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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TROVE BRANDS, LLC

Petitioner

v.

CAMELBAK PRODUCTS, LLC

Patent Owner

IPR2025-00146

Patent 10,165,879

**DECLARATION OF GLENN E. VALLEE, PH.D.
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,165,879**

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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. 10,165,879 (“the ’879 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. 10,165,879 (“the ’879 patent”)
1002	Order on Stipulation and Joint Motion to Amend the Case Schedule in <i>Trove Brands, LLC v. CamelBak Products, LLC, et al.</i> , No. 5:23-cv-04267-PCP (N.D. Cal. June 18, 2024)
1003	*Intentionally Omitted*
1004	United States Patent No. 6,279,773 to Kiyota (“Kiyota”)
1005	United States Patent Application Publication No. 2007/0039959 to Choi, et al. (“Choi”)

Exhibit No.	Description
1006	Certified English Translation of Korean Patent Publication No. KR 200282506 Y1 (“Park”)
1007	Translation Certificate for Korean Patent Publication No. KR 200282506 Y1 to Park
1008	Korean Patent Publication No. KR 200282506 Y1 to Park
1009	Certified English Translation of International Publication No. WO 2004/063042 to Ribarits (“Ribarits”)
1010	Translation Certificate for International Publication No. WO 2004/063042 to Ribarits
1011	International Publication No. WO 2004/063042 to Ribarits

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 ’879 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 '879 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 skill 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 '879 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 '879 patent. I have been asked to assume that the priority date for claims 1, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19 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 '879 patent describes the use of well-known technologies for designing reusable, portable drink containers. Based on my review of the '879 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 '879 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 '879 patent. Based on my experience and knowledge, I believe that

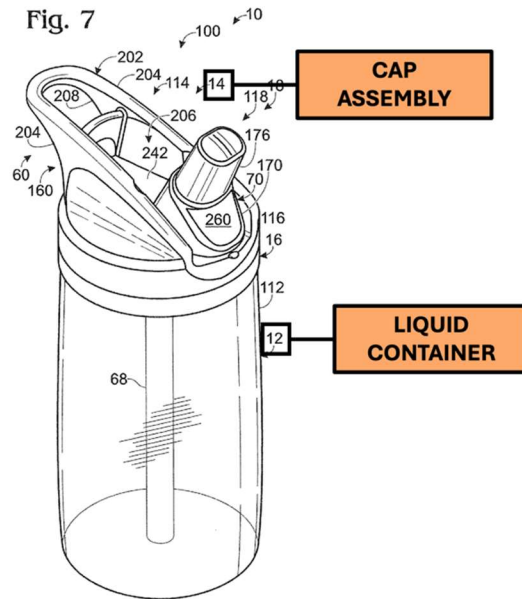
people of the above-defined level of education and skill would have the capability to interpret and understand the invention claimed in the '879 patent and the scientific and engineering principles applicable to the pertinent art.

II. THE '879 PATENT

A. Specification and Figures

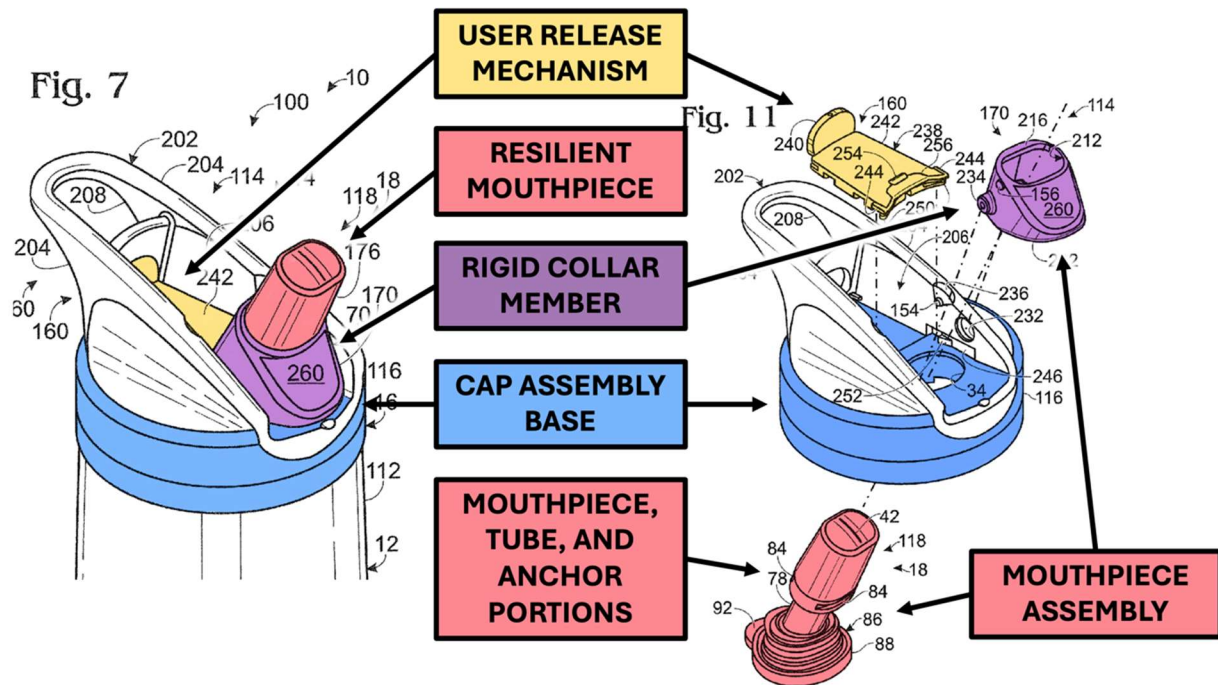
The '879 patent is titled, “Drink Containers,” and discloses drink containers that include a liquid container and a cap assembly removably coupled to the liquid container. Ex. 1001, 4:11-12. An exemplary embodiment of the drink containers disclosed in the '879 patent is shown in Figure 7, which I have reproduced below with annotations to show the “liquid container 12” and “cap assembly 14”.¹

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



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

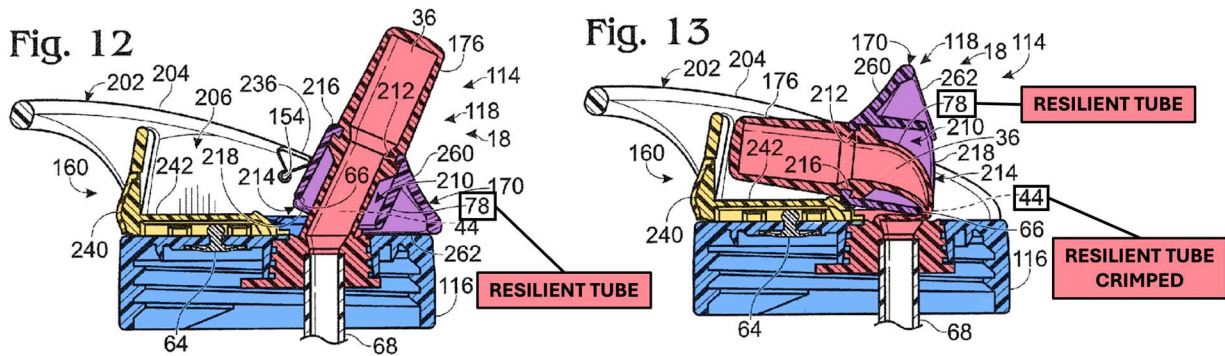
32. As shown below in excerpted Figures 7 and 11, the “cap assembly 14” includes a base, a mouthpiece assembly, a rigid collar member, and a user release mechanism:



Ex. 1001, at Figs. 7, 11². The cap assembly includes “mouthpiece assembly 118,” “rigid collar member 170,” and “user release mechanism 160.” The ’879 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.

² Although “rigid collar member 170” is part of “mouthpiece assembly 118,” I have shaded it purple to distinguish it visually from adjacent elements of the ’879 cap assembly.

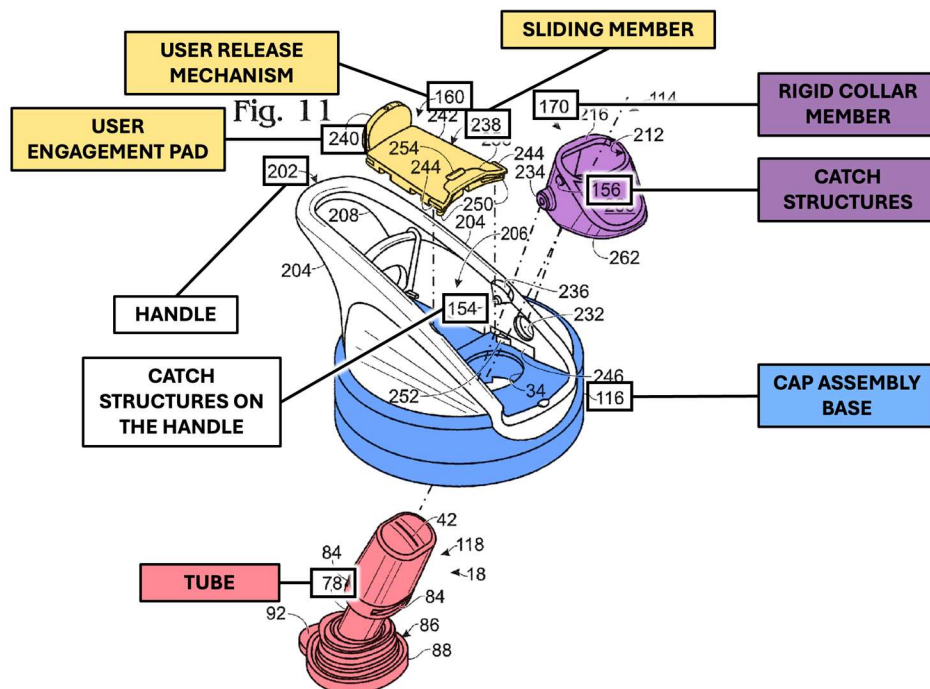
33. Figures 12 and 13 show cross-sectional views of the cap assembly with the mouthpiece assembly in its dispensing and stowed configurations, respectively:



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, the “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 '879 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

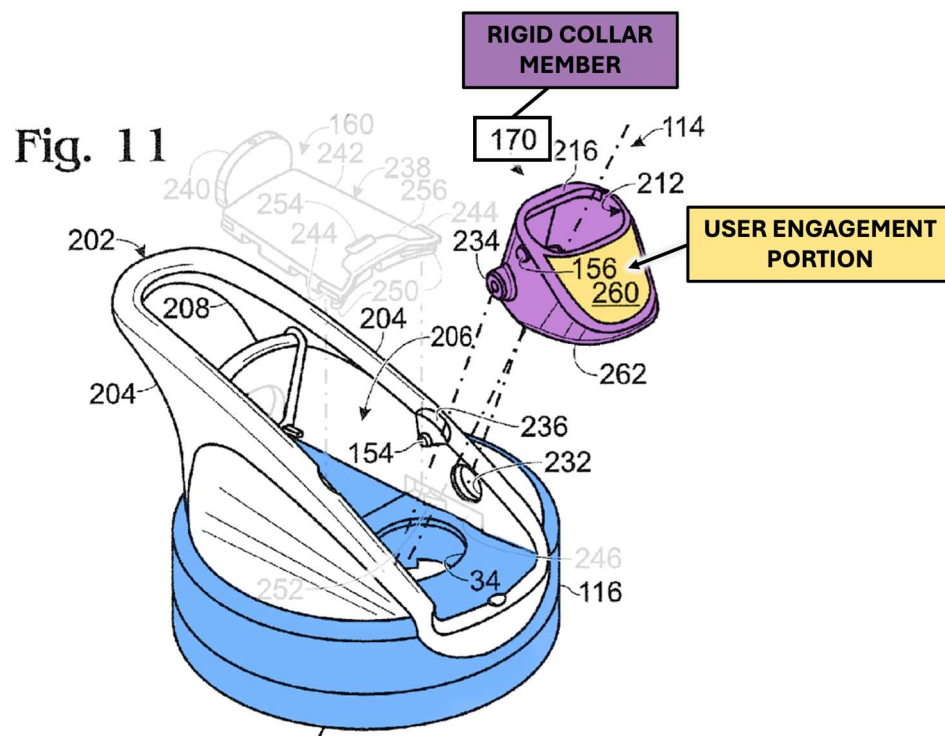
(“protrusions 156”) on “rigid collar member 170” which engage with catch structures (“depressions 154”) on “handle 202.” Ex. 1001, 12:22-37. When the user presses “user engagement pad 240” on “sliding member 238,” the sliding member slides between “base 116” and “rigid collar member 170.” Ex. 1001, 13:15-25. 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.



Ex. 1001, Figs. 8, 11.

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

54 (describing second embodiment). 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. This embodiment does not include a sliding member as recited in the claims and hence also does not perform the claimed function of biasing the sliding member away from engaging the catch structures.

B. Claims

36. The '879 patent includes 20 claims, of which only claim 1 is

independent. 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 claim 1 of the '879 patent is 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

Claim 1	
	at least into the liquid passage, and a stowed configuration, in which drink liquid is restricted from being dispensed from the liquid container through the liquid passage; wherein the mouthpiece assembly is biased to the dispensing configuration; and wherein the mouthpiece assembly comprises:
1[B][3][a]	a tube portion that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the outlet of the mouthpiece assembly; wherein the tube portion includes a crimping region constructed of a resiliently deformable material and adapted to prevent the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration; wherein the crimping region includes opposing walls that are in contact with each other to seal the liquid passage within the crimping region when the mouthpiece assembly is in the stowed configuration;
1[B][3][b]	a rigid collar member that is pivotally coupled to a portion of the cap assembly and through which the tube portion at least partially extends; and
1[B][3][c]	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;
1[C]	wherein the cap assembly defines a stowing region sized to receive at least a portion of the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration;

Claim 1	
1[D]	wherein the user release mechanism includes a sliding member with a user engagement pad; wherein the user release mechanism is biased to urge the sliding member away from a position where the sliding member disengages the first and second catch structures; and wherein the sliding member is configured to slide relative to the base of the cap assembly to selectively disengage the first and the second catch structures.

C. Priority Date

38. For the purposes of this analysis, I have been asked to assume that the priority date for claims 1, 3, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, and 19 is January 21, 2009.

D. Claim Construction

1. “User Release Mechanism”

39. Claim 1 recites “a user release mechanism.” I note, however, that Claim 1 does not recite any specific structure for the claimed “user release mechanism.” Instead, this claim 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 '879 Patent

41. I understand that the '879 Patent has not been the subject of any prior petitions for *Inter Partes* Review.

III. PRIOR ART BEVERAGE/DRINK CONTAINERS

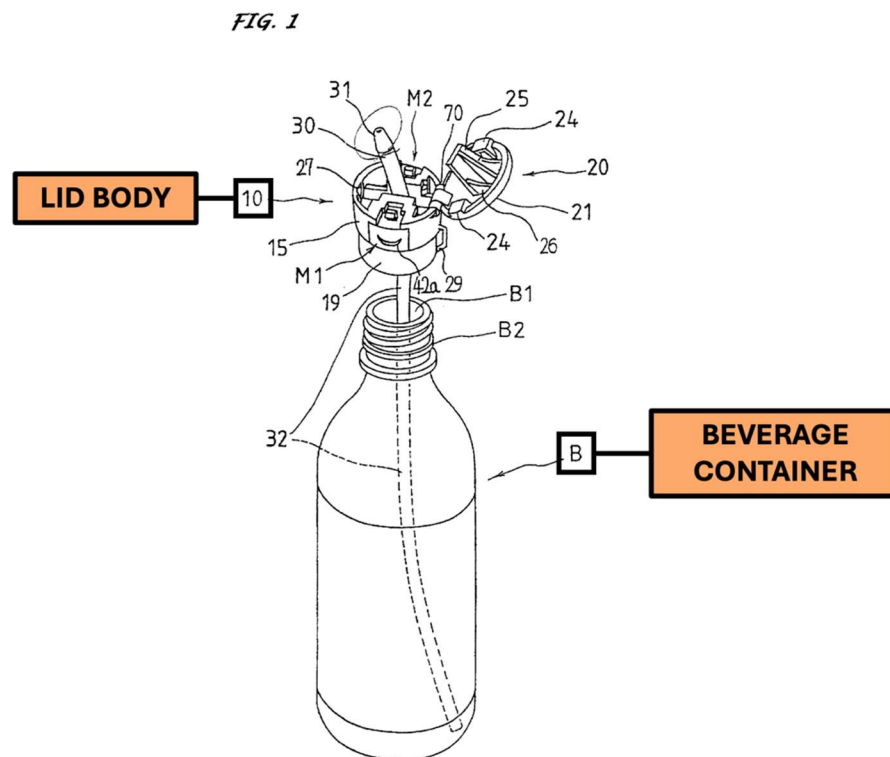
42. Drink containers with removable caps have, of course, long been known. And drink cap assemblies with the features claimed in the '879 patent (e.g., base, mouthpiece, rigid collar, and a user release mechanism) have also been known since well before the '879 patent's priority date. I briefly summarize 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.

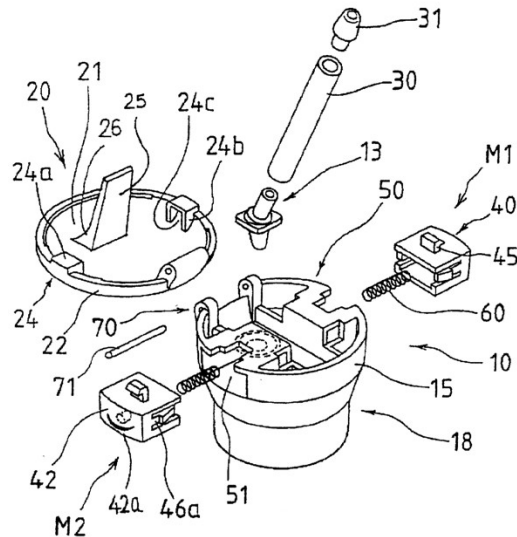
44. An exemplary embodiment is shown in Figure 1 of Kiyota:



Ex. 1004, Fig. 1.

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

FIG. 2



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:

FIG. 6

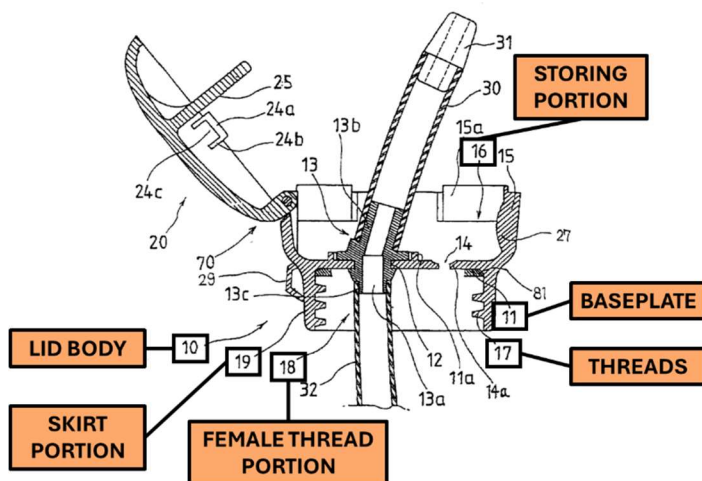
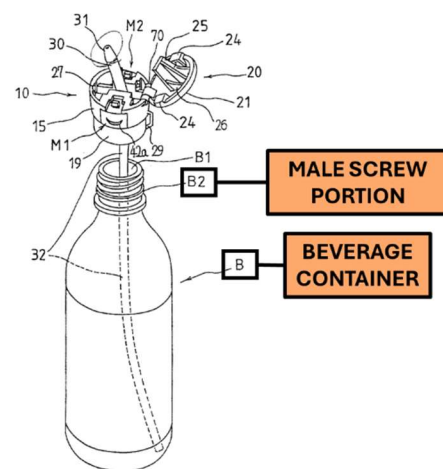
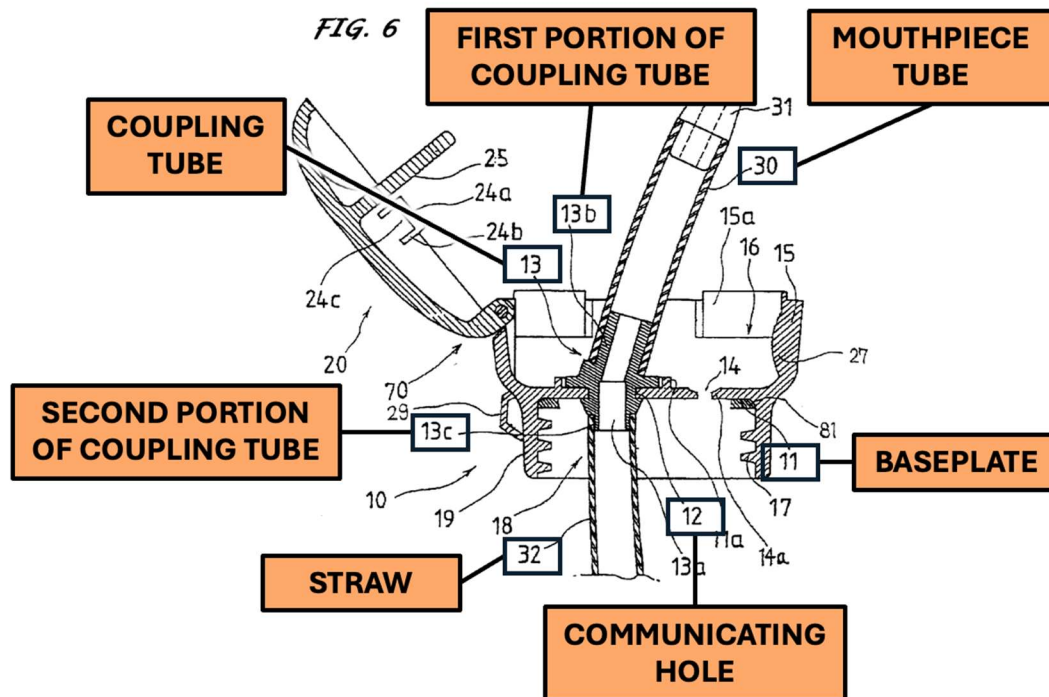


FIG. 1



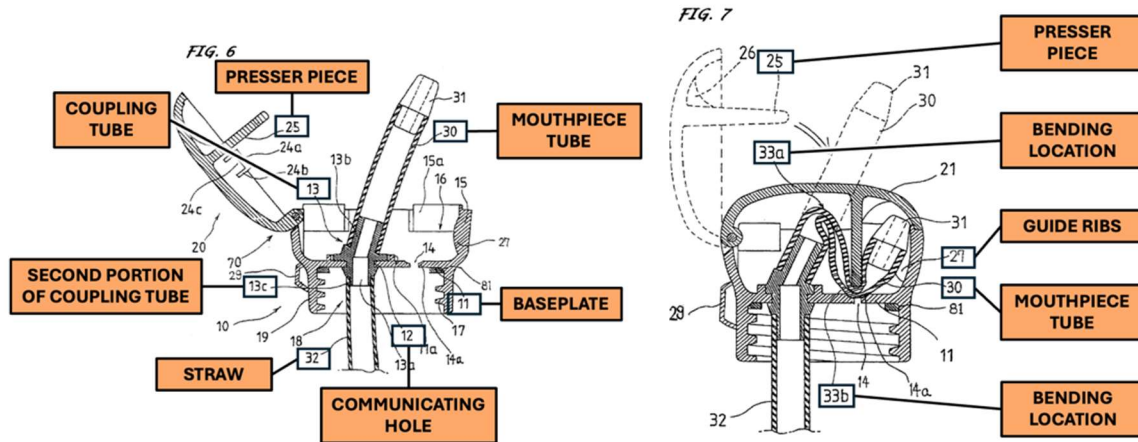
Ex. 1004, Figs. 1, 6. The lid body includes a “storing portion 16” above a “baseplate 11” that retains “mouthpiece tube 30” when in the stowed position.

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.



