Filed:September 30, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TROVE BRANDS, LLC
Petitioner
v.

CAMELBAK PRODUCTS, LLC
Patent Owner

IPR2024-01501
Patent 9,782,028

DECLARATION OF GLENN E. VALLEE, PH.D. IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,782,028

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3. 1[B]: “a cap assembly removably coupled to the liquid container.” 37

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      iii. 1[B][3][c]: “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.” 47

iv. 1[B][3][d]: “a second catch structure adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration.” 49

d. 1[B][4]: “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.” 50

B. Claim 2 is Anticipated by, and/or Obvious over Kiyota 55

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5. 21[B][2]: “a mouthpiece assembly that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing configuration and a stowed

configuration, wherein the mouthpiece assembly is biased to the dispensing configuration” 73

6. 21[B][2][a]: “a resilient mouthpiece portion that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration” 74

7. 21[B][2][b]: “a resilient tube connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration” 74

8. 21[B][2][c]: “a resilient anchor portion extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the , and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly” 75

9. 21[B][3]: “a user release mechanism adapted to automatically release the mouthpiece assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly” 76

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2. 1[A]: “a liquid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid” 78

3. 1[B]: “a cap assembly removably coupled to the liquid container” 79

a. 1[B][1]: “a base removably coupled to the neck of the liquid container and including a through-passage” 80

b. 1[B][2]: “a first catch structure” 81

c. 1[B][3]: Mouthpiece Assembly 82

i. 1[B][3][a]: “a mouthpiece portion that includes an outlet” 86

ii. 1[B][3][b]: “a tube that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the mouthpiece portion, wherein the tube includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration, and where the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material” 87

iii. 1[B][3][c]: “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” 90

iv. 1[B][3][d]: “a second catch structure adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration” 91

d. 1[B][4]: "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" 92

B. Claim 2 is Anticipated by, and/or Obvious over Ribarits 97

C. Claim 5 is Anticipated by, and/or Obvious over Ribarits 98

D. Claim 6 is Obvious over Ribarits 100

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1. Preamble: "A drink container" 108

2. 21[A]: "a liquid container" 108

3. 21[B]: "a cap assembly removably coupled to the liquid container" 108

4. 21[B][1]: "a base that defines a through-passage" 109

5. 21[B][2]: "a mouthpiece assembly that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing configuration and a stowed configuration, wherein the mouthpiece assembly is biased to the dispensing configuration" 109

6. 21[B][2][a]: "a resilient mouthpiece portion that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration" 110

7. 21[B][2][b]: “a resilient tube connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration” 111

8. 21[B][2][c]: “a resilient anchor portion extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the , and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly” 111

9. 21[B][3]: “a user release mechanism adapted to automatically release the mouthpiece assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly” 113

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1. I, Glenn Vallee, Ph.D., am making this declaration at the request of Trove Brands ("Petitioner") in support of its Petition for *Inter Partes* Review ("IPR") of U.S. Patent No. 9,782,028 ("the '028 patent"). I understand that this declaration will be submitted as Exhibit 1003 to the IPR petition.

2. I am being compensated at my customary hourly rate for my work in this matter, and I am being reimbursed at cost for my reasonable expenses. My compensation does not depend in any way on the outcome of this proceeding. I have no financial interest in any of the parties to this proceeding.

3. In conducting the analysis and forming the opinions set forth in this Declaration, I considered, in addition to my knowledge and expertise in the relevant field, the following materials, which I understand will be submitted as Exhibits to the IPR petition:

Exhibit No.	Description
1001	U.S. Patent No. 9,782,028 ("the '028 patent")
1002	Decision Denying Institution of *Inter Partes Review* in *Zak Designs, Inc. v. CamelBak Products, LLC*, PTAB-IPR2022-00803 (PTAB, Oct. 25, 2022)
1003	*Intentionally Omitted*
1004	United States Patent No. 6,279,773 to Kiyota ("Kiyota")
1005	Certified English Translation of International Publication No. WO 2004/063042 to Ribarits ("Ribarits")

Exhibit No.	Description
1006	Translation Certificate for International Publication No. WO 2004/063042 to Ribarits
1007	International Publication No. WO 2004/063042 to Ribarits
1008	United States Patent Application Publication No. 2007/0039959 to Choi, et al. ("Choi")

I. BACKGROUND

A. Professional Background

4. I am employed by Western New England University as an Associate Professor and Chair of Mechanical Engineering. My background is in the areas of mechanical engineering, design, product development, and quality assurance. I have a Ph.D. in Mechanical Engineering from the University of Rhode Island and my Ph.D. dissertation research focused on the use of elastomeric materials in pneumatic nailers. I teach courses in Mechanical Design, Kinematics, Vibrations, Mechanics of Materials, and a Product Development and Innovation (PDI) course where students design consumer products having commercial potential. Six utility patents have been filed for student inventions developed in the course. I have also served as the faculty advisor to over 100 capstone senior design projects, many of which deal with fluid flow and methods of sealing. In fact, I was retained by a local inventor to serve as an advisor to a project involving the development of a novel two-part

beverage bottle. Many other capstone projects dealt with fluid containment and methods of sealing, such as the design of a bicycle driven water purification system, the development of a deflation proof air mattress, the design of a recoil reduction device for pneumatic nailers, the development of a drive piston retaining device in pneumatic nailers, and the development of a biodiesel fuel generation system.

5. I also teach undergraduate engineers how to design products used to contain fluids which require methods of sealing, and I teach laboratory courses where students utilize a variety of electrical transducers and data acquisition systems. I also serve as a consultant in the areas of mechanical engineering design, product development, numerical stress analysis, and mechanical testing, as well as serving as a technical expert in product liability litigation. I am a member of the American Society of Mechanical Engineers (ASME member no. 1259837), and I am a licensed Professional Engineer (RI Lic. No. 6765).

6. As set forth in more detail in my curriculum vitae (Appendix A), I have substantial expertise in the areas of mechanical engineering, consumer product design and development, quality assurance, mechanical testing, and the design of a wide variety of products utilizing fluid flow and sealing components. Prior to joining Western New England University, I served as the Director of Engineering and Quality Assurance, Worldwide for the Remington Products Company, L.L.C., in

Bridgeport, CT, from 1997 until 2002. Remington Products Company is a major manufacturer of consumer products, including electric shavers, beard trimmers, and hair dryers. My responsibilities included directing the activities of Design and Product Engineering, Quality Assurance, and Manufacturing departments in the U.S., U.K., and Asia, responsible for the design and development of international consumer products, and for focusing new product engineering toward continuously improving customer satisfaction through improved product design, performance, and quality.

7. Prior to my employment at Remington Products, I served as the Manager of the Engineering Laboratories at the Stanley Bostitch Company, now a division of Stanley/Black & Decker. Stanley Bostitch is a leading manufacturer of pneumatic nailers and staplers, a variety of hand tools such as hammer tackers and staplers, and a number of other office products. I was employed by Stanley Bostitch from 1985 until 1997, serving first as a Technician, then Test Engineer, then Product Design/Development Engineer, and was promoted to Manager of the Engineering Laboratories in 1995. During my employment at Stanley Bostitch, I acquired extensive experience in the design and testing of a variety of mechanical, pneumatic and electromechanical products, including pneumatic fastening tools, electric trackers and staplers, and electric pencil sharpeners. My work as a Technician and

then Test Engineer allowed me to acquire experience in conducting and developing test methodologies for all products. My work as a Product Design/Development Engineer involved designing and developing products from conception through manufacture and quality control, most of which required the design of fluid containment systems and methods of sealing. As the Manager of the Engineering Laboratories, I managed the largest of the Engineering Laboratories in Stanley Works and supervised 18 employees. This position required that I coordinate testing and allocate resources to meet stringent scheduling requirements of the Product Development, Manufacturing, and Marketing departments.

8. I am an inventor on nine patents, some of which involve fluid flow and methods of sealing in products such as pneumatic nailers and a bicycle driven water purification device. Other patented devices are related to hand tools, electrical and surgical devices. I have reviewed many patents as I worked with patent attorneys to file the patent applications discussed above. I have given deposition testimony eight times and I have testified in court four times, each such instance related to product liability litigation where I testified as a technical expert. I have also given deposition testimony in cases involving a Petition for Inter Partes Review ("IPR") for patents related to hole saws, accessories for mobile phones, hoverboards, and cases involving patent infringement and/or non-infringement related to products requiring

the containment of fluids such as pneumatic and gas spring-powered nailers, e-cigarettes, and air mattresses with embedded air pumps. Other products for which I was retained as a technical expert include beveling miter saws, and a number of consumer products, including spring-loaded desktop staplers and toy car and track systems.

9. Appendix A to this declaration is a copy of my curriculum vitae, which further expands on my qualifications and expertise and includes a list of my publications and prior testimony.

B. Relevant Legal Standards

10. I have been asked to provide my opinion as to whether certain claims of the ’028 patent were anticipated by the prior art and/or would have been obvious to a person of ordinary skill in the art at the time of the claimed invention—which I will refer to as a “person of skill in the art” or “one skilled in the art” throughout this declaration—in view of the prior art.

11. I am an engineer, a scientist, and an academic by training and profession. My opinions in this declaration come from applying my technical education, knowledge, training, and experience to evaluate certain prior art with respect to the ’028 patent.

12. While I have experience acting as an expert in patent proceedings, I am not a lawyer or expert in patent law. Therefore, Trove Brands' attorneys from Knobbe, Martens, Olson & Bear, LLP advised me as to the legal principles to be applied in this case. The following paragraphs express my understanding of how I must apply these principles in forming my opinions.

1. Claim Construction

13. I understand that, in assessing the patentability of a patent claim, the language of the claim generally should be given its plain and ordinary meaning as would be understood by a person having ordinary skill in the art at the time of the patented invention consistent with the patent specification and prosecution history.

14. I understand that where a claim element is described in terms of the function it performs rather than the structure of the element, it is considered a "means-plus-function" element under the patent law. I understand that such claim elements often, but not always, take the form of reciting a "means for" performing a function. I understand that, even if the term "means" is not used in connection with the recited function, the element may nonetheless be a means-plus-function element under the patent law where the element would not be understood by a person skilled in the art as describing a sufficiently definite structure or the element recites function without reciting sufficient structure for performing the function. I understand this

often occurs when the claim element uses, in place of "means," a generic nonce word that does not connote a specific structure. "Mechanism" is an example of such a nonce word.

15. I also understand that in cases where a claim term is evaluated as a means-plus-function element, it is construed in a two-step process: First, one identifies the function. Second, one identifies the structure described in the patent specification that is clearly linked to the function recited in the claim.

16. A claim element construed as a means-plus-function element encompasses the corresponding structure described in the specification and equivalents thereof. A structure in the prior art is considered equivalent if a person of ordinary skilled in the art would consider the difference between the prior art structure and the corresponding structure described in the patent specification to be insubstantial. One way of showing that the prior art structure is only insubstantially different is to show that it performs the claimed function in substantially same way to achieve substantially the same result as the structure of the specification.

2. Anticipation

17. I understand that a claim is "anticipated" by an item of prior art if the prior art describes, either expressly or inherently, each and every limitation of the claim.

18. I understand that the description of the invention in the anticipating prior art must be recognizable to one skilled in the art at the time of the invention, such that the prior art described the invention in such terms that one skilled in the art could make and use the claimed invention.

19. I understand that the prior art inherently teaches a limitation if that limitation necessarily flows from the disclosure of the prior art. I understand that the fact that a certain result or characteristic *may be* present in the prior art is not sufficient to establish inherency. If the result or characteristic is necessarily present based upon the explicit disclosure in the prior art, it is inherent in the prior art and is therefore disclosed.

3. Obviousness

20. I understand that a claim is "obvious" if the subject matter of the claim as a whole would have been obvious to one skilled in the art at the time of the claimed invention. I understand that a determination of obviousness takes into account the scope and content of the prior art, the differences between the claimed subject matter and the prior art, and the level of ordinary skill in the art at the time of the invention. I understand that an obviousness analysis also considers whether there are additional factors that would indicate that the invention would not have been obvious. Such factors include whether the invention satisfied a long-felt need in the industry;

whether the invention produced any unexpected results; whether the invention was met with skepticism by those in the relevant field; whether the prior art taught away from the invention; whether the invention was a commercial success; and whether the invention was praised or copied by others.

21. I understand that, in determining the scope and content of the prior art, a reference is considered analogous (i.e., appropriate) prior art if: (1) it falls within the field of the inventor's endeavor; or (2) it is reasonably pertinent to the particular problem the inventor was involved with. I have been informed that a reference is reasonably pertinent if it logically would have commended itself to an inventor's attention in considering the problem—put another way, if one skilled in the art would reasonably have consulted those references and applied their teachings in seeking a solution to the problem that the inventor was attempting to solve. I understand that, if a reference relates to the same problem as the claimed invention, that supports use of the reference as prior art in an obviousness analysis.

22. I understand that, to assess the differences between prior art and the claimed subject matter, the claimed invention is to be considered as a whole, such that one skilled in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would have selected the elements from the prior art and combined them in the claimed manner.

23. I understand that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter, including:

- combining prior art elements according to known methods to yield predictable results;
- simple substitution of one known element for another to obtain predictable results;
- a predictable use of prior art elements according to their established functions;
- applying a known technique to a known device (method or product) ready for improvement to yield predictable results;
- choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and
- some teaching, suggestion, or motivation in the prior art that would have led one skilled in the art to modify the prior art reference or to combine the prior art reference teachings to arrive at the claimed invention.

24. I understand that the obviousness analysis is performed from the perspective of one skilled in the art at the time of the patented invention. To avoid using impermissible hindsight in my analysis, I have not used the claims of the patent as a road map for obviousness.

25. I understand anticipation, described above, is considered the ultimate or epitome of obviousness. Thus, when a reference discloses each limitation of a claim, the claim is necessarily obvious.

C. Person Having Ordinary Skill in the Art

26. I understand that when interpreting the claims of the ’028 patent and evaluating the prior art, I must do so based on the perspective of a person having ordinary skill in the art at the relevant priority date of the ’028 patent. I have been asked to assume that the priority date for claims 1, 2, 5, 6, 8, 9, 15, 16, and 21 is January 21, 2009.

27. I understand that the person of skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. I understand it is a person of ordinary creativity and is not an automaton.

28. I understand that, in determining the level of ordinary skill in the art, several factors are considered, including: the type of problems encountered in the art; prior art solutions to those problems; the rapidity with which innovations are made; the sophistication of the technology; and the educational level of active workers in the field. I understand that one skilled in the art must be capable of understanding the scientific and engineering principles applicable to the pertinent art.

29. The ’028 patent describes the use of well-known technologies for designing reusable, portable drink containers. Based on my review of the ’028 patent, it is my opinion that one skilled in the art would have had an undergraduate

degree in mechanical engineering or equivalent coursework, as well as one or more years of experience in designing, prototyping, and/or manufacturing fluid containers or similar products. More work experience may substitute for less education, and vice versa.

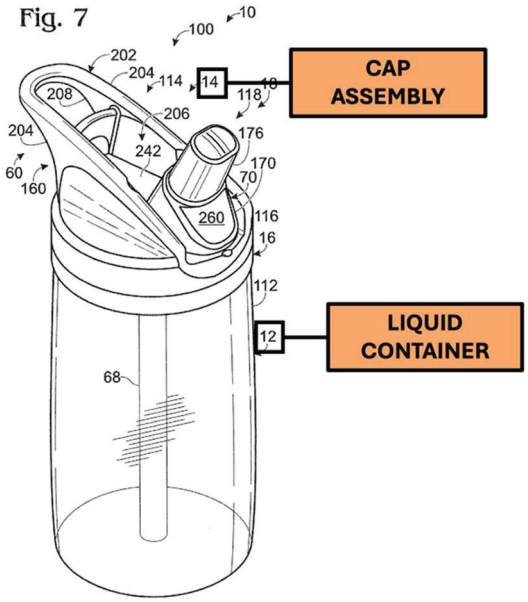
30. It is my opinion that the above definition of one skilled in the art is not necessary to reach the same opinions I have in this declaration. I believe that under any reasonable definition for one skilled in the art, the claims would be anticipated and/or obvious from the perspective of one skilled in the art at the time of the alleged invention.

31. I have based my opinions on the qualifications of one of skill in the art on my review of the ’028 patent, the relevant prior art, and my experience. In the late 2000s, I was familiar with design principles common in the mechanical arts. I frequently worked with and supervised engineering students and junior engineers who had the requisite knowledge and experience to make and use the articles described in the ’028 patent. Based on my experience and knowledge, I believe that people of the above-defined level of education and skill would have the capability to interpret and understand the invention claimed in the ’028 patent and the scientific and engineering principles applicable to the pertinent art.

II. THE '028 PATENT

A. Specification and Figures

The '028 patent is titled, "Drink Containers," and discloses drink containers that include a liquid container and a cap assembly removably coupled to the liquid container. Ex. 1001, 4:11-12. An exemplary embodiment of the drink containers disclosed in the '028 patent is shown in Figure 7, which I have reproduced below with annotations to show the "liquid container 12" and "cap assembly 14".[1]

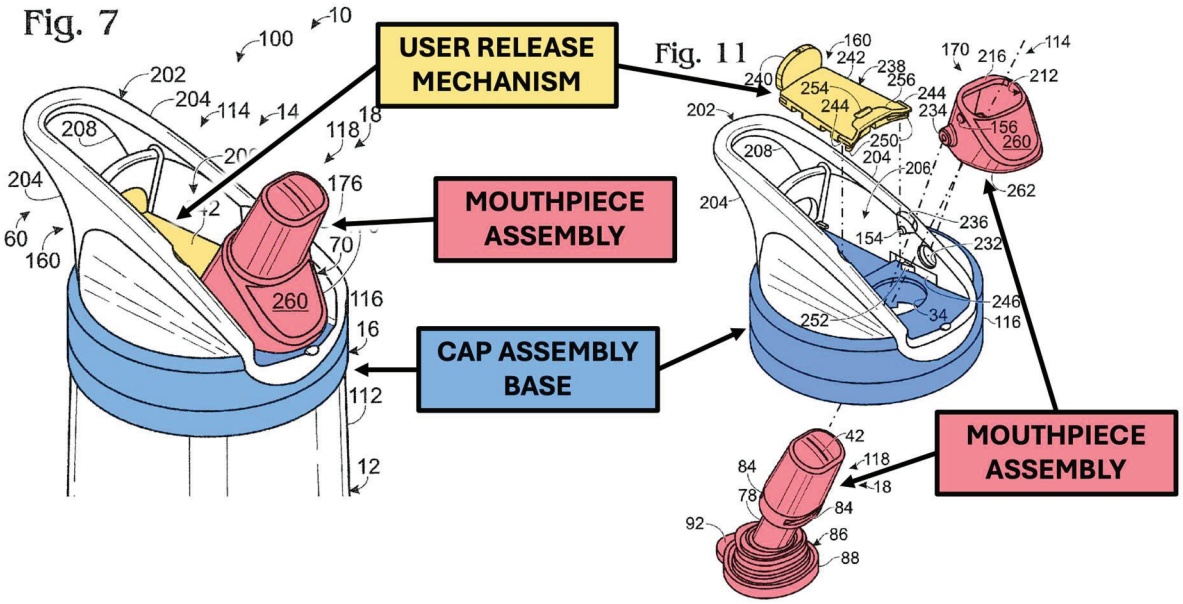


Ex. 1001, Fig. 7. Figure 7 shows a drink container and cap assembly with a mouthpiece assembly in its dispensing configuration. Ex. 1001, 2:16-20. Figure 8

[1] Throughout this declaration, I have added coloring and annotations to otherwise black and white patent figures to improve clarity and understanding.

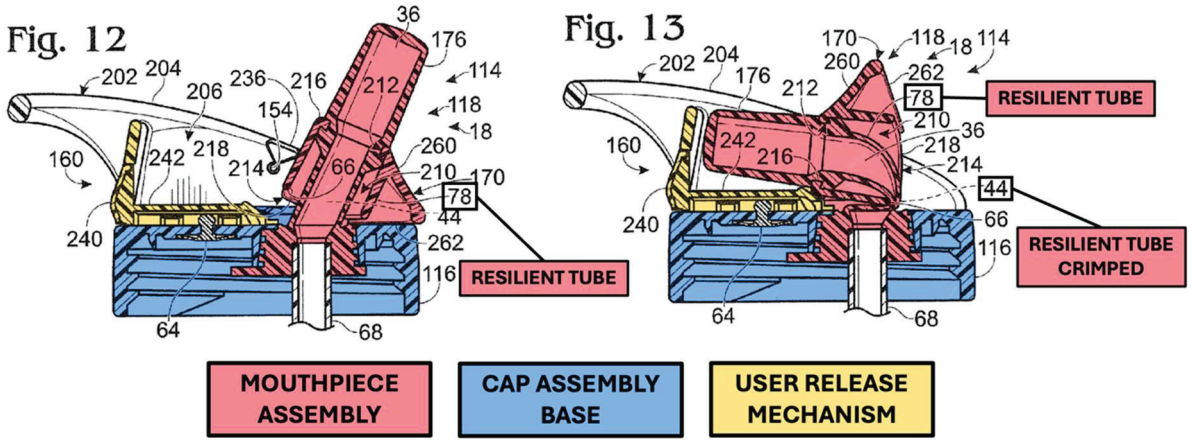
shows the same, with its mouthpiece assembly in its stowed configuration. Ex. 1001, 2:21-22.

32. As shown below in excerpted Figures 7 and 11, the "cap assembly 14" includes a base, a mouthpiece assembly, and a user release mechanism:



Ex. 1001, at Figs. 7, 11. The cap assembly includes "mouthpiece assembly 118," "rigid collar member 170," and "user release mechanism 160." The '028 Patent discloses that "[r]igid collar member 170 defines a through-passage 210 through which tube 78 and a portion of bite-actuated mouthpiece 176 extends," and that "[a]ccordingly, when the rigid collar member is pivoted, at least the mouthpiece portion of the mouthpiece assembly pivots with it." Ex. 1001, at 11:42-45; 55-57.

33. Figures 12 and 13 show cross-sectional views of the cap assembly with the mouthpiece assembly in its dispensing and stowed configurations, respectively:



Ex. 1001, Figs 12, 13. As shown in Figure 13, the rigid collar member 170's "crimping portion 66 engages and crimps the crimping region of the tube to thereby restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration … ." Ex. 1001., 11:63-67. However, "crimping portion of the rigid collar member does not engage the crimping region of the tube when the mouthpiece assembly is in the dispensing configuration, as perhaps best seen in FIG. 12." Ex. 1001, 11:1-4.

34. The '028 Patent discloses two embodiments of its user release mechanism. The first embodiment is shown in the above figures and further described below. *See* Ex. 1001, 12:50-13:39 (describing first embodiment). In this embodiment, the mouthpiece is held in its closed configuration by catch structures

("protrusions 156") on "rigid collar member 170" which engage with catch structures ("depressions 154") on "handle 202." Ex. 1001, 12:22-37. When the user presses "user engagement pad 240" on "sliding member 238," the sliding member slides between "base 116" and "rigid collar member 170." Ex. 1001, 13:15-25. This movement urges the collar upwards to disengage the corresponding catch structures. With the catch structures disengaged, the inherent bias in resilient tube 78 causes the mouthpiece to pivot into its dispensing configuration.

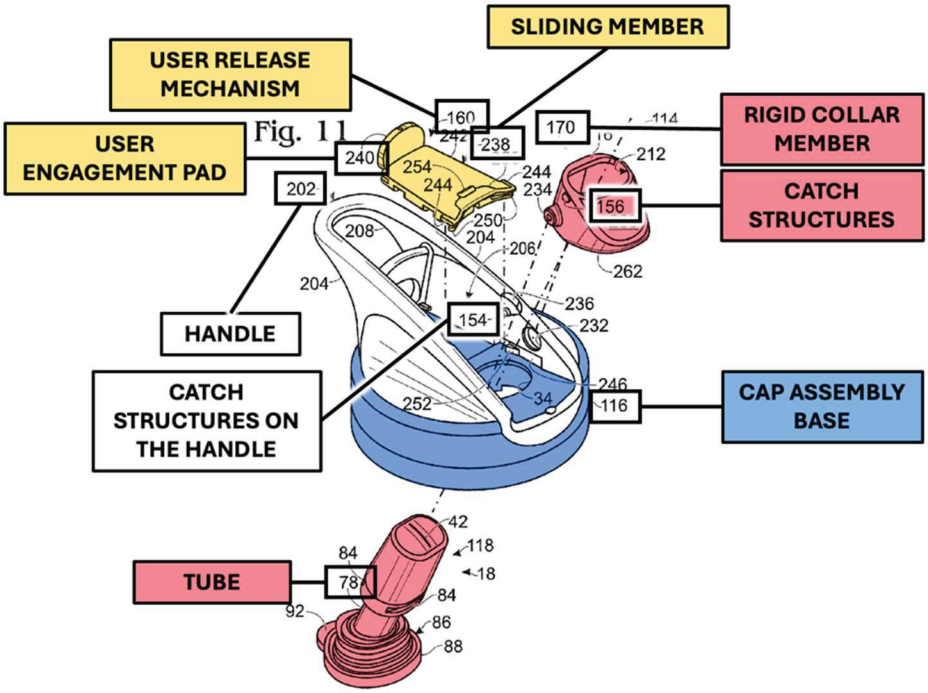
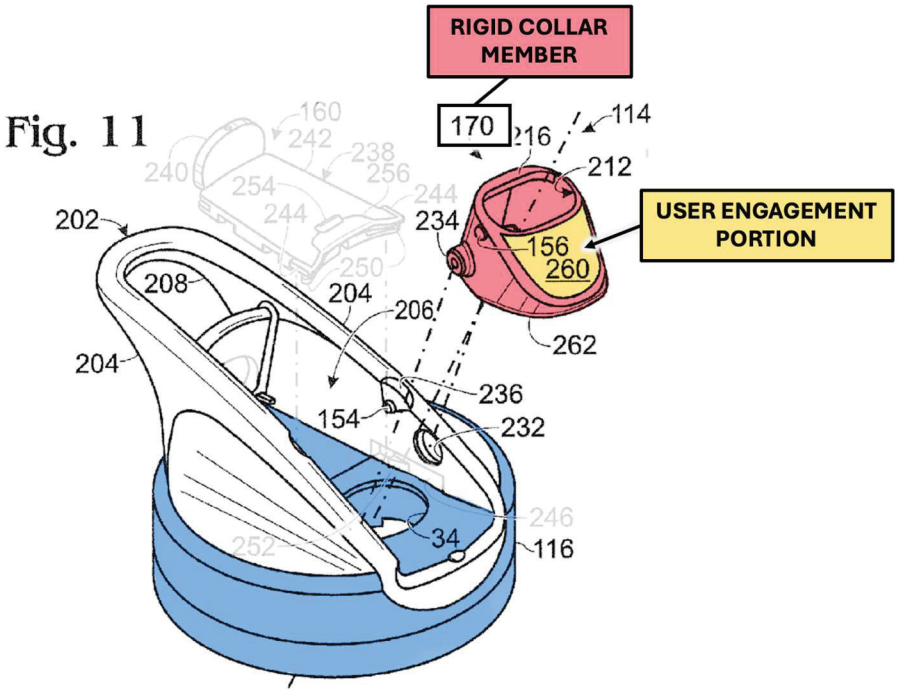


Fig. 11

Ex. 1001, Figs. 8, 11.

35. I have illustrated the second embodiment, which can be an alternative or an additional user release mechansim, in Figure 11 below. *See* Ex. 1001, 13:40-

54 (describing second emboidment). In this embodiment, the user presses the mouthpiece assembly directly at "user engagement portion 260" on "rigid collar member 170," which causes catch structures 154 and 156 to disengage and the mouthpiece to pivot into its dispensing configuration.



Ex. 1001, Fig. 11.

B. Claims

36. The '028 patent includes 21 claims. Of these, claims 1, 18, and 21 are the only independent claims. I understand that a claim that depends from another claim includes all the limitations of the claim from which it depends and the additional limitations of that dependent claim.

37. Independent claims 1 and 21 of the ’028 patent are set forth below (with bracketed labels added for reference and the main elements of the drink container bolded):

Claim 1	
Preamble	A drink container, comprising:
1[A]	**a liquid container** having a neck with an opening and having an internal compartment sized to hold a volume of potable drink liquid; and
1[B]	**a cap assembly** removably coupled to the liquid container, the cap assembly comprising:
1[B][1]	**a base** removably coupled to the neck of the liquid container and including a through-passage;
1[B][2]	**a first catch structure;**
1[B][3]	**a mouthpiece assembly** extending through the through-passage of the base and defining a liquid passage through which drink liquid from the liquid container may selectively flow, and further defining an inlet through which drink liquid in the internal compartment may enter the liquid passage and an outlet through which drink liquid from the internal compartment of the liquid container is selectively dispensed, wherein the mouthpiece assembly is configured to be selectively configured between a dispensing configuration, in which the liquid passage permits drink liquid to flow from the internal compartment at least into the liquid passage, and a stowed configuration, in which the liquid passage restricts the flow of drink liquid through the liquid passage, wherein the mouthpiece assembly is biased to the dispensing configuration, and wherein the mouthpiece assembly comprises:

Claim 1	
1[B][3][a]	**a mouthpiece portion** that includes the outlet;
1[B][3][b]	**a tube** that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the mouthpiece portion, wherein the tube includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration, and where the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material;
1[B][3][c]	**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;
1[B][3][d]	**a second catch structure** adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration; and
1[B][4]	**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.

Claim 21	
Preamble	A drink container, comprising:
1[A]	**a liquid container**; and

Claim 21	
1[B]	**a cap assembly** removably coupled to the liquid container, the cap assembly comprising:
1[B][1]	**a base** that defines a through-passage;
1[B][2]	**a mouthpiece assembly** that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing configuration and a stowed configuration, wherein the mouthpiece assembly is biased to the dispensing configuration, and wherein the mouthpiece assembly comprises:
1[B][2][a]	**a resilient mouthpiece portion** that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration;
1[B][2][b]	**a resilient tube** connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration; and
1[B][2][c]	**a resilient anchor portion** extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the , and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly; and
1[B][3]	**a user release mechanism** adapted to automatically release the mouthpiece assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly.

C. Priority Date

38. For the purposes of this analysis, I have been asked to assume that the priority date for claims 1, 2, 5, 6, 8, 9, 15, 16, and 21 is January 21, 2009.

D. Claim Construction

1. "User Release Mechanism"

39. Claims 1 and 21 recite "a user release mechanism." I note, however, that neither Claims 1 or 21 recites any specific structure for the claimed "user release mechanism." Instead, each of these claims recites the function associated with the claimed "user release mechanism." For example, the term "mechanism" is a generic term used in the mechanical arts that does not denote any specific structure. Likewise, the term "user release" is not structural; it merely describes, at a high level, the function performed by the mechanism. Accordingly, a person of ordinary skill in the art would not have understood the term "user release mechanism" to sufficiently define any particular structure to perform the claimed function. For this reason, I understand that the term "user release mechanism" is a so-called "means-plus-function" term and is therefore governed by 35 U.S.C. §112.

2. Other Claim Constructions

40. Unless otherwise noted, I have given claim terms their plain and ordinary meaning.

E. Prior IPR Proceedings Involving the '028 Patent

41. I understand that the '028 Patent has been the subject of a prior petition for *Inter Partes* Review, IPR2022-00803. I also understand that the Patent Trial and Appeal Board denied institution of that petition. *See* Ex. 1002. I have reviewed the PTAB's denial of IPR2022-00803. I note that in IPR2022-00803 the Petitioner's asserted invalidity grounds relied on prior art references different from those discussed in this declaration. *See* Ex. 1002 at 5. I also note that IPR2022-00803 did not challenge Claim 15 of the '028 Patent, which I have included in my analysis below. Accordingly, the PTAB's denial of institution of IPR2022-00803 does not impact any aspect of my analysis of the '028 Patent, as contained in this declaration.

