise teaches and suggests a resilient mouthpiece coupled to a pivotal mount (*see* discussion for element [1.5] above). Toudou in view Canham and Heise, further in view of Phlaphongphanich, additionally teaches and suggests the subject matter of dependent claim 8 in that the resilient mouthpiece is "permanently secured to the pivotal mount." As explained above for claim construction, "permanently secured" at least for purposes of the '255 Patent refers to two distinct or integrated structures (viz., a resilient mouthpiece and a pivotal mount) not intended to be separated without destruction of at least a portion of the structures and/or the mechanism that joins the structures.

In the same field of endeavor as Toudou and the '255 Patent, Phlaphongphanich discloses a "traditional" baby bottle nipple having a mouth portion corresponding to element [1.5] made of an elastomer, such as liquid silicone rubber. Ex. 1010 at Abstract, 3:30-34. The nipple 110 or mouth portion is coupled to a base portion 112 of semi-rigid thermoplastic, such as polypropylene, in a two-mold process, as shown here in FIG. 10. *Id.* The base portion is configured for attachment to the source of liquid, such as a baby bottle.



Phlaphongphanich teaches to permanently secure feeding nipple of liquid silicone rubber to a mount formed of semi-rigid thermoplastic such as polypropylene. Indeed, the two-mold process in Phlaphongphanich is taught to bind the resilient nipple 110 to the non-flexible base 112 so that "the mouth portion is securely locked to the base portion … to inhibit the pulling of the skirt from the cavity." Ex. 1010 at 4:51-57. This integral construction is fundamental to Phlaphongphanich: "Another object of this invention is the provision of a nipple which can be attached to a baby bottle in such a way that it cannot be pulled free by the baby." *Id.* at 1:23-25.

It would have been obvious to a person of ordinary skill in the art to have permanently secured a resilient mouthpiece, such as the nipple in Canham and Heise, or nipple 110 in Phlaphongphanich, to nozzle 3 of Toudou to form an integrated spout and mouthpiece. A reason for combining Toudou and the teachings of Canham and Heise with Phlaphongphanich is to ensure that the resilient mouthpiece "cannot be pulled free by the baby." Ex. 1010 at 1:23-25. Phlaphongphanich teaches how its resilient nipple 110 may be securely coupled to a base of polypropylene, which is the material of bottle cap 1 in Toudou.

Following the instructions of Phlaphongphanich, one skilled in the art could form "an integral combination of an elastomer mouth portion and a semi-rigid cap portion" in two apparent ways. Ex. 1010 at 1:34-36. First, nipple 110 of Phlaphongphanich could be integrally formed as an extension of suction port 3 on polypropylene nozzle 3 of Toudou. Or nipple 110 and base 112 of Phlaphongphanich could be integrally formed into one unit as taught in Phlaphongphanich, with base 112 being threaded onto nozzle 3 when needed to adapt suction port 32 for appropriate use by "baby bottles." Ex. 1008 (Toudou) ¶ [0027]; Ex. 1010 (Phlaphongphanich) at 1:22-30.

Permanently securing a resilient mouthpiece as in Canham and Heise to nozzle 3 in Toudou would also have advantageously provided a unitary nozzle and mouthpiece structure, which is what Toudou describes. An integrated mouthpiece and pivotal mount or spout would result in

fewer parts, which as taught by Toudou eases disassembly and washing (Ex. 1008 ¶ [0018]) and reduces costs (*id.* at Abstract ("The present invention realizes a bottle cap with a nozzle that enables … the cost to be reduced by lowering the number of parts with a simple configuration and is convenient to handle and compact."), [0021] ("the number of parts and the number of assembling steps can be reduced, which can contribute to the cost reduction")).

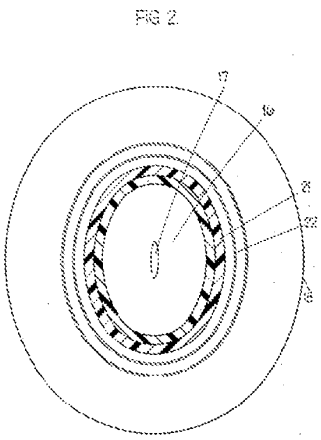
Therefore, Toudou in view of Canham and Heise, further view of Phlaphongphanich, teaches and suggests all limitations of claim 8 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

O. Ground 15: Alternatively, Toudou in View of Canham and Heise, Further in View of Hurst or Tupper, Would Have Rendered Obvious Claim 14

Alternative to Ground 7 above, Toudou in view of Canham and Heise, further in view of Hurst or Tupper would have rendered obvious claim 14 under 35 U.S.C. § 103(a) (pre-AIA), as explained below.