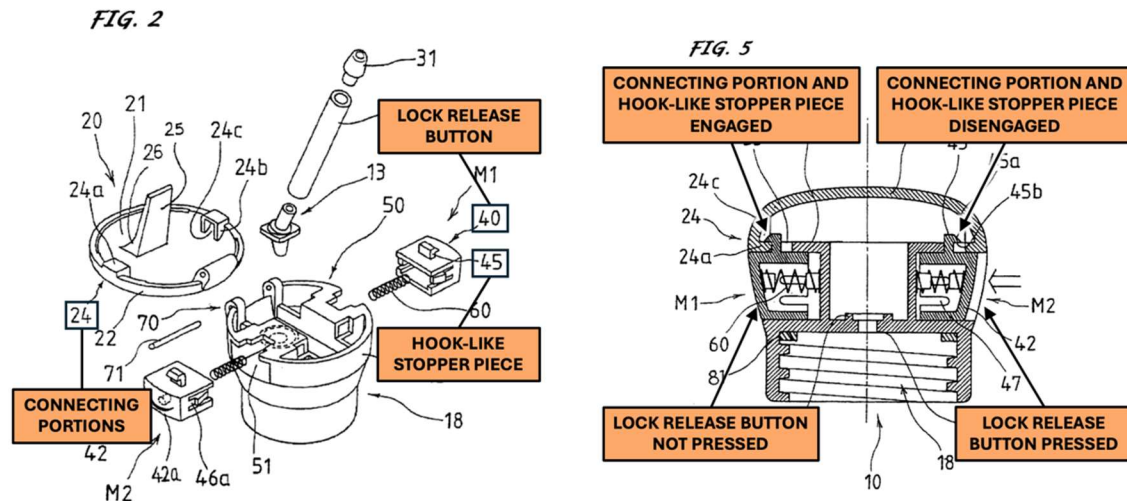
48. Below, I have annotated Figures 6 and 7 to show the components of the

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.”

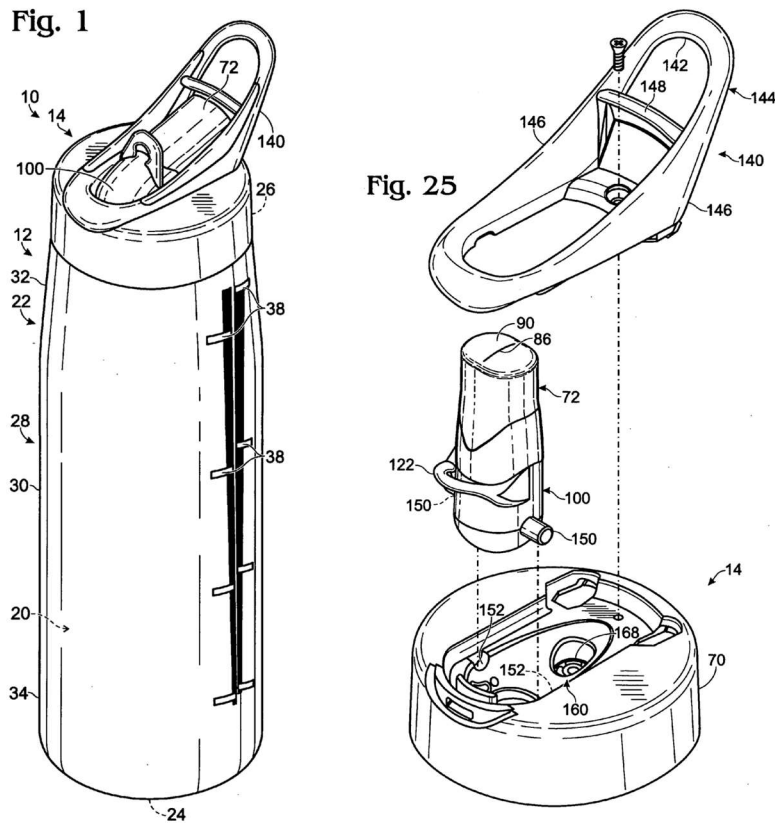
49. To maintain the lid in its stowed configuration, Kiyota’s lid body includes corresponding catch structures on the underside of the lid (“connecting portions 24”) and on a pair of “hook-like stopper pieces 45” on the upper surface of “lock release buttons 40”, which I have identified in Figures 2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

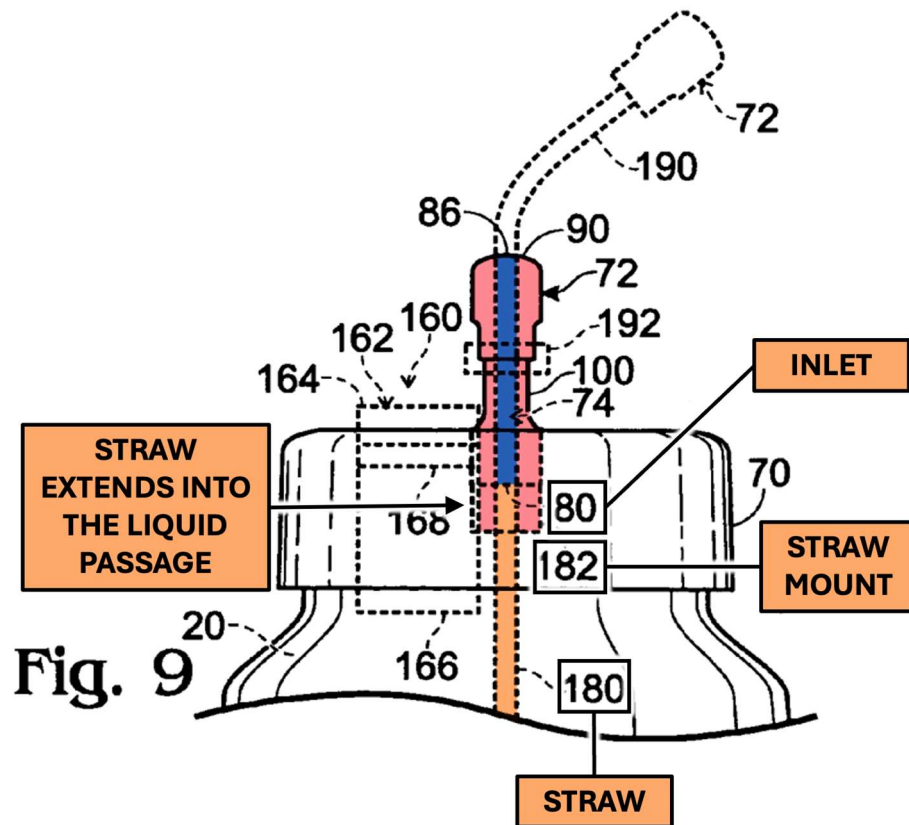
50. Choi (Ex. 1005) is titled “Drink bottles with bite-actuated mouthpieces” and discloses “a cap assembly with a base 70,” a mouthpiece assembly comprising a “mouthpiece 72 and mount 100.,” Ex. 1005, ¶[0072]. An exemplary embodiment of Choi’s cap assembly is shown below:



Ex. 1005, Figs. 1, 25.

51. 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. 1005, ¶ [0072].

This is shown in Figure 9 of Choi, which I have reproduced below:

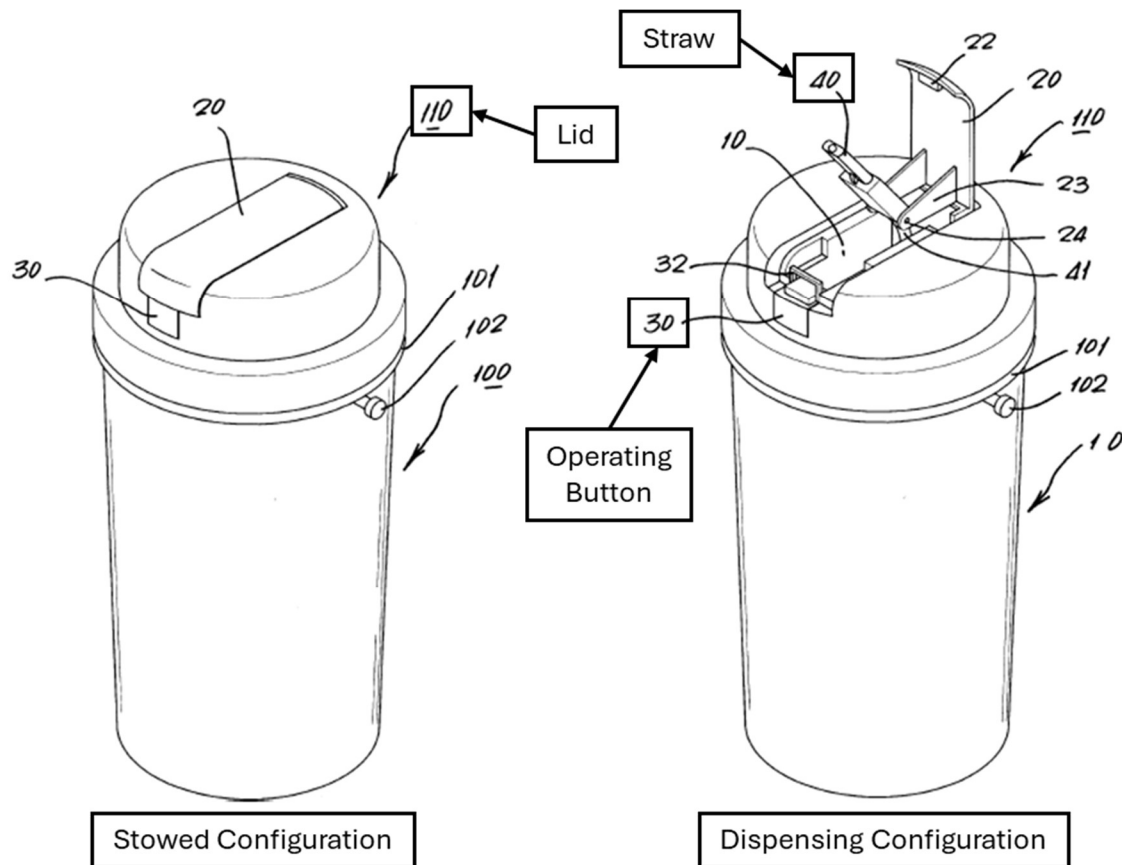


Ex. 1005, Fig. 9. Choi further discloses: “Straw 180 may be removably (or permanently) coupled to a corresponding mount 182 on the cap assembly, such as at or proximate the inlet 80 of fluid conduit 74.” Ex. 1005, ¶ [0072]. As shown in Figure 9, Choi’s “straw 180” is inserted into “mount 182” adjacent to “inlet 80.” Ex. 1005, ¶ [0072].

C. Park

52. Park (Ex. 1006), which is titled “Portable water bottle with a straw,” discloses a water bottle that includes a lid with a built in straw that can be opened automatically with the touch of a button. Ex. 1006, Abstract. Figures 1 and 2,

reproduced below, show Park's lid in its closed and open configurations, respectively:



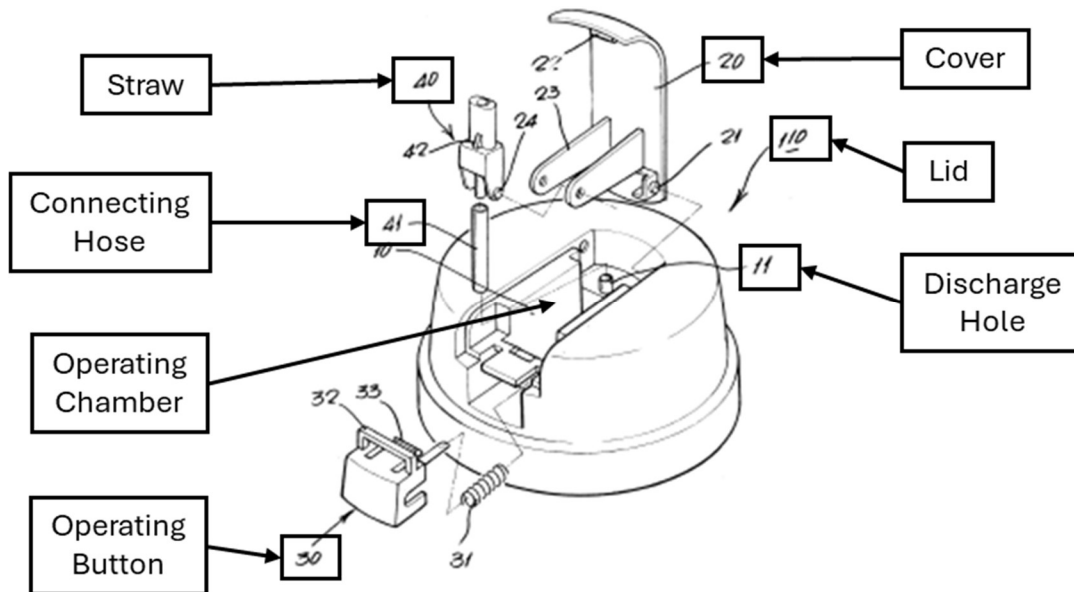
Ex. 1006, Figs. 1-2. According to Park, the “object” of the invention is:

[T]o provide a portable water bottle with a straw that is not only easy to manufacture due to its simple structure by simply pressing the operating button formed on the lid in a one-touch manner so that the cover is opened and the straw is released, but also highly hygienic because it is easy to drink water without holding a straw by hand, and that also improves usability and structure by having a straw embedded in it by simply closing the cover in a one touch manner.

Ex. 1006, 3.

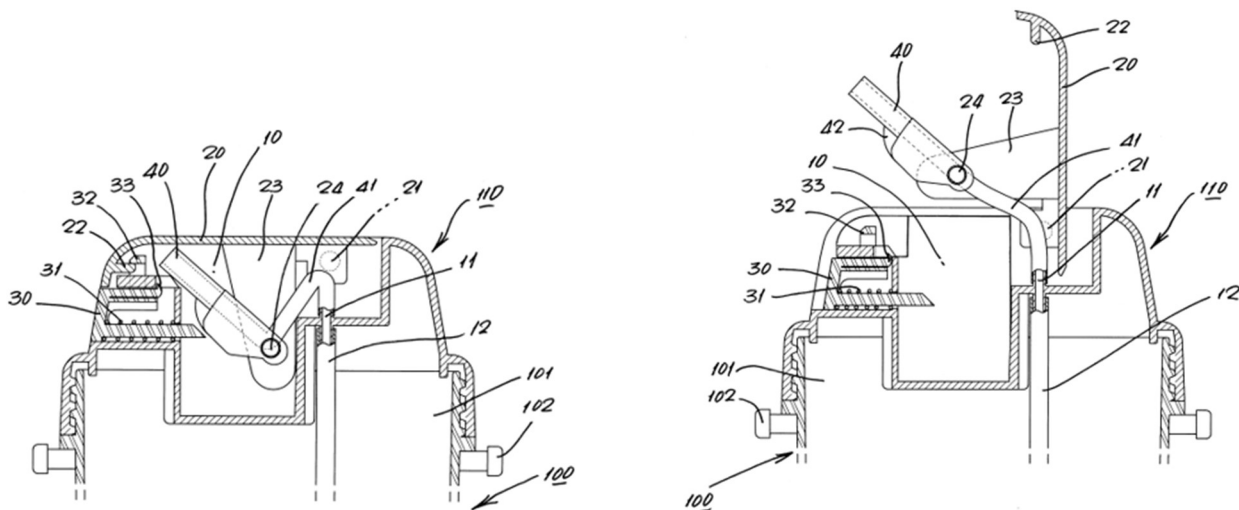
53. Figure 3 is an exploded view of Park includes “lid 110,” which I have

annotated to highlight its relevant components:



Ex. 1006, Fig. 3. The

54. Figures 5 and 6, below, show how the components of Park's lid move from the stowed configuration to the open configuration:



Ex. 1006, Figs. 5-6. As shown above, Park's lid includes "operating chamber 10"

that receives “straw 40” and “connecting hose 41” when “cover 20” is pivoted to the closed configuration. In the open position, a user may suck on “straw 40,” which causes liquid to flow from “water bottle 100” and into “connecting hose 41” through “discharge hole 11” in the base of the lid. Ex. 1006, 5 (“when the straw 40 is sucked into the mouth, the contents of the water bottle 100 are directed through the guide hose 12 and the connecting hose 41, and out the straw 40, and the contents can be safely drunken”).

55. Park also discloses a “locking means” that locks the lid in the closed configuration. Ex. 1006, 4. Specifically, the “locking means” comprises “operating button 30,” which includes “hook 32” on its upper surface, which engages “protrusion 22” on the underside of “cover 20” to hold the lid in the closed position. Ex. 1006, 4. To open the lid, a user presses “operating button 30,” which slides within “operating chamber 10” to disengage “hook 32” from “protrusion 22” and automatically release “cover 20.” Ex. 1006, 4. Because the “connecting hose 41 is formed of a flexible soft material and has a certain elasticity, it always tries to unfold vertically, and when the lid 20 is opened, its elastic force causes the straw 40 to protrude” Ex. 1006, 4. According to Park:

“[T]he moment the cover 20 is opened, the straw 40, which is axially coupled to the bracket 23 of the lower part by the hinge shaft 24, is also unfolded by the elastic force of the connecting hose 41, so that the straw 40 maintains an angle that is most convenient for the user to suck into

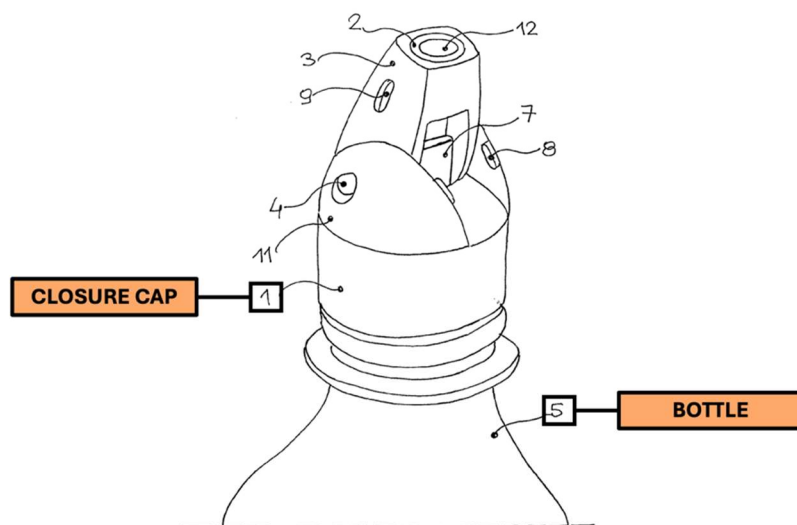
the mouth.”

Ex. 1006, 5.

56. To close the lid, the user simply presses “cover 20” into the closed position. As Park describes: “In the process of closing the cover 20 ... the straw 40 ... is pivoted using the hinge shaft 24 as the supporting point and is securely accommodated into the operating chamber 10.” Ex. 1006, 5. In this position, as shown in Figure 5, “the connecting hose 41 is double bent ... to completely close the discharge passage of the connecting hose 41.” Ex. 1006, 5.

D. Ribartis

57. Ribarits (Ex. 1009), 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. 1009, Abstract.

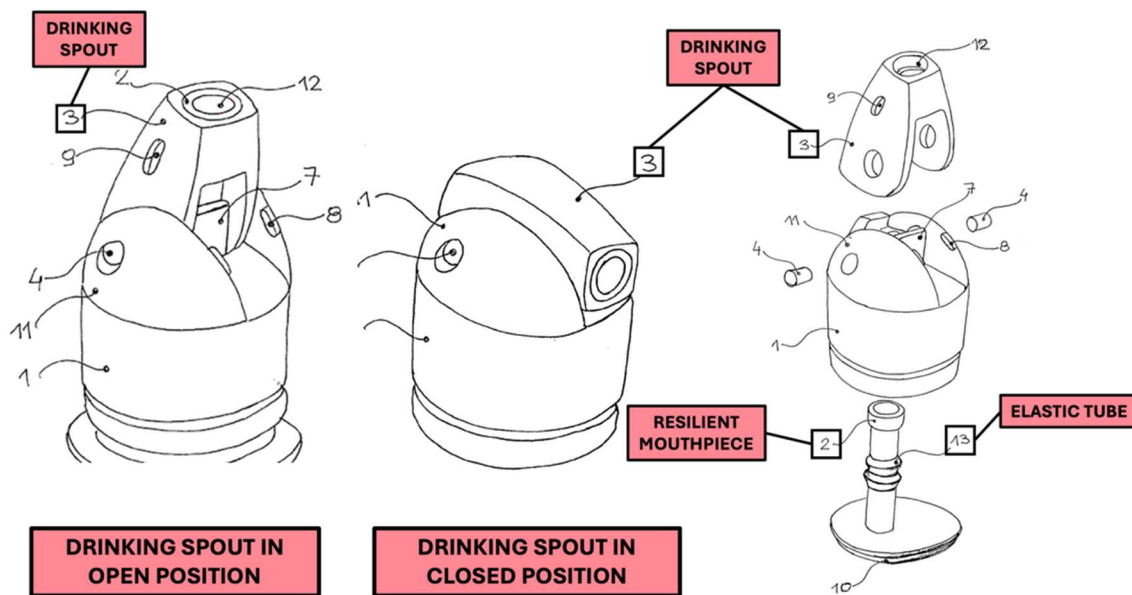


Ex. 1009, Fig. 1.

58. 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. 1009, 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. 1009, 2.



Ex. 1009, 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.

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

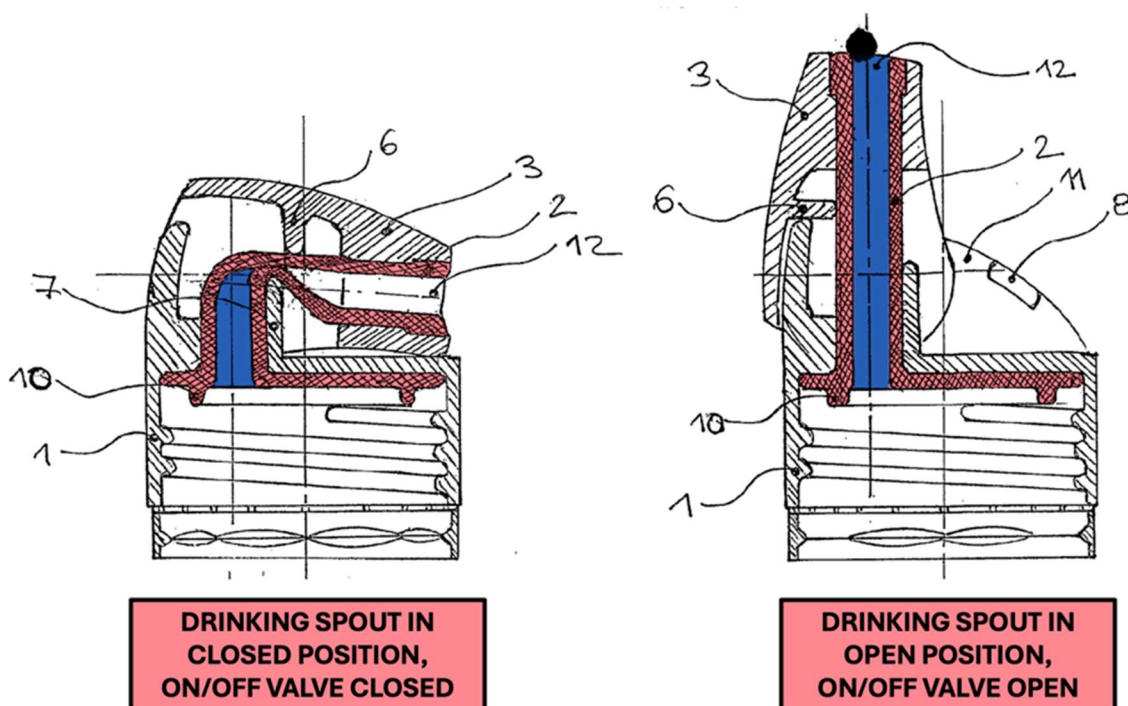
In the lateral parts placed at the top of the closing cap, the drinking

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. 1009, 2.

60. 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. 1009, 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.

**IV. GROUND 1: CLAIMS 1, 3, 5-8, AND 10-19 WOULD HAVE BEEN
OBVIOUS IN VIEW OF KIYOTA, CHOI, AND RIBARITS**

61. As I explain below, Kiyota expressly discloses nearly all the elements of claims 1, 3, 5-8, and 10-19. To the extent Kiyota does not expressly disclose any element of claims 1, 3, 5-8, and 10-19, it is my opinion that the claims would have been obvious over Kiyota in view of Choi, Ribarits, and/or the knowledge of one skilled in the art at the time of the '879 patent invention.