III. PRIOR ART BEVERAGE/DRINK CONTAINERS

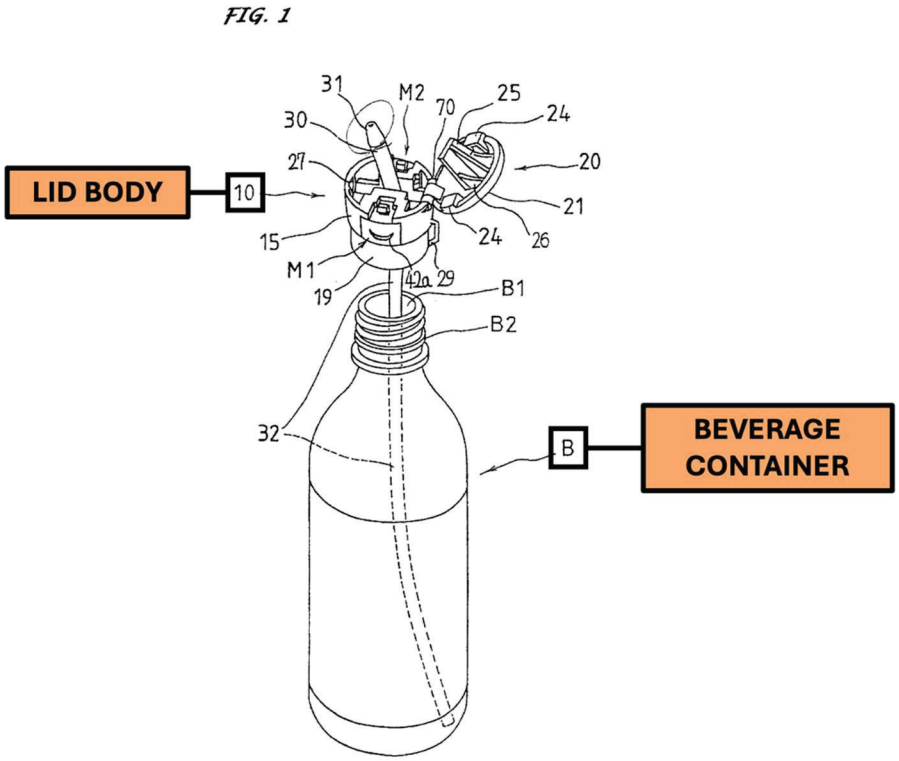
42. Drink containers with removable caps have, of course, long been known. And drink cap assemblies with the features claimed in the '028 patent (e.g., base, mouthpiece, and a user release mechanism) have also been known since well before the '028 patent's priority date. I briefly summarize certain references below, each of which would have been known to a person of skill in the art and would have informed that person's knowledge of the structure, components, and materials that could be used in the design of drink containers and drink container cap assemblies. I note, however, that these references are merely exemplary, and are not exhaustive

of the prior art that would have been known to and relied upon by a person of ordinary skill in the art in the design of drink containers and drink container cap assemblies.

A. Kiyota

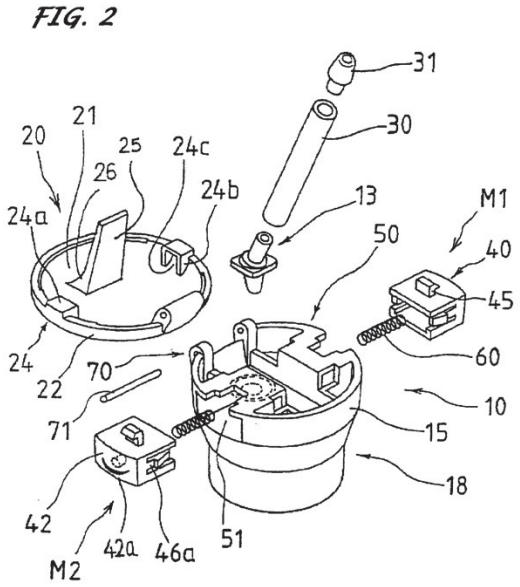
43. Kiyota (Ex. 1004), which is titled " Lid Body of Beverage Container," discloses a cap assembly, which Kiyota refers to as "lid body 10," for use with a drink container. Ex. 1004, Abstract, Title, 1:5-7.

44. An exemplary embodiment is shown in Figure 1 of Kiyota:



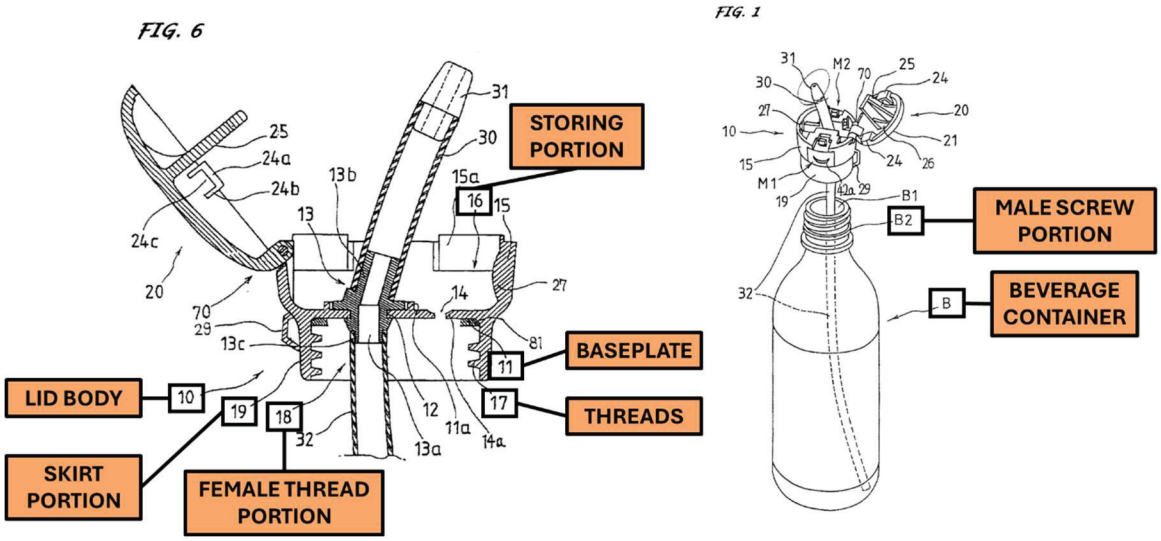
Ex. 1004, Fig. 1.

45. Figure 2 shows an exploded view of Kiyota's lid body:



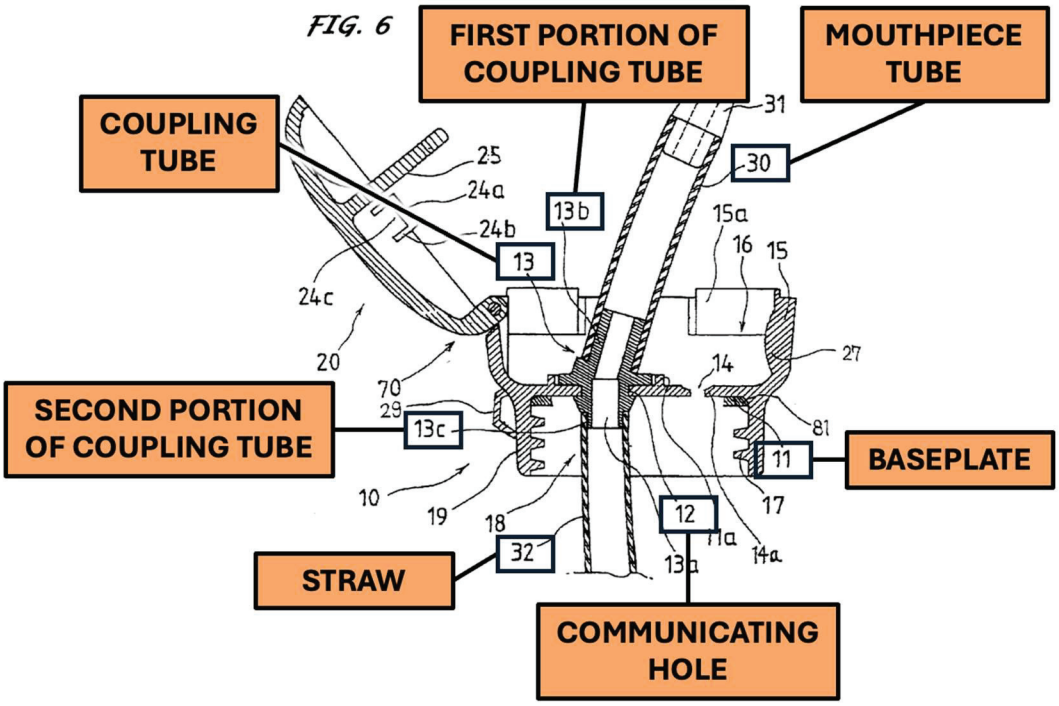
Ex. 1004, Fig. 2 (cropped).

46. The lid body connects to the beverage container by virtue of a threaded engagement between a "male screw portion B2" on the beverage container and a "female thread portion 18" on the lid body, as shown below:



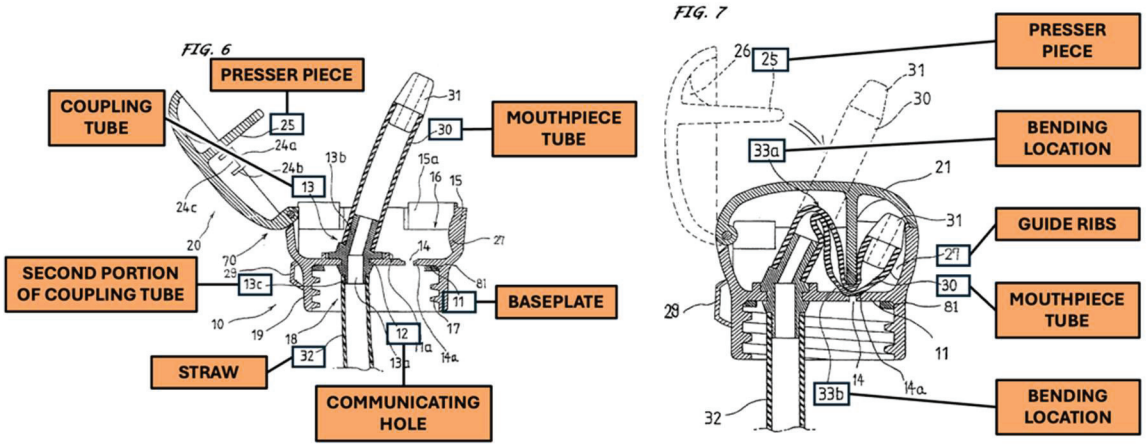
Ex. 1004, Figs. 1, 6. The lid body includes a "storing portion 16" above a "baseplate 11" that retains "mouthpiece tube 30" when in the stowed position.

47. As shown below, "mouthpiece tube 30" is secured to "baseplate 11" via "coupling tube 13," which extends through "communicating hole 12" to form a fluid passage through "baseplate 11." The coupling tube includes flanges that secure it in "communicating hole 12," and is comprised of a "first coupling portion 13b" for connecting to "mouthpiece tube 30" (from which a user may drink the beverage) and a "second coupling portion 13c" for connecting to "suction tube 32," which is a straw extending into the beverage container.



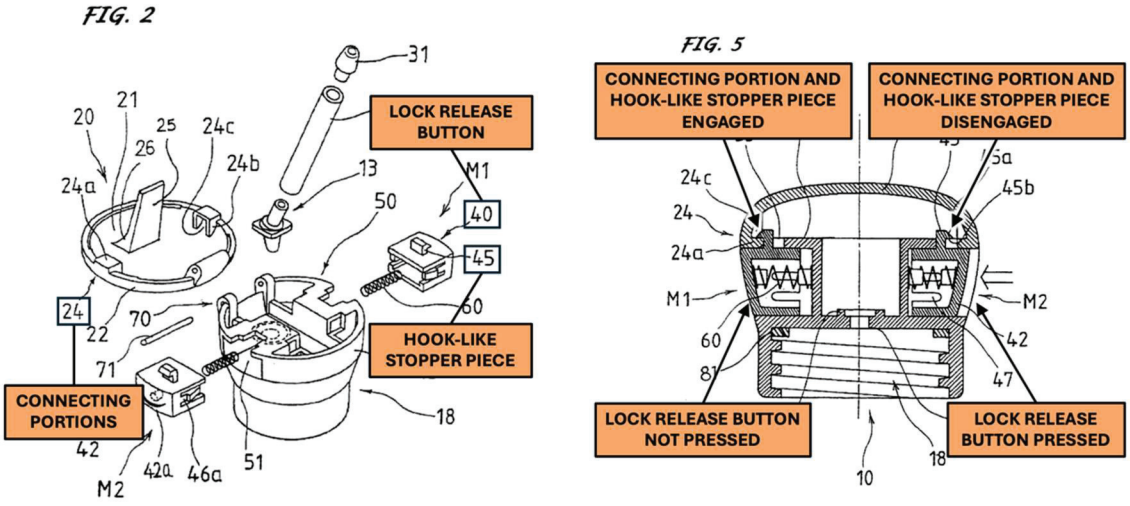
48. Below, I have annotated Figures 6 and 7 to show the components of the

lid body in the dispensing and stowed configurations, respectively:



Ex. 1004, Figs. 6, 7. The lid body also includes a "lid portion 20" that includes a "presser piece 25." The "lid portion 20" is pivotable about "hinge 70" to close the lid body and retain the "mouthpiece tube 30" within. When stowed, the "presser piece 25" presses down on "mouthpiece tube 30," which presses the tube against "baseplate 11." This movement causes the tube to crimp at locations 33a and 33b, as shown in Figure 7. A pair of "guide ribs 27" guide "mouthpiece tube 30" into its stowed position as it is pressed down by "presser piece 25."

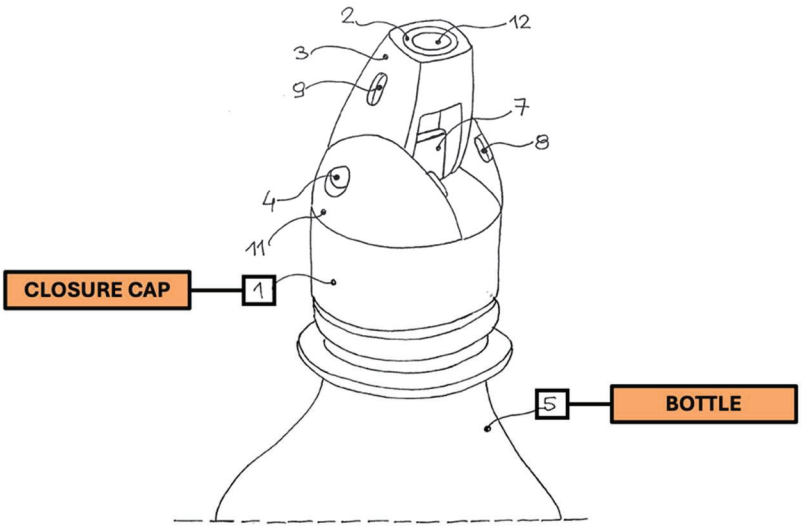
49. To maintain the lid in its stowed configuration, Kiyota's lid body includes corresponding catch structures on the underside of the lid ("connecting portions 24") and on a pair of "hook-like stopper pieces 45" on the upper surface of "lock release buttons 40", which I have identified in Figures 2 and 5 below:



Ex. 1004, Figs. 2, 5. To open Kiyota's lid, the user presses the lock release buttons, which causes the "hook-like stopper pieces 45" to disengage from the "connecting portions 24" on the underside of the lid. This allows "mouthpiece tube 30" to push "openable lid 20" to the open position as the tube returns via its bias to its uncrimped state, whereby drink liquid can flow through it to the user's mouth.

B. Ribartis

50. Ribarits (Ex. 1005), which is titled "Drinking Device," discloses "a drinking device which enables a drink to be drunk in a pleasant, hygienic manner, and can be both opened and closed with one hand." Ex. 1005, Abstract.

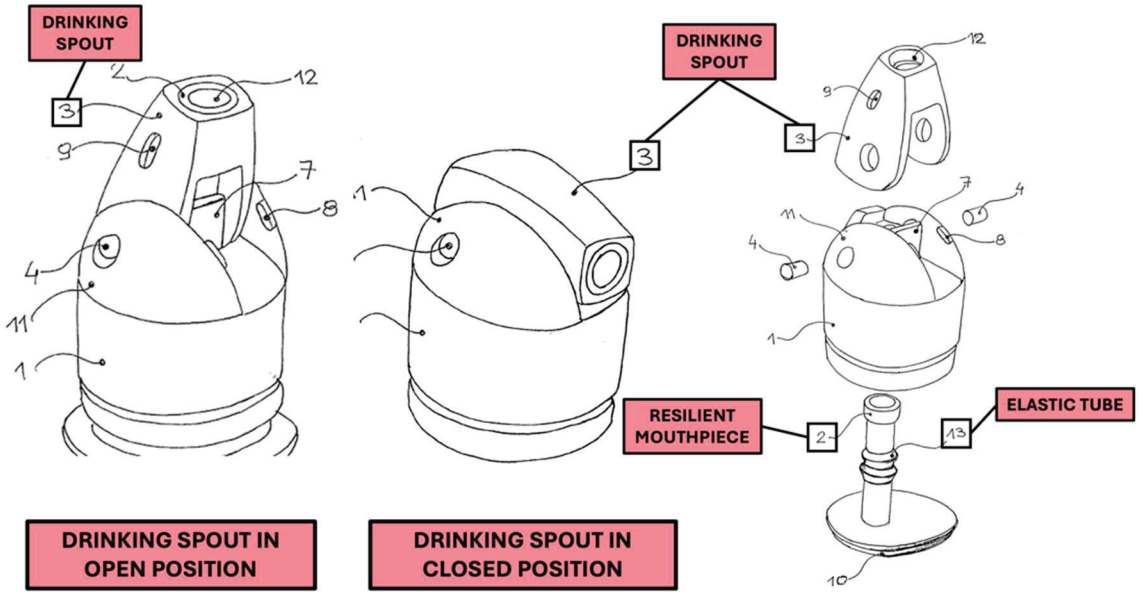


Ex. 1005, Fig. 1.

51. The components and structure of the Ribarits device are identified as:

> a closing cap (1), a sealed tubular element (2) inserted therein, and a drinking spout (3) which is fixed in the lateral parts (11) by two axial pins (4), wherein the sealed tubular element (2) is inserted into the drinking spout (3), characterized in that when the closing cap (1) is screwed onto the bottle (5), the required tightness is obtained by means of the sealing rings (10), and in that the knobs (8) applied to the lateral parts (11) engage in the recesses (9) on the drinking spout (3).

Ex. 1005, 3 (Claim 1). As shown below, the device includes "a drinking spout" that can be "pivoted" between an open position and a closed position. Ex. 1005, 2.



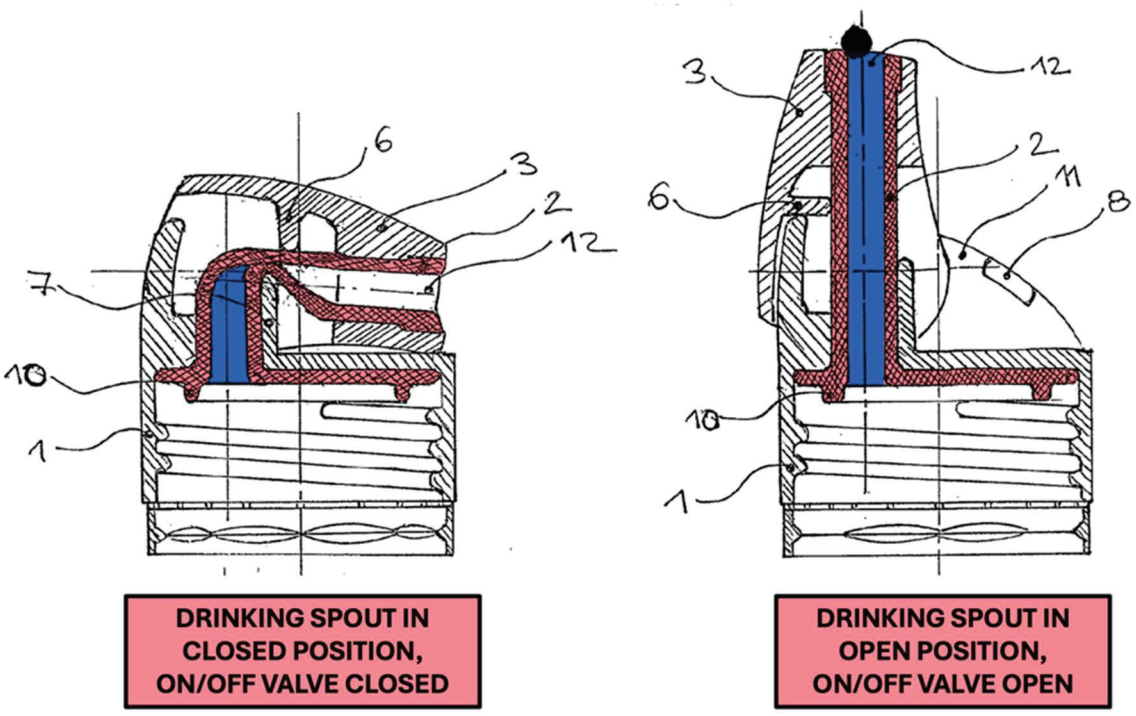
Ex. 1005, Figs. 1, 2. An elastic tube serves as a fluid conduit for the user to draw fluid out of the drink container, through the cap assembly, and into the user's mouth.

52. Ribarits describes the overall structure and function of the cap assembly as follows:

> In the lateral parts placed at the top of the closing cap, the drinking spout is movably mounted by means of both axles. When the drinking spout is pivoted open, the elastic tube inserted therein is straightened and the opening is thus released. The liquid located in the bottle can now be withdrawn via the tube guided in the drinking spout, wherein the tightness is given by screwing the neck of the bottle onto the sealing part of this element.
>
> If now the device is to be closed, by folding down the drinking spout, the tube is bent between the outlet opening of the closing cap and the accommodation in the drinking spout by means of the two webs, and the device is closed.

Ex. 1005, 2.

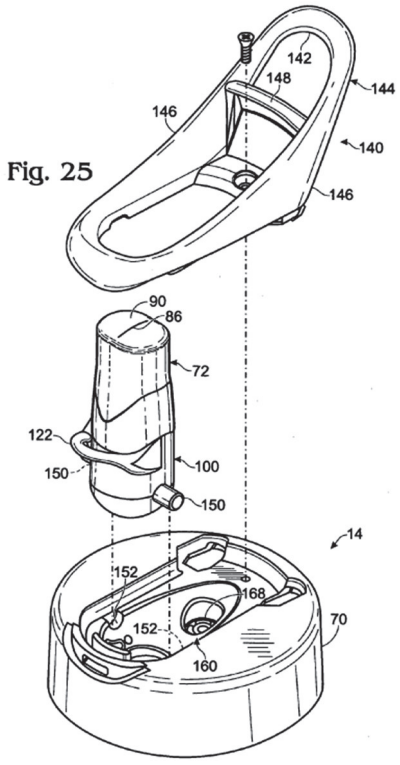
53. Figure 3, which I have reproduced below, shows cross-sectional views of the exemplary embodiment of the Ribarits cap assembly, in the open and closed positions:



Ex. 1005, Fig.3. The pivoting action of the drinking spout functions as an on/off valve that controls the flow of fluid through the elastic tube. In the open position (above, right), the drinking spout is pivoted away from the cap assembly base, opening the elastic tube and allowing fluid to flow from the drink container to the user. In the closed position (above, left), the drinking spout is pivoted down, causing the elastic tube to crimp within the cap assembly, thereby restricting the flow of fluid from the drink container to the user.

C. Choi

54. Choi (Ex. 1008) is titled "Drink bottles with bite-actuated mouthpieces" and discloses "a cap assembly with a base 70," a mouthpiece assembly comprising a "mouthpiece 72 and mount 100.," Ex. 1008, ¶[0072]. An exemplary embodiment of Choi's cap assembly is shown below:



Ex. 1008, Fig. 25.

55. In another embodiment, Choi discloses 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 … ." Ex. 1008, ¶ [0072]. This is shown in Figure 9 of Choi, which I have reproduced below:

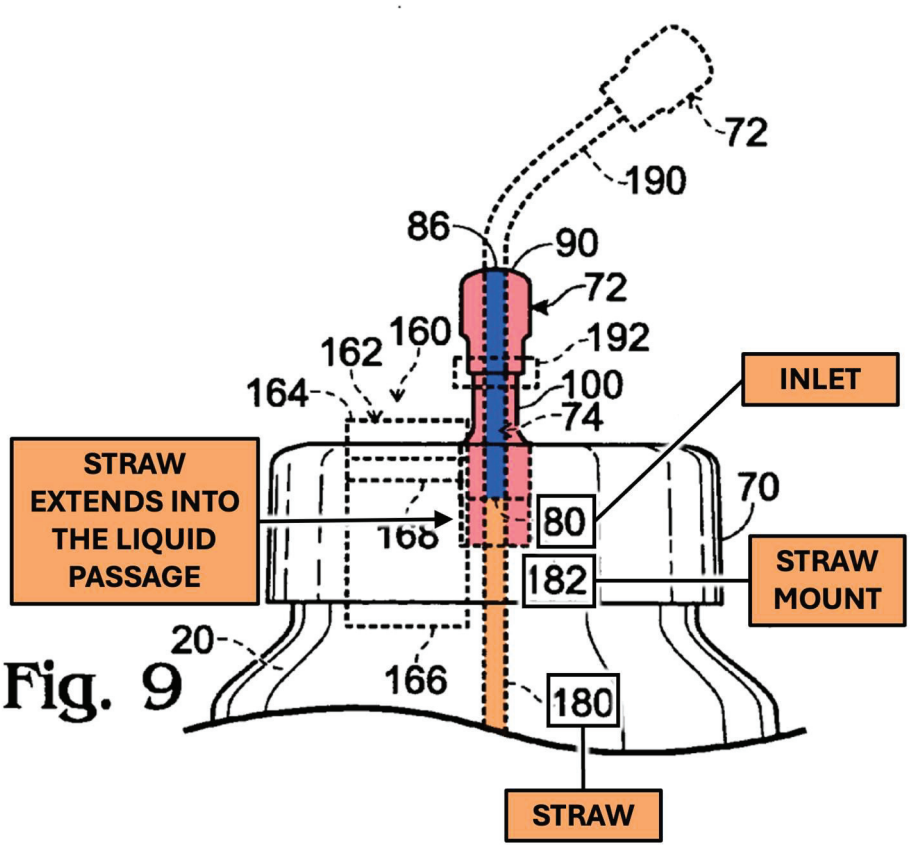


Fig. 9

Ex. 1008, Fig. 9. Choi further discloses: "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." Ex. 1008, ¶ [0072]. As shown in Figure 9, Choi's "straw 180" is inserted into "mount 182" adjacent to "inlet 80." Ex. 1008, ¶ [0072].

IV. GROUND 1: CLAIMS 1, 2, 5, 6, 8, 9, 15, 16 AND 21 ARE ANTICIPATED BY OR WOULD HAVE BEEN OBVIOUS OVER KIYOTA

56. As I explain below, Kiyota expressly discloses nearly all the elements of claims 1, 2, 5, 6, 8, 9, 15, 16, and 21. To the extent Kiyota does not expressly disclose any element of claims 1, 2, 5, 6, 8, 9, 15, 16 and 21, the claims would have been obvious over Kiyota in view of the knowledge of one skilled in the art at the time of the '028 patent invention. Accordingly, in my opinion, each of claims 1, 2, 5, 6, 8, 9, 15, 16 and 21 is obvious over Kiyota in view of the knowledge of a person of ordinary skill in the art.

A. Claim 1 is Obvious over Kiyota

57. I address below how Kiyota, in view of the knowledge of a person of ordinary skill in the art, renders obvious each element of Claim 1.

1. Preamble: "A drink container"

58. The preamble recites a "drink container." I understand that patent preambles are not always limiting. I have not been asked to render an opinion on whether the preamble of Claim 1 is limiting. Regardless, as I explain below, Kiyota discloses "a drink container."

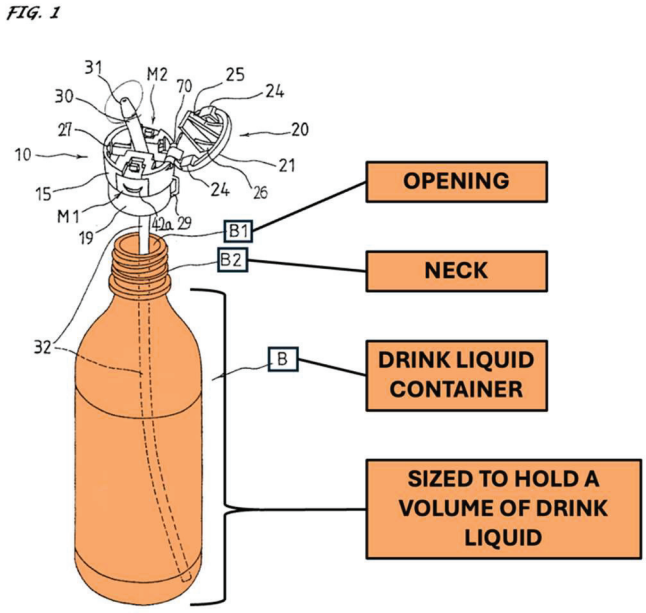
59. For example, Kiyota discloses that its invention "relates to a lid body detachably mounted on the mouth portion of a beverage container." (Ex. 1004, 1:4-5). One skilled in the art would have understood that the "beverage container" in

Kiyota is a drink container because Kiyota discloses that its lid body is "provided with a mouthpiece tube for easily drinking a beverage" (Ex. 1004, 1:8-9).

2. 1[A]: "a liquid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink liquid"

60. Limitation 1[A] recites, "a liquid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink liquid." As I explain below, Kiyota discloses this limitation.

61. As discussed above, Kiyota discloses "a lid body detachably mounted on the mouth portion of a beverage container." Ex. 1004, 1:4-5. As shown below, Kiyota's "beverage container B" includes a neck (i.e. "male screw portion B2") with an opening (i.e. "mouth portion B1").



Ex. 1004, Fig. 1, 4:59-62. One skilled in the art would have understood "container B" to have a neck, including at least "male screw portion B2" and "mouth portion B1," that "mouth portion B1" was an opening, and that "beverage container B" had an internal compartment sized to hold a volume of potable drink liquid because it would be necessary to store the drink liquid before it was dispensed to the user.

3. 1[B]: "a cap assembly removably coupled to the liquid container."

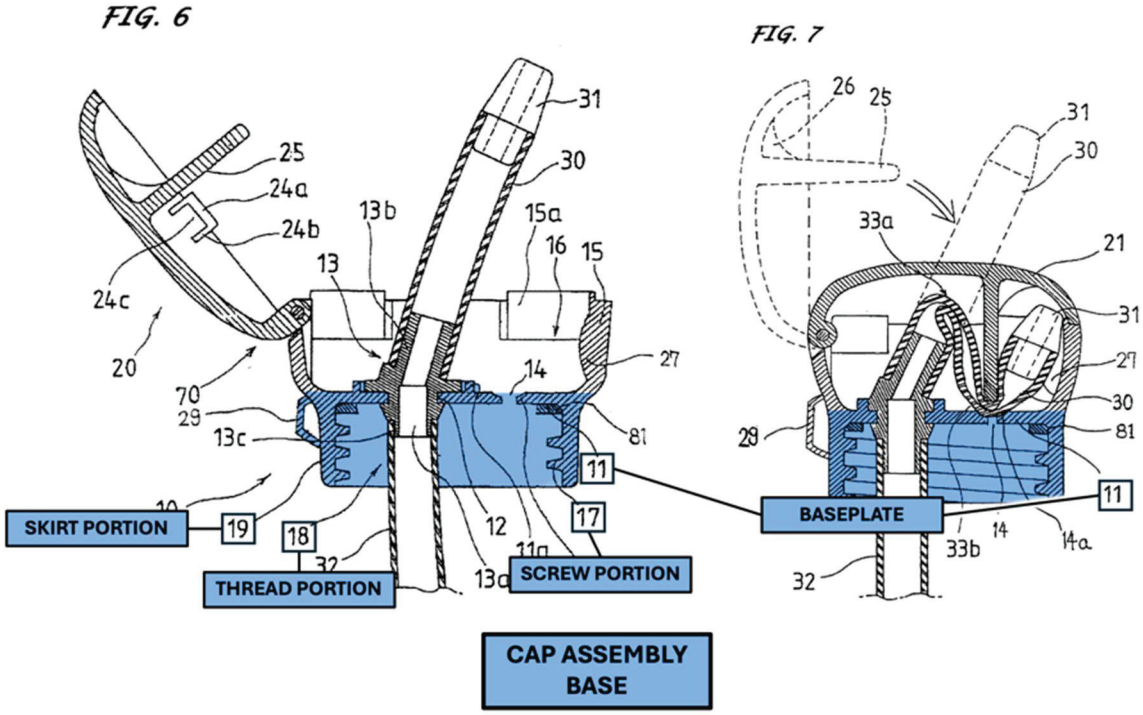
62. Limitation 1[B] recites, "a cap assembly removably coupled to the liquid container." As I explain below, Kiyota discloses this limitation.