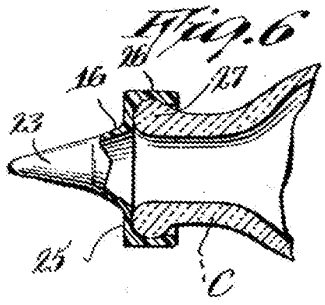
14. The drink container of claim 13, wherein the dispensing outlet is defined by a slit that extends through the dispensing face of the resilient mouthpiece.

As indicated for claim 13 above, Toudou discloses that a hole at the tip of suction port 32 on nozzle 3 as a dispensing outlet. *See* Ex. 1008 at Abstract ("The present invention is constituted of a bottle cap with a nozzle, … comprising: a nozzle provided with a suction port at its tip …"); *id.* ¶ [0014] ("The other end of the flow path … penetrates through the suction port 32 and opens at the tip, …"). The combination of Canham and Heise also discloses openings through a dispensing end of a resilient mouthpiece, as discussed for claim 13. Hurst or Tupper further teach openings within a dispensing end of a resilient mouthpiece that is defined by a slit.

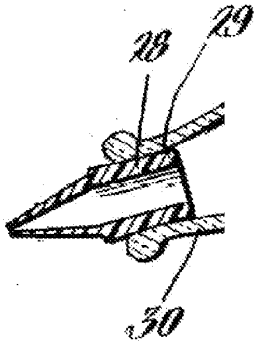


Hurst teaches an "infants feeding bottle" comprising a container for liquid and a teat securable onto the container. Ex. 1016 at Abstract. The teat has an oval shape, and an outlet 17 for passing liquid from the bottle is "in the form of a slit in the center of the end of teat 16." *Id.* at 1:45-46; FIG. 2. It would have been obvious to have implemented a dispensing outlet in the shape of a slit, as claimed, in the resilient mouthpieces of Canham and Heise to accomplish the advantages advocated by Hurst: "The slit provides means for regulating the rate at which feeding takes place, and the oval section of the feeding bottle allows the orientation of the slit to be readily recognised." *Id.* at 4:3-6.

Alternatively, in the same field of endeavor as Toudou and the '255 Patent, Tupper discloses a seal of "resilient plastic material" according to element [1.5] removably attached to a spout for consuming fluid contents from a vessel or container. Ex. 1011 at 1:15-17, 3:45. "The device serves to sealably engage the vessel neck … to act simultaneously as a sipper for withdrawal of fluid contents, …" *Id.* at 1:26-31. In one option, the seal has an engaging groove 14 with a side wall 11 or an engaging flange 26 capable of being applied around the outside of vessel rim "for complete hermetical engagement," as illustrated in FIG. 4 or below left in FIG. 6. *Id.* at 2:44-49. In another option, shown below right in a portion of FIG. 9, a cylindrical section 28 of the seal may frictionally engage the inner surface 29 of a passageway "in the form of a stopper" (*id.* at 2:67-3:2, FIG. 9).

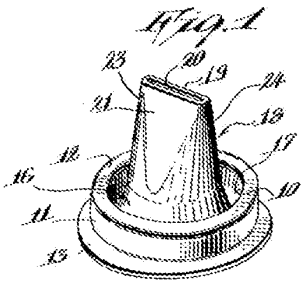


Tupper FIG. 6



Tupper Portion of FIG. 9

Tupper discloses an elongated slot 20 in the dispensing end of its resilient mouthpiece, as shown for example in FIG. 1. The shape of slot 20 can aid in drawing liquid from the bottle when the mouthpiece is "squeezed or deformed by the mouth or teeth of the user," "wherein the sipping or drawing operation is capable of functioning … by alternate lip or teeth compression of the tubular structure to force fluid contents therethrough based on the principle of nipple feeding." Ex. 1011 at 1:41-49; *id.* at 3:40-42 ("the dispensing end is capable of being squeezed or deformed by the mouth or teeth of the user …"). In addition, slot 20 helps to retain liquid if the bottle is overturned. As explained in Tupper, "[W]hen the elongated slot 20 of the sipper seal is held in any non-drinking position capable of creating a gravity flow toward slot 20, the fluid tends to completely fill the entire area of the slot to check spillage by reason of fluid capillarity and surface tension." *Id.* at 3:29-34; *id.* at 4:16-19 ("said slot serving either as a withdrawing outlet for fluid contents or to check the flow of said fluid contents when the vessel lies in horizontal or other leaking position").



Therefore, Toudou in view of Canham and Heise, further in view of Hurst or Tupper, teaches and suggests all limitations of claim 14 and, therefore, renders that claim unpatentable under 35 U.S.C. § 103(a) (pre-AIA).