A. Claim 1 is Obvious over Kiyota in view of Choi

62. I address below how Kiyota in view of Choi and/or the knowledge of a person of ordinary skill in the art, renders obvious each element of Claim 1.

1. Preamble: “A drink container”

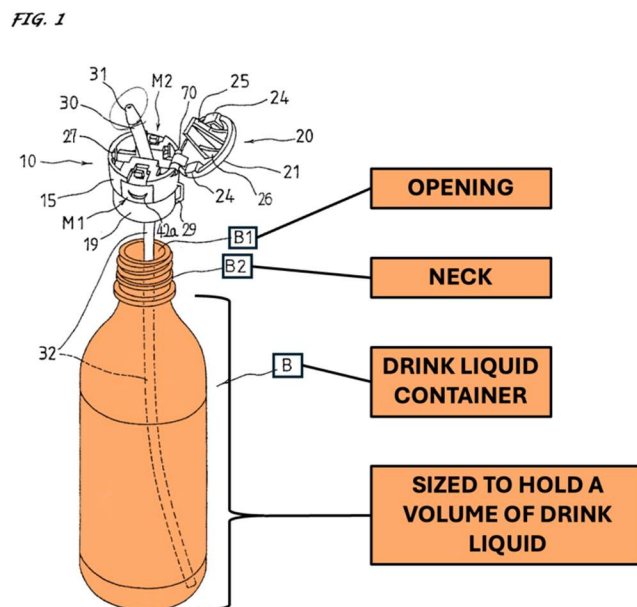
63. The preamble recites a “drink container.” I understand that patent preambles are not always limiting. I have not been asked to render an opinion on whether the preamble of Claim 1 is limiting. Regardless, as I explain below, Kiyota discloses “a drink container.”

64. 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”

65. 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.

66. 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”

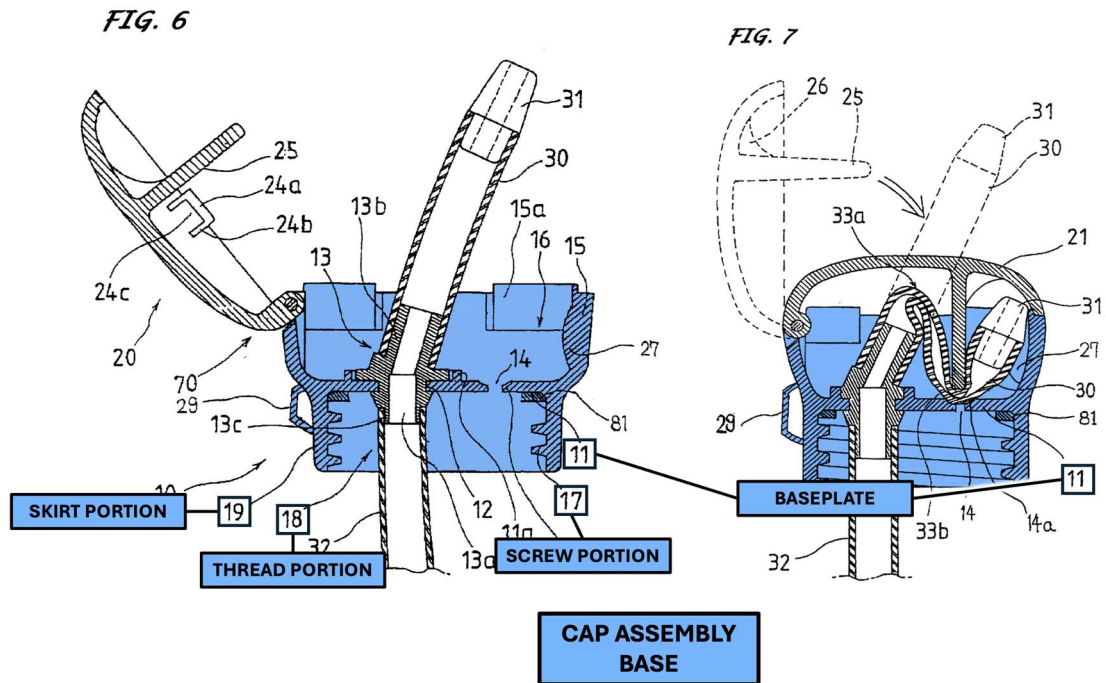
67. Limitation 1[B] recites, “a cap assembly removably coupled to the liquid container.” As I explain below, Kiyota discloses this limitation.

68. For example, Kiyota discloses that “main body portion 10,” a part of its “lid body,” 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” 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”

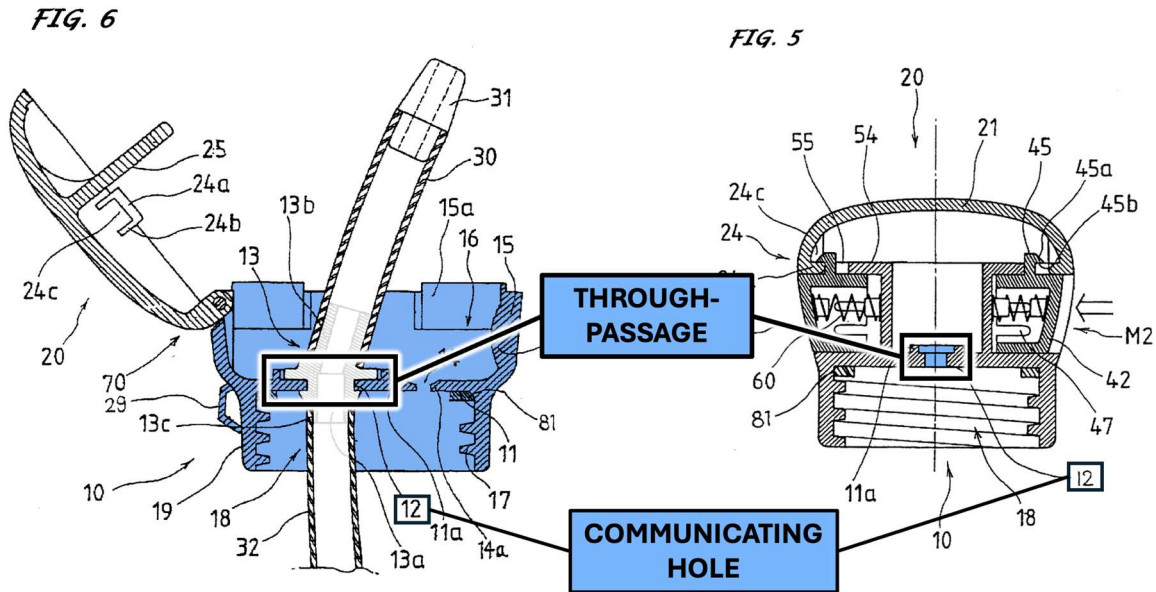
69. Limitation 1[B][1] recites “a base removably coupled to the neck of the liquid container and including a through-passage.” As I explain below, Kiyota discloses this limitation.

70. For example, Kiyota’s “main body portion 10” includes a thread 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 “main body portion 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 “main body portion 10.” Thus, one of skill in the art would have understood Kiyota’s “main body portion 10” to be removably coupled to the beverage container.

71. Kiyota also discloses a “communicating hole 12” in “baseplate 11” that constitutes a through-passage through “main body portion 10.” Ex. 1004, 5:21-23. This is shown annotated Figures 5 and 6 below:

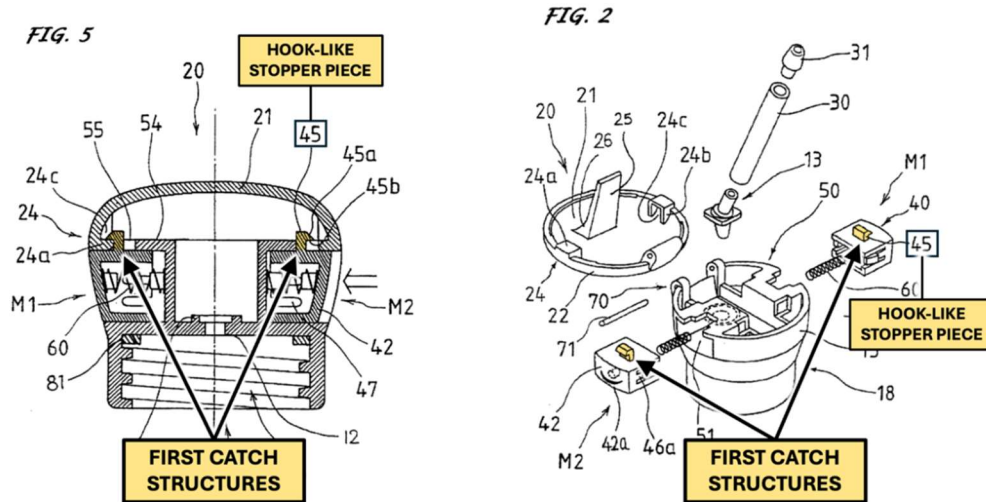


Ex. 1004, Figs. 5, 6.

b. 1[B][2]: “a first catch structure coupled to the base”

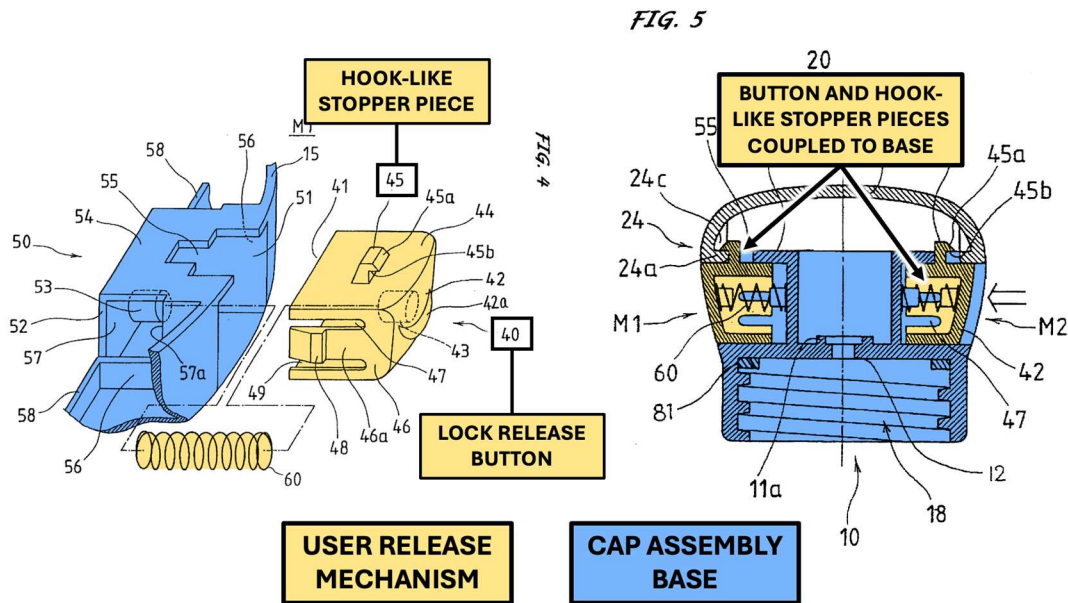
72. Limitation 1[B][2] recites that the cap assembly comprises “a first catch structure coupled to the base.” As I explain below, Kiyota discloses this limitation.

73. 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.”

Additionally, Kiyota’s “lock release buttons 40,” which include “hook-like stopper pieces 45,” are coupled to the Kiyota’s “main body portion 10” (i.e. base) in two ways. First, “spring 60” couples “lock release buttons 40” to “main body portion 10. *See* ex. 1004, 6:20-56. Second, “stopper protrusions 48” connect with “edge portions 57a” of “notched windows 57” to retain “lock release button 40” in “socket 50.” *See id.* at 6:1-19.



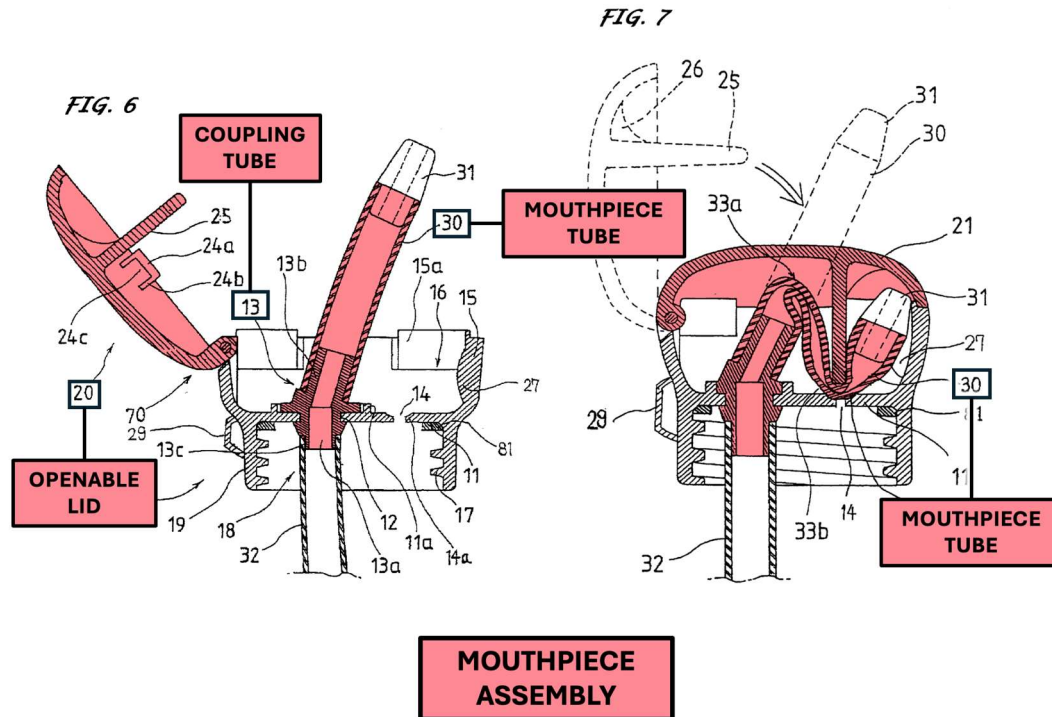
Id., Figs. 4, 5.

- c. 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 drink liquid is restricted from being dispensed from the liquid container through the liquid passage; wherein the mouthpiece assembly is biased to the dispensing configuration”

74. Limitation 1[B][3] recites “a mouthpiece assembly extending through

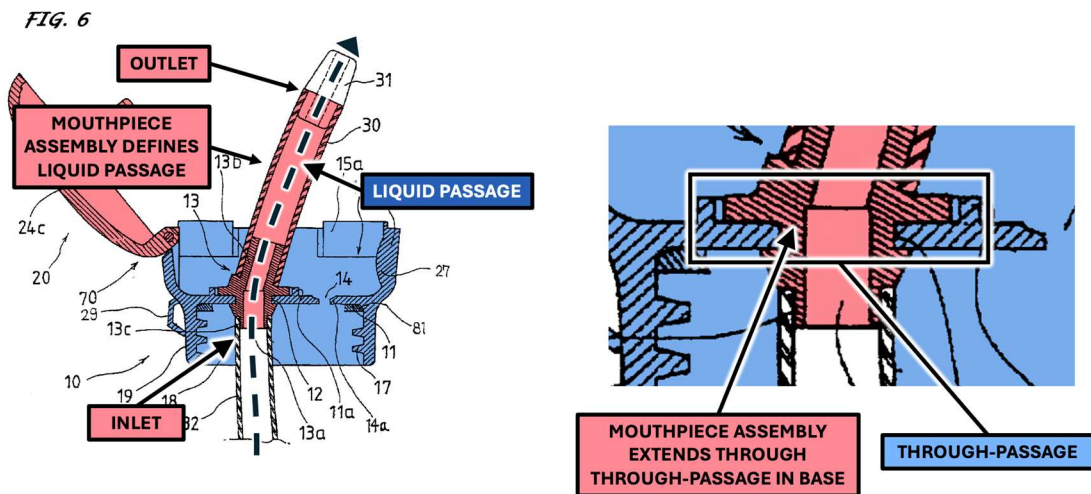
the through-passage of the base and defining a liquid passage through which drink liquid from the liquid container may selectively flow, and further defining an inlet through which drink liquid in the internal compartment may enter the liquid passage and an outlet through which drink liquid from the 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 drink liquid is restricted from being dispensed from the liquid container through the liquid passage; wherein the mouthpiece assembly is biased to the dispensing configuration.” As I explain below, Kiyota discloses this limitation.

75. 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,” and “openable lid 20,” as shown in annotated Figure 6 below:



Ex. 1004, Figs. 6, 7. These components function together as an assembly to provide a mouthpiece through which a 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.

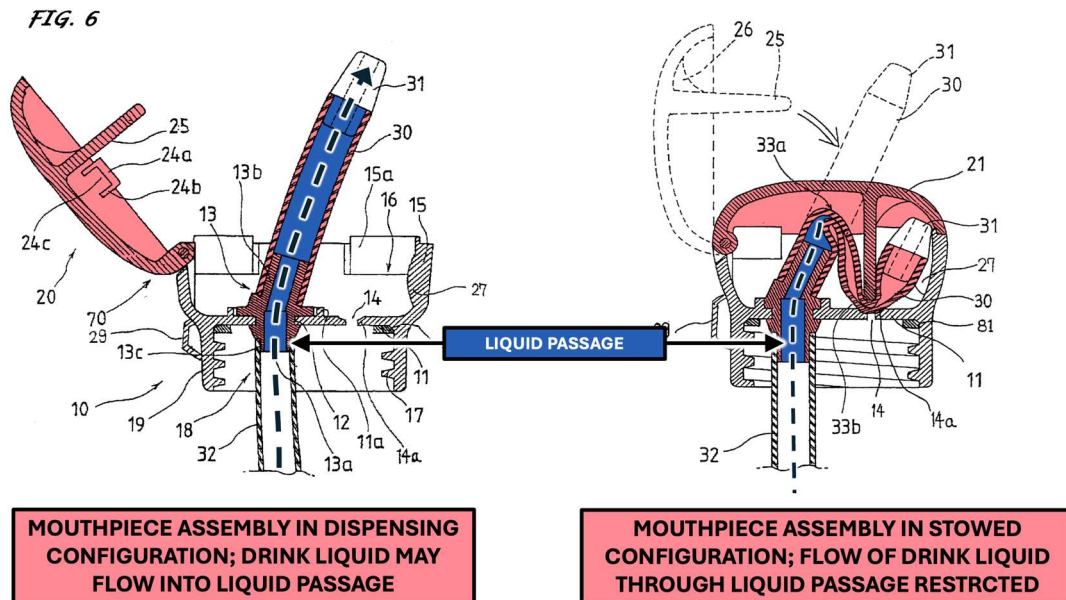
76. Kiyota's mouthpiece assembly extends through the "communicating hole 12" (i.e. through-passage) and defines a liquid passage with an inlet and an outlet, as illustrated below:



Ex. 1004, Fig. 6.

77. 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.

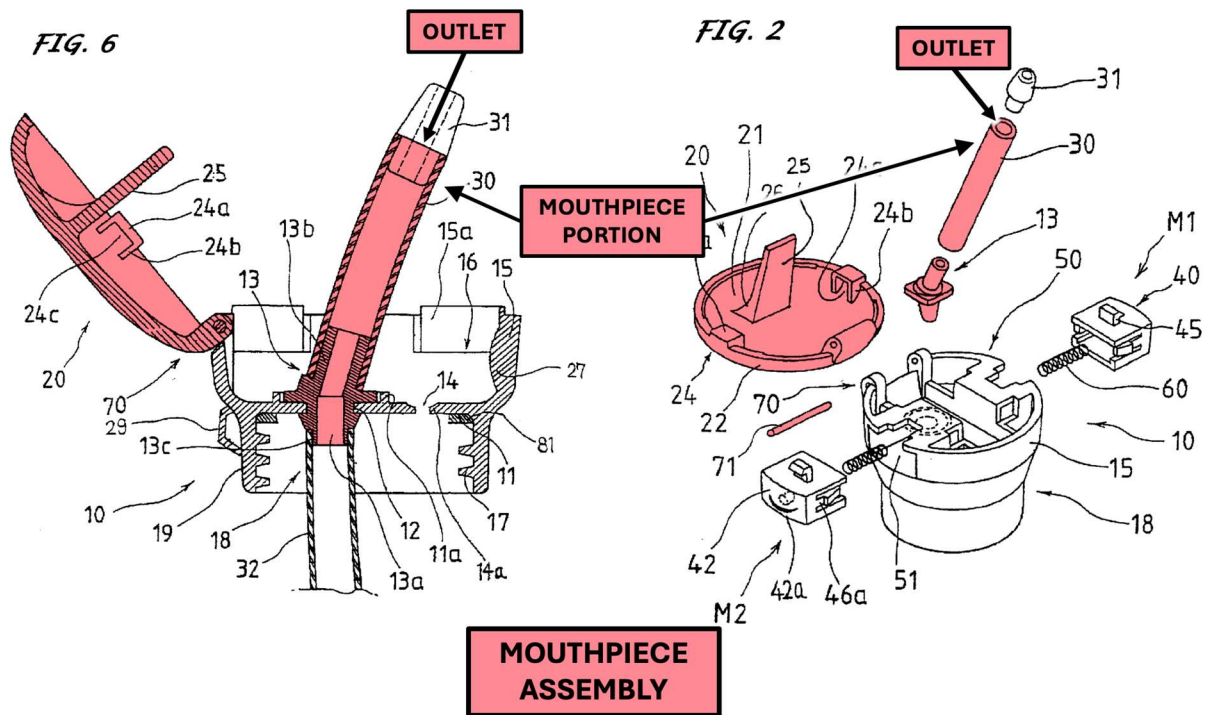
78. Kiyota's also discloses its mouthpiece assembly is biased to the dispensing configuration. According to Kiyota, "as the mouthpiece tube 30 is raised by its elasticity with opening action of the openable lid 20, there is no need to push open the openable lid 20 by hands, and there is no need to pull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

- i. 1[B][3][a]: "a tube portion that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the outlet of the mouthpiece assembly; wherein the tube portion includes a crimping region constructed of a resiliently deformable material and adapted to prevent the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration; wherein the crimping region includes opposing walls that are in contact with each other to seal the liquid

**passage within the crimping region when the
mouthpiece assembly is in the stowed configuration”**

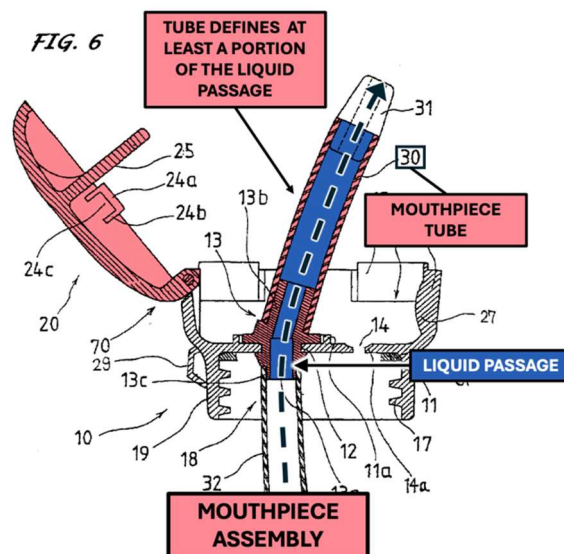
79. Limitation 1[B][3][a] recites that the mouthpiece assembly comprises “a tube portion that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the outlet of the mouthpiece assembly; wherein the tube portion includes a crimping region constructed of a resiliently deformable material and adapted to prevent the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration; wherein the crimping region includes opposing walls that are in contact with each other to seal the liquid passage within the crimping region when the mouthpiece assembly is in the stowed configuration.” As I explain below, Kiyota discloses this limitation.

80. For example, Kiyota’s mouthpiece assembly, highlighted in red in Figures 2 and 6, below, includes a tube portion comprised of “mouthpiece tube 30.”