63. For example, Kiyota discloses "lid body 10" is "detachably mounted on the mouth portion of a beverage container," (Ex. 1004, 1:4-5). Thus, a person of skill in the art would have understood Kiyota's "lid body 10" to comprise a "cap assembly" that is "removably coupled" to the beverage container.

a. 1[B][1]: "a base removably coupled to the neck of the liquid container and including a through-passage."

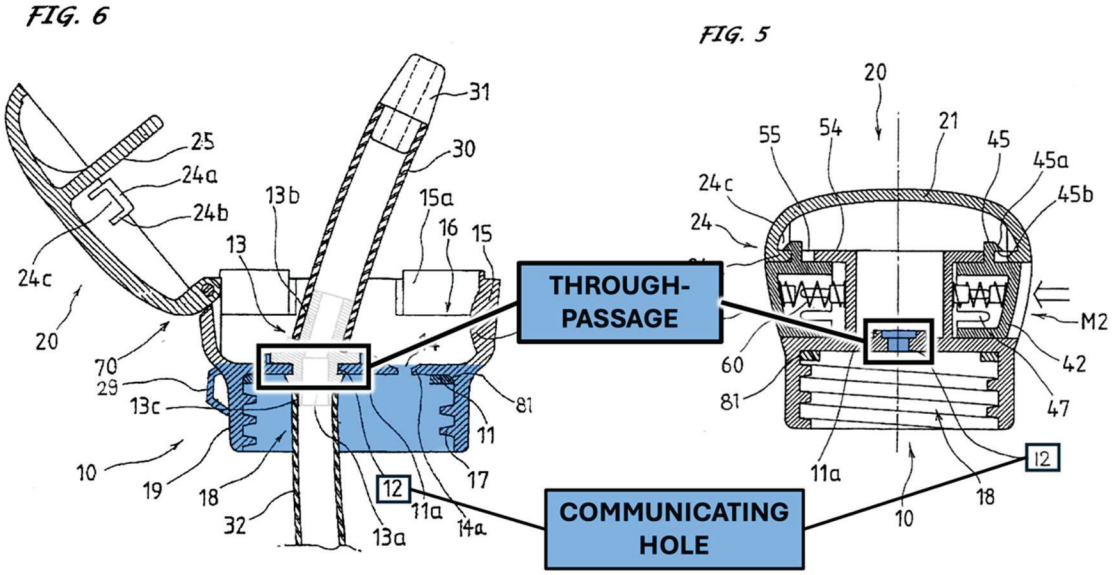
64. Limitation 1[B][1] recites "a base removably coupled to the neck of the liquid container and including a through-passage." As I explain below, Kiyota discloses this limitation.

65. For example, Kiyota's "lid body 10" includes a base portion that comprises "baseplate 11" and "thread portion 18." The thread portion is further comprised of a "screw portion 17" and a "skirt portion 19," as shown in blue below:



Ex. 1004, Figs. 6, 7. The "lid body 10" is coupled to the beverage container via the threaded coupling formed between the "male screw portion B1" of the beverage container and the female "screw portion 17" of the "lid body 10." Thus, one of skill in the art would have understood the base portion of Kiyota's "lid body 10" to be removably coupled to the beverage container.

66. Kiyota also discloses a "communicating hole 12" in "baseplate 11" that constitutes a through-passage through the base portion of "lid body 10." Ex. 1004, 5:21-23. This is shown annotated Figures 5 and 6 below:

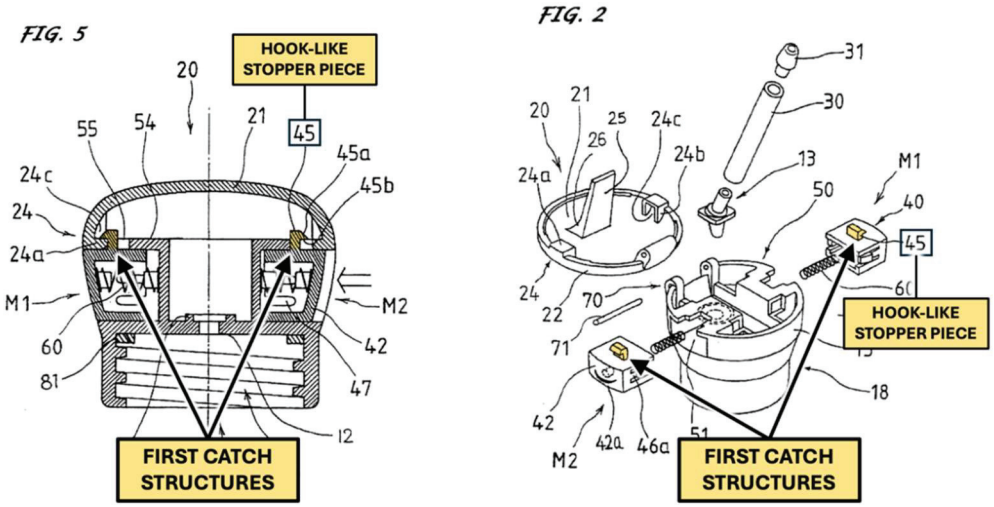


Ex. 1004, Figs. 5, 6.

b. 1[B][2]: "a first catch structure"

67. Limitation 1[B][2] recites that the cap assembly comprises "a first catch structure." As I explain below, Kiyota discloses this limitation.

68. For example, as shown in annotated Figures 2 and 5 below, Kiyota's lid body (i.e. cap assembly) includes "hook-like stopper pieces 45," which project upwardly from "lock release buttons 40":



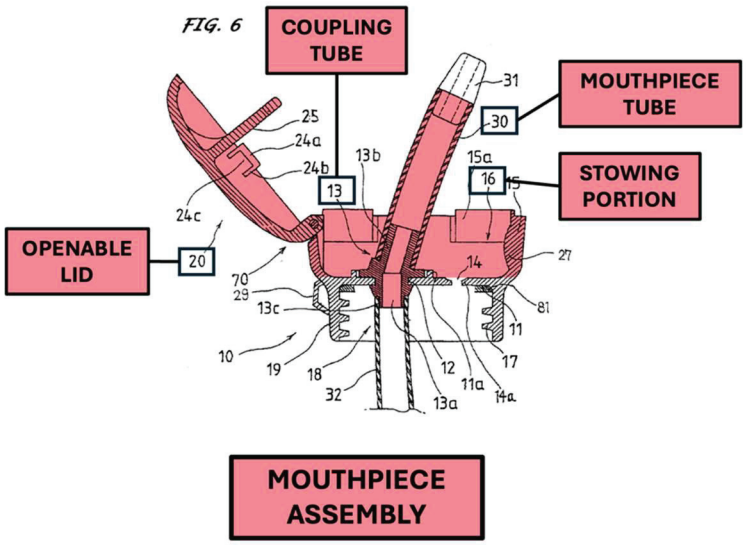
Ex. 1004, Figs. 2, 5. The "hook-like stopper pieces 45" engage with "connecting portions 24" on the underside of "openable lid 20" when the lid is closed. As I describe in more detail below, the "connecting portions 24" constitute a second catch structure located on the mouthpiece assembly of Kiyota's cap assembly. Thus, one of skill in the art would have understood Kiyota's "hook-like structures 45" to constitute a "first catch structure."

c. 1[B][3]: Mouthpiece Assembly

69. Limitation 1[B][3] recites "a mouthpiece assembly extending through the through-passage of the base and defining a liquid passage through which drink liquid from the liquid container may selectively flow, and further defining an inlet through which drink liquid in the internal compartment may enter the liquid passage and an outlet through which drink liquid from the internal compartment of the liquid container is selectively dispensed, wherein the mouthpiece assembly is configured

to be selectively configured between a dispensing configuration, in which the liquid passage permits drink liquid to flow from the internal compartment at least into the liquid passage, and a stowed configuration, in which the liquid passage restricts the flow of drink liquid through the liquid passage, wherein the mouthpiece assembly is biased to the dispensing configuration." As I explain below, Kiyota discloses this limitation.

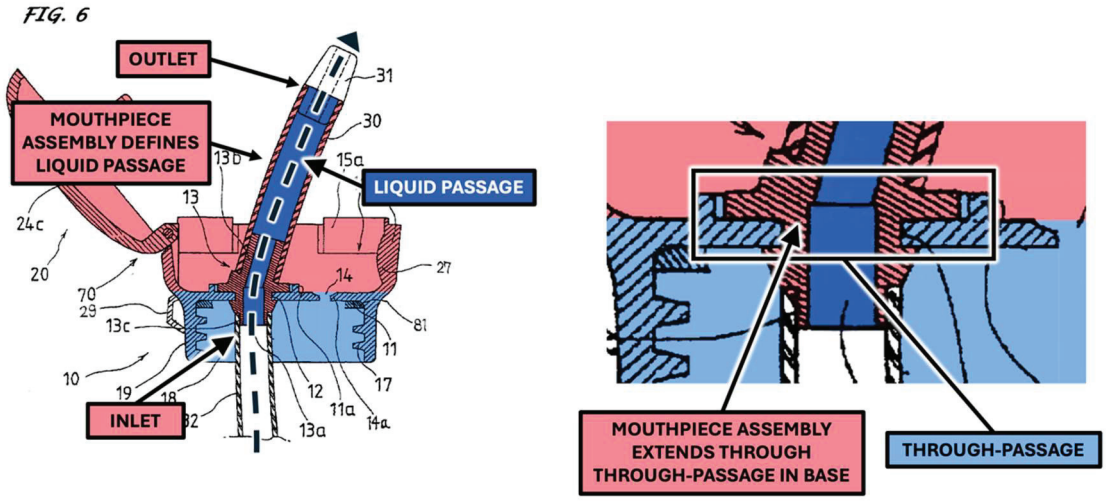
70. I first note that the term "assembly" is commonly used in the mechanical arts, and encompasses structures comprised of parts assembled together. For example, Kiyota's mouthpiece assembly includes at least "mouthpiece tube 30," "coupling tube 13," "openable lid 20," and "stowing portion 16," as shown in annotated Figure 6 below:



Ex. 1004, Fig. 6. These components function together as an assembly to provide a

mouthpiece through which as user may drink the liquid contained in the drink container, when in the dispensing configuration, and to store the mouthpiece when not in use, that is, when in the stowed configuration.

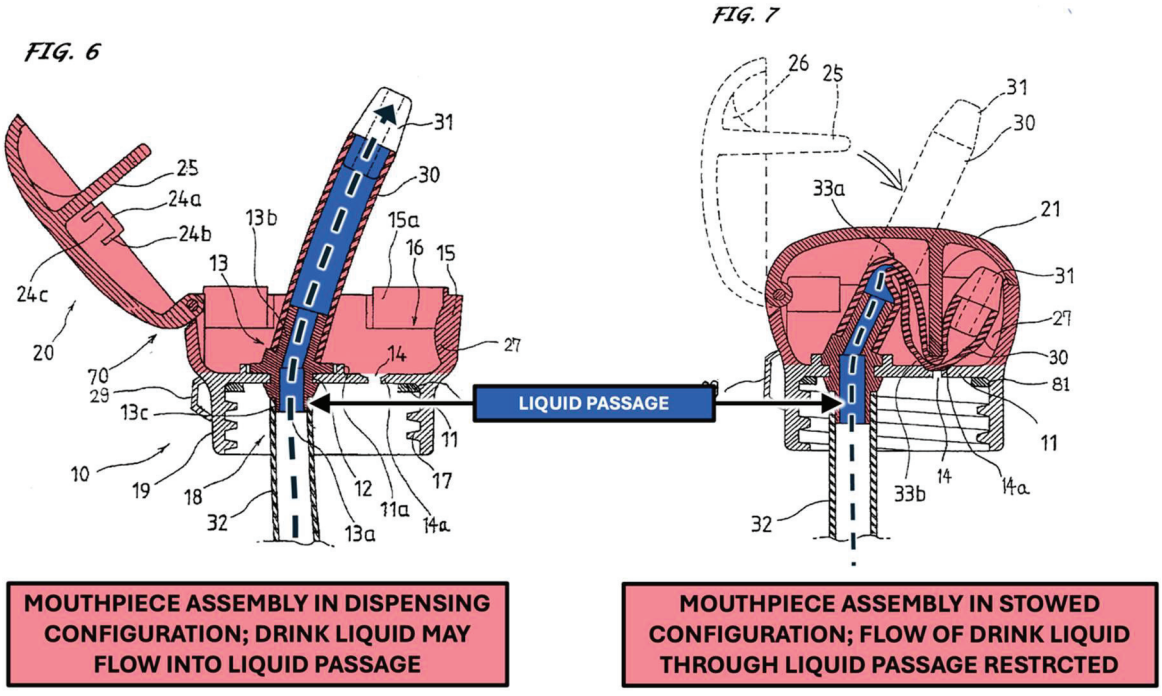
71. Kiyota's mouthpiece assembly extends through the "communicating hole 12" (i.e. through-passage) and defines a liquid passage with an inlet and an outlet, as illustrated below:



Ex. 1004, Fig. 6.

72. Kiyota's mouthpiece assembly is also "configured to be selectively configured between a dispensing configuration … and a stowed configuration … ." Figure 6 (below, left) shows Kiyota's mouthpiece assembly in the dispensing configuration, wherein liquid may flow from the internal compartment of the beverage container into the liquid passage. Figure 7 (below, right) shows Kiyota's mouthpiece assembly in the stowed configuration, wherein the liquid passage

restricts the flow of drink liquid through the liquid passage by pressing the inner walls of mouthpiece tube 30 against each other at "bending portions 33a and 33b." Ex. 1004, 11:9-15.



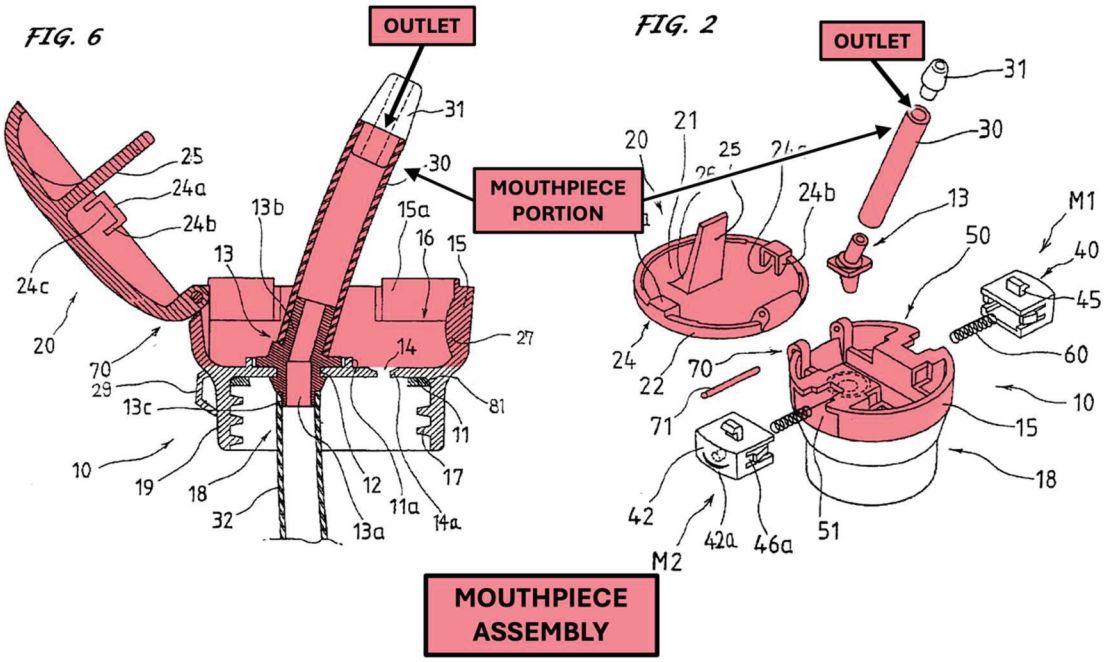
Ex. 1004, Figs. 6, 7.

73. Kiyota's also discloses its mouthpiece assembly is biased to the dispensing configuration. According to Kiyota, "as the mouthpiece tube 30 is raised by its elasticity with opening action of the openable lid 20, there is no need to push open the openable lid 20 by hands, and there is no need to pull out and raise the mouthpiece tube 30 from the storing portion by hands." Ex. 1004, 11:19-23.

i. 1[B][3][a]: "a mouthpiece portion that includes the outlet."

74. Limitation 1[B][3][a] recites that the mouthpiece assembly comprises "a mouthpiece portion that includes the outlet." As I explain below, Kiyota discloses this limitation.

75. For example, Kiyota's mouthpiece assembly, highlighted in red in Figures 2 and 6, below, includes a mouthpiece portion comprised of "mouthpiece tube 30," which includes an outlet at the end opposite "baseplate 11".

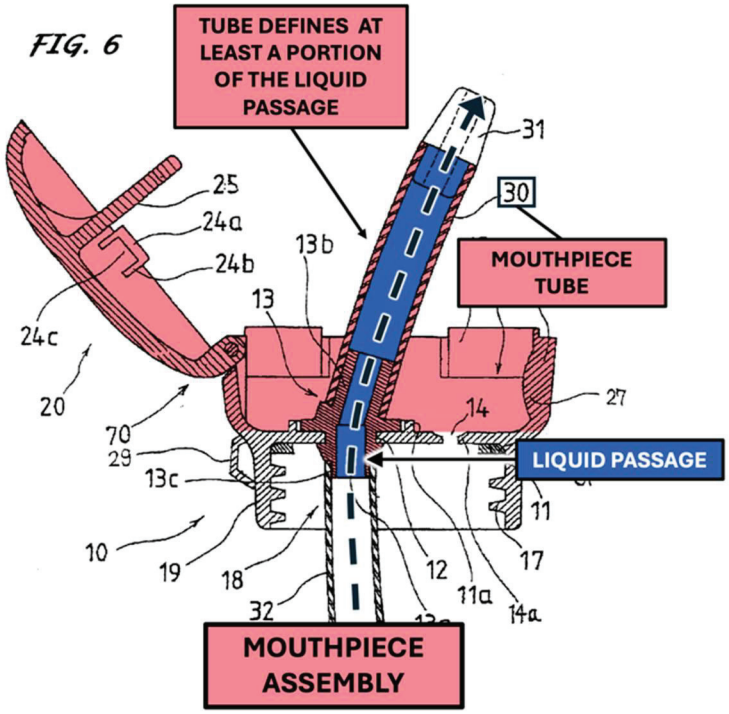


Ex. 1004, Fig. 6. Kiyota also discloses an optional tapered "mouthpiece portion 31" at the end of "mouthpiece tube 30." Ex. 1004, 5:44-46. This optional component is not necessary for my analysis because the claims are obvious over the disclosures in Kiyota, even without this optional element.

ii. 1[B][3][b]: "a tube that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the mouthpiece portion, wherein the tube includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration, and where the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material."

76. Limitation 1[B][3][b] recites that the mouthpiece assembly comprises "a tube that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the mouthpiece portion, wherein the tube includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration, and where the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material." As I explain below, Kiyota discloses this limitation.

77. For example, Kiyota's "mouthpiece tube 30" constitutes a tube that defines at least a portion of the liquid passage from the internal compartment of the beverage container to the mouthpiece portion:

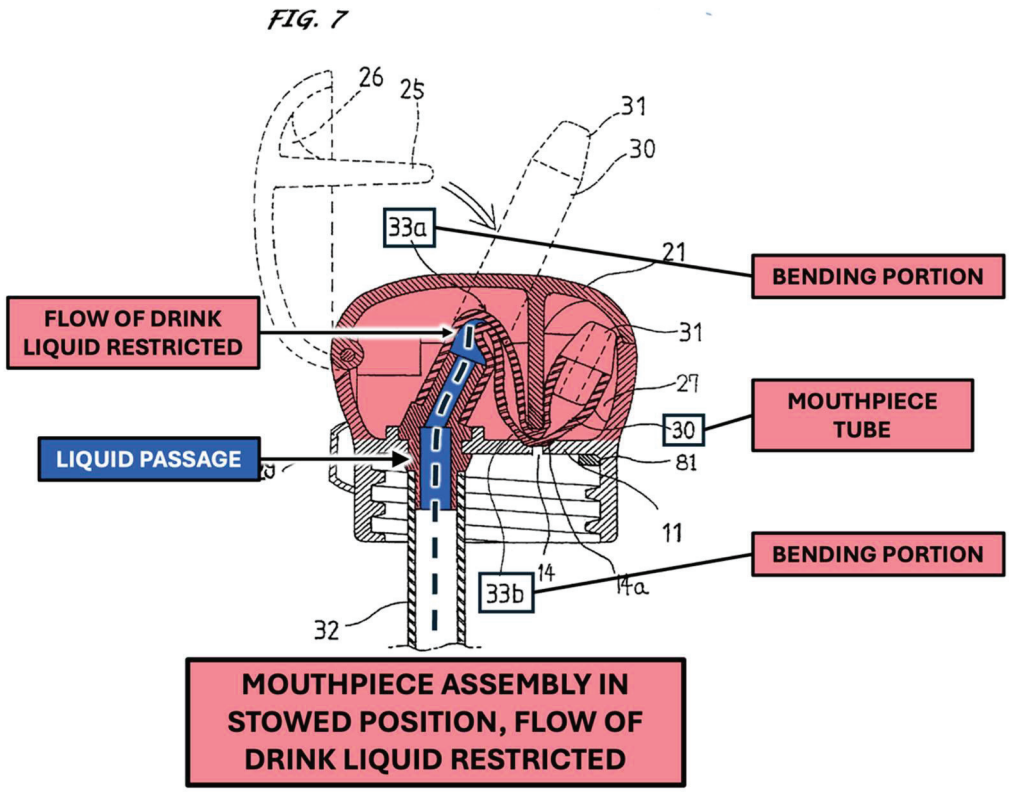


Ex. 1004, Fig. 6.

78. Kiyota further discloses its "mouthpiece tube 30" is "made of elastic and flexible synthetic resin material such as polyurethane, silicon resin and the like." Ex. 1004, 9:67-10:1. A person of skill in the art would have understood these materials to be resiliently deformable. And, as discussed above, the portion of Kiyota's "mouthpiece tube 30" closest to the user constitutes a mouthpiece portion with an outlet that allows fluid to pass through the liquid passage and to the user. Thus, a person of ordinary skill would have understood the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material.

79. In the stowed configuration, as shown in Figure 7 below, Kiyota's

"mouthpiece tube 30" includes two crimping regions, located at "bending portion 33a" and "bending portion 33b":



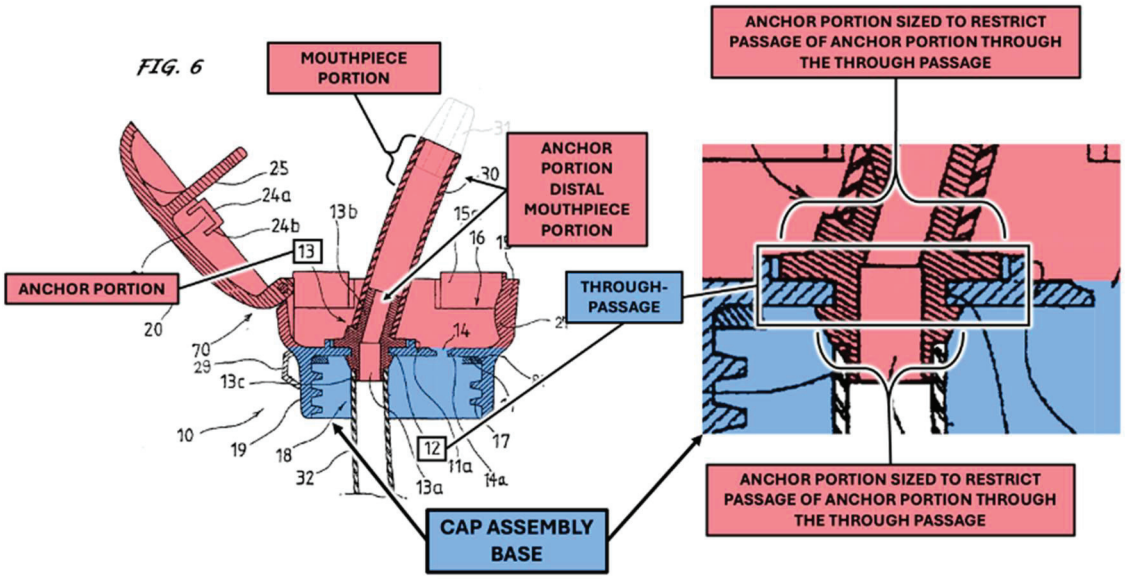
Ex. 1004, Fig. 7. In this configuration, the interior walls of "mouthpiece tube 30" are pressed against each other thereby restricting the flow of liquid through the liquid passage. Ex. 1004, 10:13-23.

iii. 1[B][3][c]: "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."

80. Limitation 1[B][3][b] recites that the mouthpiece assembly comprises "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." As I explain below, Kiyota discloses this limitation.

81. Kiyota's mouthpiece assembly includes an anchor portion comprising "coupling tube 13" that extends through "communicating hole 12" (i.e. the through-passage). As shown in annotated Figure 6 below, the "coupling tube 13" extends opposite the outlet of "mouthpiece tube 30" (i.e. the mouthpiece portion):



Ex. 1004, Fig. 6. As shown above, "coupling tube 13" includes projecting flanges above and below "communicating hole 12" (i.e. the through-passage), which are sized to restrict passage of the coupling tube through the communicating hole.

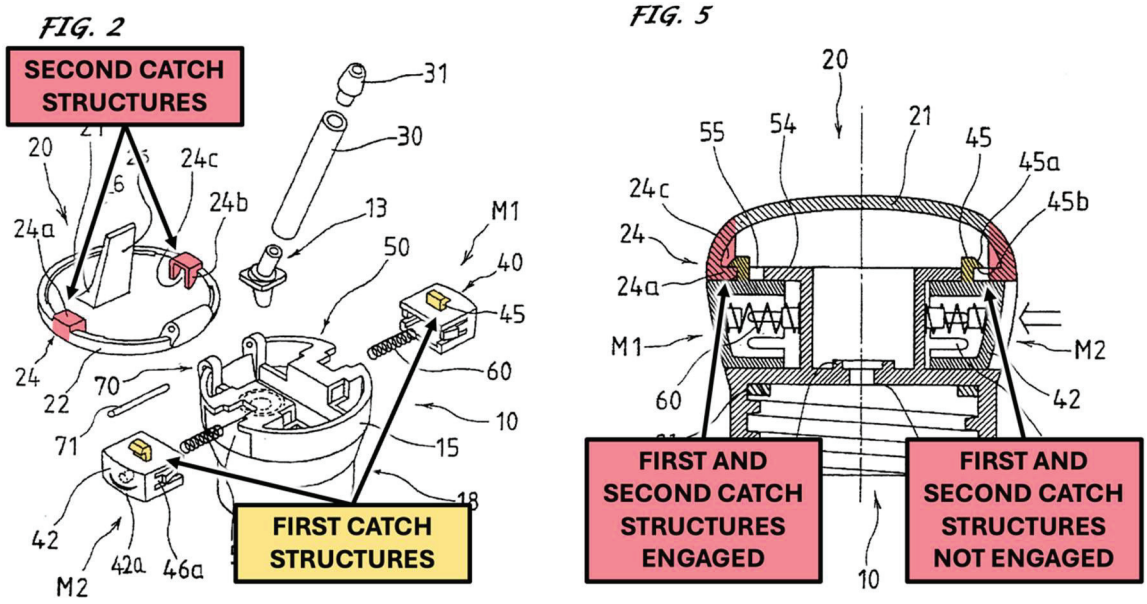
82. I understand that in co-pending litigation, the Patent Owner has taken the position that a flange or anchor needs to merely restrict, but not prevent, passage

of an anchor portion through the through-passage. I have employed that understanding in conducting my analysis of this claim limitation.

iv. 1[B][3][d]: "a second catch structure adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration."

83. Limitation 1[B][3][d] recites "a second catch structure adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration." As discussed in limitation 1[B][2] above, and as I explain below, Kiyota discloses this limitation.

84. Kiyota discloses second catch structures that comprise "connecting portions 24" on the underside of "openable lid 20." As shown in Figures 2 and 5 below, the "connecting portions 24" engage with the "hook-like stopper pieces 45" (i.e. first catch structures) on the "lock release buttons 40" to retain the mouthpiece assembly in the stowed configuration:



Ex. 1004, Figs. 2, 5. Kiyota further discloses:

> "since the mouthpiece tube 30 is stored within the storing portion 16 in the pushed and folded condition against its elasticity by the presser piece 25, upward force acts on the presser piece 25, thereby coupling receiving pieces 24a, 24a of each connecting portion 24, 24 with lower edge portions 45 a, 45 a of each stopper piece 45, 45 strongly."

Ex. 1004, 10:32-37.

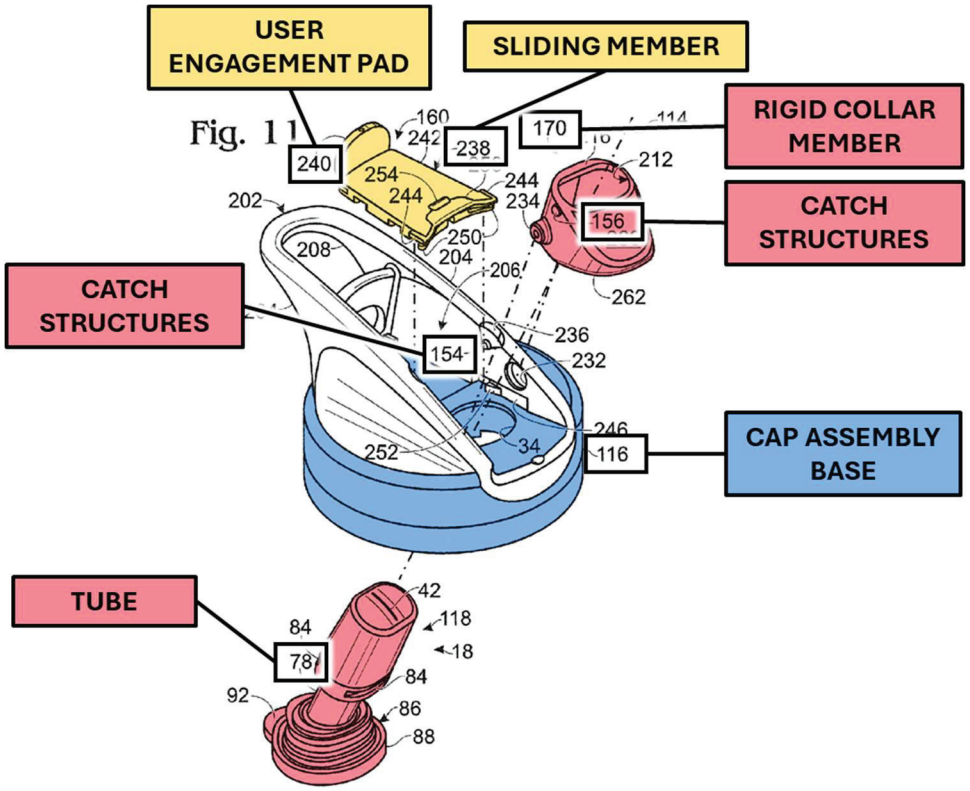
d. 1[B][4]: "a user release mechanism adapted to automatically disengage the first and second catch structures upon actuation of the user release mechanism and thereby release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration."

85. Limitation 1[b][4] recites that the mouthpiece assembly comprises "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." As discussed above, I understand this claim limitation is a means-plus-function limitation, and is thus governed by 35 U.S.C. § 112, paragraph 6.