VI. Secondary Considerations

This Request demonstrates that the Challenged Claims of the '255 Patent are unpatentable as either being anticipated or having been obvious in view of the prior art references. The Applicant did not identify any evidence of secondary considerations during prosecution. Further, the clear teachings in the prior art cannot be overcome by any supposed "secondary considerations." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966); *see Ohio Willow Wood Co. v. Alps South, LLC*, 735 F.3d 1333, 1344 (Fed. Cir. 2013) ("[W]here a claimed invention represents no more than the predictable use of prior art elements according to established functions, as here, evidence of secondary indicia are frequently deemed inadequate to establish non-obviousness.").

VII. Disclosure of Concurrent Litigation, Reexamination, and Related Proceedings

The '255 Patent is at issue in the following district court matter: *CamelBak Products, LLC v. Zak Designs, Inc.*, Case No. 5-21-cv-05109 (W.D. Ark.) (Jun. 11, 2021). Requester is unaware of any prior reexaminations or other post-grant proceedings or other litigations involving the '255

Patent. U.S. Patent No. 9,463,911, which issued from a grandparent application of the '418 Application, is currently undergoing *ex parte* reexamination under Control No. 90/015,013.

VIII. Conclusion

Requester requests the issuance of an Office Action rejecting the Challenged Claims based on one or more of Grounds 1-15 detailed above. The Commissioner is hereby authorized to charge Deposit Account 12-0769 under Docket No. Z036-0005RE the *Ex Parte* Reexamination fee of $12,600 under 37 C.F.R. § 1.20(c)(2). Requester believes no other fee is due with this submission; however, the Commissioner is hereby authorized to charge any fee deficiency or credit any over-payment to Deposit Account 12-0769.

Please direct all correspondence in this matter to the undersigned.

Respectfully submitted,

Dated: January 13, 2023

By: /R. Bruce Bower/

R. Bruce Bower (Reg. No. 37,099)
Lee & Hayes, P.C.
75 14th Street NE, Suite 2500
Atlanta, Georgia 30309
bruce.bower@leehayes.com
P: 404-736-1924

Counsel for Requester Zak Designs, Inc.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent of Robert Choi et al.	§	Attorney Docket No.: Z036-0005RE
	§	
U.S. Patent No. 10,676,255	§	
	§	
Issue Date: June 9, 2020	§	Customer No.: 29,150
	§	
Filing Date: July 13, 2018	§	
	§	
For: DRINK BOTTLES	§	

Mail Stop "*Ex Parte* Reexam"
Attn: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 1.248 and 1.550 and M.P.E.P. § 2266.03, the undersigned attorney for the Requester certifies that a copy of the foregoing **REQUEST FOR *EX PARTE* REEXAMINATION OF U.S. PATENT 10,676,255** and accompanying Exhibits 1001 to 1017 were served by Express Mail at the following address of record for the subject patent:

Correspondence Address of Record
REED SMITH LLP
IP Docketing Dept.
P.O. Box 488
Pittsburgh, PA 15230

District Court Counsel
David T. Pollock
Jonathan I. Detrixhe
Christopher J. Pulido
REED SMITH LLP
101 Second Street, Suite 1800
San Francisco, CA 94105-3659

Dated: January 13, 2023

By: /R. Bruce Bower/
R. Bruce Bower (Reg. No. 37,099)

Patent Assignment Abstract of Title

Total Assignments: 3

Application #: 16035418 **Filing Dt:** 07/13/2018 **Patent #:** 10676255 **Issue Dt:** 06/09/2020

PCT #: NONE **Intl Reg #:** **Publication #:** US20180327151 **Pub Dt:** 11/15/2018

Inventors: Robert Choi, Barley A. Forsman, Jeremy Galten

Title: DRINK BOTTLES

Assignment: 1

Reel/Frame: 046348 / 0227 **Received:** 07/13/2018 **Recorded:** 07/13/2018 **Mailed:** 07/16/2018 **Pages:** 4

Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

Assignors: CHOI, ROBERT **Exec Dt:** 12/16/2005

FORSMAN, BARLEY A. **Exec Dt:** 12/16/2005

GALTEN, JEREMY **Exec Dt:** 12/16/2005

Assignee: CAMELBAK PRODUCTS, LLC
2000 S. MCDOWELL, SUITE 200
PETALUMA, CALIFORNIA 94954

Correspondent: DASCENZO INTELLECTUAL PROPERTY LAW, P.C.
1000 SW BROADWAY, SUITE 1555
PORTLAND, OR 97205

Assignment: 2

Reel/Frame: 056033 / 0349 **Received:** 04/01/2021 **Recorded:** 04/01/2021 **Mailed:** 04/27/2021 **Pages:** 122