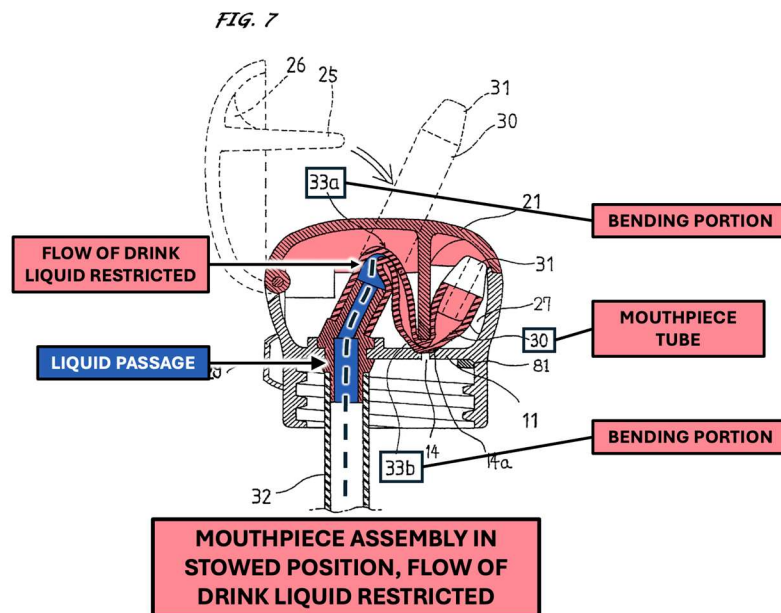
Ex. 1004, Figs. 2, 6.

81. Kiyota's mouthpiece assembly defines part of its liquid passage.



Ex. 1004, Fig. 6.

82. Kiyota further discloses its “mouthpiece tube 30” is comprises “bending portions 33a, 33b” (i.e. crimping regions), and 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.



Ex. 1004, Fig. 7.

- ii. **1[B][3][b]: “a rigid collar member that is pivotally coupled to a portion of the cap assembly and through which the tube portion at least partially extends”**

83. Limitation 1[B][3][b] recites that the mouthpiece assembly comprises “a rigid collar member that is pivotally coupled to a portion of the cap assembly and

through which the tube portion at least partially extends.” As I explain below, it is my opinion that modifying Kiyota to add a rigid collar member and resilient mouthpiece would have been obvious in view of Choi to a person of ordinary skill in the art.

84. Kiyota and Choi are very closely related and disclose drink containers of substantially the same functionality. They both disclose drink containers having mouthpiece assemblies with stowed and dispensing configurations, comprising a tube that is crimped to prevent leaks when the mouthpiece assembly is closed, and a mouthpiece portion that is extended toward the user when the mouthpiece assembly is in its dispensing configuration. 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.

85. Kiyota teaches the importance of extending the mouthpiece toward the user at a comfortable orientation. However, Kiyota relies on the weight of “mouthpiece portion 31,” an optional component, to achieve the most comfortable angle.

“Moreover, when the mouthpiece portion 31 consisting of comparatively hard synthetic resin material is inserted in the end of the mouthpiece tube 30, the mouthpiece tube 30 is slightly bent by weight of the mouthpiece portion 31, so that the mouthpiece portion 31 can easily be taken in mouth, but even if there is no mouthpiece portion 31,

sucking and drinking is not inconvenient.”

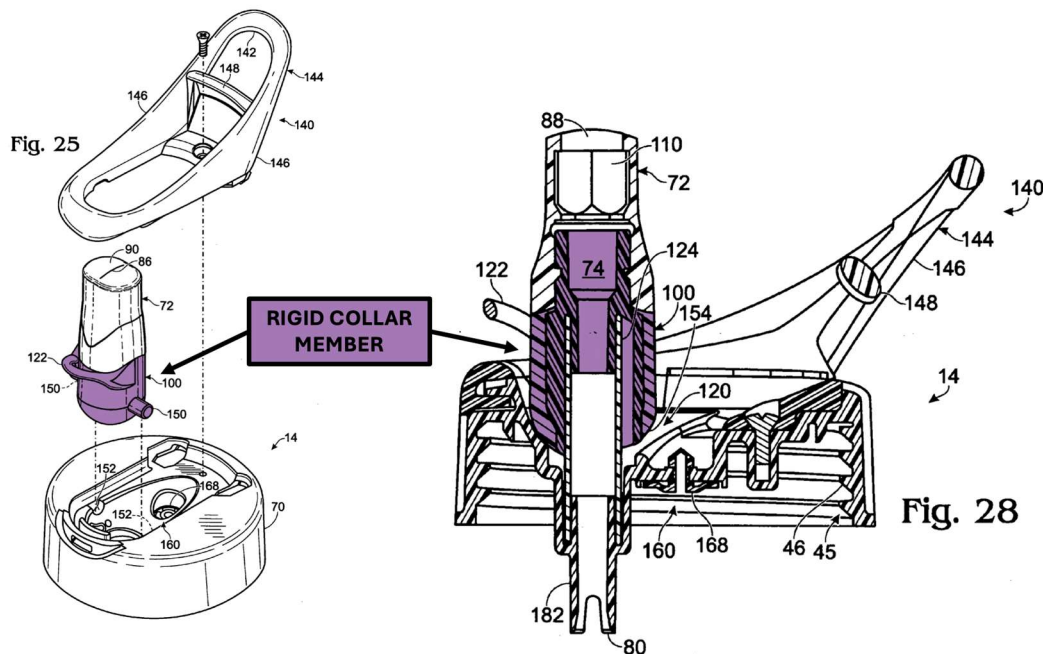
Ex. 1004, 9:18-24.

86. Choi also teaches the importance of the orientation at which the mouthpiece extends toward the user. However, rather than rely on the presence of an optional component, Choi uses a pivoting “mount 100” (i.e. rigid collar member) to control the orientation of its mouthpiece.

It is also within the scope of the present disclosure that mount 100 may be adjustably positionable relative to the base of the cap assembly, thereby permitting the orientation of the bite-actuated mouthpiece to be adjusted within a range of positions, or configurations, that are defined at least in part by the mount. This adjustable positioning of the mouthpiece, when provided for in a particular embodiment, may permit a user to adjust the orientation of the mouthpiece to a user-selected drinking orientation.”

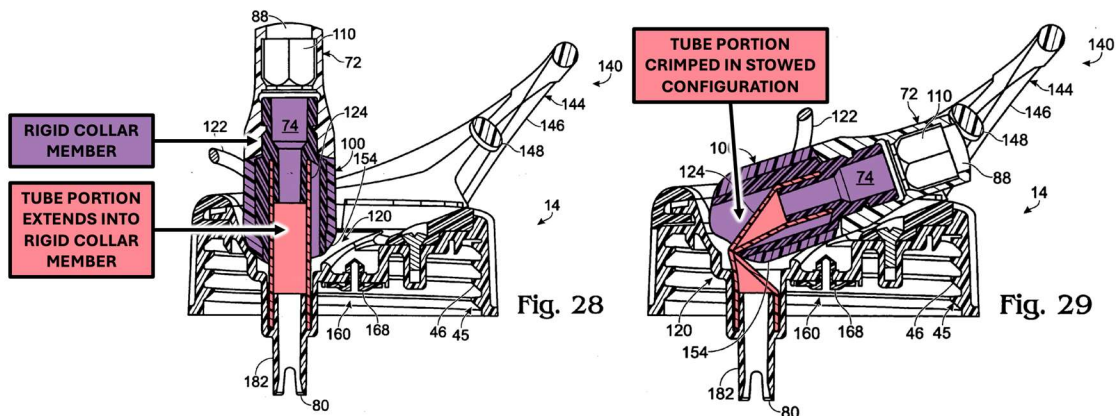
Ex. 1005, ¶0047.

87. For example, Choi’s “mount 100” constitutes a rigid collar member that is pivotally coupled to a the “base 70” and “handle 140,” each of which are part of Choi’s “cap assembly 14.”



Ex. 1005, Figs. 25, 28.

88. Choi further discloses that its “tube 124” extends at least partially through “mount 100.” “ For example, in FIGS. 28 and 29, the on/off valve includes a flexible tube, or conduit 124 that in FIG. 28 fluidly interconnects the inlet 80 of the fluid conduit with the internal chamber 110 of the mouthpiece. However, when the mount is pivoted to a stowed configuration, such as shown in FIG. 29, the body 154 of the mount engages the tube and collapses or otherwise compresses or crimps the tube to obstruct the fluid conduit.” Ex. 1005, ¶0085.



Ex. 1005, Figs. 28, 29.

89. A person of ordinary skill in the art would recognize these designs are interchangeable, and would have been motivated to combine the teachings of Kiyota and Choi and to modify Kiyota's mouthpiece assembly to include a resilient mouthpiece and rigid collar member that pivots relative to the base of the cap assembly, as in Choi, for several reasons.

90. First, a person of ordinary skill in the art would have recognized that using a resilient mouthpiece and pivoting rigid collar member with Kiyota's cap assembly would allow the user greater control over the orientation of the mouthpiece when the mouthpiece assembly is in a dispensing configuration. A person of ordinary skill in the art would have understood the choice between using a pivoting rigid collar member or using the resiliency of the mouthpiece tube and the weight of optional components 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. 1005, ¶¶ [0046]-[47]. Additionally, bite-actuated mouthpieces and pivoting rigid collars were well known in the art at the time of the invention.

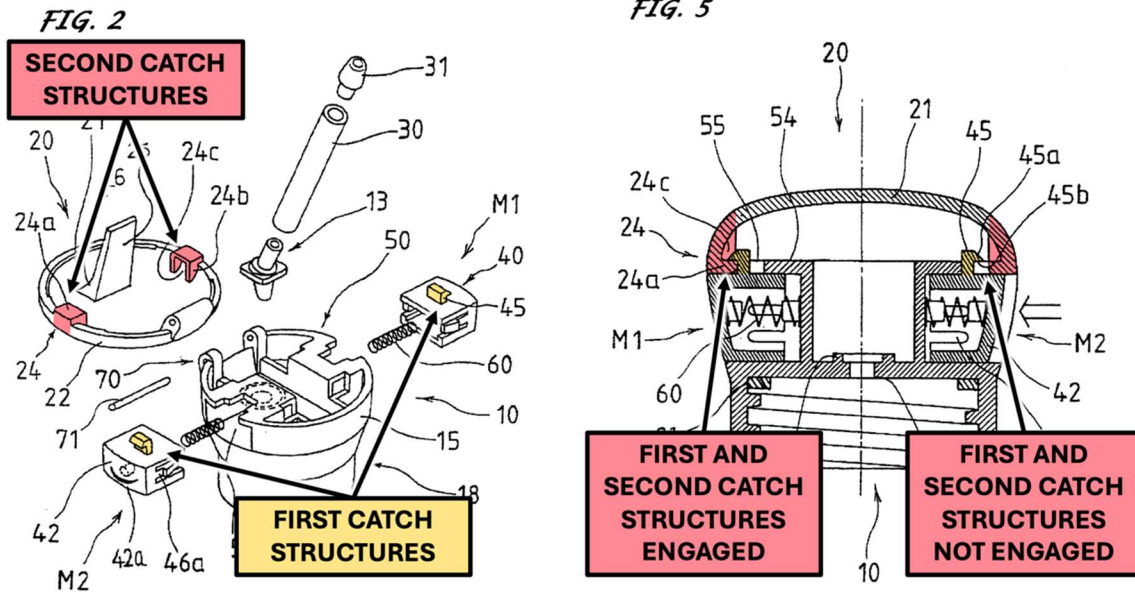
91. A person of ordinary skill in the art would also have been motivated to use a resilient mouthpiece and pivoting rigid collar member because doing so would allow the mouthpiece to be positioned in a consistent orientation regardless of the presence of optional components. Additionally, a person of skill in the art would have recognized that the modified mouthpiece assembly would have offered improved leak protection, easy cleanability, and superior protection for the mouthpiece when stowed.

iii. **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.”**

92. 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.

93. 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.

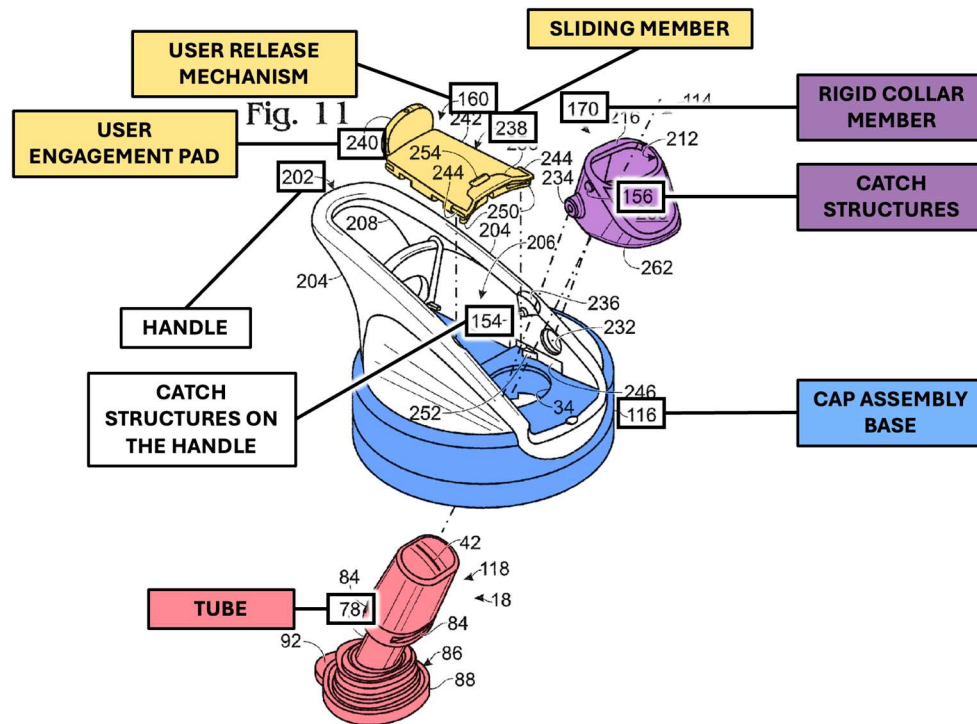
- d. **1[B][4]: “a user release mechanism adapted to automatically disengage the first and second catch structures upon actuation of the user release mechanism and thereby release the mouthpiece assembly to move via its**

bias from the stowed configuration to the dispensing configuration

94. 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.

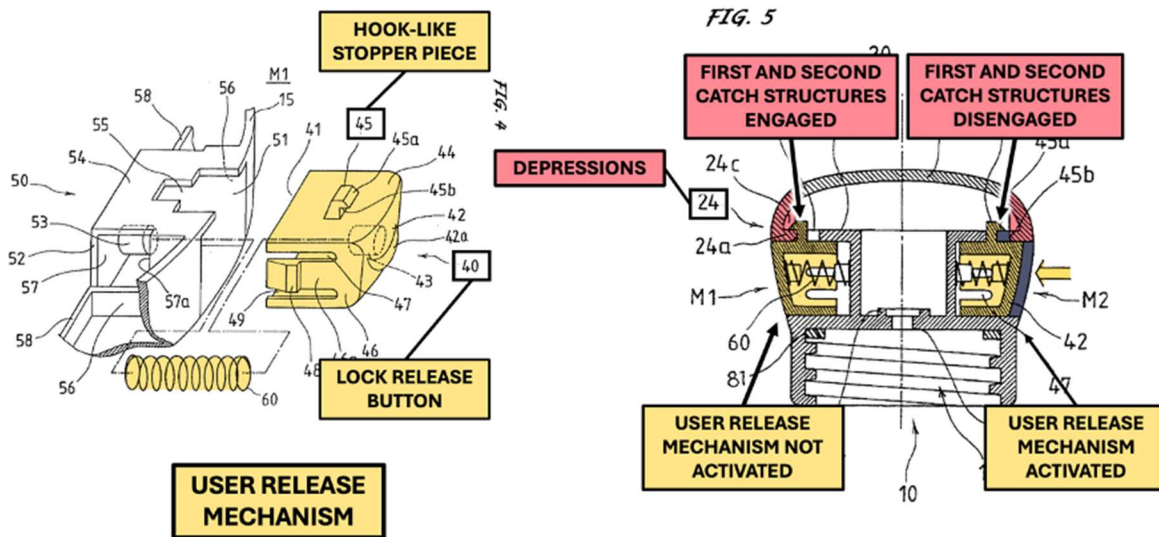
95. As recited in this claim limitation, the function of the “user release mechanism” is “to automatically disengage the first and second catch structures upon actuation of the user release mechanism and thereby release the mouthpiece assembly to move via its bias from the stowed configuration to the dispensing configuration.” Ex. 1001, Claim 1. As discussed above, the ’879 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.

96. In the first embodiment described in the ’879 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 sufficient 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).

97. 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, Figs. 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.

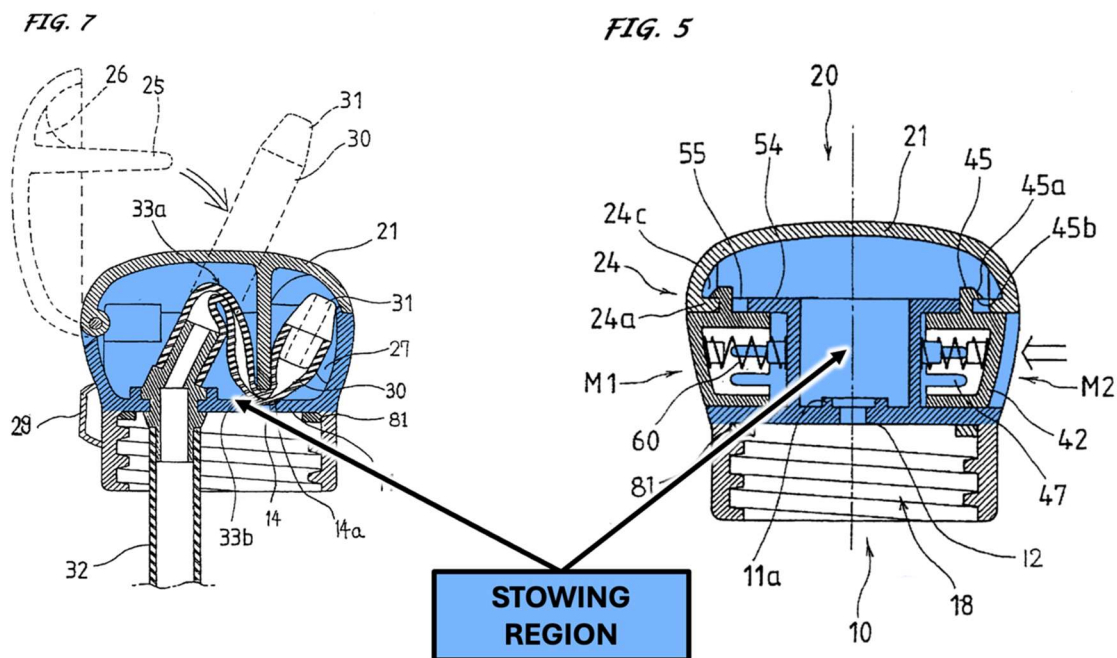
98. Kiyota’s structures that perform the claimed user release mechanism function are equivalent to the first embodiment described in the ’879 Patent. That is because they perform the same function, in the same way, to achieve the same result. For example, in the first embodiment of the ’879 Patent, the 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 disengage the catch structures.

99. 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.

4. **1[C]: “a stowing region sized to receive at least a portion of the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration”**

100. Limitation 1[C] recites that the cap assembly defines “a stowing region sized to receive at least a portion of the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration.” As I explain below, Kiyota discloses this limitation.

101. For example, Kiyota discloses “storing portion 16.” “The main body portion 10 is divided into a storing portion 16 positioned upward from a baseplate 11 and a thread portion 18 positioned downward by a baseplate 11, and the storing portion 16 is shaped bowl-like having a peripheral wall portion 15 expandably rising from the periphery of the baseplate 11 to the upper part.” Ex. 1004, 4:66-5:4. The “storing portion 16” is shown below.



Id., Figs. 5, 7.

102. Additionally, as shown above, Kiyota discloses that “mouthpiece tube 30” is stored in “storing portion 16” when “openable lid 11” is closed (i.e. when the mouthpiece assembly is in its stowed configuration). “[W]hen the openable lid 20 is closed, the mouthpiece tube 30 is... stored within the storing portion 16.” *Id.* at

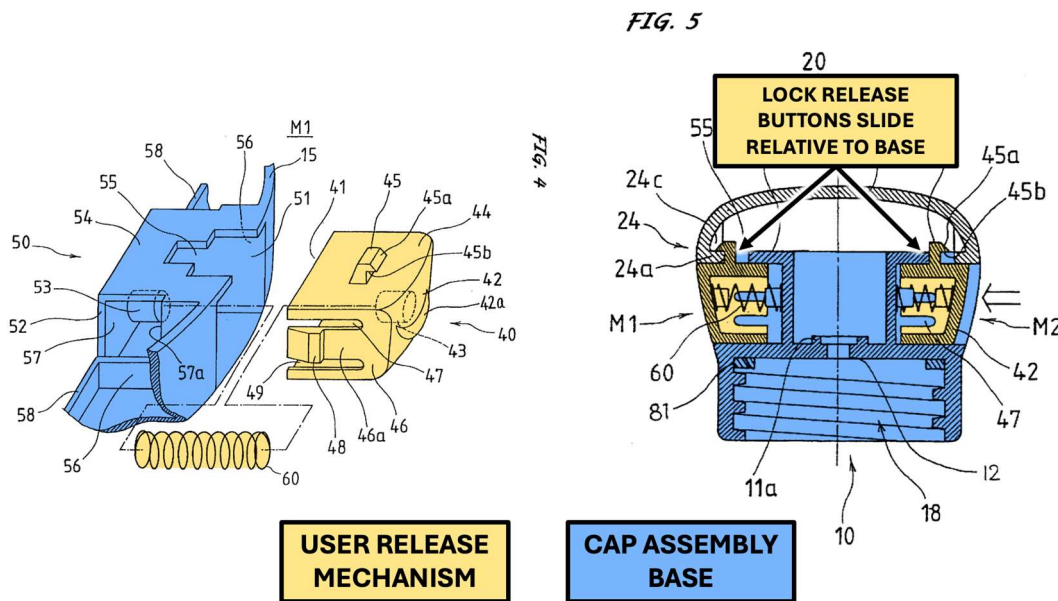
10:13-16.

5. **1[D]: “a sliding member with a user engagement pad; wherein the user release mechanism is biased to urge the sliding member away from a position where the sliding member disengages the first and second catch structures; and wherein the sliding member is configured to slide relative to the base of the cap assembly to selectively disengage the first and the second catch structures”**

103. Limitation 1[D] recites that the user release mechanism includes a sliding member with a user engagement pad; wherein the user release mechanism is biased to urge the sliding member away from a position where the sliding member disengages the first and second catch structures; and wherein the sliding member is configured to slide relative to the base of the cap assembly to selectively disengage the first and the second catch structures.” As I explain below, Kiyota discloses this limitation.

104. For example, Kiyota discloses “lock release buttons 40” (i.e. sliding members), which are “movably fixed within... socket 50.” Ex. 1004, 6:1-3. To open Kiyota’s openable lid 11, both lock release buttons 40 “are moved in the inside direction of the sockets 50[. (arrow direction of FIG. 5)” and “the lower edge portions 45b[.] of each stopper piece 45[.] are separated from depressions 24c[.] of

each connecting portion 24[.]” *Id.* at 7:60-64. A POSITA would understand that, because “socket 50” is part of Kiyota’s “main body portion 10” (i.e. cap assembly base) “lock release buttons 40” slide relative to the cap assembly base when activated.



Id., Figs. 2, 5.

105. Additionally, Kiyota discloses that “spring 60” pushes “lock release button 40” away from back plate 52. “The lock release button 40, by energization force of the spring 60, in FIG. 4, moves to the right direction.” *Id.* at 7:3-4. A POSITA would understand that “spring 60” biases Kiyota’s “lock release button 40” (i.e. Kiyota’s user release mechanism) away from a position where the sliding member disengages the first and second catch structures.