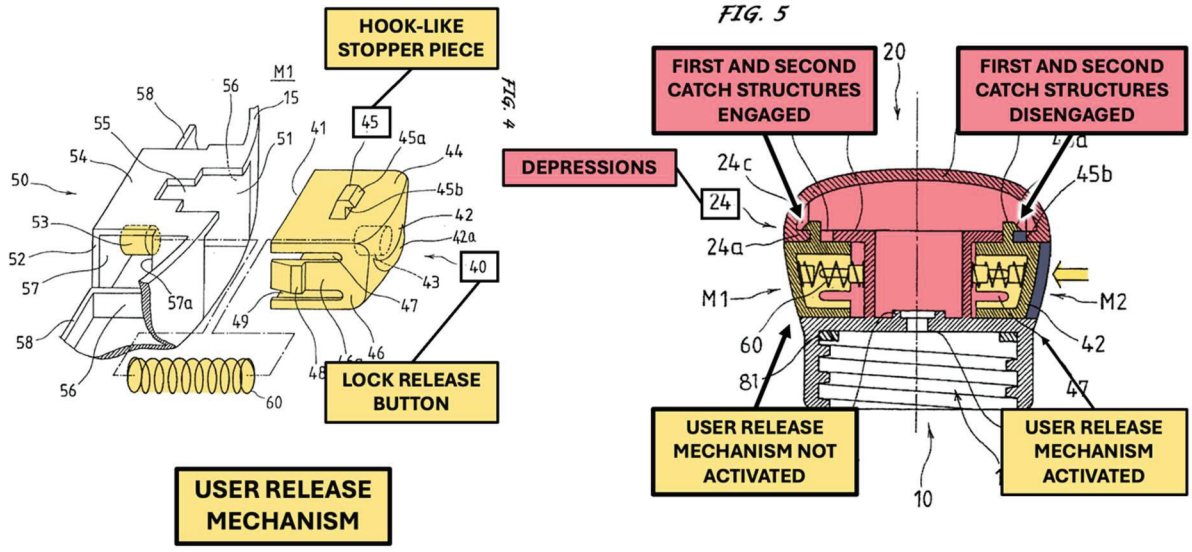
86. As recited in this claim limitation, the function of the "user release mechanism" is "to automatically disengage the first and second catch structures upon actuation of the user release mechanism and thereby release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration." Ex. 1001, Claim 1. As discussed above, the '028 Patent specification discloses two embodiments of the user release mechanism. As I explain below, it is my opinion that Kiyota discloses a user release mechanism that is equivalent to the first of these two embodiments.

87. In the first embodiment described in the '028 Patent, the user release mechanism includes a "user engagement pad 240" and "sliding member 238," as shown below.



Ex. 1001, Fig. 11. In this embodiment, the mouthpiece is held in its closed configuration by catch structures 156 on rigid collar member 170 which engage with catch structures 154 on handle 202. The user activates the user release mechanism by pressing "user engagement pad 240," which forces the "sliding member 238" to move between "base 116" and "rigid collar member 170," which pressing the collar upwards with suffiient force to disengage catch structures 154 and 156. With the catch structures disengaged, the mouthpiece pivots into its dispensing configuration due to the bias created by the bend in tube 78. Ex. 1001, 12:50-13:39 (describing first embodiment).

88. Kiyota discloses an equivalent structure to the embodiment described above. Specifically, Kiyota discloses "lock release buttons 40" that are adapted to automatically disengage the "hook-like stopper pieces 45" (i.e. first catch structures) and "connecting portions 24" (i.e. second catch structures) upon actuation of the buttons.



Ex. 1004, Fugs. 4, 5. According to Kiyota, when "lock release buttons 40[] are simultaneously depressed in the radial direction . . . each stopper piece 45[] are slipped away from the depressions 24[]." Ex. 1004, 8:66-9:13. Kiyota further discloses that upon disengagement of hook-like stopper pieces and connecting pieces, "mouthpiece tube 30 pushes the top board 21 by its elastic force, automatically opens the openable lid 20 with pressure and stands by outwardly projecting from the storing portion 16." Ex. 1004, 9:11-13.

89. Kiyota's structures that perform the claimed user release mechanism function are equivalent to the first embodiment described in the '028 Patent. That is because they perform the same function, in the same way, to achieve the same result. For example, in the first embodiment of the '028 Patent, the user pushes a sliding element forward, towards the mouthpiece assembly, to disengage the catch structures. Kiyota's mechanism functions in substantially the same way: a user presses the release buttons, which slide toward the mouthpiece assembly to automatically disengagement the catch structures.

90. I understand that in co-pending litigation, the Patent Owner contends the "user release mechanism" limitation should not be construed as a means-plus-function claim term. Although I disagree with Patent Owner's contention, it is my opinion that Kiyota nonetheless discloses a structure that performs the function recited in the claim.

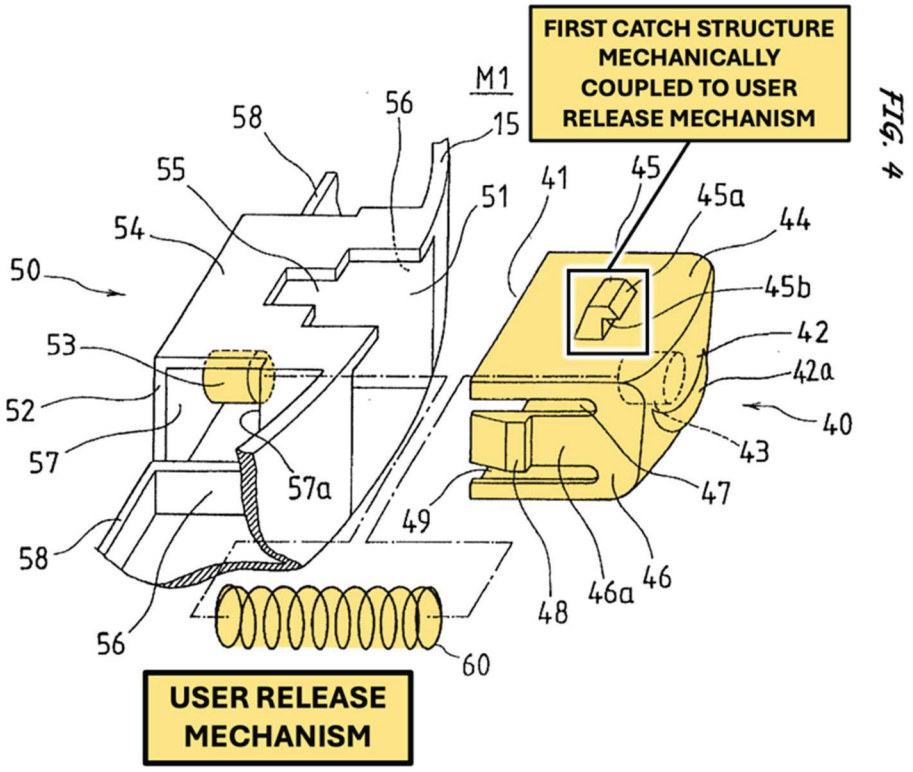
91. Accordingly, Kiyota discloses each element of claim 1, and therefore it is my opinion that Kiyota anticipates claim 1. To the extent there are any differences between claim 1 and Kiyota's disclosures, it is also my opinion that claim 1 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

B. Claim 2 is Anticipated by, and/or Obvious over Kiyota

92. Claim 2 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

93. Claim 2 further recites, "wherein the user release mechanism is mechanically coupled to the first catch structure." As I explain below, Kiyota discloses this additional limitation.

94. As discussed above in connection with claim 1, Kiyota discloses a user release mechanism that includes "hook-like stopper pieces 45" (i.e. first catch structures) on its "lock release buttons 40." As shown below, the "hook-like stopper pieces 45" are fixed to the "upper plate 44" of the release buttons, which a person of ordinary skill in the art would have understood to constitute a mechanical coupling.



Ex. 1004, Fig. 4, 7:10-11.

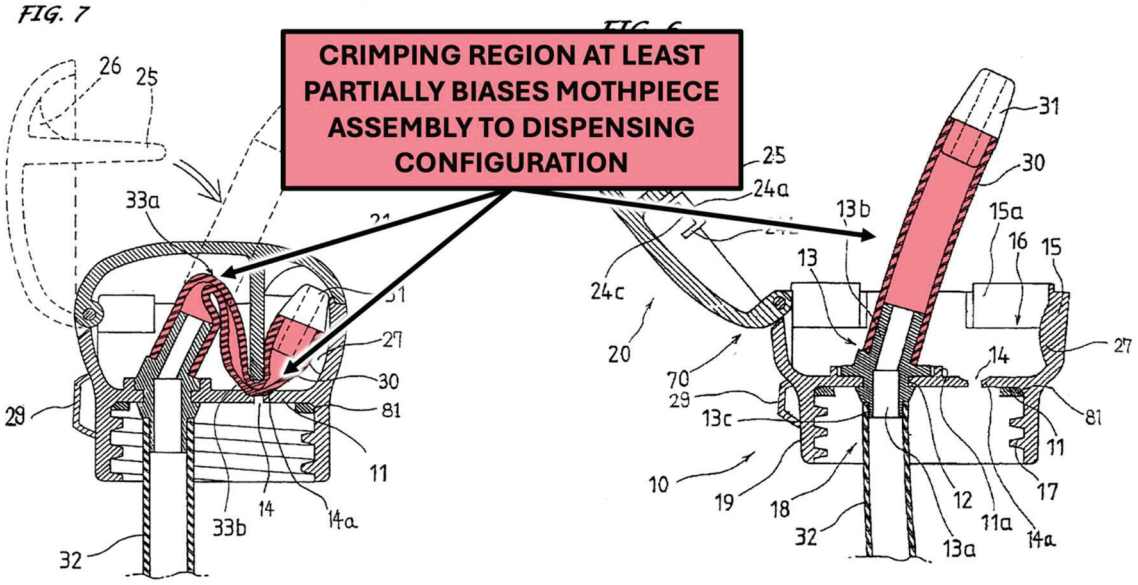
95. Accordingly, it is my opinion that Kiyota discloses the additional elements of Claim 2, and thus anticipates this claim. It is also my opinion that Claim 2 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

C. Claim 5 is Anticipated by, and/or Obvious over Kiyota

96. Claim 5 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

97. Claim 5 further recites, "wherein the crimping region at least partially biases the mouthpiece assembly to the dispensing configuration." As I explain below, Kioyta discloses this additional limitation.

98. As shown below and discussed above in connection with claim 1, Kiyota's "mouthpiece tube 30" includes two crimping regions when in the stowed configuration, located at "bending portion 33a" and "bending portion 33b."



Ex. 1004, Fig. 7. Kiyota teaches that these crimping regions bias "mouthpiece tube 30" to the dispensing configuration:

> Because the mouthpiece tube 30 is stored within the storing portion 16 under the forced and folded condition [it] pushes the top board 21 by its elastic force, automatically opens the openable lid 20 with pressure and stands by outwardly projecting from the storing portion 16.

Ex. 1004, 9:7-13.

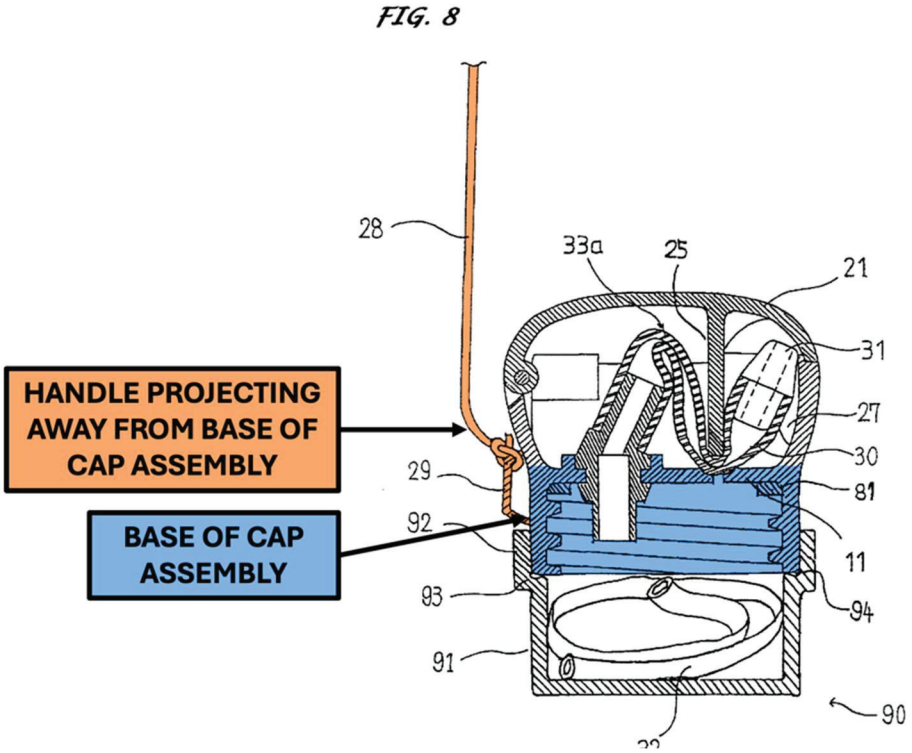
99. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 5, and thus anticipates this claim. It is also my opinion that Claim 5 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

D. Claim 6 is Anticipated by, and/or Obvious over Kiyota

100. Claim 6 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

101. Claim 6 further recites, "wherein 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 between the pair of lateral guards when the mouthpiece assembly is in the stowed configuration." As I explain below, Kiyota discloses these additional limitations.

102. As shown in Figure 8 below, Kiyota discloses a handle that projects away from the base of the cap assembly:

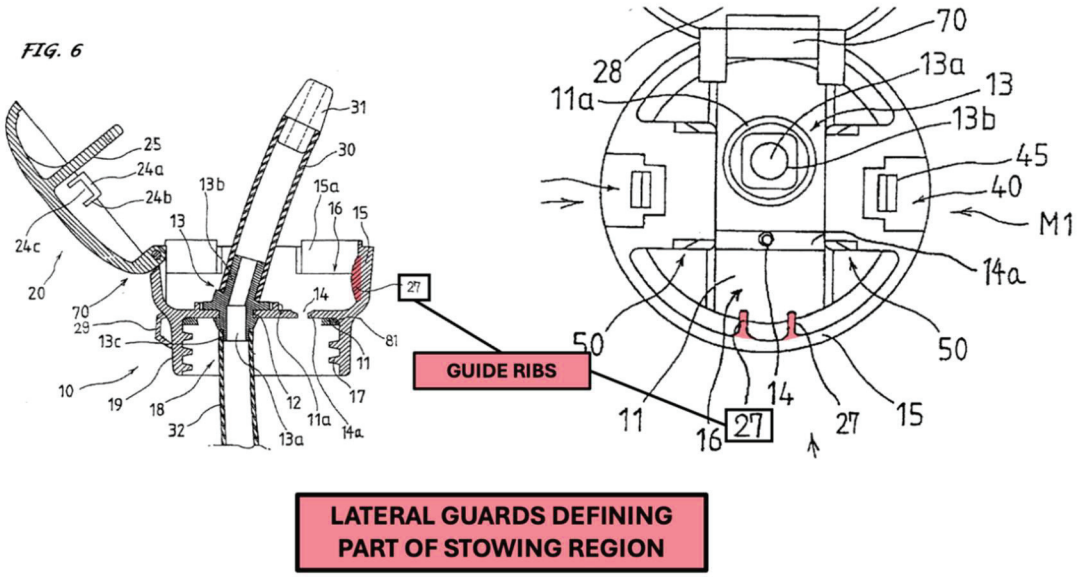


Ex. 1004, Fig. 8. Kioyta's handle is "hooking portion 29," which projects away from the base of "lid body 10." Kiyota also discloses that "strap-like body 28" can be tied to the hooking portion, which also projects upward and away from the base. A person of ordinary skill would have understood both the "hooking portion 29" individually, and in combination with the "strap-like body 28," to constitute a handle projecting away from the cap assembly base.

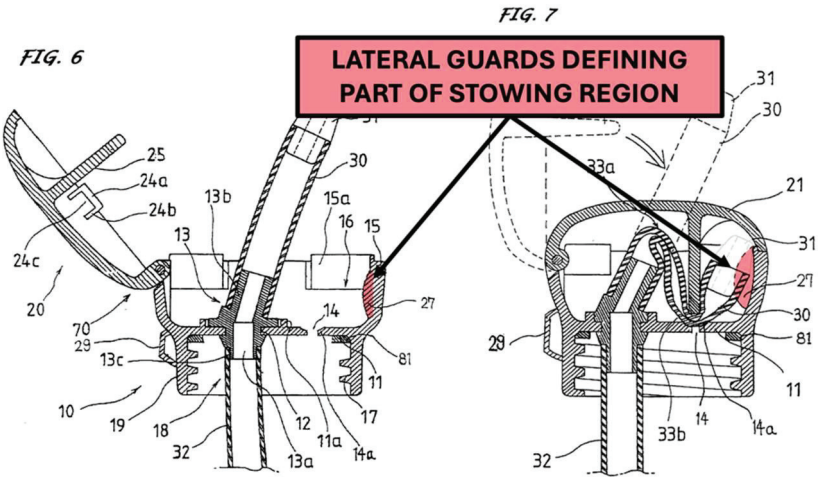
103. Although it is my opinion that a person of ordinary skill in the art would have understood Kiyota's "hooking portion 29" and "strap-like body 28" to constitute a "handle," as recited in Claim 6, to the extent Kiyota does not explicitly disclose a "handle," it is also my opinion that modifying Kiyota's "hooking portion

29" to form a more conventional handle would have been obvious to a person of ordinary skill. For example, Kiyota describes the desirability of carrying the lid and beverage container. *See, e.g.*, Ex. 1004, 8:33-38. A person of ordinary skill would have understood that Kiyota's "hooking portion" could be readily enlarged to accommodate a user's finger or hand, and thereby form a handle to grasp the device. A person of ordinary skill would have been motivated to make this change because it would not have altered the overall function or structure of Kiyota's cap assembly and would have provided an alternative mechanism by which to carry the device, in addition to Kiyota's strap.

104. Kiyota also discloses a pair of lateral guards that define a stowing region for its mouthpiece assembly. As shown in Figures 3 and 6 below, Kiyota's mouthpiece assembly includes a "pair of lateral guards 27" that define a portion of "storing portion 16":

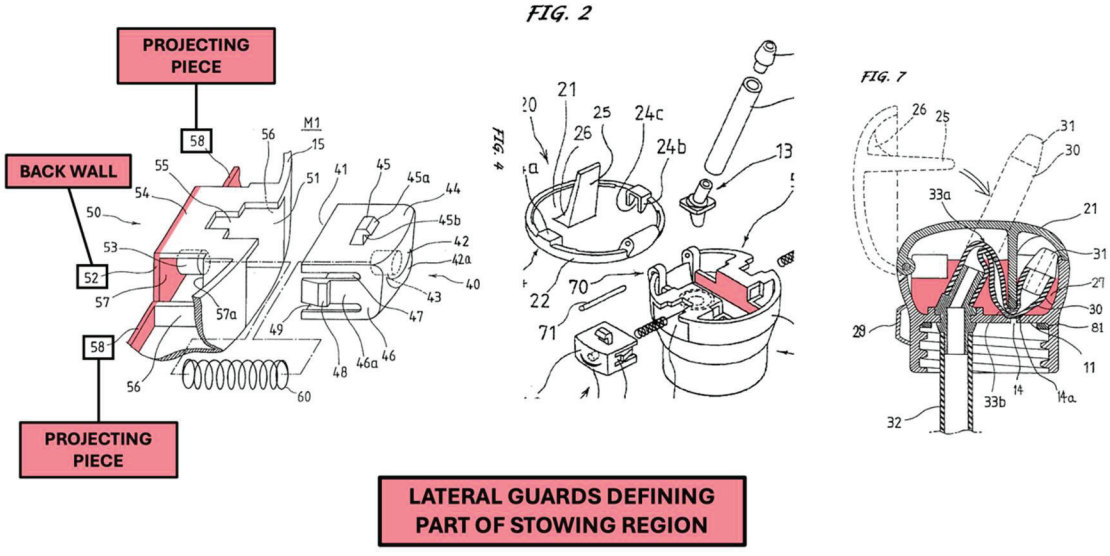


Ex. 1004, Figs. 3, 6. According to Kiyota, the "pair of guide ribs 27" guide "mouthpiece 30" into the "storing portion 16" when the "openable lid 20" is pivoted to the stowed configuration. Ex. 1004, 8:4-8. As shown in Figures 6 and 7 below, the "pair of guide ribs 27," which are within the "storing portion 16" (i.e. stowing region) receive a portion of "mouthpiece tube 30" when the mouthpiece assembly is in the stowed configuration:



Ex. 1004, Figs 6, 7.

105. Kiyota discloses an additional pair of structures that also constitute a "pair of lateral guards," as recited in Claim 6. These structures comprise a pair of walls, identified as "back plates 52" and "projecting pieces 58" that define the sides of "storing portion 16," as shown in the annotated figures below:



Ex. 1004, Figs. 2, 6, and 7. A person of ordinary skill in the art would have

understood the above-identified side walls of the "storing portion 16" constitute a pair of lateral guards that define part of the stowing region of Kiyota's mouthpiece assembly.

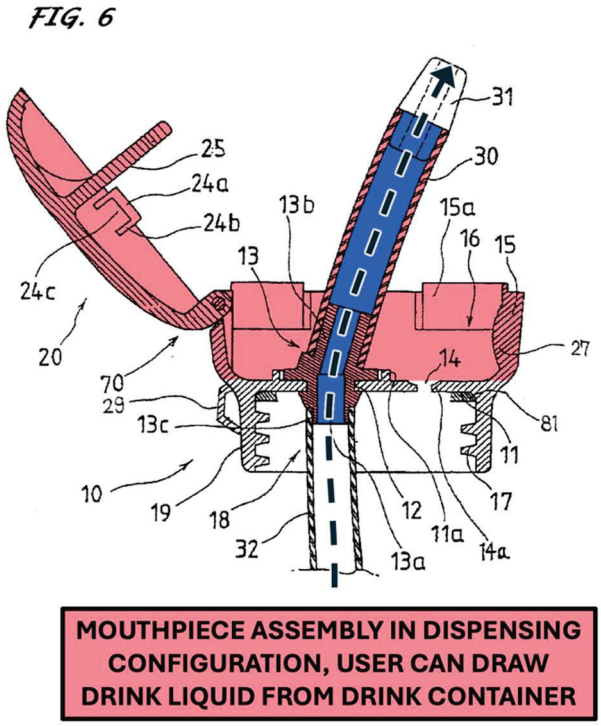
106. Accordingly, it is my opinion that Kiyota discloses all the elements of Claim 6, and thus anticipates the claim. It is also my opinion that Claim 6 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

E. Claim 8 is Anticipated by, and/or Obvious over Kiyota

107. Claim 8 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

108. Claim 8 further recites, "wherein the mouthpiece portion permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration." As I explain below, Kiyota discloses this additional limitation.

109. For example, Kiyota discloses that a user "open[s] the openable lid. . . and sucks and drinks a beverage from the mouthpiece tube 30, and further closes the openable lid 20. . . and stores the mouthpiece tube 30 without leaking the beverage outside." Ex. 1004, 11:27-32.



Ex. 1004, Fig. 6.

110. Accordingly, it is my opinion that Kiyota discloses all the elements of Claim 8, and thus anticipates this claim. It is also my opinion that Claim 8 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

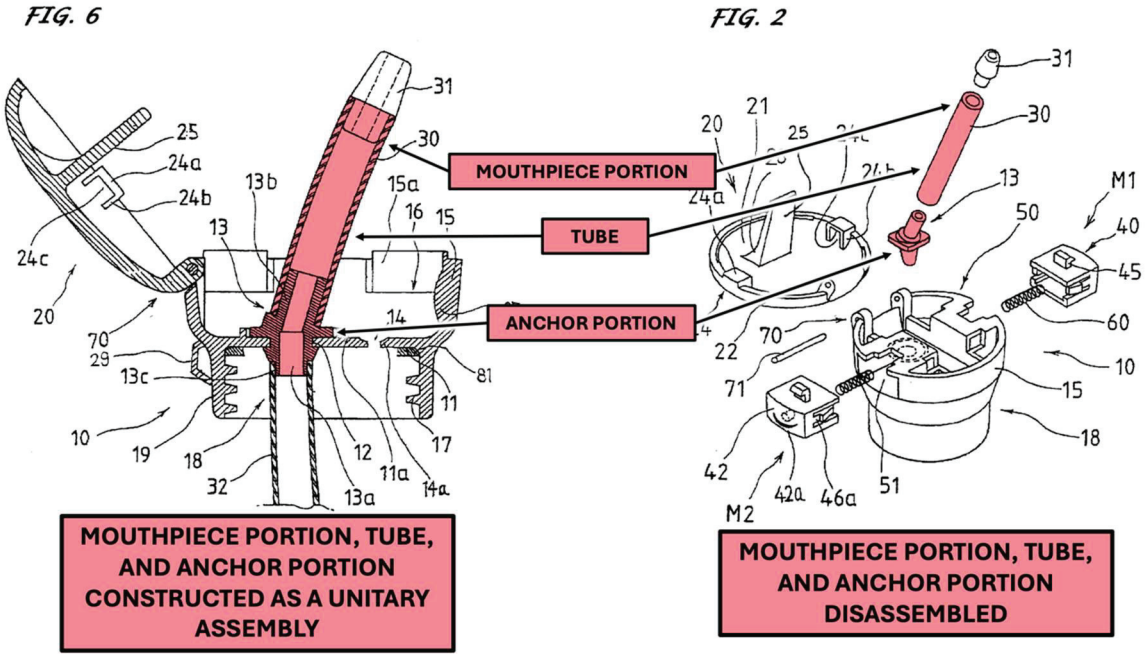
F. Claim 9 is Obvious over Kiyota

111. Claim 9 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Claim 1 is obvious over Kiyota in view of the knowledge of a person of ordinary skill in the art.

112. Claim 9 further recites, "wherein the mouthpiece portion, the tube, and

the anchor portion are constructed as a unitary assembly of the resiliently deformable material." As I explain below, this additional limitation is obvious over Kiyota in view of the knowledge of a person of ordinary skill in the art.

113. Kiyota discloses "mouthpiece tube 30" (i.e. mouthpiece portion and tube) and "coupling tube 13" (i.e. anchor portion) are assembled into a single assembly. For example, Kiyota states: "To the first coupling tube 13b is detachably fixed the base end portion of a mouthpiece tube 30." Ex. 1004, 5:40-41. The assembled and disassembled assembly of the "mouthpiece tube 30" and "coupling tube 13" is shown in Figures 2 and 6 below:



Ex. 1004, Figs. 2, 6.

114. Kiyota further discloses that "mouthpiece tube 30" is constructed of a

resiliently deformable material. Ex. 1004, 9:66-10:1 ("mouthpiece tube 30. . ., for example, [is a tubular member made of] elastic and flexible synthetic resin"). However, Kiyota does not disclose that "mouthpiece tube 30" and "coupling tube 13" are "constructed as a unitary of the resiliently deformable material." As explained below, it is my opinion that, in view of the knowledge of a person of ordinary skill in the art, it would have been obvious to such a person to construct the "mouthpiece tube 30" and "coupling tube 13" as a unitary assembly, and to use the resiliently deformable material for both the "mouthpiece tube 30" and the "coupling tube 13."

115. For example, a person of ordinary skill would have understood the "coupling tube 13" was resilient to enable it to be inserted and removed and also to provide a seal in the through-passage. In addition, a person of ordinary skill in the art would have been motivated to use a resilient material for "coupling tube 13" because such materials would ensure a tight seal between the coupling tube and "communicating hole 12" during use of the device, thereby preventing fluid from leaking out of the beverage container through the hole in the cap assembly base. Likewise, a person of ordinary skill would have been further motivated to use a resilient material for "coupling tube 13" because the use of such materials, as compared to rigid materials, would have enabled the coupling tube to be more easily

removed from the cap assembly for cleaning and maintenance.

116. A person of ordinary skill in the art also would have been motivated to construct the "mouthpiece tube 30" and "coupling tube 13" as a unitary assembly, i.e. as a single unit, for several reasons. First, a person of ordinary skill would have recognized the desirability of reducing the number of parts required to assembly Kiyota's lid body. By constructing the "mouthpiece tube 30" and "coupling tube 13" as a single unit, the number of parts would be reduced. This would also have the added benefit of eliminating the possibility of unintended disconnection between the "mouthpiece tube 30" and "coupling tube 13" during use.

117. In addition, Kiyota discloses that in the stowed configuration, "mouthpiece tube 30" is "bent just above the first coupling tube 13b at an acute angle." Ex. 1004, 10:4). Thus, a person of ordinary skill would have understood this configuration to create significant lateral stresses on the connection between the coupling tube and the mouthpiece. A person of ordinary skill also would have recognized that repeated exposure to such stresses, such as through the routine opening and closing of the lid, would create a risk that the "mouthpiece tube 30" might separate from the "coupling tube 13" during routine use. To mitigate this risk, a person of ordinary skill in the art would have been motivated to construct the "mouthpiece tube 30" and the "coupling tube 13" as a unitary assembly of the same

resilient material.

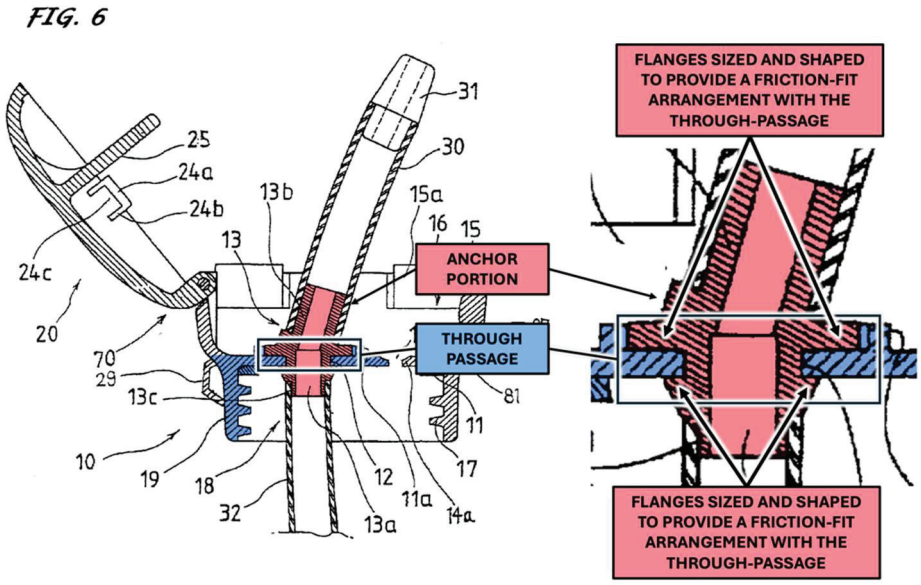
118. Accordingly, it is my opinion that Kiyota discloses all the elements of Claim 9. Thus, for the same reasons as discussed above in connection with Claim 1, it is also my opinion that Claim 9 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

G. Claim 15 is Anticipated by, and/or Obvious over Kiyota

119. Claim 15 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

120. Claim 15 further recites, "wherein the anchor portion includes a plurality of flanges that are sized and shaped to provide a friction-fit arrangement with the through-passage." As I explain below, Kiyota discloses this additional limitation.

121. As discussed above in connection with Claim 1, Kiyota's "coupling tube 13" constitutes the anchor portion of its mouthpiece assembly. As shown below, "coupling tube 13" includes two flanges extending immediately above and below "baseplate 11" that are sized and shaped to provide a friction-fit arrangement with the "communicating hole 12" (i.e. the through-passage).



Ex. 104, Fig. 6.