Conveyance: ABL INTELLECTUAL PROPERTY SECURITY AGREEMENT

Assignors: AMMUNITION OPERATIONS LLC **Exec Dt:** 03/31/2021

BEE STINGER, LLC **Exec Dt:** 03/31/2021

BELL SPORTS, INC. **Exec Dt:** 03/31/2021

BUSHNELL HOLDINGS, INC. **Exec Dt:** 03/31/2021

BUSHNELL INC. **Exec Dt:** 03/31/2021

C PREME LIMITED LLC **Exec Dt:** 03/31/2021

CAMELBAK PRODUCTS, LLC **Exec Dt:** 03/31/2021

EAGLE INDUSTRIES UNLIMITED, INC. **Exec Dt:** 03/31/2021

FEDERAL CARTRIDGE COMPANY **Exec Dt:** 03/31/2021

GOLD TIP, LLC **Exec Dt:** 03/31/2021

LOGAN OUTDOOR PRODUCTS, LLC **Exec Dt:** 03/31/2021

MICHAELS OF OREGON CO. **Exec Dt:** 03/31/2021

MILLETT INDUSTRIES **Exec Dt:** 03/31/2021

NIGHT OPTICS USA, INC. **Exec Dt:** 03/31/2021

NORTHSTAR OUTDOORS, LLC **Exec Dt:** 03/31/2021

STONEY POINT PRODUCTS INC. **Exec Dt:** 03/31/2021

VISTA OUTDOOR INC. **Exec Dt:** 03/31/2021

VISTA OUTDOOR OPERATIONS LLC **Exec Dt:** 03/31/2021

Assignee: CAPITAL ONE, NATIONAL ASSOCIATION, AS ADMINISTRATIVE AGENT

2 BETHESDA METRO CENTER, SUITE 1000
BETHESDA, MARYLAND 20814

Correspondent: STEWART WALSH
1025 VERMONT AVE NW, SUITE 1130
COGENCY GLOBAL INC.
WASHINGTON, DC 20005

Assignment: 3

Reel/Frame: 061521 / 0747 **Received:** 08/05/2022 **Recorded:** 08/05/2022 **Mailed:** 10/26/2022 **Pages:** 178

Conveyance: SECURITY INTEREST (SEE DOCUMENT FOR DETAILS).

Assignors:	AMMUNITION OPERATIONS LLC	**Exec Dt:** 08/05/2022
	BEE STINGER, LLC	**Exec Dt:** 08/05/2022
	BELL SPORTS, INC.	**Exec Dt:** 08/05/2022
	BUSHNELL HOLDINGS, INC.	**Exec Dt:** 08/05/2022
	BUSHNELL INC.	**Exec Dt:** 08/05/2022
	C PREME LIMITED LLC	**Exec Dt:** 08/05/2022
	CAMELBAK PRODUCTS, LLC	**Exec Dt:** 08/05/2022
	EAGLE INDUSTRIES UNLIMITED, INC.	**Exec Dt:** 08/05/2022
	FEDERAL CARTRIDGE COMPANY	**Exec Dt:** 08/05/2022
	FOX HEAD, INC.	**Exec Dt:** 08/05/2022
	GOLD TIP, LLC	**Exec Dt:** 08/05/2022
	LOGAN OUTDOOR PRODUCTS, LLC	**Exec Dt:** 08/05/2022
	MICHAELS OF OREGON CO.	**Exec Dt:** 08/05/2022
	MILLETT INDUSTRIES	**Exec Dt:** 08/05/2022
	NIGHT OPTICS USA, INC.	**Exec Dt:** 08/05/2022
	NORTHSTAR OUTDOORS, LLC	**Exec Dt:** 08/05/2022
	QUIETKAT, INC.	**Exec Dt:** 08/05/2022
	STONE GLACIER, INC.	**Exec Dt:** 08/05/2022
	STONEY POINT PRODUCTS, INC.	**Exec Dt:** 08/05/2022
	VISTA OUTDOOR OPERATIONS LLC	**Exec Dt:** 08/05/2022
	VISTA OUTDOOR SALES LLC	**Exec Dt:** 08/05/2022
	WAWGD NEWCO, LLC	**Exec Dt:** 08/05/2022
	VISTA OUTDOOR INC.	**Exec Dt:** 08/05/2022

Assignee: JPMORGAN CHASE BANK, N.A., AS THE ADMINISTRATIVE AGENT
10 S. DEARBORN, FLOOR L2, IL1-1145
CHICAGO, ILLINOIS 60603

Correspondent: KATARZYNA GAYSUNAS
1 FEDERAL ST
C/O MORGAN, LEWIS & BOCKIUS LLP
BOSTON, MA 02110-1726

Search Results as of: 01/17/2023 11:48 AM

If you have any comments or questions concerning the data displayed, contact PRD / Assignments at 571-272-3350. v.2.6
Web interface last modified: Jun 26, 2017 v.2.6