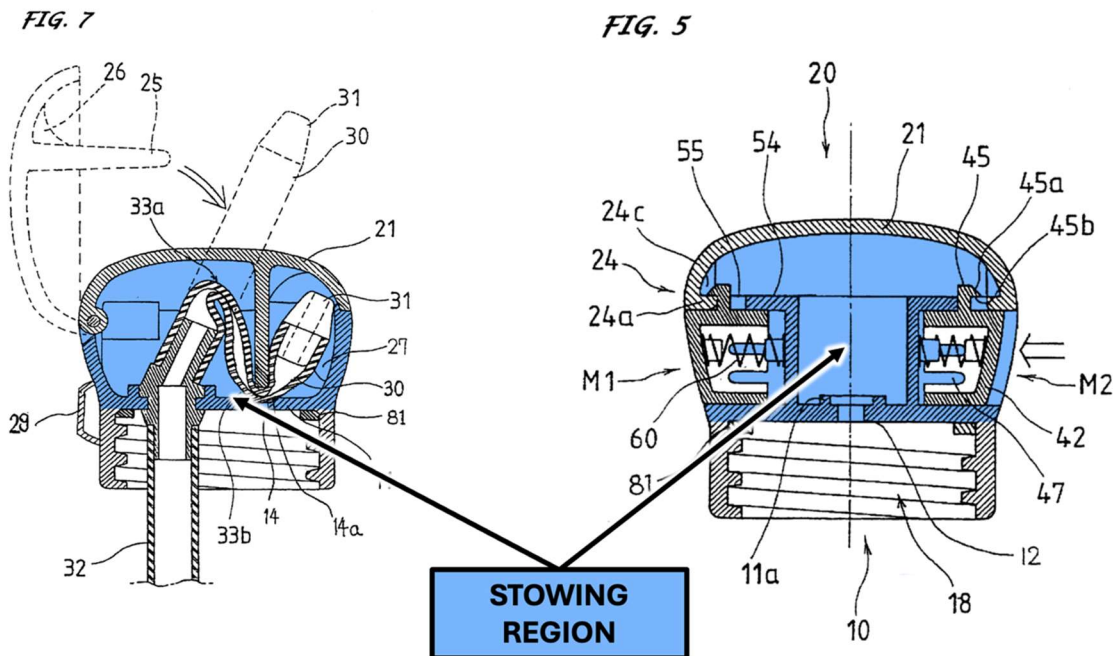
106. Accordingly, Kiyota discloses each element of claim 1, and therefore it is my opinion that Kiyota anticipates Claim 1. To the extent there are any differences between Claim 1 and Kiyota's disclosures, it is also my opinion that Claim 1 would have been obvious over Kiyota, in view of the knowledge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

B. Claim 3 is Obvious over Kiyota

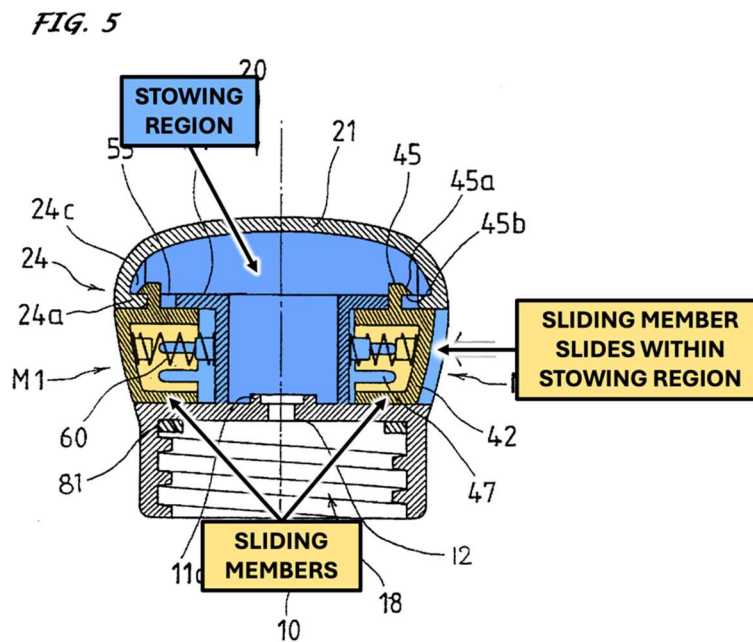
107. Claim 3 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota and/or Choi disclose and/or render obvious each limitation of Claim 1.

108. Claim 3 further recites, "wherein the sliding member is configured to slide relative to the base of the cap assembly within the stowing region to selectively disengage the first and the second catch structures." As I explain below, Kiyota discloses this additional limitation.

109. As discussed above in connection with claim 1, Kiyota discloses a stowing region above baseplate 11.



Ex. 1004, Figs. 5, 7. Kiyota also discloses “lock release buttons 40” (i.e. sliding members) that slide within “sockets 50” to selectively disengage the first and second catch structures. As shown below, sockets 50 are above baseplate 11, and therefore part of Kiyota’s stowing region. A person of skill in the art would therefore have understood Kiyota’s “lock release buttons 40” to slide relative to the base of the cap assembly within the stowing region to selectively disengage the first and second catch structures.



Ex. 1004, Fig. 5, 7:10-11.

110. Accordingly, it is my opinion that Kiyota discloses the additional elements of Claim 3, and thus anticipates this claim. It is also my opinion that Claim 3 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

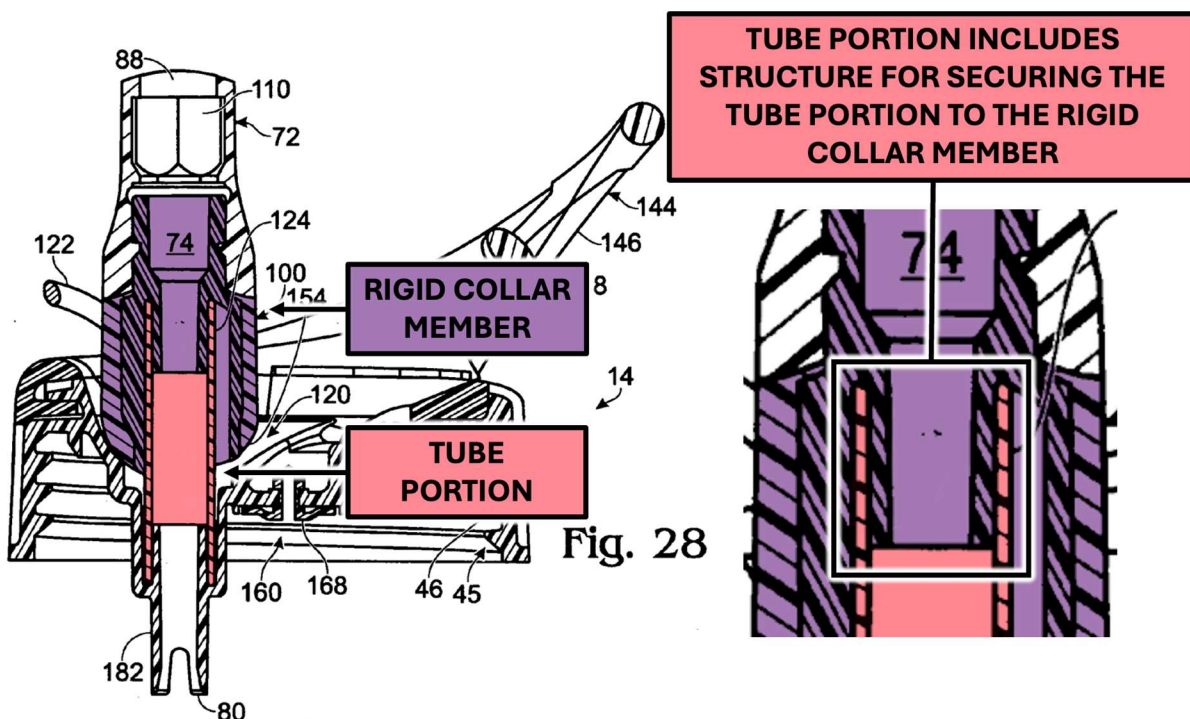
C. Claim 5 is Obvious over Kiyota in view of Choi

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

112. Claim 5 further recites, “wherein the tube portion includes structure for

securing the tube portion to the rigid collar member and restricting relative movement between the tube portion and the rigid collar member.” As discussed above, although Kiyota does not disclose a rigid collar member, it is my opinion that adding a rigid collar member, would have been obvious in view of Choi.

113. As shown below, Choi discloses that its “tube 124” extends at least partially through “mount 100.” “[T]he on/off valve includes a flexible tube, or conduit 124 that in FIG. 28 fluidly interconnects the inlet 80 of the fluid conduit with the internal chamber 110 of the mouthpiece” Ex. 1005, ¶0085.



Ex. 1005, Fig. 28. A person of skill in the art would have understood that, once secured to the rigid collar member, relative movement between the tube portion and

rigid collar member would have been restricted.

114. Accordingly, it is my opinion that Claim 5 would have been obvious over Kiyota, in view of Choi and the knowledge of a person of ordinary skill in the art.

D. Claim 6 is Obvious over Kiyota in view of Choi

115. Claim 6 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota and/or Choi disclose and/or render obvious each limitation of Claim 1.

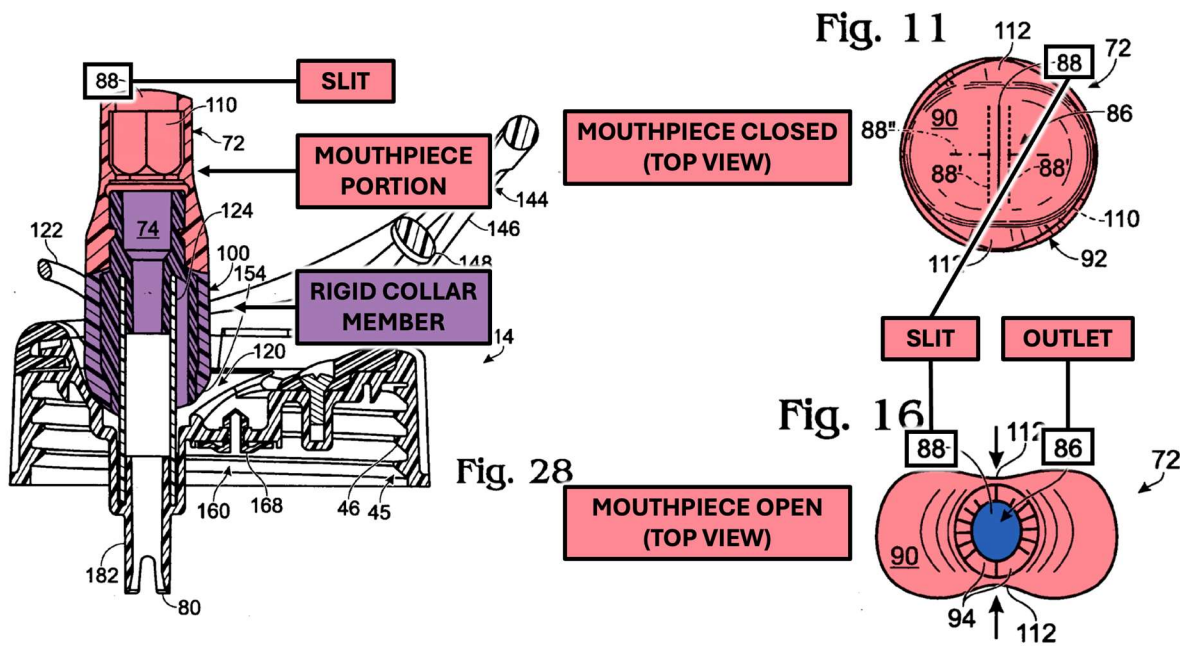
116. Claim 6 further recites, “wherein the mouthpiece assembly further includes a mouthpiece portion that includes the outlet and is constructed of the resiliently deformable material.” As I explain below, Kiyota discloses this limitation.

117. Kiyota discloses that its mouthpiece portion (the end of mouthpiece tube 30) is constructed of a resiliently deformable material “[M]outhpiece tube 30..., for example, is a tubular member made of elastic and flexible synthetic resin” Ex. 1004, 9:66-67. A person of skill in the art would have understood these materials to be resiliently deformable.

118. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 6, and thus anticipates this 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.

119. Choi also discloses that its “bite-actuated mouthpiece 72” (i.e. mouthpiece portion) is constructed of a resiliently deformable material. “Mouthpiece 72 is resilient,” Ex. 1005, ¶0052. “Bite-actuated mouthpieces are deformable.” *Id.* at ¶0004. Choi also discloses that “mouthpiece 72” includes “opening 86” (i.e. an outlet) defined by the walls of “slit 88.” “[D]rink fluid may be dispensed through the self-sealing opening 86 in the mouthpiece.” *Id.*, ¶0081.



Id., Figs. 11, 16, and 28.

120. Accordingly, it is my opinion that Claim 6 would also have been obvious over Kiyota, in view of Choi and the knowledge of a person of ordinary skill

in the art.

E. Claim 7 is Obvious over Kiyota in view of Choi

121. Claim 7 depends from Claim 6, and thus incorporates the limitations of Claim 6. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 6.

122. Claim 7 further recites, “wherein the mouthpiece assembly includes mouthpiece-securing structure that secures the mouthpiece portion to the rigid collar member and restricts relative movement between the mouthpiece portion and the rigid collar member.” It is my opinion that this limitation would have been obvious over Kiyota in view of Choi. As discussed above, although Kiyota does not disclose a rigid collar member, it is my opinion that adding a rigid collar member would have been obvious in view of Choi.

123. Choi discloses mouthpiece assembly that a “mount 100” (i.e. a rigid collar member) “to which the bite-actuated mouthpiece is removably mounted, or secured.” Ex. 1005, ¶0046. Figure 29, below, illustrates the mouthpiece securing structure.

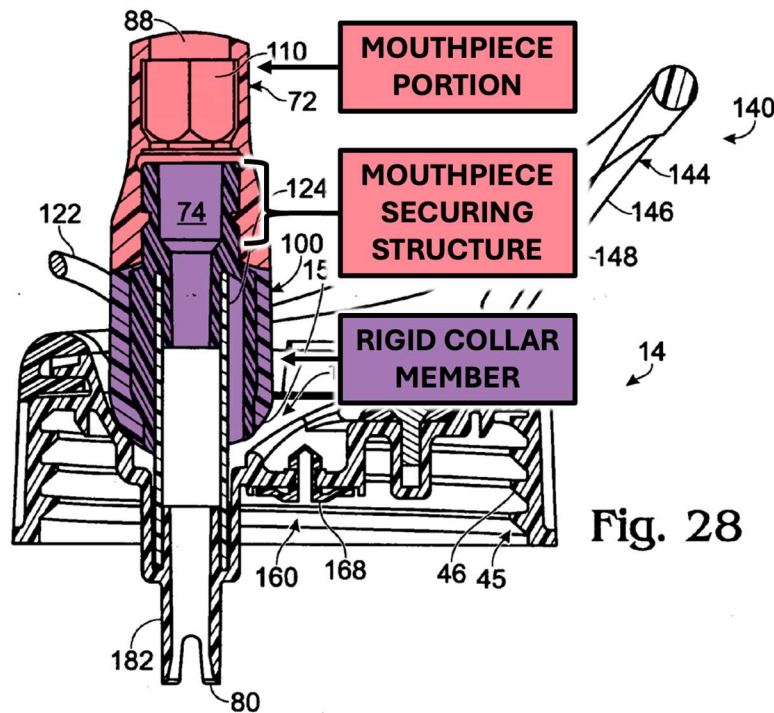


Fig. 28

Ex. 1005, Fig. 28. A person of skill in the art would have understood that once “mouthpiece 72” was secured to “mount 100,” relative movement between the mount and mouthpiece would have been restricted.

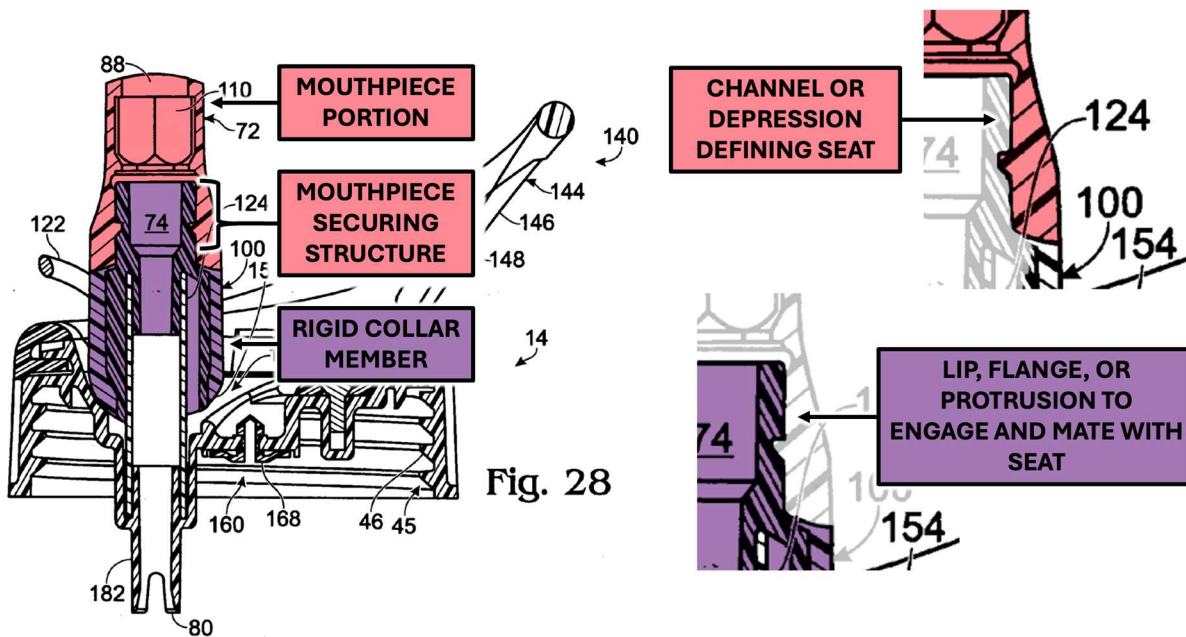
124. Accordingly, it is my opinion that Claim 7 would have been obvious over Kiyota, in view of Choi and the knowledge of a person of ordinary skill in the art.

F. Claim 8 is Obvious over Kiyota in view of Choi

125. Claim 8 depends from Claim 7, and thus incorporates the limitations of Claim 7. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 7.

126. Claim 8 further recites, “wherein one of the mouthpiece portion and the tube portion includes the mouthpiece-securing structure; wherein the mouthpiece-securing structure includes one or more of a channel and a depression; wherein the rigid collar member includes one or more of a lip, a flange, and a protrusion; and wherein the one or more of the channel and the depression defines a seat that engages and mates with the one or more of the lip, the flange, and the protrusion.” It is my opinion that this limitation would have been obvious over Kiyota in view of Choi. As discussed above, although Kiyota does not disclose a rigid collar member, it is my opinion that adding a rigid collar member, would have been obvious in view of Choi.

127. As shown below, Choi discloses “mount 100” (i.e. a rigid collar member) that includes a includes a lip, flange, or protrusion, and “mouthpiece 72” that includes a channel or depression that defines a seat that engages and mates with the lip, flange, or protrusion of” mount 100.”



Ex. 1005, Fig. 28

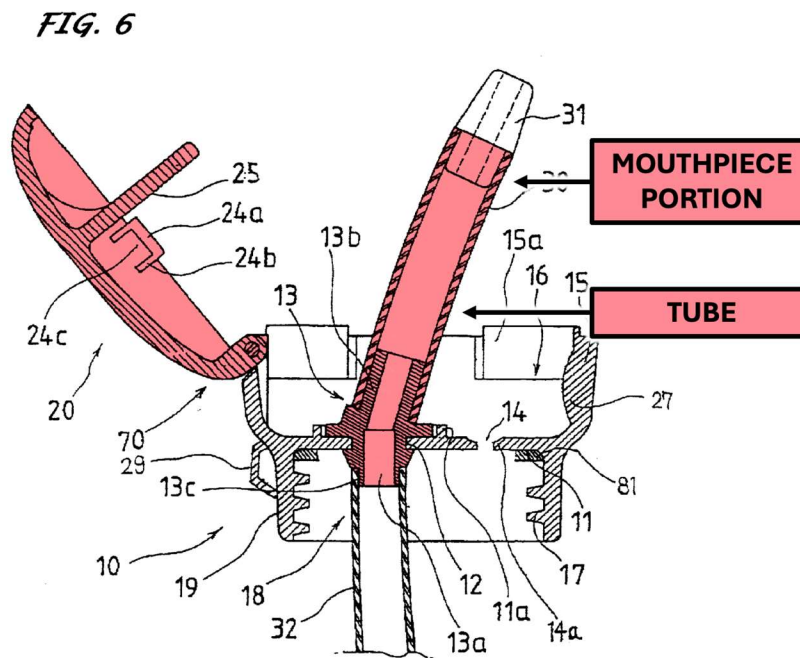
128. Accordingly, it is my opinion that Claim 8 would have been obvious over Kiyota, in view of Choi and the knowledge of a person of ordinary skill in the art.

G. Claim 10 is Obvious over Kiyota in view of Choi and Ribarits

129. Claim 10 depends from Claim 6, and thus incorporates the limitations of Claim 6. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 6.

130. Claim 10 further recites, “wherein the mouthpiece portion and the tube portion are constructed as a unitary assembly of the resiliently deformable material.” As I explain below, Kiyota discloses this additional limitation.

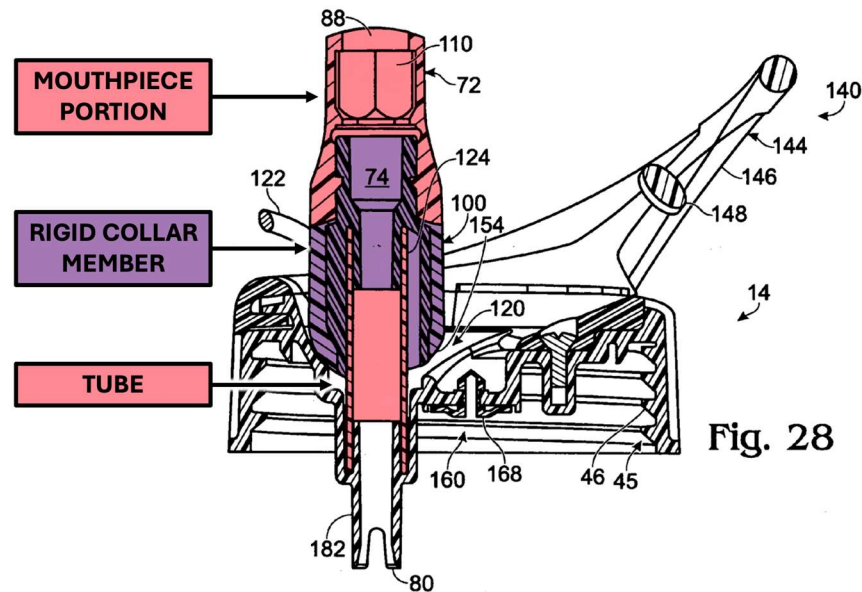
131. As shown below, Kiyota discloses “mouthpiece tube 30” which includes a tube portion and a mouthpiece portion (the end of “mouthpiece tube 30”). As discussed above, Kiyota’s mouthpiece and tube portions are constructed of the same resiliently deformable material. Because Kiyota’s mouthpiece portion is simply the end of its tube portion, the two portions are necessarily constructed as a unitary assembly.



Ex. 1004, Fig. 6.