122. Accordingly, it is my opinion that Nakajima discloses all the elements of Claim 15, and thus anticipates this claim. It is also my opinion that Claim 15 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

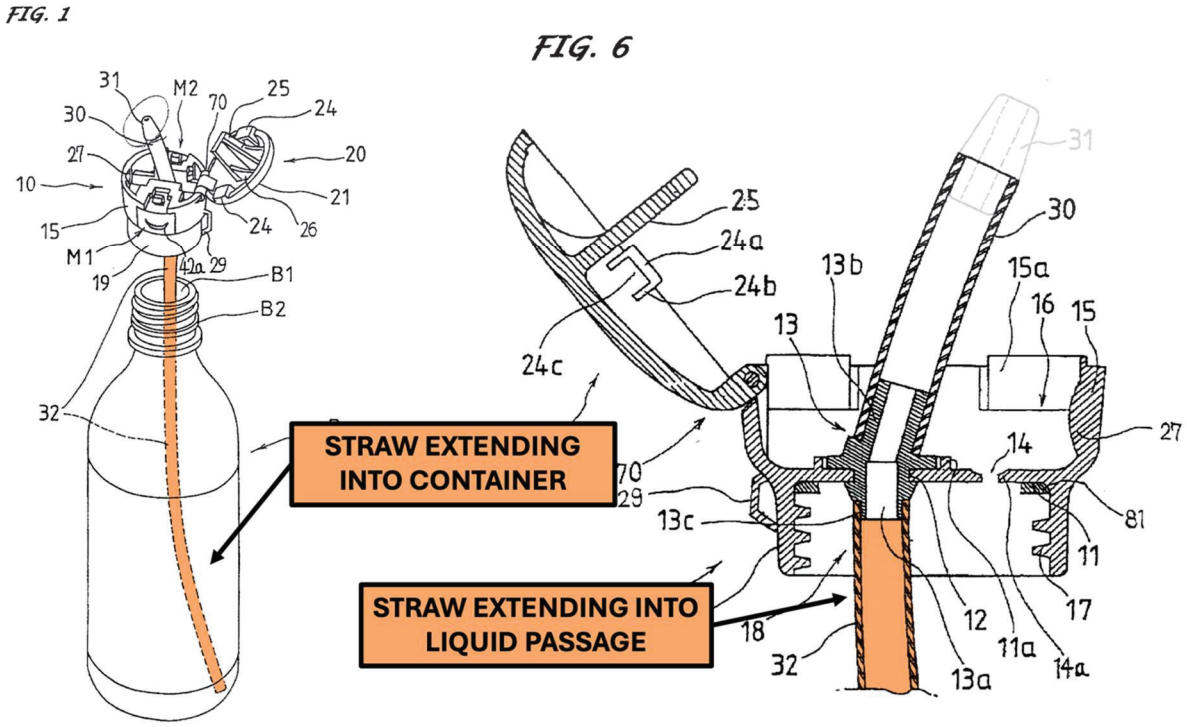
H. Claim 16 is Anticipated by, and/or Obvious over Kiyota

123. Claim 16 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

124. Claim 16 further recites, "wherein the drink container includes a straw with a first end that extends into the liquid container and a second end that extends into the liquid passage and is retained therein by the friction-fit arrangement." As I

explain below, this additional limitation is obvious over Kiyota in view of the knowledge of a person of ordinary skill in the art.

125. Kiyota discloses "suction tube 32" that is secured to "coupling tube 13" (i.e. the anchor portion) by a friction fit. As shown below, the suction tube constitutes a straw with a first end that extends into the liquid container and a second end that is secured to the liquid passage.



Ex. 1004, Figs. 1, 6.

126. Kiyota does not disclose that the "suction tube 32" extends into the liquid passage. Rather, as described above, the "suction tube 32" extends over the "coupling tube 13" to form part of the liquid passage. However, it is my opinion

that modifying Kiyota's "suction tube 32" to extend into and be secured with a friction fit within the "coupling tube 13" would have been obvious to a person of ordinary skill in the art. For example, a person or ordinary skill in the art would have recognized only two possible friction-fit arrangements between the suction tube and the coupling tube: one in which the suction tube is fitted around the coupling tube (as in Figure 6, above), and a second in which the suction tube is fitted within the coupling tube. Whether to adopt an internal or external friction-fit would have been nothing more than a routine design choice between readily identifiable, predictable solutions, both of which would have had a reasonable expectation of success.

127. Accordingly, it is my opinion that Claim 16 is obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

I. Claim 21 is Obvious over Kiyota

128. Independent Claim 21 is similar to independent Claim 1, but removes some limitations and adds some others. Most notably, unlike Claim 1, Claim 21 does not recite either a "first catch structure" or "second catch structure."

129. Because Claim 21 recites many of the same limitations as independent Claim 1, rather than duplicate my explanations for how Kiyota discloses these limitations, I provide below cross-references to my discussion of the corresponding

limitations of Claim 1.

1. Preamble: "A drink container"

130. Claim 21's Preamble recites "[a] drink container."

131. Claim 1's Preamble also recites "a drink container."

132. Thus, Kiyota discloses the limitations of Claim 21's preamble at least for the same reasons it discloses the limitations of Claim 1's Preamble.

2. 21[A]: "a liquid container"

133. Claim 21[A] recites "a liquid container."

134. Claim 1[A] recites "a liquid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink liquid."

135. Thus, Kiyota discloses the limitations of Claim 21[A] at least for the same reasons it discloses the limitations of Claim 1[A].

3. 21[B]: "a cap assembly removably coupled to the liquid container"

136. Claim 21[B] recites "a cap assembly removably coupled to the liquid container."

137. Claim 1[B] recites "a cap assembly removably coupled to the liquid container."

138. Thus, Kiyota discloses the limitations of Claim 21[B] at least for the same reasons it discloses the limitations of Claim 1[B].

4. 21[B][1]: "a base that defines a through-passage"

139. Claim 21[B][1] recites that the cap assembly of Claim 21[B] comprises "a base that defines a through-passage."

140. Claim 1[B][1] recites that Claim 1's cap assembly comprises "a base removably coupled to the neck of the liquid container and including a through-passage."

141. Thus, Kiyota discloses the limitations of Claim 21[B][1] at least for the same reasons it discloses the limitations of Claim 1[B][1].

5. 21[B][2]: "a mouthpiece assembly that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing configuration and a stowed configuration, wherein the mouthpiece assembly is biased to the dispensing configuration"

142. Claim 21[B][2] recites that the cap assembly of Claim 21[B] comprises "a mouthpiece assembly that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing configuration and a stowed configuration, wherein the mouthpiece assembly is biased to the dispensing configuration."

143. Claim 1[B][3] recites that the cap assembly of Claim 1 comprises "a mouthpiece assembly extending through the through-passage of the base and defining a liquid passage … wherein the mouthpiece assembly is configured to be

selectively configured between a dispensing configuration … and a stowed configuration … wherein the mouthpiece assembly is biased to the dispensing configuration."

144. Thus, Kiyota discloses the limitations of Claim 21[B][2] at least for the same reasons it discloses the limitations of Claim 1[B][3].

6. 21[B][2][a]: "a resilient mouthpiece portion that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration"

145. Claim 21[B][2][a] recites that the mouthpiece assembly of Claim 21[B][2] comprises "a resilient mouthpiece portion that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration."

146. Claim 1[B][3][a] recites that the mouthpiece assembly of Claim 1 comprises "a mouthpiece portion that includes the outlet," and Claim 1[B][3][b] recites that the "mouthpiece portion" is "constructed of" a "resiliently deformable material."

147. Thus, Kiyota discloses the limitations of Claim 21[B][2][a] at least for the same reasons it discloses the limitations of Claim 1[B][3][a] and 1[B][3][b].

7. 21[B][2][b]: "a resilient tube connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of

drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration"

148. Claim 21[B][2][b] recites that the mouthpiece assembly of Claim 21[B][2] comprises "a resilient tube connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration."

149. Claim 1[B][3][b] recites " a tube that. . . includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration."

150. Thus, Kiyota discloses the limitations of Claim 21[B][2][b] at least for the same reasons it discloses the limitations of Claim 1[B][3][b].

8. 21[B][2][c]: "a resilient anchor portion extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the , and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly"

151. Claim 21[B][2][c] recites that the mouthpiece assembly of Claim 21[B][2] comprises "a resilient anchor portion extending from the resilient tube

opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the cap assembly, and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly."

152. Claim 1[B][3][c] recites that the mouthpiece assembly of Claim 1 comprises "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."

153. Claim 9 recites that the anchor portion of the mouthpiece assembly of Claim 1, "wherein the mouthpiece portion, the tube, and the anchor portion are constructed as a unitary assembly of the resiliently deformable material."

154. Thus, Kiyota discloses and/or renders obvious the limitations of Claim 21[B][2][b] at least for the same reasons discussed in connection with Claim 1[B][3][c] and Claim 9, above.

9. 21[B][3]: "a user release mechanism adapted to automatically release the mouthpiece assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly"

155. Claim 21[B][3] recites that the cap assembly of Claim 21[B] comprises "a user release mechanism adapted to automatically release the mouthpiece

assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly."

156. Claim 1[B][4] recites that the cap assembly of Claim 1 comprises " a user release mechanism adapted to automatically … release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration. ." Thus, Kiyota discloses the limitations of Claim 21[B][3] at least for the same reasons it discloses the limitations of Claim 1[B][4].

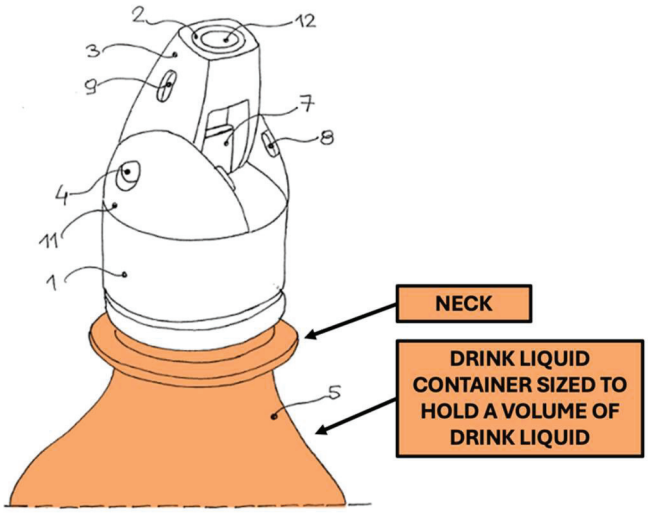
V. GROUND 2: CLAIMS 1, 2, 5, 6, 8, 9, 15, AND 21 ARE ANTICIPATED BY OR WOULD HAVE BEEN OBVIOUS OVER RIBARITS

A. Claim 1 is Anticipated by, and/or Obvious over Ribarits

1. Preamble: "A drink container"

157. The preamble recites a "drink container." I understand that patent preambles are not always limiting. I have not been asked to render an opinion on whether the preamble of Claim 1 is limiting. Regardless, as I explain below, Ribarits discloses "a drink container."

158. Ribarits discloses "a drinking device which enables a drink to be drunk in a pleasant, hygienic manner, and can be both opened and closed with one hand." (Ex. 1005, Abstract). Ribarits explains that the invention "relates to a device for comfortably drinking and portioning from the bottles common today." (*Id.*, 1). The drink container of Ribarits is shown in Figure 1 below, as item 5:



Ex. 1005, Fig. 1.

2. 1[A]: "a liquid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid"

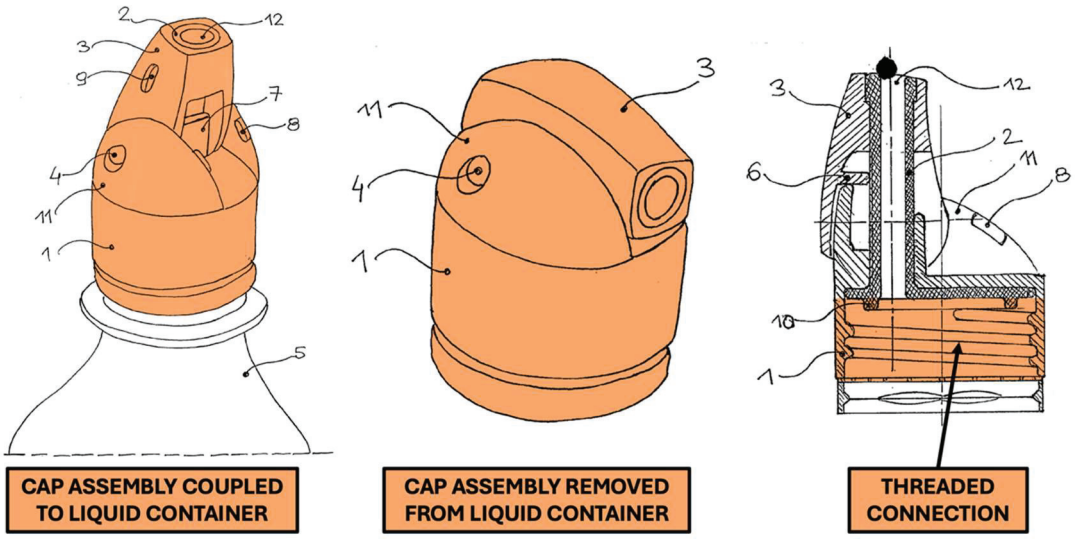
159. Limitation 1[A] recites, "a fluid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink fluid." As I explain below, Ribarits discloses this limitation.

160. As shown in Figure 1, Ribarits discloses a bottle, i.e. a fluid container, having a neck with an opening. Ex. 1005, Fig. 1. A person of ordinary skill in the art would have understood that the neck portion of the bottle would be an opening that attaches to a threaded cap with a drinking spout, and that the bottle would also have an internal compartment sized to hold a volume of drink liquid. These features would be necessary to drink from the bottle, which is the purpose of the Ribarits invention. Ex. 1005, 2.

3. 1[B]: "a cap assembly removably coupled to the liquid container"

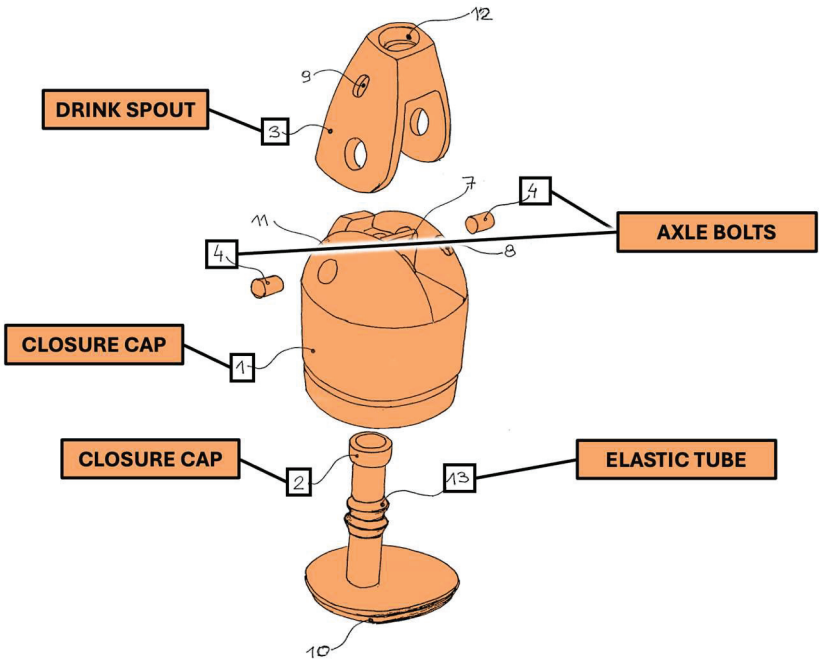
161. Limitation 1[B] recites, "a cap assembly removably coupled to the liquid container." As I explain below, Ribarits discloses this limitation.

162. Ribarits discloses "a common closing cap provided with a thread" that "is screwed onto the bottle (5)." Ex. 1005, 2-3.



Ex. 1005, Figs. 1, 3. As shown above, Ribarits' "closing cap" is removably coupled to the liquid container via a threaded connection. Ex. 1005, 2-3.

163. Ribarits' cap assembly includes closure cap 1, elastic tube 13 with resilient mouthpiece 2, drink spout 3, and axle bolts 4, as shown in the exploded view below:

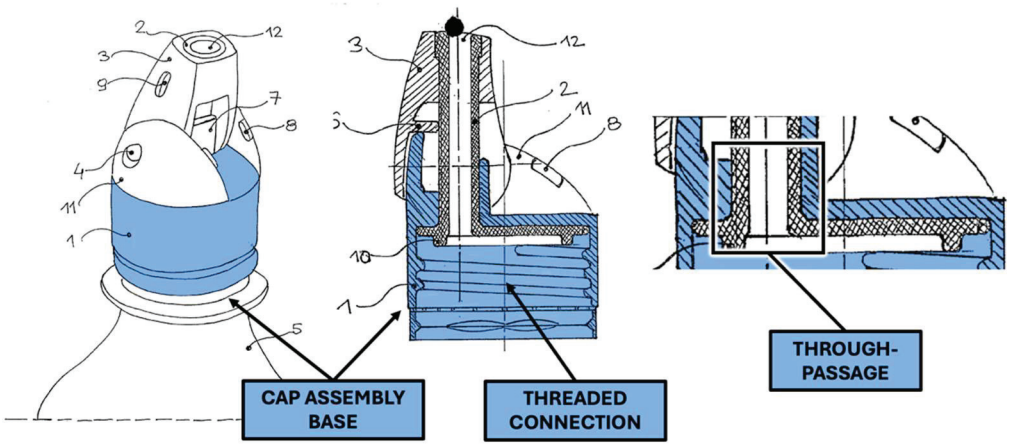


Ex. 1005, Fig. 2.

a. 1[B][1]: "a base removably coupled to the neck of the liquid container and including a through-passage"

164. Limitation 1[B][1] recites the cap assembly comprises "a base removably coupled to the neck of the liquid container and including a through-passage." As I explain below, Ribarits discloses this limitation.

165. As discussed above, Ribarits' "closing cap" is removably coupled to the neck of the liquid container via a threaded connection. As shown below, the base of Ribarits' "closing cap" couples to the neck of the liquid container and includes a through-passage:

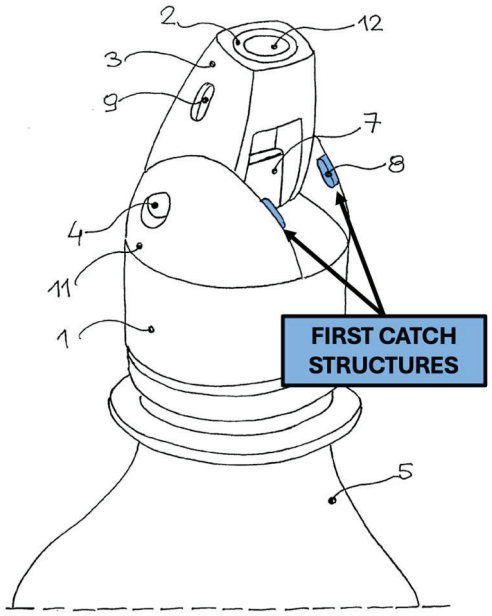


Ex. 1005, Figs. 1, 3.

b. 1[B][2]: "a first catch structure"

166. Limitation 1[B][2] recites that the cap assembly comprises "a first catch stucture." As I explain below, Ribarits discloses this limitation.

167. Ribarits discloses a "securing mechanism" that comprises a corresponding set of "knobs" and "recesses" on the drinking spout of the closing cap. As shown below, a pair of "recesses laterally attached in the lateral parts" of the cap assembly (item 8 in Figure 1) comprise a first catch structure:



Ex. 1005, Fig. 1. According to Ribarits, when the drinking spout is pivoted to the stowed configuration, knobs snap into the recesses to "prevent accidental opening of the drinking spout." Ex. 1005, 2.

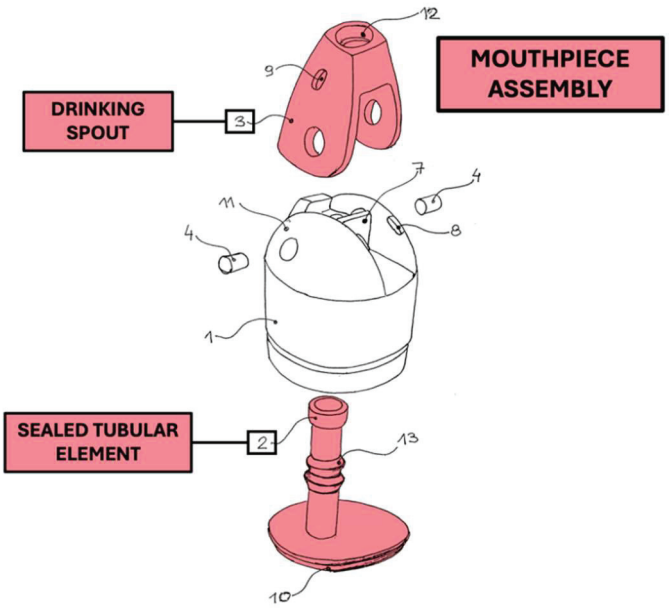
168. Ribarits also teaches that the "knobs" and "recesses" are interchangeable between the closing cap and drinking spout. For example, in Ribarits Claim 1, the "knobs (8)" are identified as being on "lateral parts" of the cap and "recesses (9)" are identified as being "on the drinking spout." By contrast, in Ribarits Claim 5, the "recesses (9)" are identified on the "lateral parts" of the cap and the "knobs (8) are located on the drinking spout." Ex. 1005, 3.

c. <u>1[B][3]: Mouthpiece Assembly</u>

169. Limitation 1[B][3] recites "a mouthpiece assembly extending through the through-passage of the base and defining a liquid passage through which drink

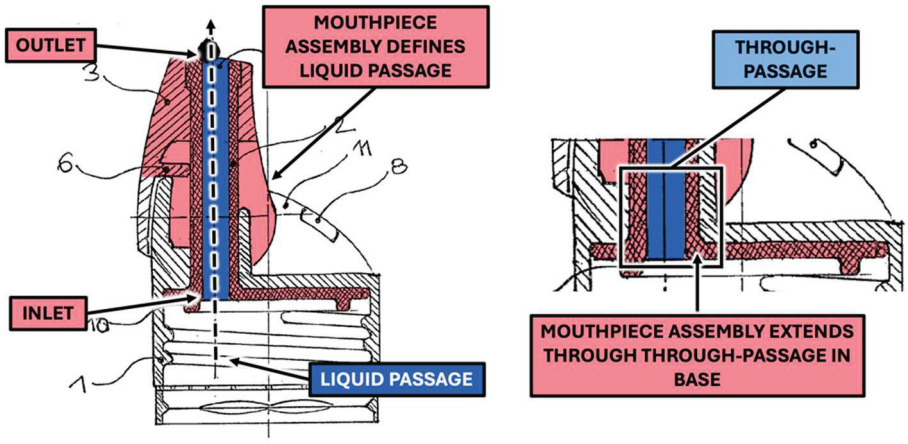
liquid from the liquid container may selectively flow, and further defining an inlet through which drink liquid in the internal compartment may enter the liquid passage and an outlet through which drink liquid from the internal compartment of the liquid container is selectively dispensed, wherein the mouthpiece assembly is configured to be selectively configured between a dispensing configuration, in which the liquid passage permits drink liquid to flow from the internal compartment at least into the liquid passage, and a stowed configuration, in which the liquid passage restricts the flow of drink liquid through the liquid passage, wherein the mouthpiece assembly is biased to the dispensing configuration." As I explain below, Ribarits discloses this limitation.

170. As shown below, Ribarits discloses a mouthpiece assembly that comprises a "drinking spout (3)" and a "sealed tubular element (2)":



Ex. 1005, Fig. 2.

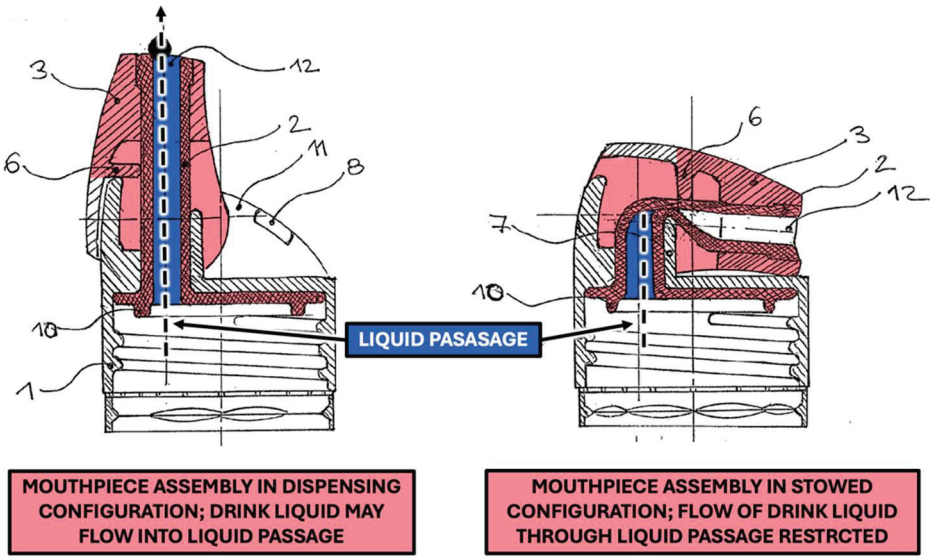
171. The sealed tubular element is a flexible tube made from an elastic "rubber or latex" material. Ex. 1005, 2. As shown below, the tubular element extends through the through-passage of the base of the "closing cap (1)" and defines a liquid passage from the container to the user.



Ex. 1005, Fig. 3. As shown above, the tubular element includes an inlet at its base

and an outlet at its opposite end, which fits within the drinking spout.

172. Ribarits' drinking spout is pivotable between an open (i.e. dispensing) configuration and a closed (i.e. stowed) configuration, as shown below:



Ex. 1005, Fig. 3. In the dispensing configuration, liquid may flow from the container, through the sealed tubular element, and to the user:

> When the drinking spout is pivoted open, the elastic tube inserted therein is straightened and the opening is thus released. The liquid located in the bottle can now be withdrawn via the tube guided in the drinking spout, wherein the tightness is given by screwing the neck of the bottle onto the sealing part of this element.

Ex. 1005, 2. In the stowed configuration, the sealed tubular element is crimped, thereby restricting the flow of liquid from the container to the user:

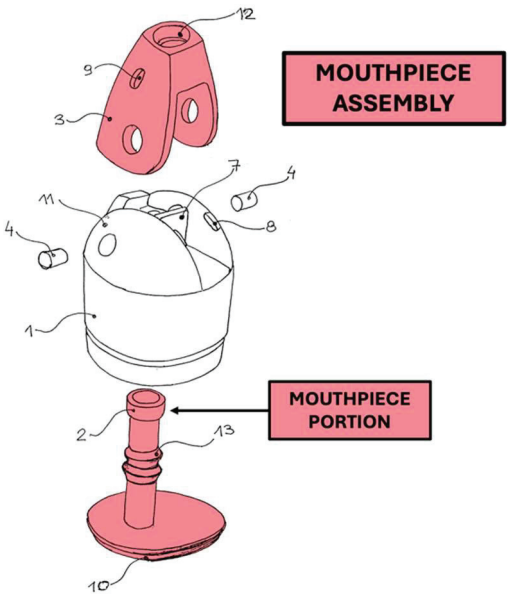
> If now the device is to be closed, by folding down the drinking spout, the tube is bent between the outlet opening of the closing cap and the accommodation in the drinking spout by means of the two webs, and the device is closed.

Ex. 1005, 2. Because the elastic tubular element is comprised a resilient material, namely "rubber or latex," a person of ordinary skill would have understood the tubular element to be biased in favor of the dispensing configuration.

i. 1[B][3][a]: "a mouthpiece portion that includes an outlet"

173. Limitation 1[B][3][a] recites the mouthpiece assembly comprises "a mouthpiece portion that includes an outlet." As I explain below, Ribarits discloses this limitation.

174. As discussed above, Ribarits' mouthpiece assembly includes a sealed tubular element that defines a liquid passage from the container to the user. As shown below, the sealed tubular element includes a mouthpiece portion at its outlet.



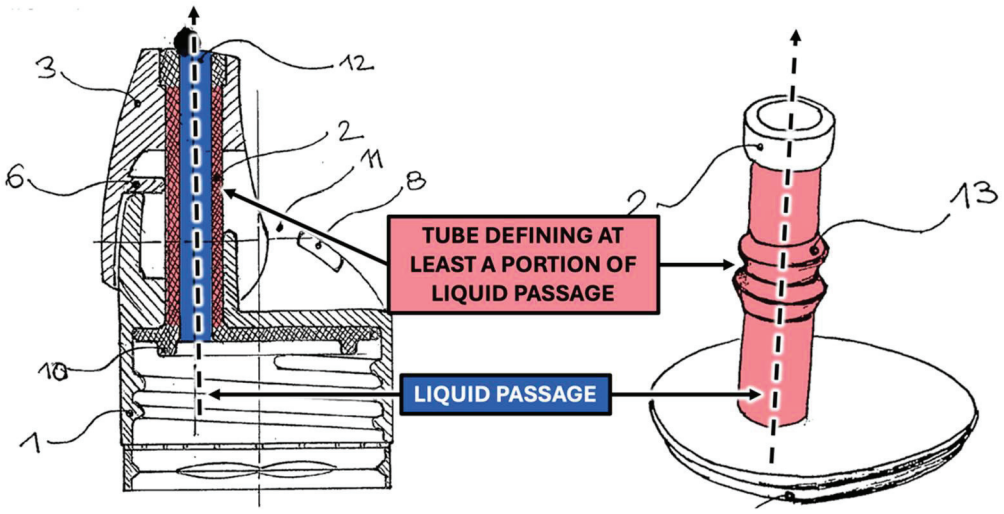
Ex. 1005, Fig. 2. Because a user draws liquid from the outlet of the sealed tubular

element, which is fitted within Ribarits' drinking spout, a person of ordinary skill in the art would have understood the outlet of the sealed tubular element to comprise the mouthpiece portion of the tube.

ii. 1[B][3][b]: "a tube that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the mouthpiece portion, wherein the tube includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration, and where the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material"

175. Limitation 1[B][3][b] recites the mouthpiece assembly comprises "a tube that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the mouthpiece portion, wherein the tube includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration, and where the mouthpiece portion and the tube are constructed as a unitary assembly of the resiliently deformable material." As I explain below, Ribarits discloses this limitation.

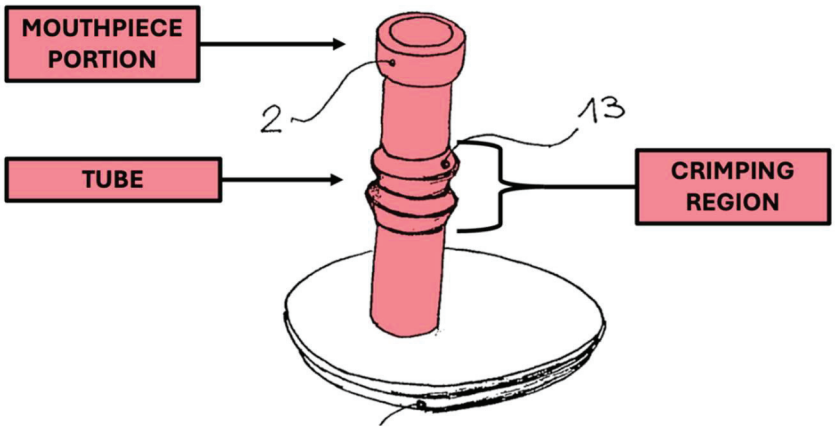
176. As discussed above and shown below, Ribarits' "sealed tubular element" includes a tube portion:



Ex. 1005, Figs. 2, 3. As shown above, the tube portion of the sealed tubular element defines a portion of the liquid passage through the sealed tubular element.

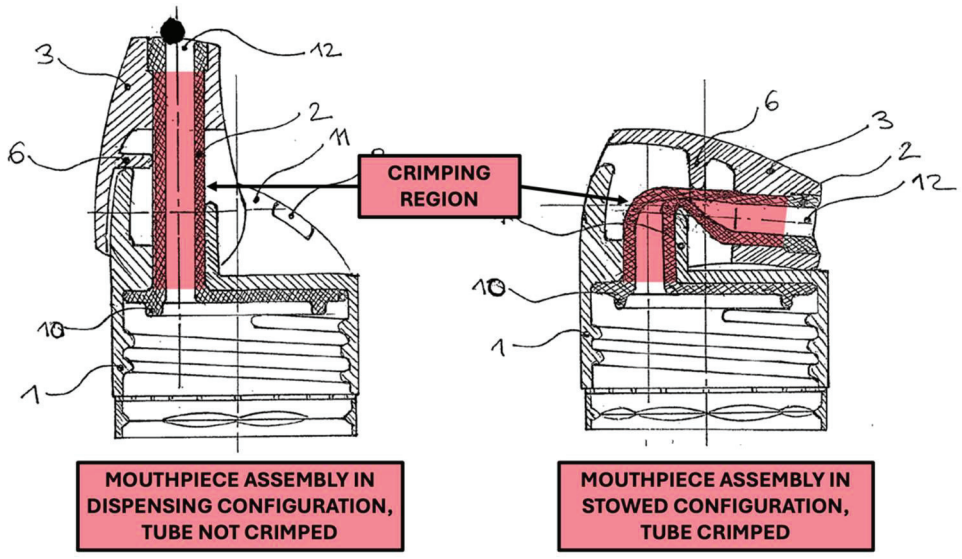
177. Ribarits also discloses that the sealed tubular element, including the tube portion identified above, is comprised of "rubber or latex," which a person of ordinary skill in the art would have understood to be resiliently deformable materials.

178. Ribarits also discloses that the tube portion of the sealed tubular element includes a crimping region, which may include a "bellow-shaped formation (13) in the tube section" of the sealed tubular element. Ex. 1005, 3.



Ex. 1005, Fig. 2. As shown above, the mouthpiece portion and the tube portion of the Ribarits' sealed tubular element are constructed as a unitary assembly of resiliently deformable materials, i.e. "rubber or latex." Ex. 1005, 2.

179. According to Ribarits, when the drinking spout is pivoted to the closed configuration, "the tube is bent between the outlet opening of the closing cap and the accommodation in the drinking spouts of the two webs … ." Ex. 1005, 2.

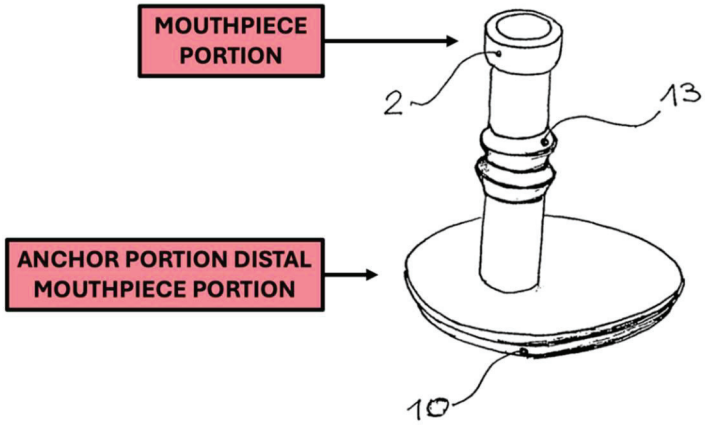


Ex. 1005, Fig. 3.

iii. 1[B][3][c]: "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"

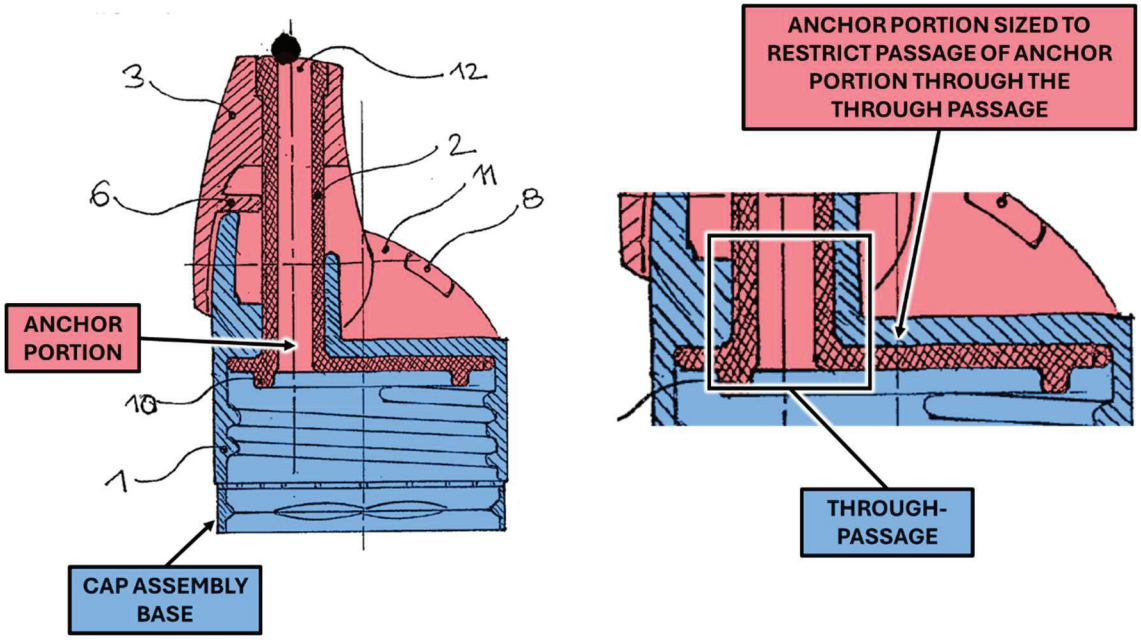
180. Limitation 1[B][3][c] recites the mouthpiece assembly comprises "an anchor portion extending from the tube distal the mouthpiece portion, wherein the anchor portion is sized to restrict passage of the anchor portion through the through-passage of the base of the cap assembly." As I explain below, Ribarits discloses this limitation.

181. As shown below, Ribarits' sealed tubular element includes an anchor portion comprising a "sealing ring 10" on the end opposite the mouthpiece portion.



Ex. 1005, Fig. 2.

182. As shown below, the sealing ring extends outward, and is thus sized to restrict the sealed tubular element from passing through the through-passage at the base of the cap assembly:



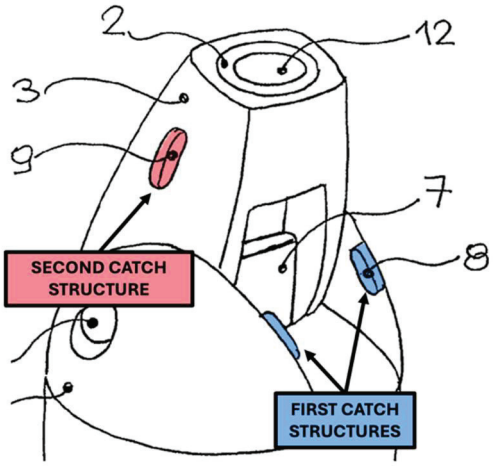
Ex. 1005, Fig. 3.

iv. 1[B][3][d]: "a second catch structure adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration"

183. Limitation 1[B][3][d] recites the mouthpiece assembly comprises "a second catch structure adapted to be selectively engaged with the first catch structure to retain the mouthpiece assembly in the stowed configuration." As I explain below, Ribarits discloses this limitation.

184. As discussed above, Ribarits discloses a "securing mechanism" comprised of corresponding catch structures (i.e. knobs and recesses) on the base and drinking spout of its closing cap.

185. As shown below, the second catch structure comprises a pair of corresponding "knobs" on the drinking spout:



Ex. 1005, Fig. 1. The knobs snap into the recesses to retain the drinking spout, and thus the mouthpiece assembly, in the closed (i.e. stowed) configuration. I again note, as previously discussed, that Ribarits teaches that the knobs and recesses are interchangeable; thus, the knobs or recesses may be on either the closing cap or the drinking spout, so long as the pair of knobs engages with a pair of recesses.

d. 1[B][4]: "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"

186. Limitation 1[B][4] recites the cap assembly comprises "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." As discussed above, I understand this claim limitation is a means-plus-function limitation, and is thus governed by 35 U.S.C. § 112, paragraph 6.

187. As recited in this claim limitation, the function of the "user release mechanism" is "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." Ex. 1001, Claim 1. As discussed above, the '028 Patent specification discloses two embodiments of the user release mechanism. As I explain below, it is my opinion that Ribarits discloses a user release mechanism that is equivalent at least to the second of these two embodiments.

188. In the second embodiment described in the '028 Patent, the user release mechanism constitutes "user engagement portion 260" on "rigid collar member 170," as shown in Figure 11 below:

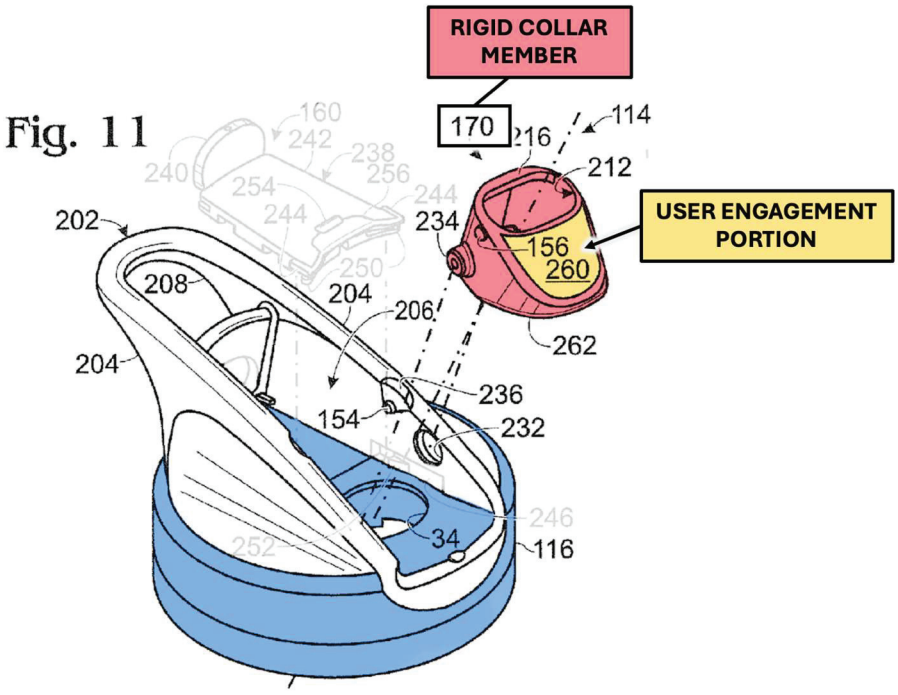
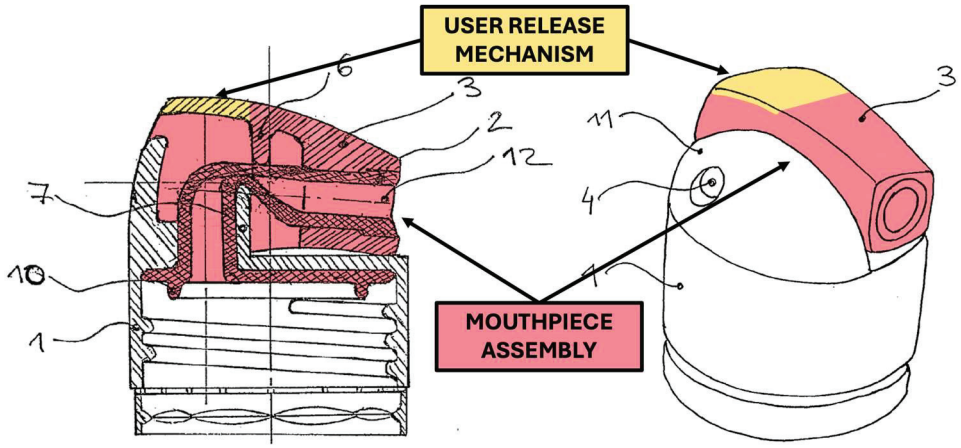


Fig. 11

Ex. 1001, Fig. 11. To actuate the user release mechanism, the user presses the mouthpiece assembly directly at "user engagement portion 260" on "rigid collar member 170" to disengage the catch structures 154 and 156, which allows the mouthpiece to pivot into its dispensing configuration.

189. Ribarits discloses an equivalent structure to the embodiment described above. Specifically, Ribarits' "drinking spout" is adapted to automatically disengage the "knobs" and "recesses" (i.e. the first and second catch structures) upon actuation of the spout by the user. According to Ribarits, an object of its invention is "to suggest a drinking device which enables both to open and close it with one hand, which guarantees a completely secure closing … ." Ex. 1005, 2. To that end,

Ribarits' "drinking spout" can be engaged by the user's finger to open and close the spout, an example of which is shown below:



Ex. 1005, Fig. 1. Although the above figure depicts what I have described as a 'lever arm' on the Ribarits drinking spout, a user may engage any suitable portion of Ribarits' drinking spout to activate its user release mechanism. For example, the user can engage the lower edge of the outlet portion of the drinking spout to lift the spout, and thereby automatically disengage the "knobs" from the "recesses."

190. When the drinking spout is in the closed position (i.e. the stowed configuration), the user may apply a force to the spout at any suitable location, to actuate the spout and disengage the snap-fit connection between the "knobs" and "recesses." Ex. 1005, 2 (describing one-handed operation of Ribarits' cap). Because the flexible tube within the drinking spout is comprised of an elastic "rubber or latex" material, a person of ordinary skill in the art would have understood the tube to be

inherently biased toward the dispensing configuration. That is, when in the collapsed, stowed position, the resilient elastic material of the tube wants to revert to is open configuration. This inherent bias further facilitates the automatic disengagement of the first and second catch structures (i.e. the "knobs" and "recesses") and causes the mouthpiece assembly to move from the stowed configuration to the dispensing configuration in conjunction with the movement of the lever arm.

191. Ribarits' user release mechanism structure is equivalent to the second embodiment described in the '028 Patent. That is because it performs the same function, in the same way, to achieve the same result. For example, in the second embodiment of the '028 Patent, the user may press directly on the "user engagement portion 260" of the mouthpiece assembly, which causes the catch structures to disengage and the mouthpiece to move to the dispensing configuration. Ribarits' mechanism functions in substantially the same way: a user presses directly on the "drinking spout" portion of the mouthpiece assembly, which causes the catch structures to disengage and move into the dispensing configuration.

192. I understand that in co-pending litigation, the Patent Owner contends the "user release mechanism" limitation should not be construed as a means-plus-function claim term. Although I disagree with Patent Owner's contention, it is my

opinion that Kiyota nonetheless discloses a structure that performs the function recited in the claim.

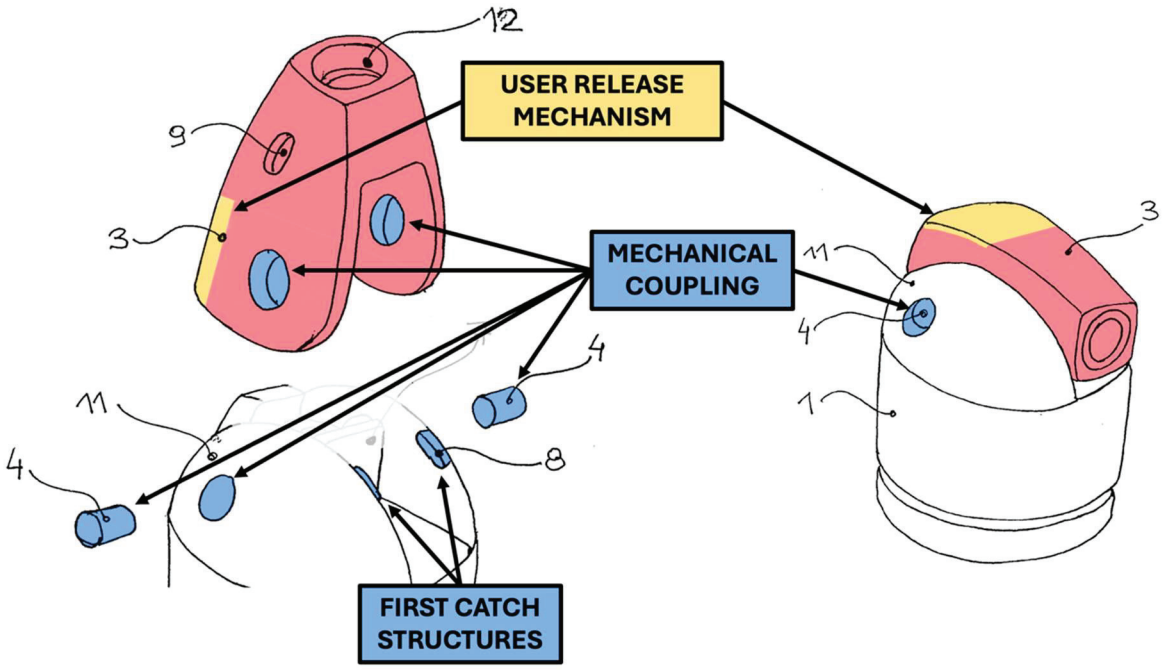
193. Accordingly, Ribarits discloses each element of claim 1, and therefore it is my opinion that Ribarits anticipates claim 1. To the extent there are any differences between claim 1 and Ribarits' disclosures, it is also my opinion that claim 1 would have been obvious to a person of ordinary skill in the art over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

B. Claim 2 is Anticipated by, and/or Obvious over Ribarits

194. Claim 2 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Claim 1 is anticipated and/or obvious over Ribarits in view of the knowledge of a person of ordinary skill in the art.

195. Claim 2 further recites, "wherein the user release mechanism is mechanically coupled to the first catch structure." As I explain below, Ribarits discloses this additional limitation.

196. As shown below, Ribarits' user release mechanism (i.e. the lever arm on the drinking spout) is mechanically coupled to the first catch structure (i.e. the knobs/recesses on the base of the cap assembly, via a pair of axle pins that connect the drinking spout to the cap assembly base:



Ex. 1005, Fig. 1. A person of ordinary skill in the art would have understood the "drinking spout 3," which includes the user release mechanism, is mechanically coupled to the "lateral parts 11" to which it is connected via "axial pins 4." This is because "lateral parts 11" include the "knobs" or "recesses" of the first catch structure, as discussed above.

197. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 2, and thus anticipates this claim. It is also my opinion that Claim 2 would have been obvious over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

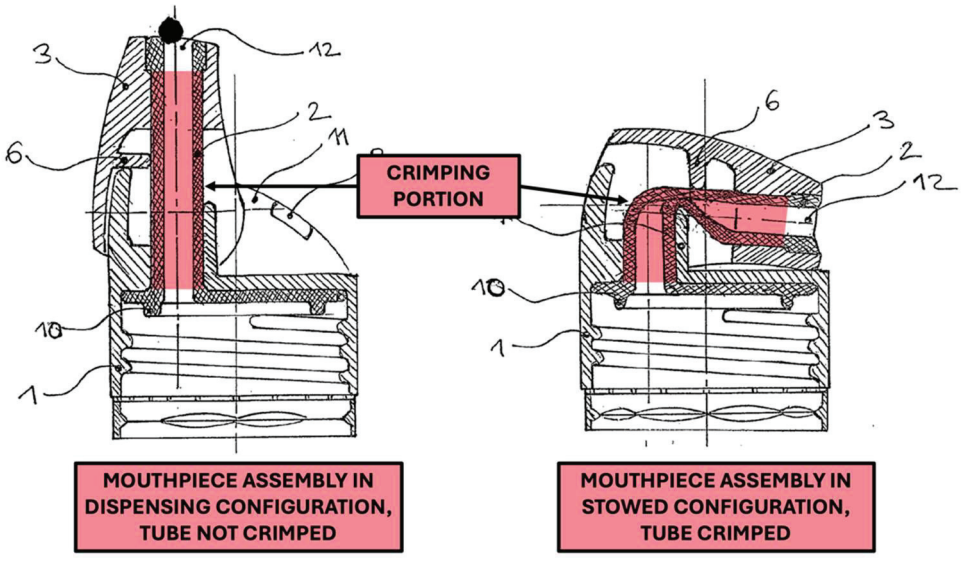
C. Claim 5 is Anticipated by, and/or Obvious over Ribarits

198. Claim 5 depends from Claim 1, and thus incorporates the limitations of

Claim 1. As explained above, it is my opinion that Claim 1 is anticipated by and/or obvious over Ribarits in view of the knowledge of a person of ordinary skill in the art.

199. Claim 5 further recites, "wherein the crimping region at least partially biases the mouthpiece assembly to the dispensing configuration." As I explain below, Ribarits discloses this additional limitation.

200. As discussed above in connection with claim 1, Ribarits' sealed tubular element includes a crimping region that collapses to restrict fluid flow through the tube when in the stowed configuration.



Ex. 1005, Fig. 3. Because Ribarits' sealed tubular element is comprised of an elastic "rubber or latex" material, a person of ordinary skill also would have understood the tube—and thus the crimping region—to be biased to the dispensing configuration.

201. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 5, and thus anticipates the claim. It is also my opinion that Claim 5 would have been obvious over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

D. Claim 6 is Obvious over Ribarits

202. Claim 6 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Claim 1 is anticipated by and/or obvious over Ribarits in view of the knowledge of a person of ordinary skill in the art.

203. Claim 6 further recites, "wherein 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 between the pair of lateral guards when the mouthpiece assembly is in the stowed configuration." As I explain below, Claim 6 would have been obvious in view of Ribarits.

204. Ribarits does not disclose a "handle that projects away from the base of the cap assembly." However, it is my opinion that it would have been obvious to a person of ordinary skill in the art to add a handle to Ribarits' cap assembly. The use of carrying handles for fluid containers was commonplace at the time of the

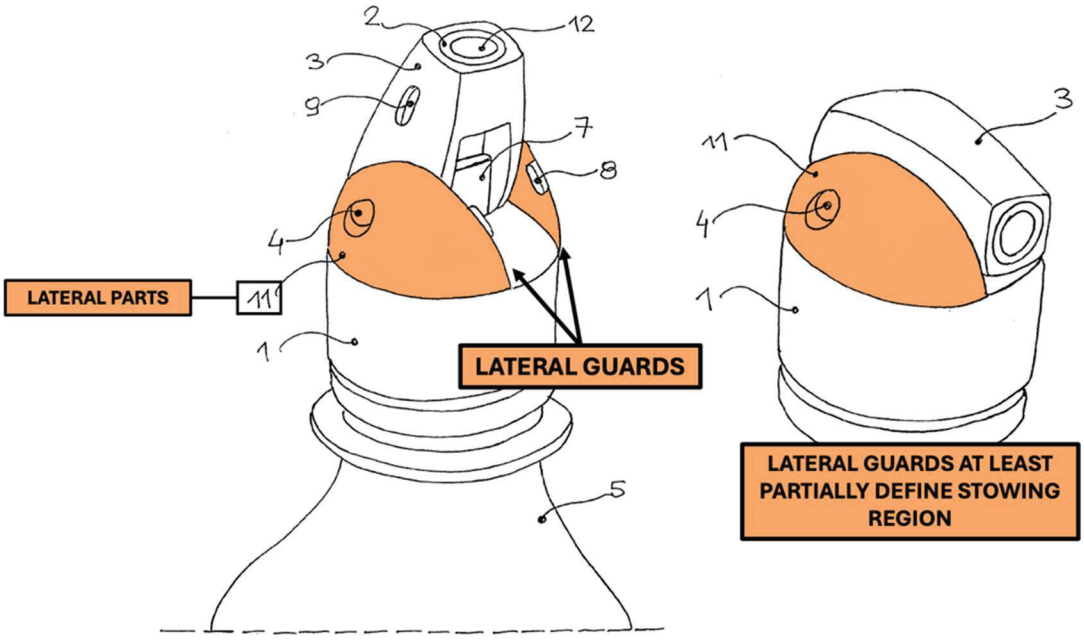
invention. Basic reusable water bottles routinely included handles to facilitate carrying. Accordingly, a person of ordinary skill in the art would have recognized the desirability of adding a handle to the Ribarits cap assembly, and doing so would have constituted nothing more than a routine design choice for a person of ordinary skill in the art.

205. In addition, a person of ordinary skill in the art would have been motivated to add a handle to the Ribarits cap assembly for at least two reasons. First, as noted above, handles were well-known to facilitate carrying of a water bottle. Second, it was equally well-known to a person of ordinary skill in the art that for liquid containers intended to hold cold beverages, the use of a handle would minimize the transfer of heat from the user's hand, and thereby ensure the contents of the container remained colder for longer.

206. A person of ordinary skill in the art also would have had a reasonable expectation of success in modifying Ribarits to include a handle because it could be accomplished by attaching the handle via the sockets in Ribarits' cap assembly base. Doing so would not require any other change to the design of the Ribarits cap assembly.

207. Ribarits discloses "a pair of lateral guards that at least partially define a stowing region that receives at least a portion of the mouthpiece assembly between

the pair of lateral guards when the mouthpiece assembly is in the stowed configuration." Ribarits' cap assembly includes a pair of lateral guards on opposed sides of its "drinking spout," as shown below:



Ex. 1005, Fig. 1. When the drinking spout is pivoted to the stowed position, the lateral guards receive a portion of the mouthpiece assembly.

208. Accordingly, it is my opinion that Ribarits discloses and/or renders obvious the additional limitations of Claim 6. Thus, it is my opinion that Claim 6 would have been obvious over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

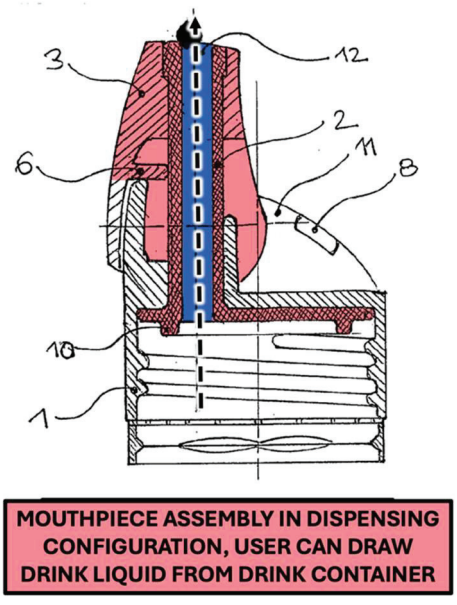
E. Claim 8 is Anticipated by, and/or Obvious over Ribarits

209. Claim 8 depends from Claim 1, and thus incorporates the limitations of

Claim 1. As explained above, it is my opinion that Claim 1 is anticipated by and/or obvious over Ribarits in view of the knowledge of a person of ordinary skill in the art.

210. Claim 8 further recites, "wherein the mouthpiece portion permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration." As I explain below, Ribarits discloses these additional limitations.

211. As discussed above in connection with claim 1, the mouthpiece portion of Ribarits' mouthpiece assembly is the outlet at the end of Ribarits' flexible tube. This end of the flexible tube is the portion of Ribarits' mouthpiece assembly from which a user may draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration.



MOUTHPIECE ASSEMBLY IN DISPENSING CONFIGURATION, USER CAN DRAW DRINK LIQUID FROM DRINK CONTAINER

Ex. 1005, Fig. 3.

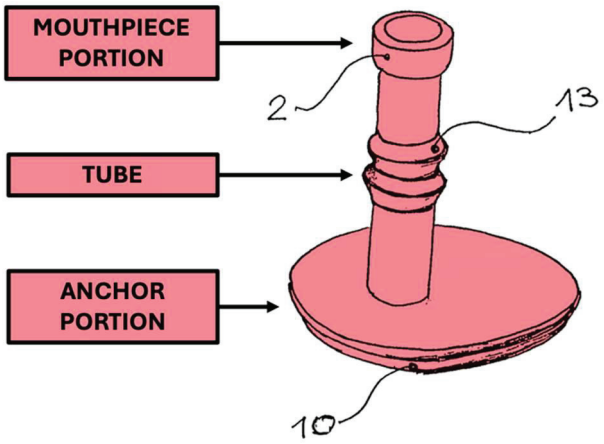
212. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 8, and thus anticipates the claim. It is also my opinion that Claim 8 would have been obvious over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

F. Claim 9 is Anticipated by, and/or Obvious over Ribarits

213. Claim 9 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Claim 1 is anticipated by and/or obvious over Ribarits in view of the knowledge of a person of ordinary skill in the art.

214. Claim 9 further recites, " wherein the mouthpiece portion, the tube, and the anchor portion are constructed as a unitary assembly of the resiliently deformable material." As explained below, Ribarits discloses this additional limitation.

215. As discussed above in connection with claim 1, Ribarits' flexible tube includes a mouthpiece portion, a tube portion, and an anchor portion:



Ex. 1005, Fig. 2. As shown above, the sealed tubular element is made from a resilient elastic material, such as "rubber or latex," and is constructed as a unitary assembly with the mouthpiece portion.

216. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 9, and thus anticipates the claim. It is also my opinion that Claim 9 would have been obvious over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

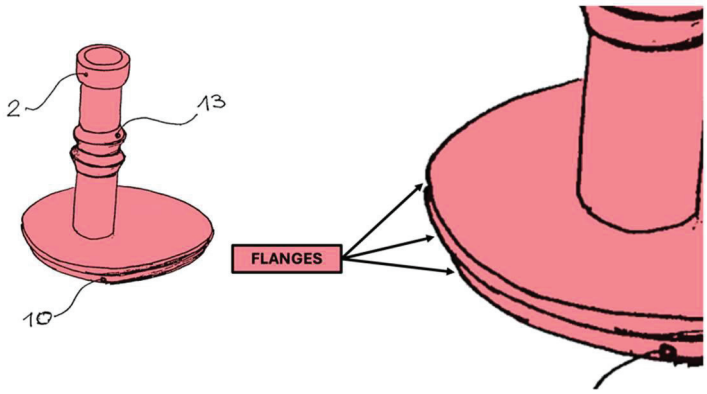
G. Claim 15 is Anticipated by, and/or Obvious over Ribarits

217. Claim 15 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Claim 1 is anticipated by and/or obvious over Ribarits in view of the knowledge of a person of ordinary skill in the art.

218. Claim 15 further recites, "wherein the anchor portion includes a

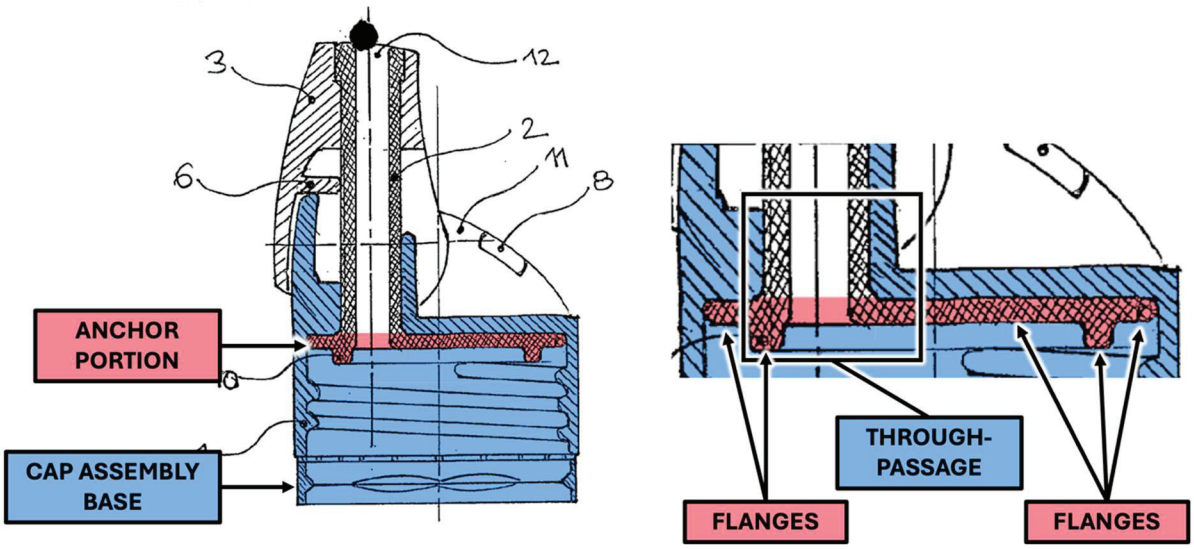
plurality of flanges that are sized and shaped to provide a friction-fit arrangement with the through-passage." As I explained below, Ribarits discloses this additional limitation.

219. The anchor portion of Ribarits' mouthpiece assembly includes "one or several projecting sealing rings (10)," as shown below:



Ex. 1005, Fig. 2. A person of ordinary skill in the art would have understood the "sealing rings" to constitute "flanges," as recited in Claim 15.

220. As shown below, the flanges/anchor portion of the sealed tubular element provides a friction-fit arrangement to form a seal with the through-passage of the cap assembly base:



Ex. 1005, Fig. 3. Ribarits discloses that by screwing the cap assembly base onto the neck of the container, a tight connection is formed with the "sealing rings," thereby ensuring a tight seal between the container and the cap assembly. Ex. 1005, 2. In view of these disclosures, a person of ordinary skill in the art would have understood the sealing rings to form a seal with the underside of the closing cap, and thereby form a friction-fit with the through-passage.

221. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 15, and thus anticipates the claim. It is also my opinion that Claim 15 would have been obvious over Ribarits, in view of the knowledge of a person of ordinary skill in the art.

H. Claim 21 is Anticipated by, and/or Obvious over Ribarits

222. Independent Claim 21 is similar to independent Claim 1, but removes

some limitations and adds some others. Most notably, unlike Claim 1, Claim 21 does not recite either a "first catch structure" or "second catch structure."

223. Because Claim 21 recites many of the same limitations as independent Claim 1, rather than duplicate my explanations for how Ribarits discloses these limitations, I provide below cross-references to my discussion of the corresponding limitations of Claim 1.

1. Preamble: "A drink container"

224. Claim 21's Preamble recites "[a] drink container."

225. Claim 1's Preamble also recites "a drink container."

226. Thus, Ribarits discloses the limitations of Claim 21's preamble at least for the same reasons it discloses the limitations of Claim 1's Preamble.

2. 21[A]: "a liquid container"

227. Claim 21[A] recites "a liquid container."

228. Claim 1[A] recites "a liquid container having a neck with an opening and having an internal compartment sized to hold a volume of potable drink liquid."