132. As discussed above, a person of skill in the art would have been motivated to add Choi's rigid collar member and bite-actuated mouthpiece to Kiyota's cap assembly. Although Choi discloses a tube and a mouthpiece portion

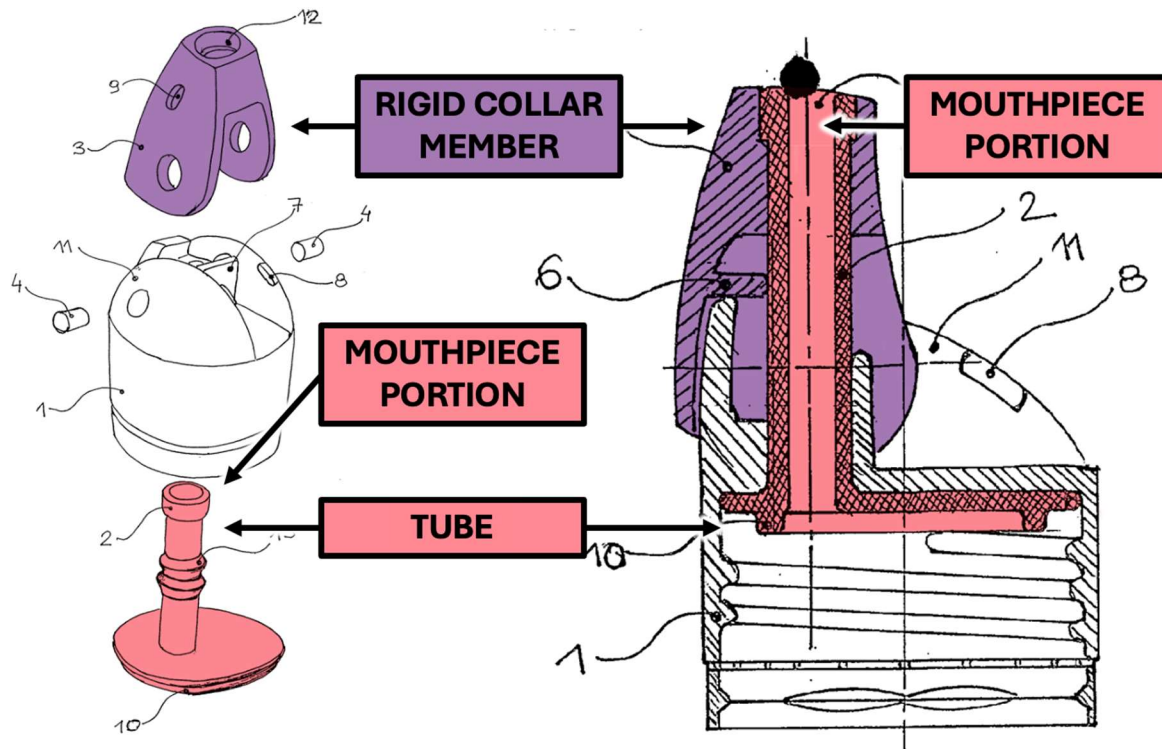
constructed of resilient material, Choi's tube and mouthpiece portion are not constructed as a unitary assembly.



Ex. 1005, Fig. 28.

133. It is nevertheless my opinion that constructing the tube and mouthpiece portion as a unitary assembly would have been obvious to a person of skill in the art in light of Ribarits.

134. Ribarits discloses a pivoting rigid collar member (spout 3), which is pivotally mounted in a conventional threaded cap. Ex. 1009, 2. A tube (sealing tube element 2) includes a mouthpiece portion constructed as a unitary assembly of resiliently deformable material (rubber or latex). *Id.*



Id., Figs. 2, 3.

135. Ribarits is very similar to both Kiyota and Choi. All three references disclose cap assemblies for use with drink containers containing drink liquid and all three have substantially the same functionality, namely, mouthpiece assemblies with open and closed configurations, resilient mouthpieces, and crimpable tubes. Each reference addresses the same problem of an easily sealable mouthpiece assembly for use with a drink container, and each addresses the problem in the same way, i.e. by crimping the tube.

136. Kiyota, Choi, and Ribarits each disclose slightly different, interchangeable, configurations of components in their respective cap assemblies.

Kiyota and Ribarits both disclose a tube and mouthpiece that are constructed as a unitary assembly of a resiliently deformable material. Choi and Ribarits both disclose a rigid collar member. A person of skill in the art would recognize that the three configurations disclosed by Kiyota, Choi, and Ribarits are interchangeable.

137. A person of skill in the art would have been motivated for multiple reasons to combine the unitary construction of resiliently deformable material disclosed in Ribarits and Kiyota with the rigid collar member disclosed in Ribarits and Choi. For example, it would have been obvious to a person of skill to make Choi's multiple pieces integral because use of one-piece construction has been recognized as merely a matter of obvious engineering choice. *In re Larson*, 340 F.2d 965, 968 (CCPA 1965).

138. Further, a person of skill in the art would have been incentivized to have fewer parts. A person of skill would recognize that Choi's separate tube and mouthpiece portions could be molded as a single piece of resiliently deformable material based on the disclosure in Kiyota and Ribarits and/or their own knowledge. A person of skill would have recognized that not only would this save on the number of parts to be molded, but would have provided improved safety for the drink container. It has long been understood that it is best to avoid potentially small parts that could present a choking hazard if disassembled, such as potentially could occur

with “mouthpiece 72” of Choi. A person of skill in the art would have recognized that a unitary assembly could be easily inserted through the rigid collar member, as in Ribarits.

139. Additionally, the combination of Kiyota, Choi, and Ribarits involves the simple substitution of one known element for another—Choi’s two-part assembly for the unitary assembly of Kiyota and Ribarits. A person of skill in the art would have recognized that a unitary assembly would provide comparable overall functionality and also improved safety. A person of skill would also have recognized a drink container with a mouthpiece portion and tube constructed as a unitary assembly as disclosed in Kiyota and Ribarits would yield predictable results.

140. A person of skill in the art also would have reasonably expected success in combining the unitary assembly of Kiyota and Ribarits with the rigid collar member of Choi and Ribarits. For example, a person of skill would have readily understood that Ribarits had already successfully achieved such a combination. Additionally, a person of skill would have readily understood that Choi could accommodate the unitary assembly. Thus, the combination would have involved no more than the routine substitution of one multi-part assembly (Choi) for another of unitary construction (Kiyota and Ribarits) to provide the same desired functionality, albeit with improved safety.

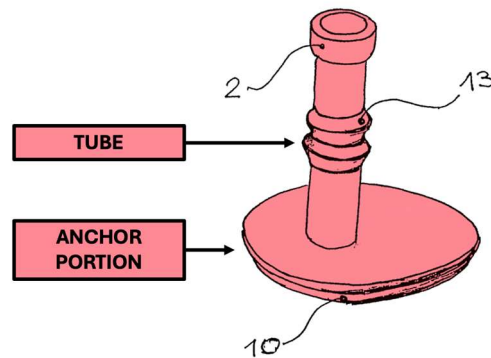
141. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 10, and thus anticipates this claim. It is also my opinion that Claim 10 would have been obvious over Kiyota, in view of the knowledge of a person of ordinary skill in the art.

H. Claim 11 is Obvious over Kiyota in view of Choi and Ribarits

142. Claim 11 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 1.

143. Claim 11 further recites, “wherein the mouthpiece assembly further includes an anchor portion that extends from the tube portion.” As discussed above, it is my opinion that it would have been obvious to a person of skill in the art to combine the rigid collar member and mouthpiece of Choi, and the unitary tube, anchor portion, and mouthpiece portion of Ribarits, with the mouthpiece assembly of Kiyota.

144. Ribarits discloses “projecting sealing rings 10” (i.e. anchor portions) that project from the end of its “sealed tubular element 2” (i.e. tube). “[T]he sealed tubular element (2) has... projecting sealing rings (10).” Ex. 1009, 3.



Id., Fig.. 2.

145. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 11, and thus Claim 11 would have been obvious over Kiyota, in view of Choi and Ribarits.

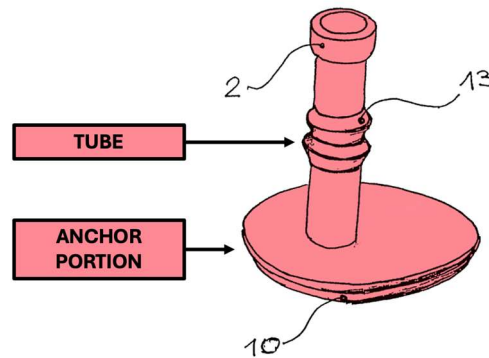
I. Claim 12 is Obvious over Kiyota in view of Choi and Ribarits

146. Claim 12 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Kiyota, Choi, and/or Ribarits discloses and/or renders obvious each limitation of Claim 11.

147. Claim 12 further recites, “wherein the anchor portion has a greater exterior perimeter than the tube portion.” As discussed above, it is my opinion that it would have been obvious to a person of skill in the art to combine the rigid collar member and mouthpiece of Choi, and the unitary tube, anchor portion, and mouthpiece portion of Ribarits, with the mouthpiece assembly of Kiyota.

148. As shown below, “projecting sealing rings 10” (i.e. the anchor portion)

have a greater exterior perimeter than “sealed tubular element 2” (i.e. the tube portion).



Ex. 1009, Fig. 2.

149. Accordingly, it is my opinion that Ribarits discloses the additional limitation of Claim 12, and thus Claim 12 would have been obvious over Kiyota, in view of Choi and Ribarits.

J. Claim 13 is Obvious over Kiyota in view of Choi and Ribarits

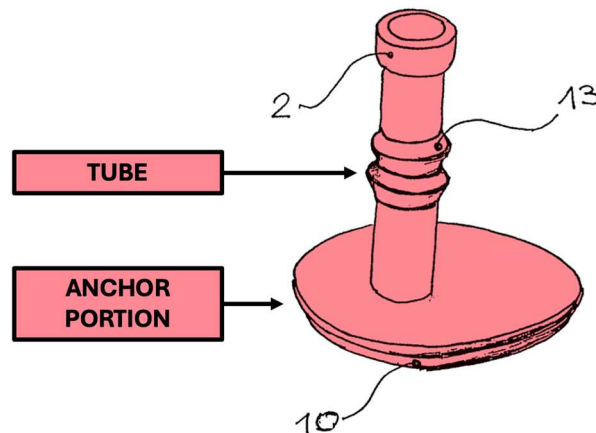
150. Claim 13 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Kiyota, Choi, and/or Ribarits discloses and/or renders obvious each limitation of Claim 11.

151. Claim 13 further recites, “wherein the anchor portion and tube portion are constructed as a unitary assembly of the resiliently deformable material.” As I explain below, this limitation would have been obvious over Kiyota in light of Choi and/or Ribarits. As discussed above, it is my opinion that it would have been obvious

to a person of skill in the art to combine the rigid collar member and mouthpiece of Choi, and the unitary tube, anchor portion, and mouthpiece portion of Ribarits, with the mouthpiece assembly of Kiyota.

152. Ribarits discloses that its anchor portion and tube are constructed as a unitary assembly of resiliently deformable material. Ex. 1009, 2. “The sealing tube element (2) has one or more protruding sealing rings (10) in its wide sealing surface.”

Id. Claim 2.



Id. Fig. 2.

153. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 13, and thus Claim 13 would have been obvious over Kiyota, in view of Choi and Ribarits.

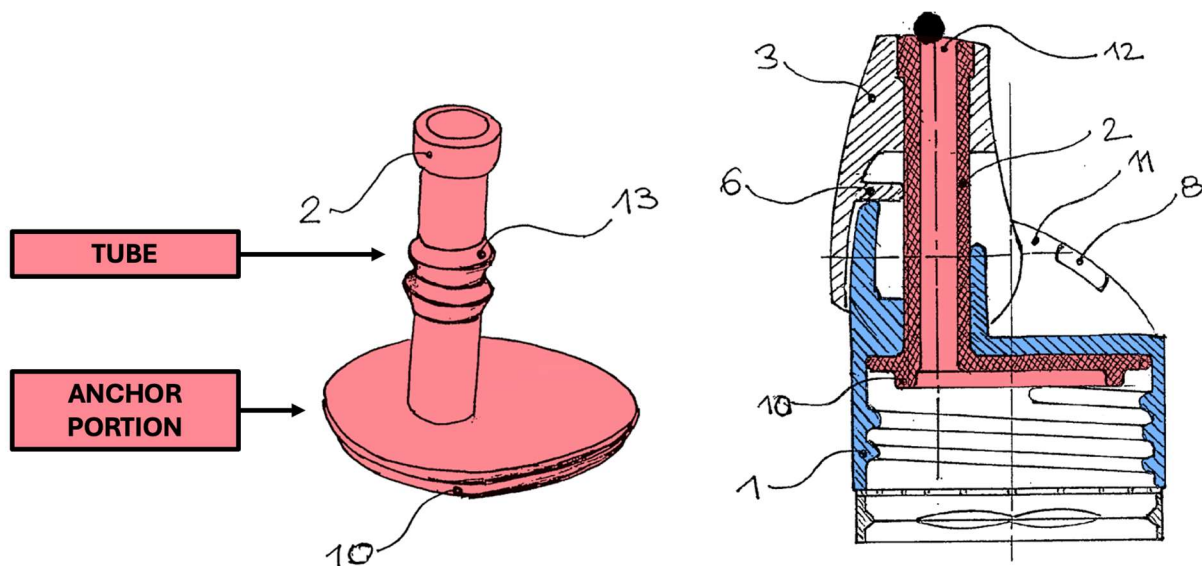
K. Claim 14 is Obvious over Kiyota in view of Choi and Ribarits

154. Claim 14 depends from Claim 11, and thus incorporates the limitations

of Claim 11. As explained above, it is my opinion that Kiyota, Choi, and/or Ribarits discloses and/or renders obvious each limitation of Claim 11.

155. Claim 14 further recites, “wherein the anchor portion defines a recess that is sized and shaped to engage and mate with corresponding structure of the base of the cap assembly.” As discussed above, it is my opinion that it would have been obvious to a person of skill in the art to combine the rigid collar member and mouthpiece of Choi, and the unitary tube, anchor portion, and mouthpiece portion of Ribarits, with the mouthpiece assembly of Kiyota.

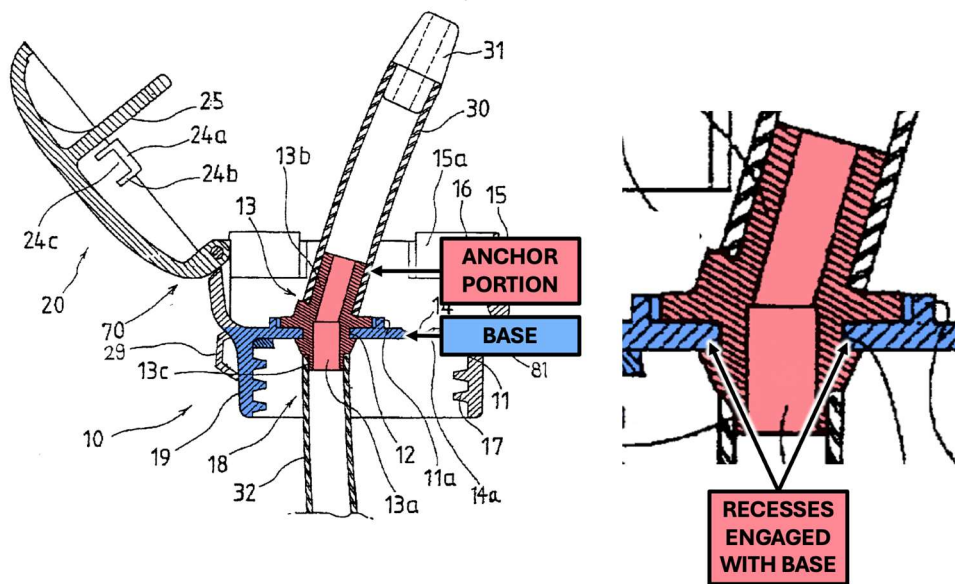
156. Ribarits discloses a tube with an anchor portion that, as shown below, is sized and shaped to engage and mate with the base of the cap assembly, but does not define a recess.



Ex. 1009, Figs. 2, 3.

157. Kiyota discloses an anchor portion that, as shown below, defines a recess created by flanges on either side of the opening in the base. The recess is sized and shaped to engage and mate with the corresponding structure of the base of the cap assembly.

FIG. 6



Ex. 1004, Fig. 6.

158. It is my opinion that it would have been obvious to a person of skill in the art to combine the recessed design of Kiyota's anchor portion with the unitary construction of Ribarits. Such a person would have been motivated to do so because of the additional protection against leaks that such a design would provide. First, a recess in the anchor around a corresponding structure in the base would improve the connection and seal between the tube and the base by extending the seal over a larger

surface area. Second, a recessed design would support the anchor portion from above and below the through-passage, preventing the anchor portion from becoming mis-aligned during use, ensuring a tight, consistent seal.

159. A person of skill in the art also would have reasonably expected success in combining the recessed design of Kiyota's portion with the anchor portion of Ribarits. For example, a person of skill would have readily understood that Ribarits could accommodate a recessed design. Thus, the combination would have involved no more than the routine substitution of an anchor portion without recesses for another with recesses to provide the same desired functionality, albeit with an improved leak prevention.

160. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 14, and thus Claim 14 would have been obvious over Kiyota, in view of Choi and Ribarits.

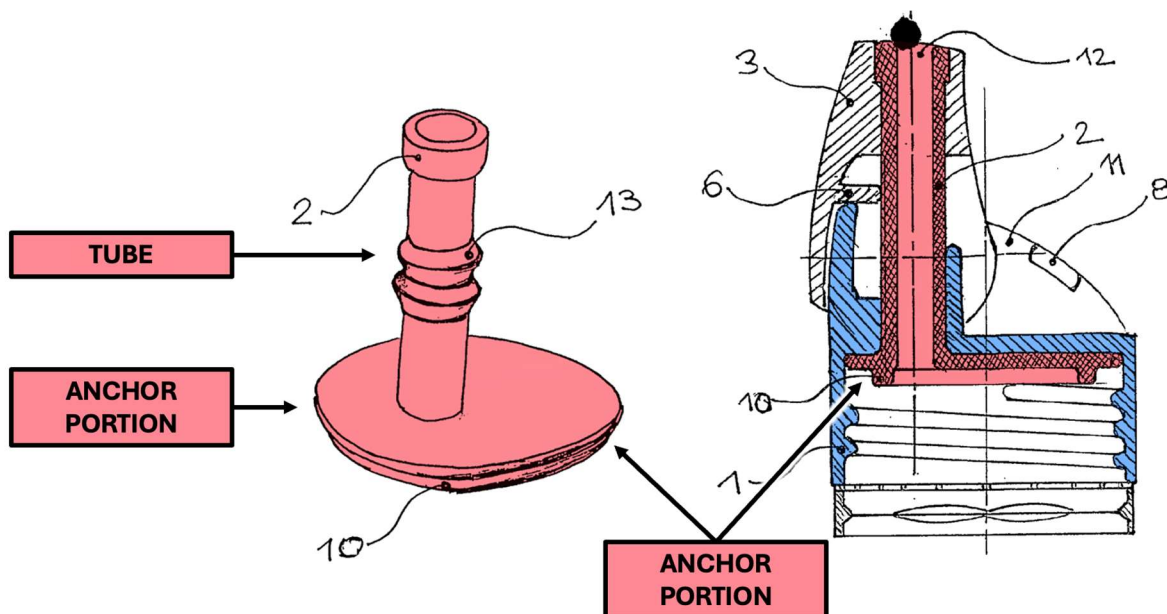
L. Claim 15 is Obvious over Kiyota in view of Choi and Ribarits

161. Claim 15 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Kiyota, Choi, and/or Ribarits discloses and/or renders obvious each limitation of Claim 11.

162. Claim 15 further recites, "wherein the anchor portion includes a projecting flange that provides a friction-fit arrangement with the through-passage

of the base.” As discussed above, it is my opinion that it would have been obvious to a person of skill in the art to combine the rigid collar member and mouthpiece of Choi, and the unitary tube, anchor portion, and mouthpiece portion of with the mouthpiece assembly of Kiyota.

163. Ribarits discloses that its “sealing ring 10” (i.e. its anchor portion) is a projecting flange that provides a friction-fit arrangement with the through-passage of the base.



Ex. 1009, Figs. 2, 3.

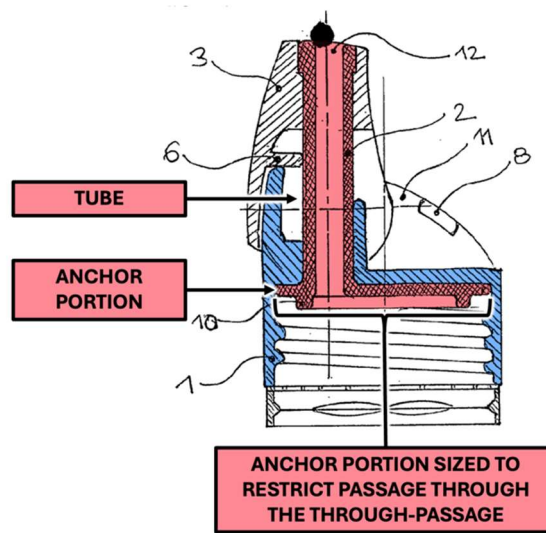
164. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 15, and thus Claim 15 would have been obvious over Kiyota, in view of Choi and Ribarits.

M. Claim 16 is Obvious over Kiyota in view of Choi and Ribarits

165. Claim 16 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Kiyota, Choi, and/or Ribarits discloses and/or renders obvious each limitation of Claim 11.

166. Claim 16 further recites, “wherein the anchor portion is sized to restrict passage of the anchor portion through the through-passage and thus restrict removal of the mouthpiece assembly via a top side of the cap assembly.” As discussed above, it is my opinion that it would have been obvious to a person of skill in the art to combine the rigid collar member and mouthpiece of Choi, and the unitary tube, anchor portion, and mouthpiece portion of with the mouthpiece assembly of Kiyota.

167. Ribarits discloses an anchor portion that is sized to restrict passage of the anchor portion through the through-passage and prevents the mouthpiece assembly from being removed through the top side of the cap assembly.



Ex. 1009, Fig. 3.

168. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 16, and thus Claim 16 would have been obvious over Kiyota, in view of Choi and Ribarits..

N. Claim 17 is Obvious over Kiyota in view of Choi and Ribarits

169. Claim 17 depends from Claim 1, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 1.

170. Claim 17 further recites, “wherein the crimping region at least partially biases the mouthpiece assembly to the dispensing configuration.” As I explain below, Kiyota discloses this additional limitation.

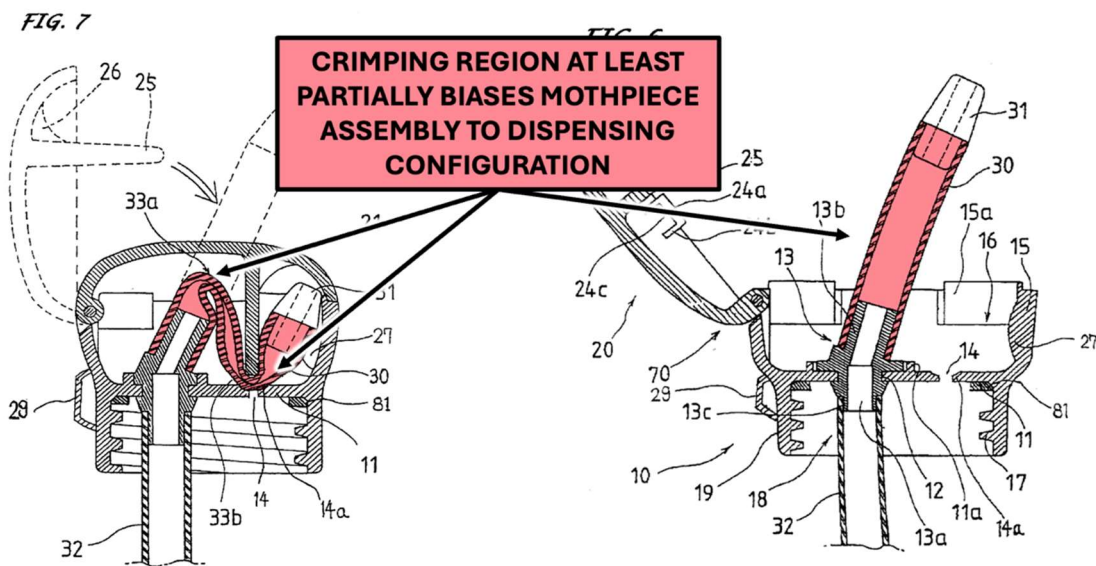
171. Kiyota teaches the “bending portions 33” (i.e. crimping regions) of

“mouthpiece tube 30” bias Kiyota’s mouthpiece assembly to its 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.

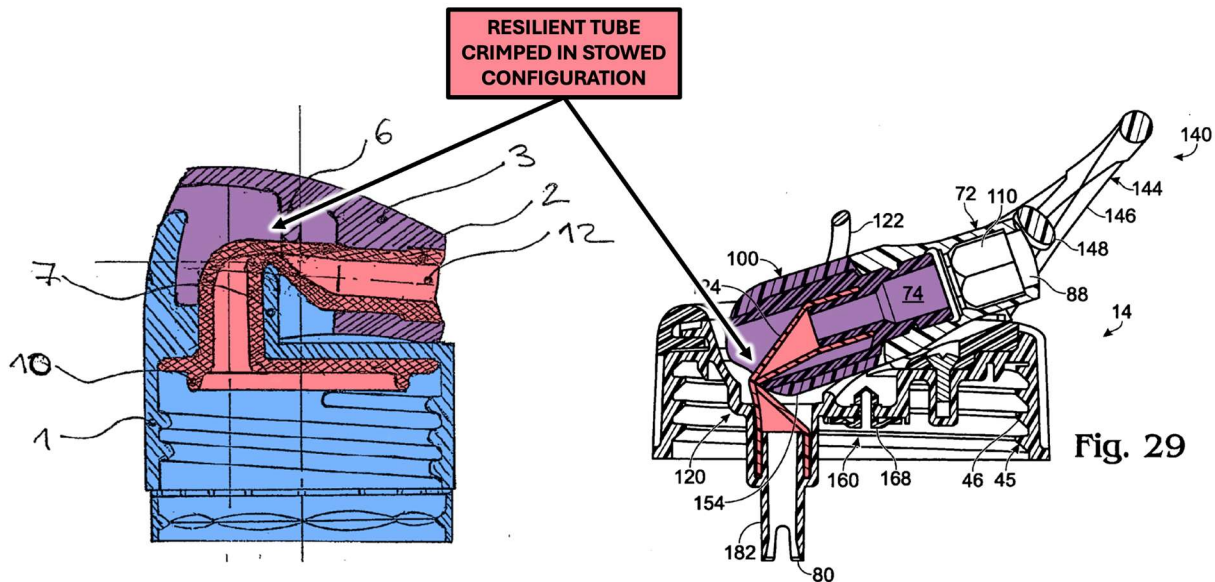
Ex. 1004, 9:7-13.

172. This is shown in Figures 6 and 7 below:



Id., Figs. 6, 7.

173. Additionally, the same bias is disclosed by both Choi and Ribarits. Both references disclose a resilient, flexible tube that extend into a rigid collar, and both disclose that their tubes are crimped when their collar is pivoted into a stowed configuration.



Ex. 1009, Fig. 3; Ex. 1005, Fig. 29.

174. Like Kiyota's tube, the tubes in both Choi and Ribarits are both comprised of an elastic rubber or latex material. Ex. 1005, ¶0085; Ex. 1009, 2. Thus, as in Kiyota, a person of ordinary skill in the art would have understood the tube—and thus the crimping region—to be biased to the dispensing configuration. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 17, and thus anticipates this claim. It is also my opinion that Claim 17 would have been obvious over Kiyota, in view of Choi, Ribarits, and/or the knowledge of a person of ordinary skill in the art.

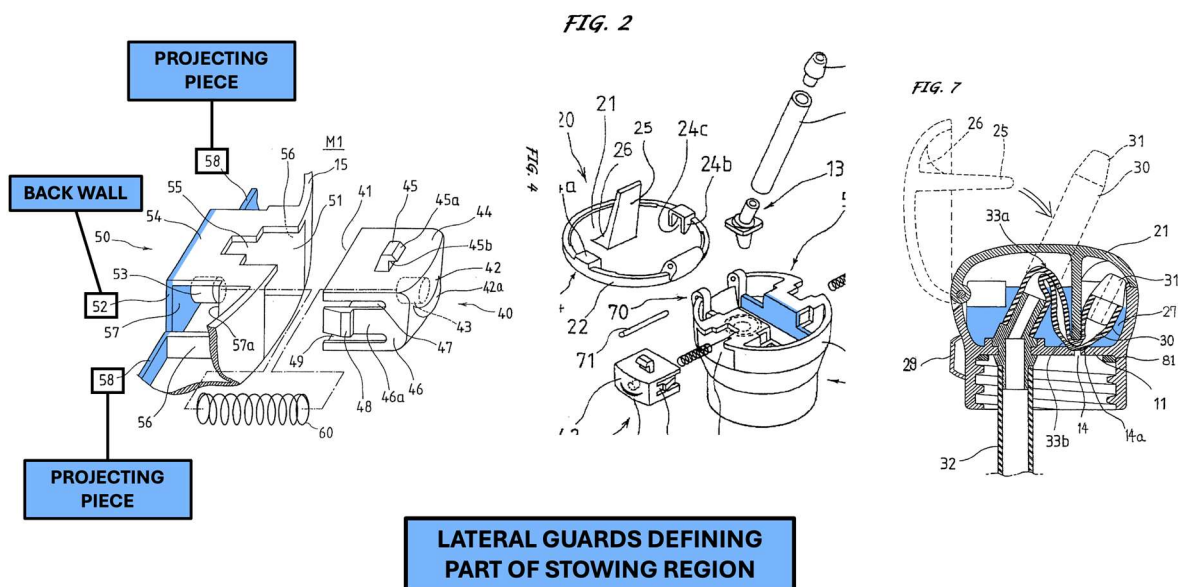
O. Claim 18 is Obvious over Kiyota in view of Choi

175. Claim 18 depends from Claim 1, and thus incorporates the limitations

of Claim 1. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 1.

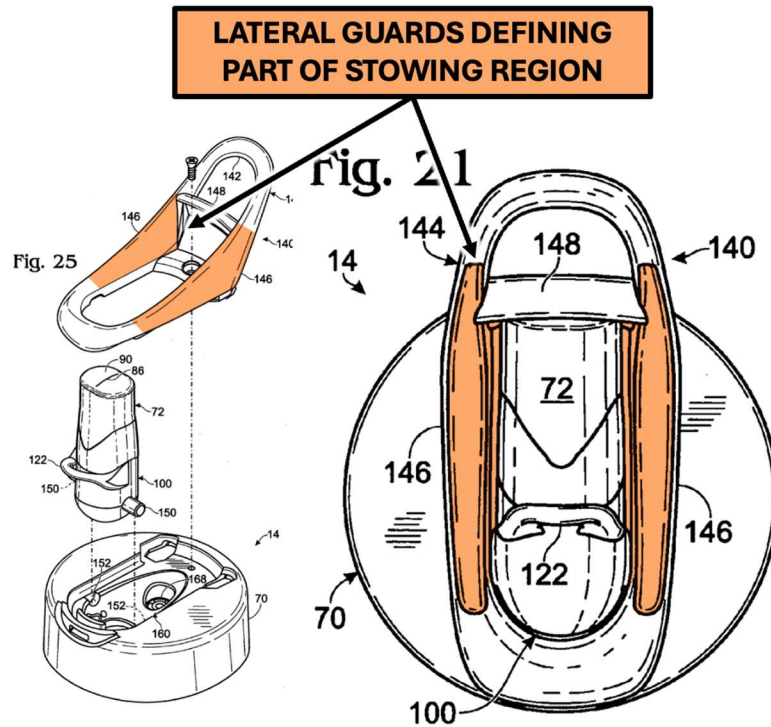
176. Claim 18 further recites, “wherein the cap assembly further includes a pair of lateral guards that at least partially define the stowing region, and wherein at least a portion of the mouthpiece assembly is received between the pair of lateral guards when the mouthpiece assembly is in the stowed configuration.” As I explain below, both Kiyota and Choi disclose this additional limitation.

177. Kiyota discloses a pair of “back plates 52” and “projecting pieces 18.” A person of skill in the art would have understood that, together, these components form lateral guards that partially define the sides of the “stowing portion 16” as shown below:



Ex. 1004, Figs. 2, 4, and 7.

178. Choi also discloses lateral guards 144 that partially define the sides of the stowing region. “[H]andle 140 provides a pair of lateral guards 146 that extend on opposing sides of the mouthpiece....” Ex. 1005, ¶0080.



Id., Figs. 21, 25.

179. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 18, and thus anticipates this claim. It is also my opinion that Claim 18 would have been obvious over Kiyota, in view of Choi and/or the knowledge of a person of ordinary skill in the art.

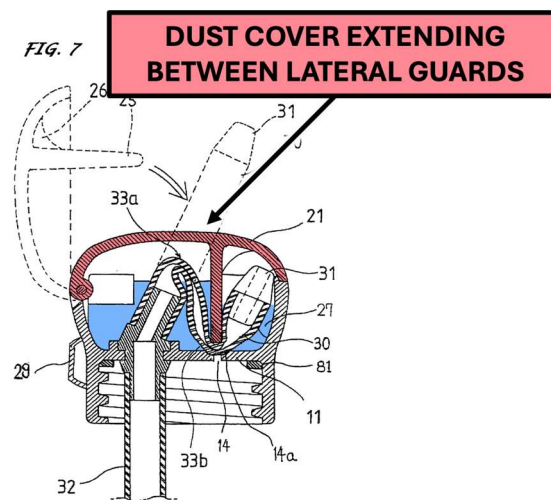
P. Claim 19 is Obvious over Kiyota in view of Choi

180. Claim 19 depends from Claim 18, and thus incorporates the limitations

of Claim 18. As explained above, it is my opinion that Kiyota and/or Choi discloses and/or renders obvious each limitation of Claim 18.

181. Claim 19 further recites, “wherein the cap assembly further includes a dust cover portion that extends between the lateral guards and which extends across the outlet when the mouthpiece assembly is in the stowed configuration.” As I explain below, Kiyota discloses this additional limitation.

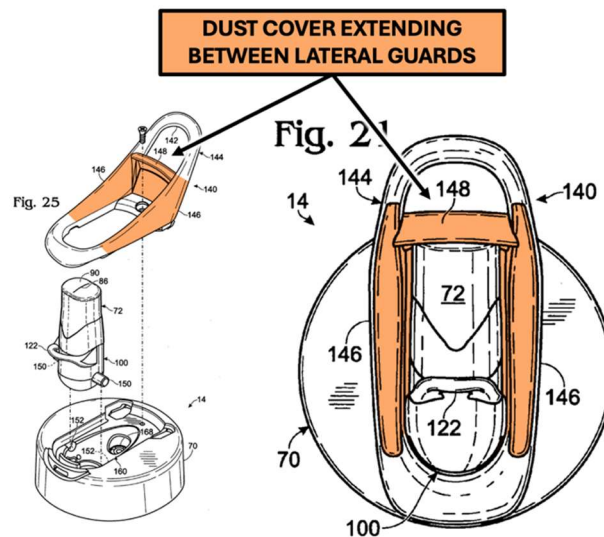
182. Kiyota discloses a “openable lid 11” (i.e. a dust cover), which comprises “presser piece 25,” which, as shown below, extends between “back plates 52” and “projecting pieces 18” (i.e. Kiyota’s lateral guards) when the mouthpiece assembly is in the stowed configuration.



Ex. 1004, Fig. 7.

183. Choi also discloses a dust cover (guard 148) that extends between the

lateral guards. “[H]andle 140 provides a pair of lateral guards 146 that extend on opposing sides of the mouthpiece, as well as a dispensing face guard, or cover, 148 that is adapted to protect the dispensing face of the bite-actuated mouthpiece when the mouthpiece is in its stowed configuration.” 1.Ex. 1005, ¶0080.



Id., Figs. 21, 25.

184. Accordingly, it is my opinion that Kiyota discloses the additional limitation of Claim 19, and thus anticipates this claim. It is also my opinion that Claim 19 would have been obvious over Kiyota, in view of Choi and/or the knowledge of a person of ordinary skill in the art.

V. GROUND 2: CLAIMS 1, 3, 5-8, 10-13 AND 15-19 WOULD HAVE BEEN OBVIOUS IN VIEW OF PARK AND RIBARITS

185. As I explain below, Park expressly discloses nearly all the elements of claims 1, 3, and 17-19. As I also explain below, Ribarits discloses nearly all the

elements of claims 1, 5-8, 10-13, and 15-18. To the extent Park does not expressly disclose any element of claims 1, 3, 5-8, 10-13, and 15-19, it is my opinion that each of those claims would have been obvious over Park in view Ribarits and the knowledge of a person skilled in the art at the time of invention of the '879 patent.

A. Claim 1 is Obvious over Park, in view of Ribarits

186. As discussed in detail in the sections that follow, Park discloses nearly all the limitations of claim 1. For example, Park discloses a liquid container (i.e. “water bottle 100”) having a removable cap assembly (i.e. “lid 110”) with a through-passage (i.e. “discharge hole 11”) in its base. Ex. 1006 at 4, Figs. 1-2. Park’s cap assembly includes a stowing region (i.e. “operating chamber 10”) that receives part of a mouthpiece assembly, (i.e. “straw 40,” “connecting hose 41,” and “cover 20”) in the stowed configuration. Ex. 1006 at 4-5, Figs. 5-6.

187. Park’s mouthpiece assembly includes a tube portion (i.e. “connecting hose 41”) that is constructed of a resiliently deformable material (i.e. “flexible soft material”) and is biased to the dispensing configuration. Ex. 1006 at 4. In addition, Park’s mouthpiece assembly includes a crimping region that is “double-bent” in the stowed configuration to prevent the flow of liquid through the mouthpiece assembly. Ex. 1006 at 5, Fig. 5.

188. Park also discloses a user release mechanism (i.e. “locking means”) that

includes first and second catch structures (i.e. “hook 32” and “protrusion 22”) that engage to retain the mouthpiece assembly in the stowed configuration. Ex. 1006 at 4. Park’s user release mechanism includes a sliding member (i.e. “operating button 30”) that slides relative to the base of Park’s cap assembly and which is biased via “spring 31” away from the position wherein “hook 32” and “protrusion 22” are disengaged. Ex. 1006 at 4.

189. Park does not disclose two limitations in claim 1. Specifically, Park’s mouthpiece assembly does not “extend[] through the through-passage of the base” of Park’s cap assembly, as recited in limitation 1[B][3]. Second, Park does not disclose “a rigid collar member that is pivotally coupled to a portion of the cap assembly and through which the tube portion at least partially extends,” as recited in limitation 1[B][3][b].

190. However, Ribarits discloses each of these missing limitations. And, as I explain in the section below, it is my opinion that a person of ordinary skill in the art would have been motivated to combine Park and Ribarits. In addition, it is my opinion that in view of the teachings of Ribarits, a person of ordinary skill in the art would have been motivated to modify Park to incorporate the mouthpiece assembly of Ribarits, including its “drinking spout” (i.e. rigid collar member) and “sealed tubular element” (i.e. tube portion).

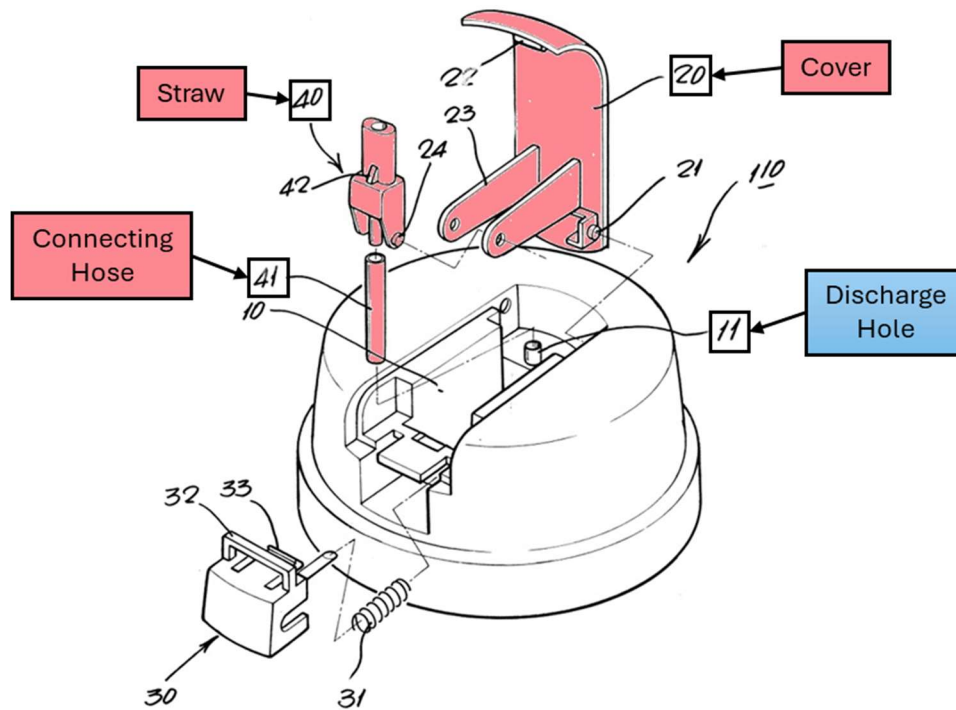
1. Motivation to Combine Park and Ribarits

191. I first note that a person of ordinary skill in the art would have looked to the teachings of Ribarits to modify and improve Park’s design. That is because, among other reasons, Park and Ribarits are directed to similar subject matter and have the same goals. For example, Park states the object of its invention is to “provide a portable water bottle with a straw” that improves useability by being operated “in a one-touch manner” and that is “also highly hygienic because it is easy to drink water without holding a straw by hand.” Ex. 1006, 3. Ribarits identifies a similar goal, stating: “The invention relates to 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. 1009, Abstract.

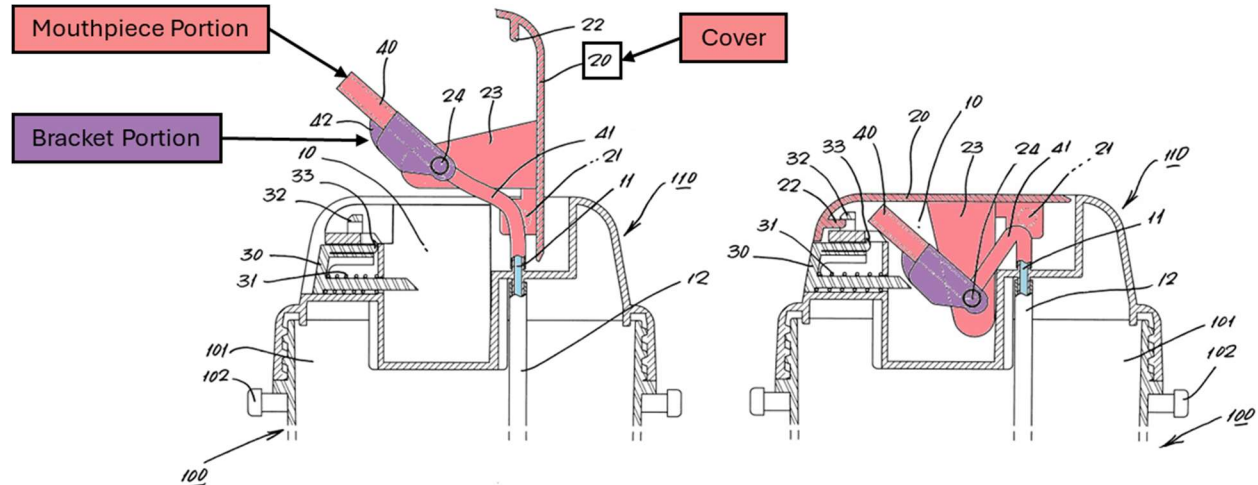
192. To achieve those goals, both Park and Ribarits disclose drink containers with cap assemblies of substantially the same functionality. For example, they both disclose cap assemblies having mouthpieces that can be opened and closed into dispensing and stowed configurations, both of which include elastic tube elements with crimping regions that collapse in the stowed configuration to prevent leakage when the drink containers are not in use. *See* ¶¶52-60, above.

193. Park provides a mouthpiece assembly wherein a tube portion constructed of flexible elastic material (i.e. “connecting hose 41”), and a mouthpiece

portion constructed of a rigid material (i.e. “straw 40”) are assembled from separate components and attached to a through-passage (i.e. “discharge hole 11”) in the base of the cap assembly (i.e. “lid 110”):

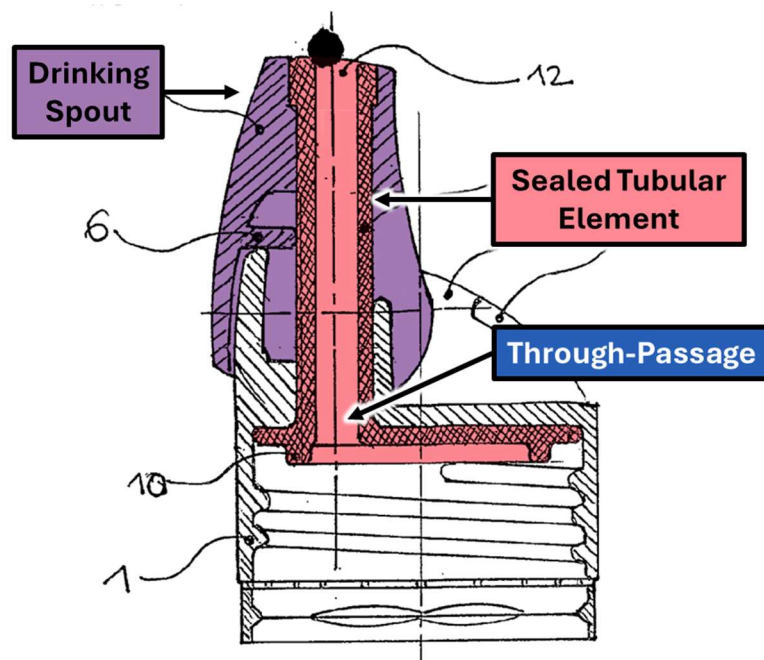


Ex. 1006, Fig. 6. Park’s mouthpiece assembly moves between its dispensing and stowed configurations due to the pivoting interaction between the bracket portion of Park’s “straw 40” and “cover 20”:

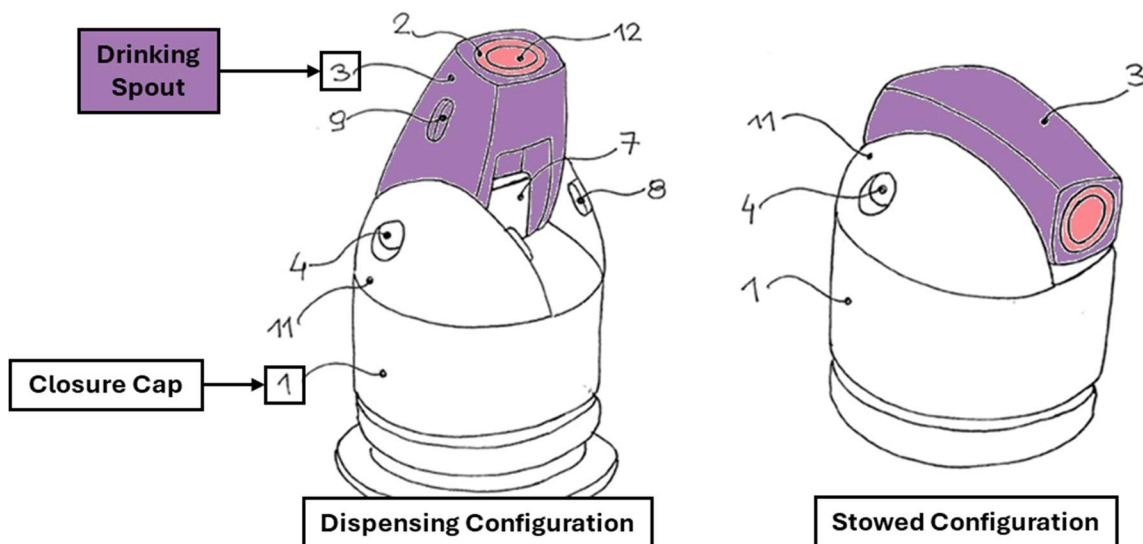


Ex. 1006, Figs. 5-6.

194. Ribarits, on the other hand, provides a mouthpiece assembly wherein the tube portion and mouthpiece portion are constructed as a unitary assembly of flexible elastic material (i.e. “sealed tubular element”), which extends through a through-passage in the base of the cap assembly (i.e. “closing cap 1”) and rigid collar member (i.e. “drinking spout ”):



Ex. 1009, Fig. 3. Ribarits' mouthpiece assembly moves between its dispensing and stowed configurations due to the pivoting interaction between Ribarits' "drinking spout" (i.e. rigid collar member) and "closure cap" (i.e. cap assembly):



Ex. 1009, Fig. 2.

195. A person of ordinary skill in the art would have been motivated to replace the “straw” and “connecting hose” of Park’s mouthpiece assembly with the “drinking spout” and “sealed tubular element” of Ribarits’ mouthpiece assembly. This is true for several reasons.