229. Thus, Ribarits discloses the limitations of Claim 21[A] at least for the same reasons it discloses the limitations of Claim 1[A].

3. 21[B]: "a cap assembly removably coupled to the liquid container"

230. Claim 21[B] recites "a cap assembly removably coupled to the liquid

container."

231. Claim 1[B] recites "a cap assembly removably coupled to the liquid container."

232. Thus, Ribarits discloses the limitations of Claim 21[B] at least for the same reasons it discloses the limitations of Claim 1[B].

4. 21[B][1]: "a base that defines a through-passage"

233. Claim 21[B][1] recites that the cap assembly of Claim 21[B] comprises "a base that defines a through-passage."

234. Claim 1[B][1] recites that Claim 1's cap assembly comprises "a base removably coupled to the neck of the liquid container and including a through-passage."

235. Thus, Ribarits discloses the limitations of Claim 21[B][1] at least for the same reasons it discloses the limitations of Claim 1[B][1].

5. 21[B][2]: "a mouthpiece assembly that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing configuration and a stowed configuration, wherein the mouthpiece assembly is biased to the dispensing configuration"

236. Claim 21[B][2] recites that the cap assembly of Claim 21[B] comprises "a mouthpiece assembly that extends through the through-passage of the base and defines a liquid passage, wherein the mouthpiece assembly has a dispensing

configuration and a stowed configuration, wherein the mouthpiece assembly is biased to the dispensing configuration."

237. Claim 1[B][3] recites that the cap assembly of Claim 1 comprises "a mouthpiece assembly extending through the through-passage of the base and defining a liquid passage … wherein the mouthpiece assembly is configured to be selectively configured between a dispensing configuration … and a stowed configuration … wherein the mouthpiece assembly is biased to the dispensing configuration."

238. Thus, Ribarits discloses the limitations of Claim 21[B][2] at least for the same reasons it discloses the limitations of Claim 1[B][3].

6. 21[B][2][a]: "a resilient mouthpiece portion that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration"

239. Claim 21[B][2][a] recites that the mouthpiece assembly of Claim 21[B][2] comprises "a resilient mouthpiece portion that permits a user to draw drink liquid from the drink container when the mouthpiece assembly is in the dispensing configuration."

240. Claim 1[B][3][a] recites that the mouthpiece assembly of Claim 1 comprises "a mouthpiece portion that includes the outlet," and Claim 1[B][3][b] recites that the "mouthpiece portion" is "constructed of" a "resiliently deformable

material."

241. Thus, Ribarits discloses the limitations of Claim 21[B][2][a] at least for the same reasons it discloses the limitations of Claim 1[B][3][a] and 1[B][3][b].

7. 21[B][2][b]: "a resilient tube connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration"

242. Claim 21[B][2][b] recites that the mouthpiece assembly of Claim 21[B][2] comprises "a resilient tube connected to the mouthpiece portion and including a crimping region that is adapted to restrict flow of drink liquid through the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration."

243. Claim 1[B][3][b] recites " a tube that. . . includes a crimping region constructed of a resiliently deformable material and is adapted to restrict the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration."

244. Thus, Ribarits discloses the limitations of Claim 21[B][2][b] at least for the same reasons it discloses the limitations of Claim 1[B][3][b].

8. 21[B][2][c]: "a resilient anchor portion extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the , and

wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly"

245. Claim 21[B][2][c] recites that the mouthpiece assembly of Claim 21[B][2] comprises "a resilient anchor portion extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the cap assembly, and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly."

246. Claim 1[B][3][c] recites that the mouthpiece assembly of Claim 1 comprises "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."

247. Claim 9 recites that the anchor portion of the mouthpiece assembly of Claim 1, "wherein the mouthpiece portion, the tube, and the anchor portion are constructed as a unitary assembly of the resiliently deformable material."

248. Thus, Ribarits discloses and/or renders obvious the limitations of Claim 21[B][2][b] at least for the same reasons discussed in connection with Claim 1[B][3][c] and Claim 9, above.

9. 21[B][3]: "a user release mechanism adapted to automatically release the mouthpiece assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly"

249. Claim 21[B][3] recites that the cap assembly of Claim 21[B] comprises "a user release mechanism adapted to automatically release the mouthpiece assembly from the stowed configuration to the dispensing configuration via the bias of the mouthpiece assembly."

250. Claim 1[B][4] recites that the cap assembly of Claim 1 comprises " a user release mechanism adapted to automatically … release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration. ."

251. Thus, Ribarits discloses the limitations of Claim 21[B][3] at least for the same reasons it discloses the limitations of Claim 1[B][4].

VI. GROUND 3: CLAIMS 9 AND 21 WOULD HAVE BEEN OBVIOUS IN VIEW OF KIYOTA AND RIBARITS

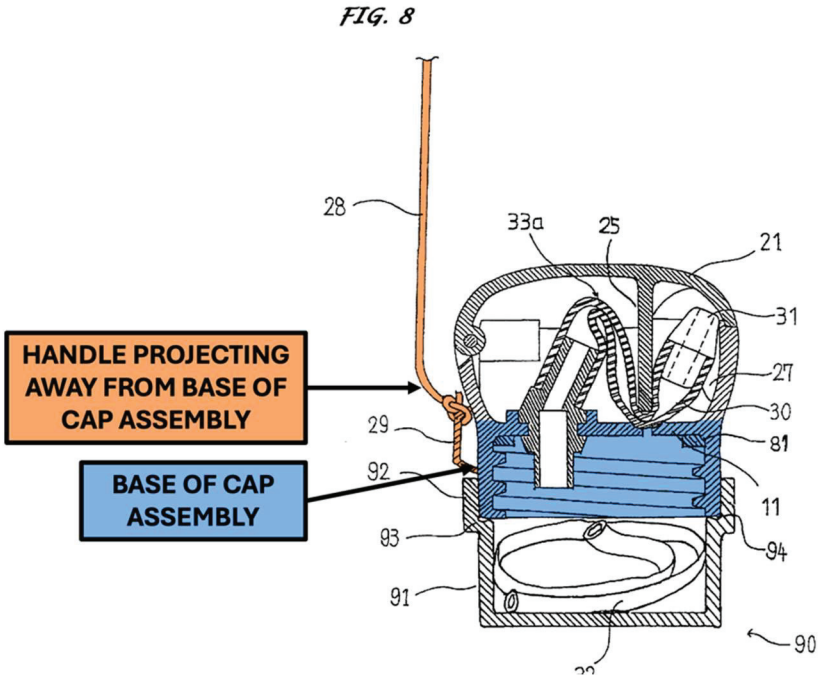
A. Claim 6 is Obvious over Ribarits, in view of Kiyota

252. Claim 6 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Ribarits discloses and/or renders obvious each limitation of Claim 1.

253. Claim 6 further recites, "wherein the cap assembly further includes a

handle that projects away from the base of the cap assembly and a pair of guards that at least partially define a stowing region that receives at least a portion of the mouthpiece assembly between the pair of lateral guards when the mouthpiece assembly is in the stowed configuration." As discussed above, Ribarits discloses a pair of lateral guards, but does not explicitly disclose a handle. However, it is my opinion that modifying Ribarits to include a handle would have been obvious to a person of ordinary skill in the art. As explained below, it is also my opinion that modifying Ribarits to include a handle would have been obvious in view of Kiyota.

254. As shown in Figure 8 below, Kiyota discloses a handle that projects away from the base of the cap assembly:



Ex. 1004, Fig. 8. Kiyota's handle is "hooking portion 29," which projects away from

the base of "lid body 10." Kiyota also discloses that "strap-like body 28" can be tied to the hooking portion, which also projects upward and away from the base. A person of ordinary skill would have understood both the "hooking portion 29" individually, and in combination with the "strap-like body 28," to constitute a handle projecting away from the cap assembly base.

255. A person of ordinary skill in the art would have looked to Kiyota teaching of a handle as motivation to add a handle to the Ribarits device. Kiyota and Ribarits are very closely related and disclose drink containers of substantially the same functionality. Specifically, they both disclose caps with mouthpieces for drink containers that can be switched between dispensing and stowed configurations.

256. It would have been obvious to a person of ordinary skill in the art to add a handle like the one in Kiyota to a cap like the one in Ribarits. Kiyota describes the known desirability of carrying the lid and beverage container. Ex. 1004, 8:51-54. A person of ordinary skill in the art would have been motivated to make this change because it would not have altered the overall function or structure of the cap assembly and would have provided an alternative mechanism by which to carry the device, in addition to the hooking portion/strap disclosed in the Kiyota.

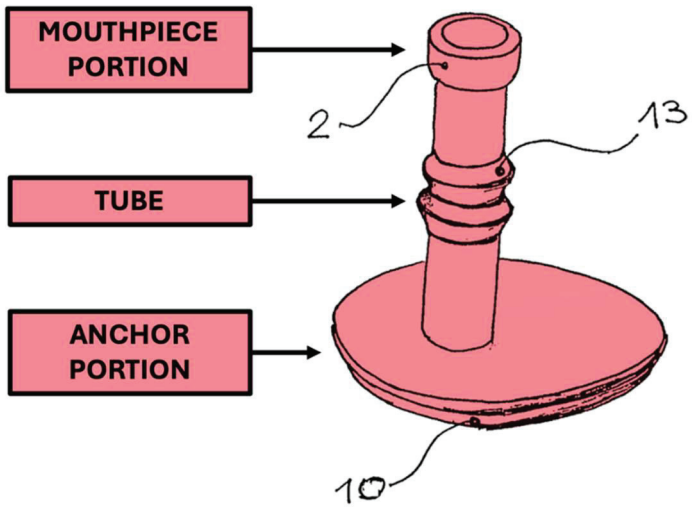
257. Accordingly, it is my opinion that the additional limitations of Claim 6 would have been obvious over Ribarits, in view of Kiyota.

B. Claim 9 is Obvious over Kiyota, in view of Ribarits

258. Claim 9 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota discloses and/or renders obvious each limitation of Claim 1.

259. Claim 9 further recites, "wherein the mouthpiece portion, the tube, and the anchor portion are constructed as a unitary assembly of the resiliently deformable material." As discussed above, although Kiyota does not explicitly disclose its anchor portion is constructed of resiliently deformable material, it is my opinion that the use of a resiliently deformable material would have been obvious in view of the knowledge of a person of ordinary skill in the art. In addition, as explained below, it is also my opinion that this additional limitation would have been obvious in view of Ribarits.

260. Like Kiyota, Ribarits also discloses a drink container with a mouthpiece assembly including a mouthpiece portion, a tube, and an anchor portion. As discussed in Ground 2 above, these portions of Ribarits' mouthpiece assembly are constructed as a unitary assembly of resiliently deformable material, as shown below:



Ex. 1005, Fig. 2. In view of Ribarits, it would have been obvious to make the mouthpiece assembly of Kiyota as a unitary assembly of resiliently deformable material as recited in Claim 9 for several reasons.

261. Kiyota and Ribarits are very closely related and disclose drink containers of substantially the same functionality. They both disclose drink containers having mouthpiece assemblies comprising a mouthpiece portion, a tube, and an anchor portion. They both address the same problem of an easily closable mouthpiece assembly for use in a drink container and do so in the same way, i.e. by crimping the tube. Although Kiyota provides an assembly wherein the mouthpiece portion, tube and anchor portion are assembled from separate components, Ribarits, provides an assembly wherein the mouthpiece assembly are constructed as a unitary assembly. A person of ordinary skill in the art would recognize these designs are interchangeable.

262. There are several reasons why a person of ordinary skill in the art would have been motivated to modify Kiyota's mouthpiece assembly to include a mouthpiece portion, tube portion, and anchor portion as a unitary assembly of resiliently deformable material. First, a person of ordinary skill in the art would have recognized the use of a one piece construction to be a simple design choice.

263. Second, a person of ordinary skill in the art would have been motivated to use a one piece construction to minimize the number of parts and reduce overall manufacturing costs. For example, a person of ordinary skill in the art would have recognized the desirability of molding Kiyota's mouthpiece portion, tube portion, and anchor portion a single piece. A person of ordinary skill in the art would have recognized that not only would this save on the number of parts that needed to be molded, but it would also have provided improved safety for the drink container. That is because fewer parts reduce the risk of a choking hazard that would otherwise be present where multiple small parts could detach from the cap assembly. This risk is especially prevalent in the design of drinking containers, which require the devices to be placed in the user's mouth. To mitigate this risk, a person of ordinary skill in the art would have recognized the desirability of a unitary assembly that could be easily inserted through "communicating opening 12," with a flange on either side of the opening to ensure a tight seal.

264. Third, a person of ordinary skill in the art would have recognized that Ribarits' unitary assembly would provide comparable functionality to, and could be readily substituted for, Kiyota's multi-part assembly,. Likewise, a person of ordinary skill in the art would have recognized a drink container with a mouthpiece portion, tube, and anchor portion constructed as a unitary assembly of resiliently deformable material, as disclosed in Ribarits, would yield predictable results. A person of ordinary skill in the art also would have recognized the desirability of using a resiliently deformable material to allow for crimping and for permitting the assembly to be inserted through a through-hole, as provided in each of Kiyota and Ribarits.

265. Finally, A person of ordinary skill in the art would have reasonably expected success in combining a mouthpiece portion, tube, and anchor portion constructed as a unitary assembly of resiliently deformable material with the drink container of Kiyota. A person of ordinary skill in the art would have readily understood that Kiyota could accommodate such a unitary assembly, and would have expected success in using a unitary assembly of resiliently deformable material to perform the same function when used in Kiyota's drink container. Thus, the combination would have involved no more than the routine substitution of one multi-

part assembly (Kiyota) for another of unitary construction (Ribarits) to provide the same desired functionality, albeit with an improved safety profile.

C. Claim 21 is Obvious over Kiyota, in view of Ribarits

266. As discussed above, independent Claim 21 is similar to independent Claim 1, but removes some limitations and adds some others. For example, unlike Claim 1, Claim 21 does not recite either a "first catch structure" or "second catch structure."

267. In addition, unlike Claim 1, Claim 21 recites that the mouthpiece assembly comprises "***a resilient anchor portion*** extending from the resilient tube opposite the resilient mouthpiece portion, wherein the anchor portion is sized to restrict passage of the resilient anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the cap assembly, and wherein the resilient mouthpiece portion, the resilient tube, and the resilient anchor portion are constructed as a unitary assembly."

268. As discussed above, Claim 9 recites "the anchor portion" of the mouthpiece assembly is "constructed as a unitary assembly of the ***resiliently deformable material***." Accordingly, Claim 21 would have been obvious over Kiyota, in view of Ribarits, for the same reasons discussed above in connection the Claim 9.

VII. GROUND 4: CLAIM 16 WOULD HAVE BEEN OBVIOUS OVER KIYOTA OR RIBARITS, IN VIEW OF CHOI

269. Claim 16 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that both Kiyota and Ribarits disclose and/or render obvious each limitation of Claim 1.

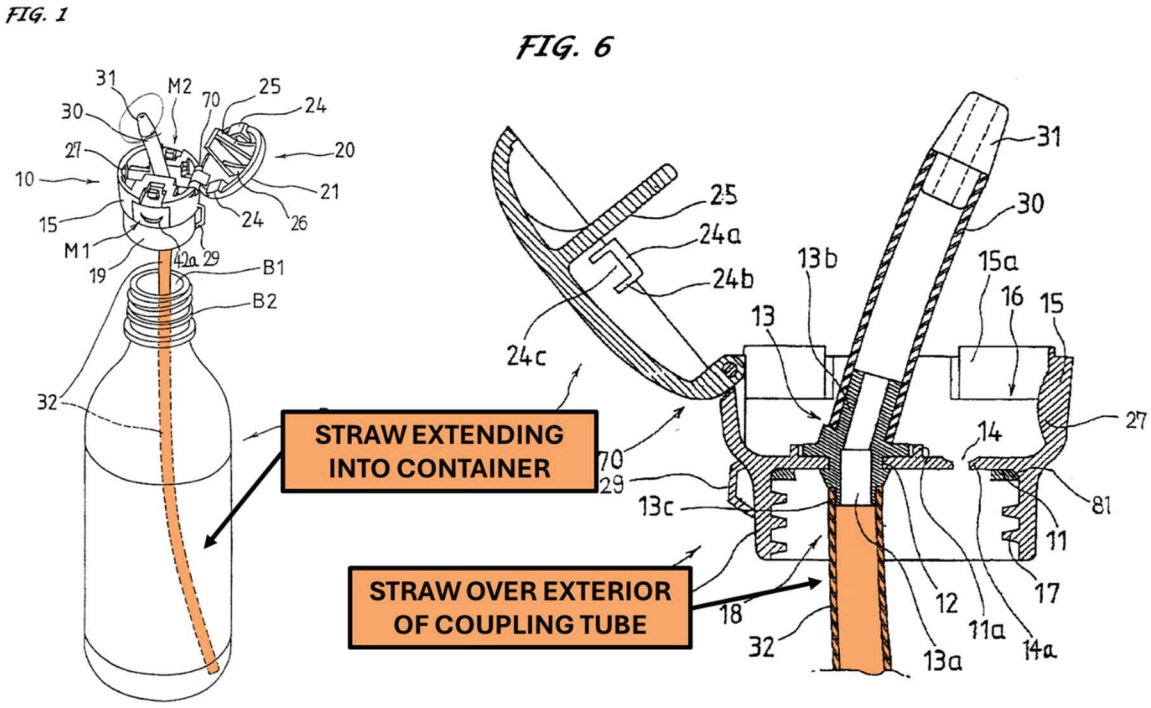
270. Claim 16 further recites, "wherein the drink container includes a straw with a first end that extends into the liquid container and a second end that extends into the liquid passage and is retained therein by the friction-fit arrangement." As I explain below, it is my opinion that Claim 16 is obvious over either Kiyota or Ribarits, in view of Choi.

A. Claim 16 Is Obvious Over Kiyota, In View Of Choi

271. As explained above, it is my opinion that this limitation is obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

272. To the extent this limitation, specifically its recitation of a "a straw … with a second end that extends into the liquid passage and is retained therein by the friction-fit arrangement," would not have been obvious in view of Kiyota, it is my opinion that it is obvious over Kiyota, in view of Choi.

273. As discussed above, Kiyota discloses an optional straw that is attached to the exterior diameter of "coupling tube 13," which extends through the "communicating hole 12" to form the inlet of the liquid passage, as shown below:



Ex. 1004, Figs. 1, 6. Kiyota does not disclose that the straw "extends into the liquid passage and is retained therein by the friction-fit arrangement," as recited in the claim.

274. Like Kiyota, Choi discloses an optional straw that extends into the beverage container and is attached to the cap assembly at its inlet. *See* Ex. 1008, ¶ [0072]. Unlike Kiyota, however, Choi discloses that the straw "extends into the liquid passage and is retained therein by the friction-fit arrangement," as shown in Figure 9.

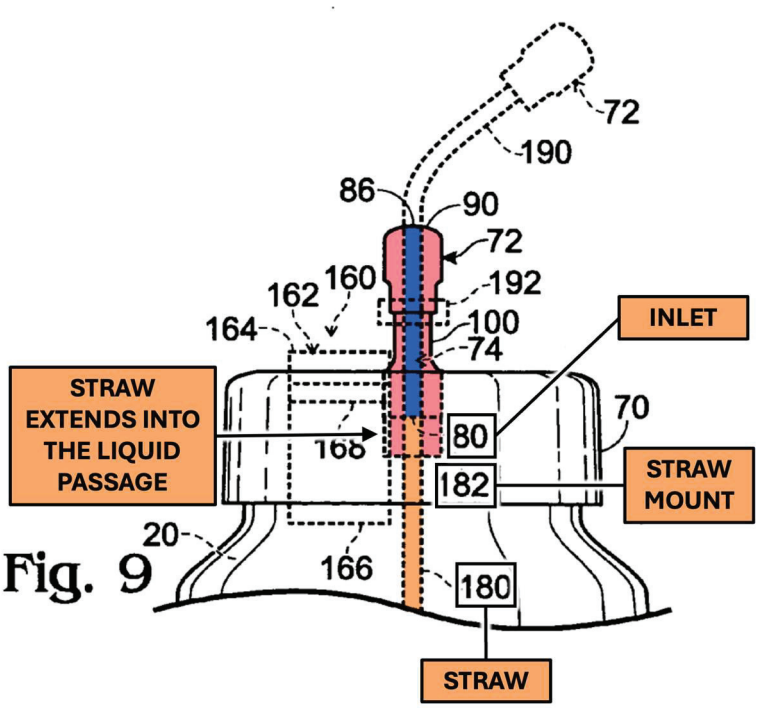


Fig. 9

Ex. 1008, Fig. 9.

275. A person of ordinary skill in the art would have been motivated to combine the teachings of Kiyota and Choi and to modify Kiyota's straw to include a straw that extends into the liquid passage, as in Choi, for several reasons.

276. First, a person of ordinary skill in the art would have recognized only two possible friction-fit arrangements to connect a straw to a cap assembly: one in which the straw is fitted around a coupling member (as in Kiyota), and a second in which the straw is fitted within a coupling member (as in Choi). A person of ordinary skill in the art would have understood the choice between an internal friction-fit or an external friction-fit to be a simple design choice between two

identified, predictable solutions. Likewise, in view of the teachings of Choi, a person of ordinary skill in the art would have had a reasonable expectation of success of in modifying Kiyota to include an internal friction fit. *See* Ex. 1008, ¶ [0072].

277. A person of ordinary skill in the art also would have been motivated to use an internal friction-fit arrangement. For example, a person of ordinary skill in the art would have recognized that an internal friction fit would facilitate the easy insertion of the straw into cap assembly and removal of the straw from the cap assembly. A person or ordinary skill in the art would have recognized that inserting a straw into a mount would generally be easier than securing a straw around the exterior of a friction-fit mount, especially for young users or users with limited dexterity.

278. Accordingly, it is my opinion that Claim 16 would have been obvious to a person of ordinary skill in the art over Kiyota, in view of Choi.

B. Claim 16 Is Obvious Over Ribarits, In View Of Kiyota and Choi

279. Ribarits does not disclose a straw that extends into its beverage container or is inserted into its cap assembly. However, using a straw with the Ribarits device would have been obvious to a person of ordinary skill in the art.

280. First, as discussed above, the use of straws was common in the design of drink bottles and cap assemblies, as exemplified in the Kiyota and Choi references

discussed above. A person of ordinary skill in the art would have recognized that desirability of using a straw in the Ribarits design to provide a means by which the user could access liquid from the bottom of the bottle without having to invert the bottle during use. For example, Choi teaches: "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." Ex. 1008 at ¶[0072].

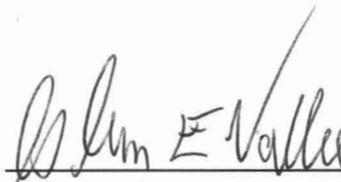
281. Second, a person of ordinary skill in the art would have readily understood that a straw could be inserted into the inlet end of Ribarits' "sealed tubular element." In addition, because Ribarits' discloses its "sealed tubular element" is made from "rubber or latex" (Ex. 1005, 2), a person of ordinary skill in the art would have understood that an appropriately sized straw could be retained within the "sealed tubular element" via friction between the straw and tubular element, and that such fit would have created a watertight seal.

282. Accordingly, it is my opinion that Claim 16 would have been obvious to a person of ordinary skill in the art over Ribarits, in view of Choi.

VIII. CONCLUSION

283. For the above reasons, it is my opinion that the prior art either anticipates or renders obvious claims 1, 2, 5, 6, 8, 9, 15, 16, and 21 of the '028 patent.

I 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.

Dated: September 29, 2024 By: 

Glenn Vallee, Ph.D., P.E.

Appendix A

Glenn E. Vallee, Ph.D., P.E.

194 Meadow Lark Ln (C) 860-304-2151
Westbrook, CT 06498 drgevallee@gmail.com

EDUCATION

Ph.D. May 1995, University of Rhode Island, Kingston, RI
Major: Mechanical Engineering and Applied Mechanics
Thesis: "A Study of the Dynamic Mechanical Behavior of Elastomeric Materials Under Impact Loading"

M.S. May 1990, University of Rhode Island, Kingston, RI
Major: Mechanical Engineering and Applied Mechanics
Thesis: "A Study of the Effect of Geometry on the Mechanical Behavior of an Epichlorohydrin Elastomer Used as an Impact Absorber in Pneumatic Fastening Tools"

B.S. May, 1985, University of Rhode Island, Kingston, RI
Major: Mechanical Engineering

ACADEMIC EXPERIENCE

Western New England University, Springfield, MA (August 2002 to present)

Chair, Department of Mechanical Engineering (July 2022 to present)

- Advises Dean as to staffing and other resource needs that are required for the effective delivery of the academic programs of the department. Successfully recruited five new faculty to the mechanical engineering department.
- Oversees the work of the faculty of the department (full-time, part-time, on-campus, and summer college) in courses, programs, majors, and the overall curriculum.
- In conjunction with the Dean's Office, schedules classes during Fall, Spring, and Summer semesters both on-campus and off-campus, day and evening, and assigns instructional duties to provide maximum strength in the curriculum.
- Evaluates departmental personnel. Writes formative and/or summative evaluations and rates the performance of each full-time faculty member of the Department except for Professional Educators (Professors of Practice) in the Department who have another immediate supervisor. Evaluations highlight faculty members strengths and areas that need improvement in accordance with the Criteria for Evaluation in the WNE Faculty Handbook.
- Assists the Dean in preparing and administering the budget (including preparation of grant proposals), and in allocating resources in the most effective way.
- Represents the Department to other units of the University, promotes the Department to prospective students, and coordinates faculty involvement in admission processes including active recruitment, open houses, and career days.
- Strives to improve the teaching performance, governance/University service/advising, and professional development, and scholarship of faculty in the department.
- Sets annual departmental goals and objectives, including curricular and program development. Reviews and updates the catalogue regularly.
- Ensures that the programs of the department meet the professional accreditation standards and provides the faculty with guidance and support in meeting the performance criteria of the program. Leads the accreditation effort and coordinates the preparation of documents to meet these objectives.
- Works with other colleges and departments in the University with respect to staffing, scheduling, and the coordination of academic offerings across the University.

Associate Professor of Mechanical Engineering (August 2002 to June 2022)

- Responsible for development of a curriculum of instruction for courses in solid mechanics, mechanical vibrations, materials science, mechanical design, experimental methods and New Product Development.

- Co-developed a Product Innovation and Development Center with the Colleges of Business and Law to secure corporate funding for the development of innovative new products, promote entrepreneurship, and commercialize student inventions.
- Obtained corporate sponsorship for over 40 senior projects and filed 6 utility and 9 provisional patents for product innovations.
- Served as Director of the Mechanical Testing Lab responsible for bringing state of the art experimental capabilities to the solid mechanics lab in the Mechanical Engineering department, thus providing capabilities for research in the areas of static and dynamic material behavior of elastomers and solids under high strain rates.
- Mechanical Engineering faculty advisor for more than10 interdisciplinary team projects.
- Received the one of the highest teaching evaluation ratings from students in the School of Engineering over the past five years (4.6/5.0).
- Served as faculty liaison to the Mechanical Engineering Industrial Advisory Council.
- Secured resources from corporations for laboratory equipment totaling over $35,000.
- Developed the biodiesel generation facility for sustainability at Western New England University.
- Coordinator for the approval of University Patent Filings for the College of Engineering.

Courses Taught:

Graduate Level:	ME-619 Analytical and Experimental Stress Analysis*
Senior Level:	ME-423/BME-423/BUS 423 – Product Innovation and Development*
	ME-425 Design of Machine Elements
	ME-427 Kinematics and Control of Electro-Mechanical Systems
	ME-435 Senior Interdisciplinary Laboratory Project (Hybrid Electric Car)
	ME-490 Mechanical Engineering Product Innovation and Development*
Junior Level:	ME-309 Materials Science
	ME-312 Kinematics
	ME 313 Junior Laboratory I
	ME-314 Junior Interdisciplinary Laboratory II - Product Innovation Project*
	ME-320 Mechanical Vibrations
Sophomore Level:	ME-202 Statics
	ME-203 Dynamics
	ME-204/205 – Engineering Mechanics I and II
	ME-208 Mechanics of Materials
Freshman Level:	ENGR-110 Computer Applications in Engineering (Labview, Matlab, MathCAD, Excel)

* course developed by Glenn Vallee

University of Rhode Island, Kingston, RI (September 1990 to January, 1998)
Adjunct Assistant Professor

- Responsible for development of a curriculum for instruction of senior level *Mechanical Systems Design* (Machine Design) and *Introduction to the Finite Element Method* courses, as well as the entry level *Basic Graphics* courses. Frequently incorporate real world, practical design projects into the curriculum.
- Member of the Industrial Advisory Board for the Department of Mechanical Engineering and Applied Mechanics.

***Courses Taught at Other Institutions*:**
Community College of Rhode Island, Warwick, RI
Mechanics of Materials, Dynamics, Statics, Mechanical Engineering Laboratory, Machine Design
New England Institute of Technology, Warwick, RI
Engineering Economics, Electromechanical Devices, Engineering Materials

RESEARCH AREAS OF INTEREST

- Dynamic mechanical behavior of materials using experimental and Finite Element techniques
- Static and dynamic mechanical behavior of elastomeric materials
- Experimental verification techniques for Finite Element Analysis
- Finite Element Analysis and applications to design
- New product development process and methods used to reduce time to market as related to consumer and industrial products
- Unique methodologies for experimentally determining performance of consumer products and assessing consumer satisfaction.

INDUSTRIAL EXPERIENCE

Remington Products Company, L.L.C., Bridgeport, CT (September 1997 to August 2002)
Director of Engineering and Quality Assurance, Worldwide
Directed activities of Design and Product Engineering, Quality Assurance and Manufacturing departments in the U.S., U.K. and Asia responsible for the design and development of international consumer products. Responsible for focusing new product engineering toward continuously improving customer satisfaction through improved product design, performance and quality.

- Co-authored the corporate New Product Development (NPD) process geared toward the design of electromechanical products having the highest quality which met or exceed consumer expectations. Integrated Computer Aided Engineering (CAE), Quality Assurance and consumer feedback into the design and development of international consumer products.
- Supervised the corporate laboratories (US and Hong Kong) and brought them up to UL, CSA and Demko regulatory standards. Responsible for developing all test protocols and methodologies for new product testing and qualification. Introduced electronic instrumentation techniques into the product qualification process, including strain gage techniques, photoelastic stress analysis, a variety of dynamic test methods and high-speed data acquisition and control. Responsible for supervising failure analysis of products involved in product liability litigation.
- Helped introduce solid modeling (Pro/E) and rapid prototyping to an engineering department which previously designed products using only 2D CAD (CADKey and AutoCAD). Integrated (and performed) Finite Element Analysis (FEA), Design of Experiments (DOE), Failure Mode and Effects Analysis (FMEA) and formal design reviews into the NPD process.
- Introduced modern Quality Assurance techniques into the company and brought the US factory to CGMP standards. Reorganized the entire QA department and all quality systems (including the Bridgeport manufacturing facility) to improve effectiveness. Integrated QA into the NPD process and directed input from QA, returned product analysis and consumer feedback into improved products, resulting in a 35% drop in product returns over three years.
- Helped create QA offices in both Hong Kong and mainland China in order to implement much of the QA function at supplier location, resulting in improved communications and more efficient corrective actions and lot dispositions. Reduced inspection costs by over 50% while reducing manufacturing defects by nearly 20%.
- Directed all corporate research activities with local Universities in order to incorporate new technologies into new products. Projects included the development of new surface finishes and cutting materials for shaving/hair trimming applications, and advanced thermal analyses in paraffin spas.
- Managed and provided leadership to business process improvement teams aimed at improving corporate processes and efficiencies. Analyzed data including trends, historical records, customer needs, cost of quality analysis and competitive intelligence while working with all levels and functions. Responsible for presenting quarterly reports to senior management on NPD activities Quality initiatives.
- Created and programmed an electronic engineering documentation system, replacing the previous paper system and streamlining information flow. Developed an international product performance database, enabling the sharing engineering documentation, test data, product returns data and customer feedback within the worldwide organization via the internet.

Stanley-Bostitch Company, East Greenwich, RI (October 1985 to September 1997)

Manager, Engineering Laboratories (June, 1995 to September, 1997)
Responsible for managing the largest Engineering Laboratory in the Stanley Works, supervising 18 employees. Coordinated testing and allocated resources to meet stringent scheduling requirements of Product Development, Manufacturing and Marketing departments.

- Developed and implemented standard test batteries and comprehensive test methods for all product testing.
- Introduced and programmed high speed data acquisition and control systems, increasing productivity by over 50%, while providing support to new product development and existing product lines.
- Coordinated physical expansion of laboratory by 40% to support testing of all new and existing products. Responsible for performing periodic quality audits on all major products.
- Coordinated research efforts as required to solve a wide range of design and manufacturing problems throughout the company.
- Principal Finite Element Analyst for company, and technical liaison to international segments of the corporation responsible for coordinating adherence to international safety standards.
- Company representative and technical expert in product liability litigation.

Product Design/Development Engineer (August 1987 to June 1995)
Responsible for guiding product development from concept through production in a highly competitive manufacturing environment. Extensive design and analysis experience using Unigraphics and AutoCAD CAD/CAM software and ABAQUS and ANSYS FEA software.

Test Engineer (August 1986 to August 1987)
Directed and conducted activities in the engineering lab to evaluate product performance. Extensive work in the areas of vibration testing and experimental stress analysis utilizing photo elastic coatings and strain gauge technology.

Technician (October 1985 to August 1986)
Conducted a wide range of testing in the engineering lab to evaluate product performance. Extensive work using a variety electronic transducers and signal conditioning devices.

PROFESSIONAL ACTIVITIES

Professional Societies
American Society of Mechanical Engineers
Tau Beta Pi Engineering Honor Society, Rhode Island Chapter
Pi Tau Sigma Engineering Honor Society, Rhode Island Chapter

CONSULTING

Patent Litigation Experience – Including testimony by report, declaration, deposition or trial (last 5 years)

SIG Sauer, Inc. v. NST Global, LLC d/b/a SB Tactical , Case No. 1:19-cv-00792-PB, District of New Hampshire, Patent litigation regarding forearm-gripping stabilizing attachment for a handgun (plaintiff), Product research and technical review (October 2023 to present).

Altria Group, Inc. and NJOY LLC, et. al. v. Juul Labs, Inc and VMR Products LLC, Case No. 337-TA-1372, Washington DC, ITC Litigation regarding Certain Vaporizer devices, Cartridges Used Therewith, and Components Thereof (e-cigarettes) (plaintiff), Patent and prior art review, product testing, claim construction brief, infringement report, validity report, depositions and ITC hearing testimony (September 2023 to June 2024).

Tsteigen, Inc., et. al. v. Viking Drill & Tool, Inc., Case No. 0:21-cv-02759 (DMN), District of Minnesota, Patent litigation regarding twist drills (plaintiff), Patent and prior art review, technical review (May 2023 to June 2023).

Persawvere, Inc. v. Milwaukee Tool Corporation, Case No. 21-cv-00400-GBW, District of Delaware, Patent litigation regarding one handed electric band saws (plaintiff), Patent and prior art review, technical review (April 2023).

Signode Industrial Group, LLC v. Polychem, LLC, Case No. 22-519-VAC-CJB, District of Delaware, Patent litigation regarding electric strapping machines (defendant), Patent and prior art review, product testing, Preliminary Injunction declaration (June 2022 to September 2022).

Flygrip, Inc. v. Five Below, Inc., Case No. 6:21-cv-01080-ADA, Western District of Texas, Waco Division, Patent litigation regarding movable grip for holding handheld devices (defendant), Patent and prior art analysis, claim construction brief(April, 2022).

Solo Brands, LLC V. Target Corporation, SAS Group, Inc and Duraflame, inc., Case No. 2:22-cv-00115-JRG , Eastern District of Texas, Marshall Division, Patent litigation regarding fire pits (defendant), Product research and testing (December 2021 to August 2022).

Robert Bosch Tool Corp v. Delta Power Equipment Corp., Case No. 7:21-cv-02107-TMC, District of South Carolina, Spartanburg Division, Patent litigation regarding beveling miter saws (plaintiff), Patent and prior art review, infringement and rebuttal reports and rebuttal declarations, deposition (November 2021 to August 2022).

Unicorn Global, Inc. and Hangzhou Chic Intelligent Technology CO., LTD. V. DGL Group, LTD, Case no. 1:21-cv-1443-MKB-SJB, Eastern District of New York, Patent litigation regarding hover boards (defendant), Patent and prior art analysis, product testing, claim construction declaration (October 2021 to April 2023).

One Two Cosmetics, LLC v. American International Industries, Inc., et. al., Case No. 20-cv-00988-JAK-KS, Central district of CA, Patent litigation regarding magnetic eyelashes (plaintiff), Patent and prior art analysis (July 2021 to August 2021).

H-E-B, LP v. Wadley Holdings, LLC et al., Case No. 6:20-CV-00081-ADA, Western District of Texas, Patent litigation regarding vacuum coolers (plaintiff), Patent and prior art review, validity report, rebuttal validity report, deposition (July 2021 to October 2021).

Fuma International, LLC v. RJ Reynolds Company, Case No. 1:19-cv-260 [Lead Case] 1:19-cv-660, Middle District of North Carolina, Patent litigation regarding electronic nicotine delivery systems (e-cigarettes) (plaintiff), Patent and prior art analysis, product testing, declaration opposing summary judgment, infringement declaration, validity rebuttal declaration, reply declaration to infringement declaration (December 2019 to November 2021).

Koki Holdings Co., LTD v. Kyocera Senco Industrial Tools, Inc., Case No. 18-313-CFC, District of Delaware, Patent litigation regarding certain gas spring nailers products and components thereof (plaintiff), Patent and prior art analysis, product testing, claim construction and rebuttal claim construction declarations, initial report and supplemental report on validity, deposition (June 2019 to August 2021).

Koki Holdings Co., Ltd.. V. Kyocera Senco Industrial Tools, Inc., Case No. 18-313-CFC, District of Delaware, Patent litigation regarding power nailers (Plaintiff), Patent and prior art analysis, product testing, claim construction report, rebuttal to claim construction report, Infringement report, rebuttal to invalidity report, deposition (May 2019 to August 2021).

Ever Victory Technology LTD V. SAS Group, Inc., Case No. 1:19-cv-486 (JPO), Southern District of New York, Patent litigation regarding toy car and track system (defendant), Patent and prior art analysis, product testing, noninfringement declaration, rebuttal infringement declaration, supplemental noninfringement declaration, depositions, (March 2019 to July 2022).

Senco Brands, Inc. v. Hitachi Koki, USA, Ltd, Case No. 337-TA-1082 with modification, Washington DC, ITC Patent litigation regarding gas spring nailers, products and components thereof (defendant), Patent and prior art analysis, product testing, claim construction declaration, declaration opposing summary judgment, invalidity and supplemental invalidity reports, rebuttal infringement report, non-infringement report, deposition, ITC hearing testimony, modification and rebuttal modification reports and deposition (December 2017 to October 2018 and December 2020 to March 2021).

Testimony in support or response of IPR, PGR, Interference or Ex Parte Reexaminations (last 5 years)
Note: Retaining party is underlined

Decl./depo Date	Petition #	Patent(s)	Parties/Device
4/26/24 7/1/24	IPR2024-00858 IPR2024-01137	8,905,252 10,676,255	Trove Brands LLC v. Camelbak Products LLC and Vista Outdoor, Inc., Beverage containers
3/7/24	IPR2024-00642	10,660,473	Loco Crazy Good Cookers, Inc v. North Atlantic Imports, LLC, Barbecue griddles
7/20/2022, 11/11/2022	*Ex Parte Reexamination*	8,118,204	Senco Brands, Inc. v. Hitachi Koki, USA, Ltd, Portable battery powered fastening tool
6/30/2022, 12/16/2022 2/22/2023	PGR2022-00030 Deposition	11,235,486	Gillette Company, LLC v. Sphere USA, LLC, Hand held razor
4/6/22 6/4/21 4/42023	IPR2022-0084 *Ex Parte Reexamination* Deposition	10,597,107 RE46,964	DGL Group, Ltd. v. Hangzhou Chic Intelligent Technology Co., Ltd., Hoverboards
1/23/20	*Ex Parte Reexamination*	9,592,349 and 8,920,382;	Taiwan Semiconductor Manufacturing Co Ltd v. STC.UNM, Patient controlled analgesia devices
1/18/20	PGR2020-00001	10,174,547	Dong Guan Leafy Windoware Co. Ltd. v. Anli Spring Co., Ltd. Et. al., Spring powered blinds and curtains
4/9/20	PGR 2020-00056	10,422,617 B1	Apex Tool Group LLC v. Milwaukee Electric Tool Corp., Tape measures
5/6/2019 7/18/2019	IPR2019-01067 IPR2019-01364	9,958,107 10,054,259	Quest USA Corp. v. Popsockets LLC, Attachments for mobile devices

Additional patent litigation experience regarding the following:

- Air mattresses with embedded pumps
- Collapsible sockets for mobile electronics
- Filler assemblies for cable glands
- Power nailers
- Attachments for barbecue grilles
- Spring powered desktop staplers
- Children's play yards
- Hole saws
- Deposition testimony (15 in total)
- Trial/hearing testimony (3 in total)

Products Liability Litigation Experience (last 5 years)

Richard Echols v. Koki Holdings America, LTD, Lowes Home Centers, LLC et. al., Case No. 2:24-cv-00570-RFB-BNW, District of Nevada, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents and product testing, (July 2023 to present).

Todd B. Offenbecker v. Hitachi Koki, filing pending, Ocala Florida, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, medical records and product testing, (February 2022 to Present).

Redwood Fire and Casualty Insurance Company (Justino Montiel) v. Hitachi, et al., Claim No. 44047141, San Deigo California Product liability case involving a compound miter saw and related injury (defendant), Review of incident report, case documents and product testing, (June 2020 to present).

Raymond Wilson v. Metabo HPT, Lowe's Companies, Inc. and Koki Holdings Co., LTD Case No. 3:23-cv-01992, District of South Carolina, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, medical records and product testing and expert report, (July 2024 to May 2024).

Whamysthon Castro, Amilis Menezes Castro v. Brickyard Urban Renewal, LLC, Koki Holdings Co., LTD. Et. al., Case No. BER-L-5394-20, Bergen County New Jersey, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents and medical records, product testing and expert report, (March 2022 to February 2024).

Horsey v. Makita, complaint, Camp Hill, Pennsylvania, Product liability case involving a pneumatic nailer related injury (defendant), Review of engineering documents, plaintiff interview, product testing, (February 2023).

Andres Catalan v. Koki Holdings America LTD, Case No. 2:21-cv-01451, Central District of California, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, medical records and product testing (August 2021 to January 2023).

American Freight Outlet Stores, LLC v. General Electric Company and Heir US Appliance Solutions, Inc., Case No. 3:20-cv-01695, District of Connecticut. Product liability case involving a clothes dryer fire (defendant), Review of incident report, case documents and product inspection (June 2022 to September 2022).

Frank Judson v. Richard Zampiello, Case No. UWY-cv-19-6047734-S, District of Waterbury Connecticut, Product liability case involving a step ladder and related injury (defendant), Review of complaint, case documents, site inspection, product testing, (November 2019 to April 2022).

Ernanes DeAraujo v. Toll Brothers and Hitachi Koki USA, LTD, ID No. 171000452, Court or Common Pleas Philadelphia County, Pennsylvania, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, product testing and expert report, (November 2019 to April 2022).

Brian Stott v. Stanley Fastening Systems, LP, ID No. 2598, Court or Common Pleas Philadelphia County, Pennsylvania, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, product testing and expert report, (March 2018 to March 2022).

Jeferson DaSilva and Deneen DaSilva v. Ronivon Pinto Carmago, Hitachi Koki USA, LTD et. al, Case ID No. 171202863, Court of Common Pleas Philadelphia County, Pennsylvania, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, product testing, expert report and expert rebuttal report, (June 2019 to August 2021).

Marshall Daigle v. Stanley Black & decker, Inc., Case No. 2:2020-cv-00132, District Court of Vermont, Product liability case involving a pneumatic nailer related injury (defendant), Review of incident report, case documents, product testing, (May 2021).

Andrew Davis v. Ryobi Technologies, Inc., Techtronic Industries North America, One World Technologies and Hope Depot, Inc., Case No. 16 Civ 6882 (DRH)(AYS), Eastern District of New York, Product liability case involving electric orbital sander and related injury (plaintiff), Review of incident report, case documents and medical records, product testing and expert report, (July 2017 to September 2019).

William J. Lennon v. The City of New York, et. Al., Case No. 20233/13E, County of the Bronx, New York, Product liability case involving a hammer drill and related injury (defendant), Review of incident report, case documents and medical records, product research, (August 2017 to May 2019)

Additional products liability litigation experience regarding the following:

- Cold/pressure therapy device
- Hand-held orbital sander
- Acupuncture heat lamp
- Plumbing fittings
- Walking canes
- Pneumatic nailers
- Passenger Van Transportation
- Trial Testimony (4 cases in total)
- Deposition Testimony (8 cases in total)

Design, Analysis and Product Development

Utility Composites Inc., Round Rock, TX.
- Developed a hammer tacker for polymeric staples with integrated antennae, 2016. Patent granted for "Fastener Insertion System for Fasteners with Antennas", US Patent No. 10,599,969, March 24, 2020.

Shark/Ninja Co., Newton MA.
- Supervised engineering group in mainland China responsible for Finite element Analysis, 2016-2017.

The Hillman Group, Tempe, AZ.
- Perform numerical simulations to optimize deck screw performance, May, 2017.

Lenox Saw Company, East Longmeadow, MA.
- Developed a finite element model for simulation of band saw cutting. December, 2007.
- Developed improvements to band coil annealing processes using finite element analysis. February, 2008.
- Developed a numerical model for the prediction of the onset of crooked cutting. April, 2008.
- Developed a fully 3D finite element based methodology for the design of improved band saw cutting systems. October, 2010.

Flow Design Inc., Springfield, MA.
- Design and development of surgical clips and clip applier used in cardio bypass surgery, April, 2007.
- Inspection and Testing of Titanium Vascular Clips, June, 2007.
- Tooling and Testing of Titanium Surgical Clips, August, 2007.

S*tanley Fastening Systems, East Greenwich, RI.*
- Developed and fabricated a prototype of a CO_2 cartridge powered fastening tool June, 2004.
- Developed a dynamic material model for a nitrile elastomer used in impact bumpers in pneumatic fastening tools. November, 2004.
- Developed a dynamic load-deflection fixture for the experimental verification of dynamic FEA results. November, 2005.
- Designed an impact bumper for a small brad tool. January 2006.
- Developed an energy measuring device for pneumatic fastening tools based on the Split Hopkinson Pressure Bar Apparatus. August, 2006.

Bacou-Dalloz Eye and Face group, Smithfield, RI.
- Developed an engineering documentation system for experimental data and document control. August, 2006.

Chimney Works Company, Higganum, CT.
- Designed an alternate knuckle boom extension system for improved positioning of prefabricated concrete chimney sections, November, 2004.
- Performed a finite element stress analysis of a prefabricated concrete chimney chase to assess strength. April 2004.

Hamilton Sundstrand Corporation, Windsor Locks, CT.
- Performed a finite element stress analysis of a titanium starter rotor used in jet engines, February, 2003.

Research/Capstone Senior Design Projects (last 10 years):

Consumer Product Development

- "Modular Mounting System for Automobile Interiors", Oliver Philbrick, 2023.
- "Design of a Camper Slide-out Cleaner", Ben College, 2023.
- "Development of a Handless Jar Opener", Ryan Chrabascz and William Carrol, 2022.
- "Development of a One-Handed Fishing Reel", Emmett Berard and Matt Rolland, 2022.
- "Development of an Auto Belay Device for Lead Climbing", Joshua Jones, 2022.
- "Design of a Human Powered Energy Generator", Dylan Henry and Carlos Martin Nieto, 2022.
- "Design of a Drill-Powered Sharpening Tool Accessory for Mowers", James Mancini, 2022.
- "Design of a Mechanically Self-Tightening Shoe", Joseph Aberdale, 2021.
- "Development of an Affordable, Push Type Electric Golf Cart - Team A", Daniel Buckson and Adam Razza, 2021.
- "Development of an Affordable, Push Type Electric Golf Cart - Team B", Anthony Frati and Joshua Labonte, 2021.
- "Development of a PTSD Sleep Aid", Luke Langelier and Rachel Brosnan, provisional patent filed, August 2019.
- "Design and Development of an Automated Ping Pong Server", Dylan Moriarty and NicholasRusso, 2019.
- "Design and Development of a Deflation-Proof Air Mattress", Jaimie Lamacchia, 2019.
- "Design and Development of a Powered Eyeglass Cleaner", Aleksander Calcagno, 2019.
- "Development of an Improved Guitar Bridge", Christopher Carbonaro and Matt Schluckebier, 2019.
- "Comparison of Traditional and Polymer Constructed Point Shoes", Nicole Powers, 2017.
- "Development of a Novel Snow Shovel", Kevin Patterson, Shelbea Russel and Brett Schorr, 2017. Sponsored by Ergie Shovel, Inc., Springfield, MA.
- "Design of Safety Candle Topper", Peter Kelley, 2016.
- "The Manufacture and Commercialization of Affordable Products for Goodwill Industries", Shane Vitorino, 2015. Sponsored by Goodwill Industries, Springfield, MA.
- "Redesign and Fabrication of the Waterboy Water Purification System", Mike Grinaski and Matt McCormack, 2012. Recipients of the College of Engineering award for the Design Solution with the Most Impact in a Global, Economic, Environmental and/or Societal Context. Results published in the Proceedings of the 2014 ASME IMECE in Montreal, Can., Nov. 2014. US Patent No. 9084949, July, 2015

DIY Product Development

- "Design of a Novel Clamping Device for the DIY Market", Aaron Moore, 2022.
- "Development of a Novel Bicycle Spoke Cutter and Rethreader", Christian Thompson and Adam Vanasse, 2019.
- "Design of an Extruding Soldering Iron for Commercialization", Matt Hahn and Nic DeMarco, 2018. Filed Provisional Patent 2019.
- "Design and Fabrication of a Recoil Reduction Device for Pneumatic Nailers, Ryan Begley, 2015. Sponsored by Stanley/Black&Decker, North Kingston, RI.
- "Design and Fabrication of a Recoil Reduction System for a Powder Actuated Nailer", Jeffery Cooley, 2015. Sponsored by Stanley/Black&Decker, North Kingston, RI.
- "Reinventing One Handed Clamping", Chad Bennet Bonn and Andrew Leoni, 2014. Sponsored by Irwin Tools, Charlotte, NC.
- "Design of a Hammer with Integrated Drill", Andrew Egerton and Eric Buhl, 2014. US Patent No. 10,232,449B2, granted March, 2019.

Industrial Product Development

- "Development of a Punch Tool with Improved Wear Characteristics" Jared Morrissey and Zach Snow, 2023. Sponsored by Stewart EFI Co.
- "Design of an Energy Producing Floor Tile for Sustainability", Thomas Gonzales, 2020.
- "Design of an Energy Harvesting Passive Energy Device", Christopher Patenaude, 2020.
- "Design and Fabrication of A Dog Toy Making Machine", Brandon Valesques, 2018. Sponsored by Goodwill of Springfield, MA.

- "Motorcycle Food Delivery System - Design of A Motorcycle Mount", Eric Murphy, 2017. Sponsored by Acres Investments, SA, Lima Peru.
- "Motorcycle Food Delivery System - Design and Fabrication for Commercialization", Jonathan Eheander, 2016. Sponsored by Acres Investments, SA, Lima Peru.
- "Design and Fabrication of a Tubing Straightener for HVAC Applications", Ethan Freedman, 2016. Sponsored by Hilmor, Inc., East Longmeadow, MA.
- "Design and Fabrication of a Dog Toy Making Machine", Brenna Dillner, 2016. Sponsored by Goodwill of Springfield, MA.
- "Motorcycle Food Delivery System", Jean-Luc LaLiberte and Abigail Powers, 2016. Sponsored by Acres Investments, SA, Lima Peru.
- "Motorcycle Food Delivery System", Ronald Foshay and Gregory Porter, 2015. Sponsored by Acres Investments, SA, Lima Peru.
- "Design & Integration of a Motorcycle Food Delivery System", Andrew McManus and Michael Tranghese, 2015. Sponsored by Acres Investments, SA, Lima Peru.
- "Design and Fabrication of a Wireless Thermocouple Housing for HVAC Applications", Alex Simms, 2015. Sponsored by Hilmor Inc., East Longmeadow, MA.
- "Improved Motorcycle Food Delivery System", Connor Dion and Bruce Funteral, 2014. Sponsored by Acres Investments, SA, Lima, Peru.
- "Design of an Improved Fire Protection Fitting", Marcus Pelleschi, 2014.

Vehicle Design

- "Development of a Four Wheel Drive SAE Mini Baja Vehicle", Michael Greider, Nigel Baldwin and Austin Rendon, 2021.
- "Improvement of SAE Baja Drivetrain Performance", Adam Lee, 2020.
- "Design of a Four Wheel Drive System for an SAE Mini Baja Vehicle", Trent Gobel and Elijah Jean, 2020.
- "Design and Analysis of Stacked vs. Compound Epicyclic Gear Trains for Slow Speed Applications", Samantha Flamand and Zachary Blanchard, 2020.
- "Development of a Four Wheel Drive System for an SAE Mini Baja Vehicle", Peter Schultz, Ethan Pelley and Jeff Barthelette, 2020.
- "SAE Baja Vehicle - Sprag Clutch Differential and Gear Optimization", Travis Armento, 2019.
- "SAE Baja Vehicle - Development of a Torsen Differential", David Snee, 2019.
- "Design and Fabrication of a Jeep Wrangler Door Check Mechanism", Ryan Heacox, 2016.
- "Design & Fabrication of a Low Cost Motorized Transportation Vehicle", Tyler Partington, 2015.

Additional Product Development since 2002

Consumer Products

- Portable knife sharpening shell
- Heated guide fishing pole
- Inflationless basketball
- Golf laser trainer
- Combination blade/line trimmer
- Autonomous window washing robot
- Athletic training sleds
- Surgical clip applier
- Two-part beverage bottle

DIY Products

- Quick-change hole saw arbor
- Power driven pipe expander
- One-handed manual pipe swager
- Improved Tape Measure Housing
- Double capacity nailer magazine
- Cordless reciprocating saw
- Recoil reduction in fastening tools
- Stud finder accessory for nailers
- New feed system for nailers
- Cycle Counter for a pneumatic fastening tool
- New hammer tacker design
- Nailer drive piston retaining device

Industrial Products

- Secondary power generating unit
- Impact pendulum for carbide tips
- Segmented band saw blade tester
- Robotic saw tester
- Automated nail withdrawal device
- Measurement system for compressor nailer efficiency
- Energy measurement device for pneumatic tools
- Measurement device for determining closeness of shave
- Device for dynamic loading of pneumatic fastening tools

General Research

- "Mechatronic Model of Bird Flight", Griffin Morris, 2024.
- "Development of an Automated Loading System for the Mechanics of Materials Bridge Busting Competition", Cole McGee and Hillary Naranjo-Majia, 2018.
- "Modeling Screw Withdrawal in Concrete Using Finite Element Analysis", Russell Perry, 2018. Sponsored by The Hillman Group, Tempe, AZ.
- "Development of a Predictive Design Methodology for Structural Polymers Subjected to Long Term Loading", Julie Jackson, 2012. Results published in the Proceedings of the 2012 ASME IMECE in Houston, TX, Nov. 2012. Sponsored by Stanley/Black&Decker, East Greenwich, RI.
- "Development of a Curved Hopkinson Bar for the Measurement of Impact Load and Energy Transmission", Micah Bowen, 2011. Results published in the Proceedings of the 2011 ASME IMECE, Denver, CO, Nov. 2011.
- "Methodology for Material Selection in Product Design", Andrew Labrie. 2011. Sponsored by Stanley/Black&Decker, New Britain, CT.
- "Finite Element Modeling of a Mortar Base Plate and Soil Interaction", Kelley MacDonald, 2010. Sponsored by the United States Army—Cold Regions Research and Engineering Laboratory.
- "Design and Fabrication of a Small Engine Dynamometer", Eric Perkins, 2010.
- "Development of a Sustainable Biodiesel Fuel Generation System – Phase 2", Philip Casey, 2009.
- "Development of a Biodiesel Fuel Generation System", James Pinsonneault, 2008. Won 3rd place in the ASME District A Student Professional Development Conference, Old Guard Oral Presentation Competition, CCSU, New Britain, CT, April 5, 2008.
- "Determination of the Static and Dynamic Mechanical Properties of a Microcellular Urethane (MCU) Used as an Impact Bumper in Pneumatic Nailers", James Goulet, 2008. Sponsored by Stanley Fastening Systems, East Greenwich, RI.
- "Determination of Dynamic Mechanical Properties of Adhesives and Porcelains used for Dental Implants", Tim Hickey, 2007. Sponsored by Beniot Family Dentistry, Old Saybrook, CT. Results presented at the 2010 ASEE Regional Conference, Boston, MA.
- "Design and Development of a Split Hopkinson Pressure Bar Apparatus for Tensile Loading", Dave Mucciacciaro, 2007.
- "Design of a Specimen Heating System for Dynamic Material Testing", Steven Army, 2006. Results published in the Proceedings of the 2006 ASME IMECE, Chicago, IL, Nov. 2006.
- "Design and Development of a Full Sized Charpy Impact Tester", James Dutelle, 2006.
- "Design and Construction of a Torsion Testing Apparatus", Robert Short 2006. Results published in the Proceedings of the ASEE New England Section 2006 Annual Conference.
- "Automation of a Rebound Pendulum", Hung Truoung, 2005.
- "Design of a Data Acquisition System for a Split Hopkinson Pressure Bar", Steve Coduri, 2004.
- "A Study of the Effect of Corking a Baseball Bat on Hitting Performance", Nate Soucy, 2004.
- "Determination of Dynamic Modulus of Elastomeric Materials Using Rebound Measurements", Doug Almieda, 2004.
- "Determination of Material Properties at Very High Rates of Loading", Richard Rose, 2003.
- "The Experimental and Analytical Determination of Stresses in Tennis Racquets", Aaron Dinoto, 2003.
- "Analysis of Stress and Strain on Large Gas Pipes", Gerry Guillmeister, 2003. Sponsored by Bay State Gas Company, West Springfield, MA.

PUBLICATIONS / PRESENTATIONS

Schoonmaker, M., Gettens, R., Vallee, G., "Building the Entrepreneurial Mindset Through Cross-Functional Innovation Teams", Entrepreneurship Education and Pedagogy, Volume 3 Issue 1, January 2020, pp. 41-59.

Vallee, G. E., and Eheander, J., Development of a Motorcycle Food Delivery System from an International Perspective", technical publication, presented at the ASME International Mechanical Engineering Congress and Exposition, Tampa, FL, November 2017, Paper no IMECE2017-70343.

Vallee, G. E., "Implementation of Multi-Year Product Innovation Projects", technical publication, presented at the ASME International Mechanical Engineering Congress and Exposition, Montreal, Canada, November, 2014. Paper No. IMECE2014-36443.

Jackson, J. R., and Vallee, G. E., "Development of a Predictive Design Methodology for Structural Polymers Subject to Long-Term Loadings", technical publication, ASME International Mechanical Engineering Congress and Exposition, Houston, TX, November, 2012. Paper No. IMECE2012-87912, pp. 389-396.

Vallee, G., and Bowen, M., "Development of a Curved Hopkinson Bar for Long Wavelength Impact Events", technical publication, presented at the ASME International Mechanical Engineering Congress and Exposition, Denver, CO, November, 2011. Paper No. IMECE2011-62914, pp. 707-715.

Vallee, G., and Benoit, R., **"**Translating Dental Performance into Engineering Science within a Senior Capstone Design Project", technical publication and presentation at the New England Regional Conference of the American Society of Engineering Educators, Boston, MA, May, 2010.

Vallee, G., Casey, P. and Pinsinneault, J., "An Interdisciplinary Laboratory Experience for Sustainability**"**, technical publication presented at the ASME International Mechanical Engineering Congress and Exposition, Lake Buena Vista, FL, November, 2009. Paper No. IMECE2009-10389, pp. 325-334.

Vallee, G., "A Novel Course in Product Innovation", technical publication presented at the ASME International Mechanical Engineering Congress and Exposition, Boston, MA., November, 2008. Paper No. IMECE2008-66632, pp. 143-150.

Vallee, G. and Army, S., "Determination of the Temperature Dependent Dynamic Response of Elastomeric Materials Using the Split Hopkinson Pressure Bar", technical publication presented at the ASME International Mechanical Engineering Congress and Exposition, Chicago, Ill., November, 2006, Paper No. IMECE2006-13262, pp. 173-179.

Vallee, G., and Short, R., "Design and Development of an Economical Torsion Testing Machine", presented at the ASEE New England Regional Conference, WPI, Worcester, MA, March, 2006.

Northrup, S, Vallee, G., and Moriarty, J., "A Successful Interdisciplinary Design Experience", Presented at the American Society of Engineering Educators Conference, Nashville, TN., June, 2003.

Vallee, G. E., and Shukla, A., "Static and Dynamic Response of Elastomeric Materials -An Insight Into the Design of Durable Elastomeric Components", International Journal of Engineering Design, Vol. 8, No. 3, August, 1997. Presented at the International Conference on Finite Element Analysis of Rubber and Rubber-Like Materials, University of Akron, Akron, Ohio, May 19-20, 1999.

Vallee, G. E., and Shukla, A., "A Study of Elastomeric Materials Using Finite Elements", ASME Journal Of Engineering Materials and Technology, Vol. 118, No. 4, October, 1996, pp. 503-508.

Vallee, G. E., and Shukla, A., "A Study of Elastomeric Materials Using Finite Elements", ASME Journal Of Engineering Materials and Technology, Vol. 118, No. 4, October, 1996, pp. 503-508. Presented at the International Conference on Finite Element Analysis of Rubber and Rubber-Like Materials, University of Akron, Akron, Ohio, March 20-21, 1997.

Vallee, G. E. and Shukla, A., "Development of a Dynamic Load-Deflection Apparatus for Elastomeric Materials", ASTM Journal of Testing and Evaluation, Vol. 23, No. 5, September, 1995, pp. 358-364.

GRANTS

"Woody Biomass Demonstration Project at Western New England College" Massachusetts Clean Energy Center, co-PI with Dr. S. Dini and Dr. A. Klimes, Western New England College, 2010. ($74,000)

"Next Generation Wind Turbine", Department of Energy Award No. DE-EE0003276, in conjunction with FloDesign Wind Turbine, LLC. One month summer salary to study structural dynamics of wind turbine support and control structure.

"Creation of a Product Development and Innovation Course", National Collegiate Inventors and Innovators Alliance (NCIIA), co-PI with Dr. S. Schriener and Dr. J. McKeon, Western New England College, 2008. ($25,000)

"Development of a New Computer-Aided Data Acquisition and Processing Course", Western New England College, Faculty Development Grant, Spring, 2008. ($1,500)

"Development of a Senior ME Design Elective Course in Product Innovation", Western New England College, Faculty Development Grant, Fall, 2007. ($1,500)

"Development of a Web Based Course in Applied Machine Design", Western New England College, Research Grant, Summer, 2006. ($3,000)

"Development of a Demonstration Kit for Enhanced Learning in Mechanics of Materials", Western New England College, Faculty Development Grant, Spring, 2005. ($2,000)

"A Study of the Dynamic Mechanical Properties of Elastomers Under Multiple Deformation Modes", Western New England College, Research Grant, Summer, 2003. ($3,000)

"Development of a Demonstration Kit for Enhanced Learning in Statics and Dynamics", Western New England College, Faculty Development Grant, Spring, 2003. ($1,875)

LICENSES / PATENTS

Registered as a Professional Engineer with the State of Rhode Island, lic. # 6765.

"Convertible Contact/Sequential Trip Trigger, US Patent No. 5,551,620, September 3, 1996.

"Convertible Contact/Sequential Trip Trigger with Double Actuation Prevention Structure", US Patent No. 5,551,621, September 3, 1996.

"Portable Drill Bit Sharpener", US Patent No. 8,690,643, April 8, 2014.

"Biopsy Spacer Device and Method of Operation", US Patent No. 8,932,251, January13, 2015.

"Water Purification System", US Patent No. 9084949, July 21, 2015.

"Biopsy Spacer Device and Method of Operation", US Patent No. 9,233,231, January 12, 2016.

"Flexible Electrical Power Strip", US Patent No. 10,038,272, July 31, 2018.

"Combination Tool", US Patent No. 10,232,449B2, March 19, 2019.

"Fastener Insertion System for Fasteners With Antennas", US Patent No. 10,599,969, March 24, 2020.