196. First, a person of ordinary skill in the art would have been motivated to construct the mouthpiece portion of Park’s “straw 40” and Park’s “connecting hose 41” as a unitary assembly of elastic (i.e. resiliently deformable) material, as in Ribarits’ “sealed tubular element.” That is because a person of ordinary skill in the art would have recognized Ribarits’ one-piece construction, as opposed to Park’s multi-component construction, to be a routine engineering choice. For example, a person of ordinary skill in the art would have recognized that Park’s straw and connecting hose could be molded as a single piece of elastic material using common manufacturing techniques. A person of ordinary skill in the art would have been motivated to use this technique because it would have resulted in fewer parts, thereby improving manufacturing efficiency and reducing manufacturing costs.

197. In addition, a person of ordinary skill in the art would have recognized that a single-piece construction would eliminate the connection point between Park’s “straw 40” and “connecting hose 41,” and thereby eliminate the risk of inadvertent detachment of the straw and connecting hose during use.

198. Likewise, by replacing the mouthpiece portion of Park’s “straw 40” and Park’s “connecting hose 41” with Ribarits’ single-piece construction, a person of ordinary skill in the art would have recognized that the tube portion of the mouthpiece assembly could be designed to fit through, and provide a tight seal with, Park’s “discharge hole 11.” A person of ordinary skill in the art would have recognized the desirability of making this change, because it would eliminate the connection point between the “connecting hose 41” and the upper part of “discharge hole 11” in Park’s design, and thus eliminate the risk of inadvertent detachment of the connecting hose during use of the device.

199. In addition to using Ribarits’ single-piece construction of the tube and mouthpiece portions of the mouthpiece assembly, a person of ordinary skill in the art also would have been motivated to use Ribarits’ rigid collar member (i.e. “drinking spout”) with the single-piece construction of the mouthpiece and tube portions of the mouthpiece assembly. A person of ordinary skill in the art would have recognized several benefits of this design.

200. First, a person of ordinary skill in the art would have recognized that such a rigid collar member could be molded with the same shape as the bracket portion of Park’s “straw 40,” which is coupled to “cover 20.” In this way, the rigid collar member would preserve the overall functionality of Park’s cap assembly,

without requiring any further modification.

201. Second, as in Ribarits, the use of a rigid collar member would support the more flexible mouthpiece and tube portions of the mouthpiece assembly and control the movement of those components when pivoting the mouthpiece assembly between the dispensing and stowed configurations.

202. Third, as in Ribarits, the flexible mouthpiece and tube portions of the mouthpiece assembly could be inserted through and removed from the rigid collar member. A person of ordinary skill in the art would have recognized the desirability of using such a design because it would have facilitated removal of the single-piece construction for cleaning, maintenance, or replacement.

203. A person of ordinary skill in the art also would have reasonably expected success in replacing Park’s “straw 40” and “connecting hose 41” with Ribarits’ “drinking spout 3” and “sealed tubular member 2.” For example, a person of ordinary skill in the art would have readily understood that Park could accommodate a single-piece construction of the mouthpiece and tube portions of the mouthpiece assembly. A person of ordinary skill in the art would have recognized that using Ribarits’ single-piece construction of resiliently deformable material, in conjunction with a rigid collar member, would perform the same function, in substantially the same way, when used in Park’s cap assembly. Thus, the

combination would have involved no more than the routine substitution of one multi-part assembly (Park’s mouthpiece assembly) with another multi-part assembly (Ribarits’ mouthpiece assembly) to provide the same overall functionality, albeit with reduced risk of inadvertent leakage, improved manufacturing efficiency, reduced manufacturing costs, and improved maintenance characteristics.

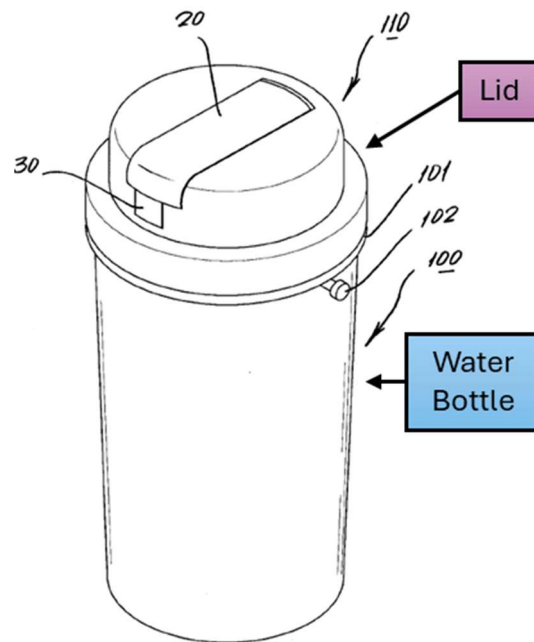
204. Accordingly, it is my opinion that it would have been obvious to a person of ordinary skill in the art to modify Park in view of Ribarits and the knowledge of a person of ordinary skill in the art to achieve the claimed design.

205. Below, I further explain how the combination of Park and Ribarits disclose the limitations of claim 1, and thus render claim 1 obvious.

2. Preamble: “A drink container”

206. 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, each of Park and Ribarits discloses “a drink container.”

207. Park discloses “a portable water container with a built-in straw” Ex. 1006, Abstract, which is shown in Figure 1 below:

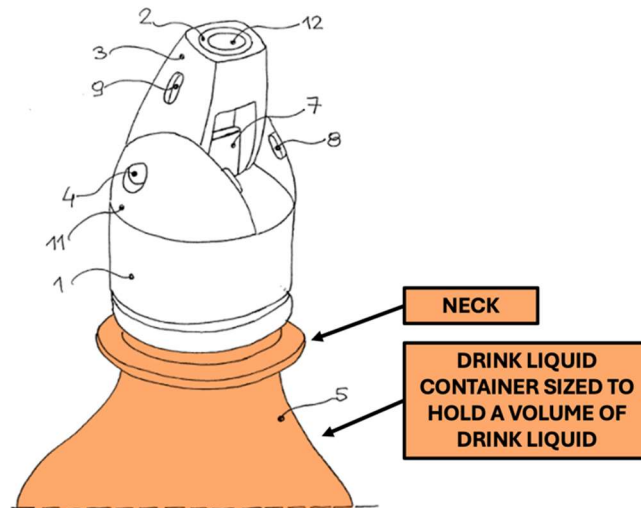


Ex. 1006, Fig. 1. As shown in Figure 1, item “100 represents a water bottle capable of holding a suitable amount of water.”

208. 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. 1009, Abstract. Ribarits explains that the invention “relates to a device for comfortably drinking and portioning from the bottles common today.” Ex. 1009, 1.

The drink container of Ribarits is shown in Figure 1 below, as item 5:

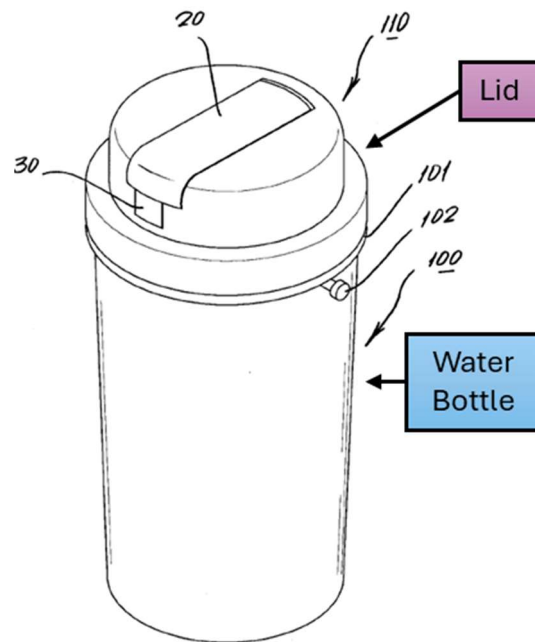


Ex. 1009, Fig. 1.

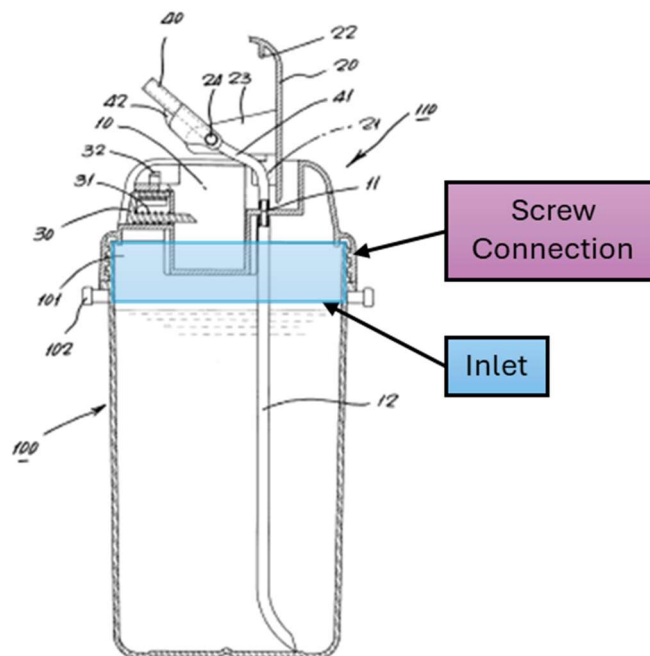
3. [A]: “a liquid container”

209. 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, each of Park and Ribarits discloses this limitation.

210. As discussed above and shown in Figure 1 below, Park discloses a “drink container”:



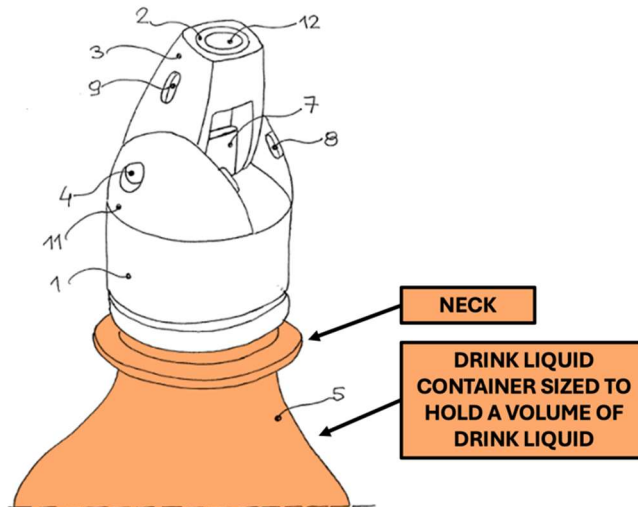
Ex. 1006, Fig. 1. As shown in Figure 4 below, item “110 represents a lid operable for opening and closing by being screwed onto an inlet 101 of the water bottle 100.”



Ex. 1006 at 4, Fig. 4. A person of ordinary skill in the art would have understood

Park’s “inlet 101” to constitute the neck of “water container 100.”

211. As discussed above and shown below, Ribarits discloses a bottle, i.e. a fluid container, having a neck with an opening.



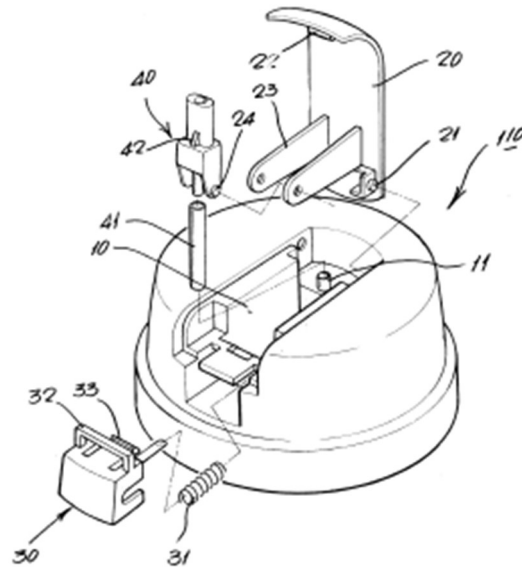
Ex. 1009, Fig. 1. A person of ordinary skill in the art would have understood that the neck portion of the bottle would be an opening that attaches to a threaded cap with a drinking spout, and that the bottle would also have an internal compartment sized to hold a volume of drink liquid. These features would be necessary to drink from the bottle, which is the purpose of the Ribarits invention. Ex. 1009, 2.

4. 1[B]: “a cap assembly”

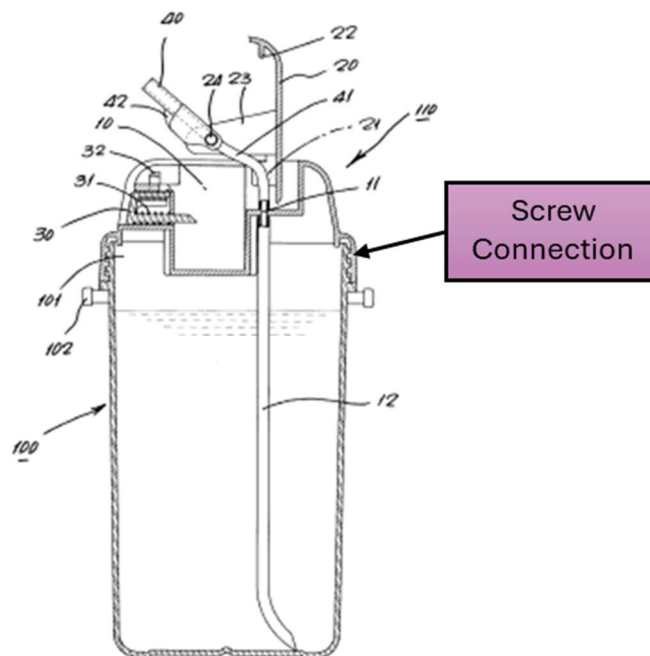
212. Limitation 1[B] recites, “a cap assembly removably coupled to the liquid container.” As I explain below, each of Park and Ribarits discloses this limitation.

213. Park discloses “lid 110,” an exploded view of which is shown in Figure

3 below:



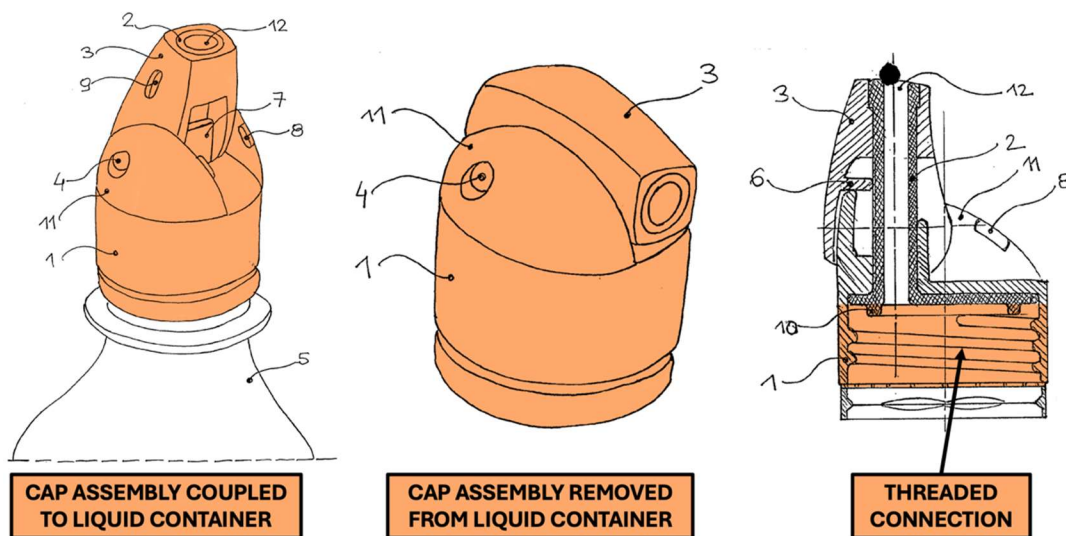
Ex. 1006, Fig. 3. The “lid 110 is screwed to the inlet 101 of the water bottle 100 to open and close” the water bottle. Ex. 1006, 4. This is shown in Figure 4 below:



Ex. 1006, Fig. 4. Thus, a person of ordinary skill in the art would have understood

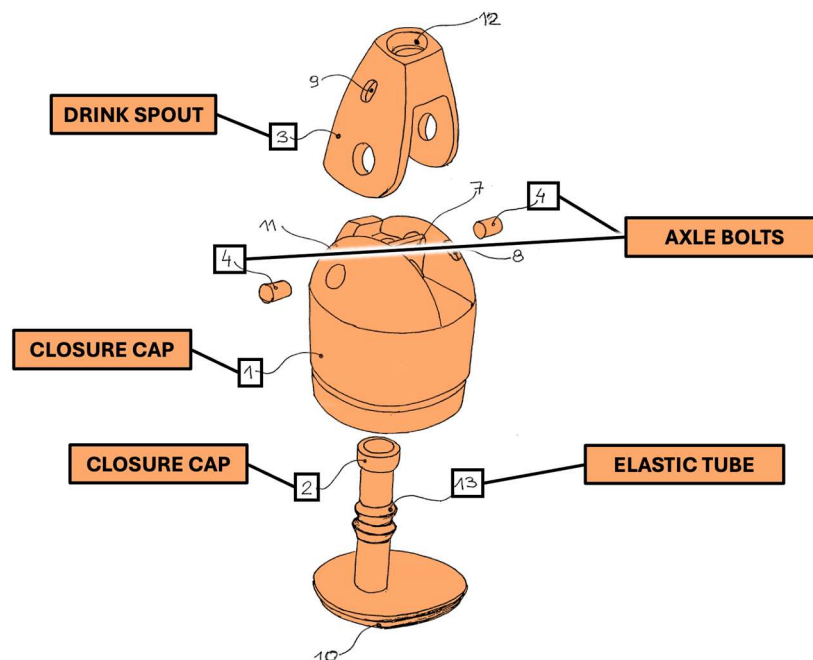
Park’s “lid 110” to constitute a cap assembly removably coupled to the container, as claimed.

214. Ribarits discloses “a common closing cap provided with a thread” that “is screwed onto the bottle (5).” Ex. 1009, 2-3.



Ex. 1009, Figs. 1, 3. As shown above, Ribarits’ “closing cap” is removably coupled to the liquid container via a threaded connection. Ex. 1009, 2-3.

215. Ribarits’ cap assembly includes closure cap 1, elastic tube 13 with resilient mouthpiece 2 and sealing rings 10, drink spout 3, and axle bolts 4, as shown in the exploded view below:

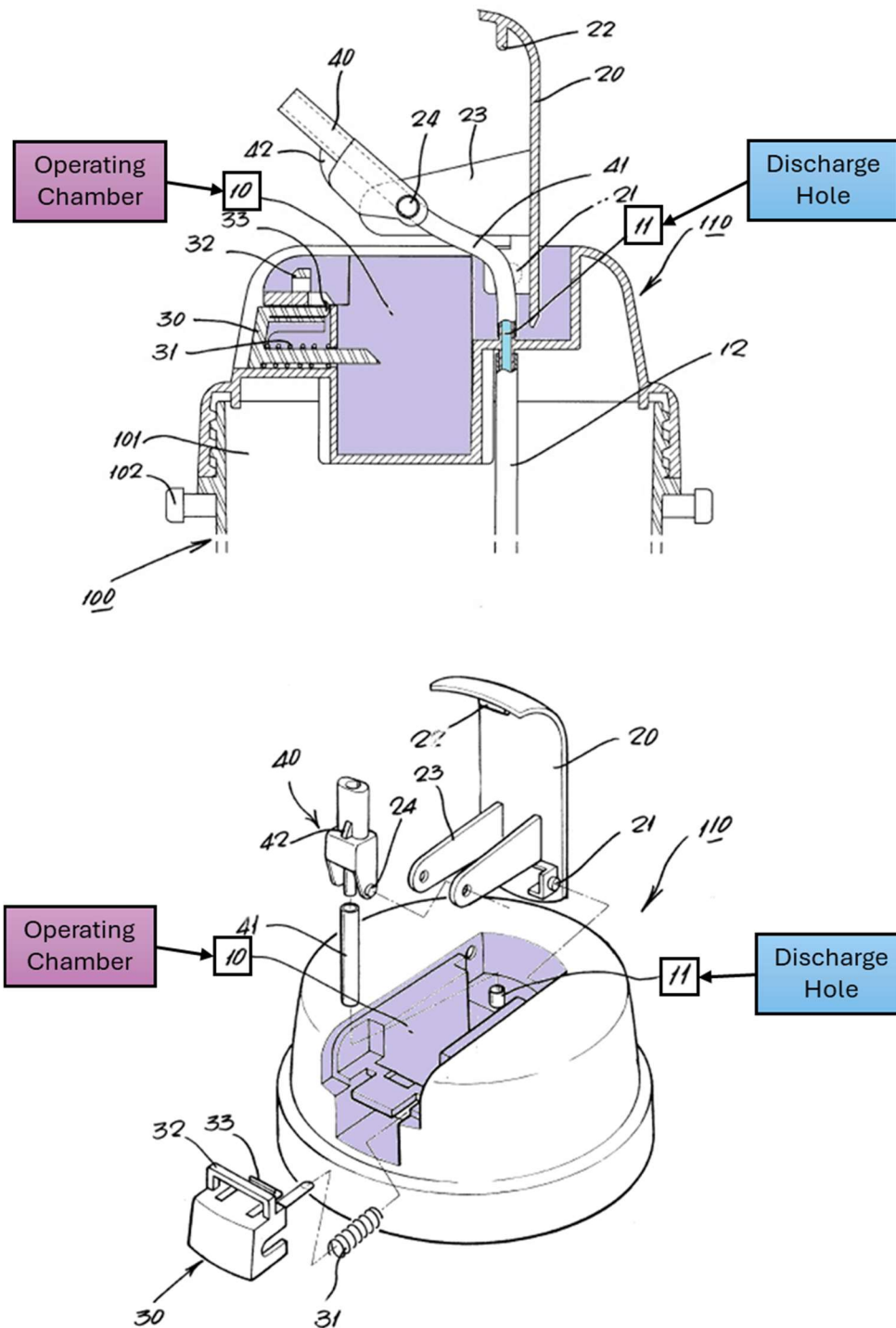


Ex. 1009, Fig. 2.

a. **1[B][1]: “a base”**

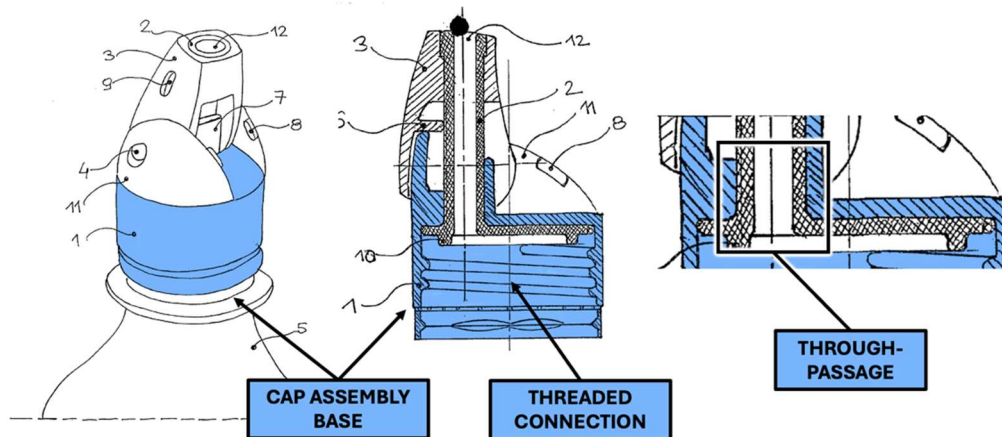
216. Limitation 1[B][1] recites the cap assembly comprises “a base removably coupled to the neck of the liquid container and including a through-passage.” As I explain below, each of Park and Ribarits discloses this limitation.

217. As discussed above, the base of Park’s “lid 110” is removably coupled to the neck of the water bottle via a threaded connection. In addition, Park’s lid contains an “operating chamber 10” which includes “a discharge hole 11 that is connected upward and downward,” as shown below:



Ex. 1009, Figs. 3-4. Thus, a person of ordinary skill in the art would have understood the discharge hole to be a through-passage extending through the base of the lid.

218. As also discussed above, Ribarits’ “closing cap” is removably coupled to the neck of the liquid container via a threaded connection. Ribarits also discloses that its “closing cap” includes a through-passage, as shown below:



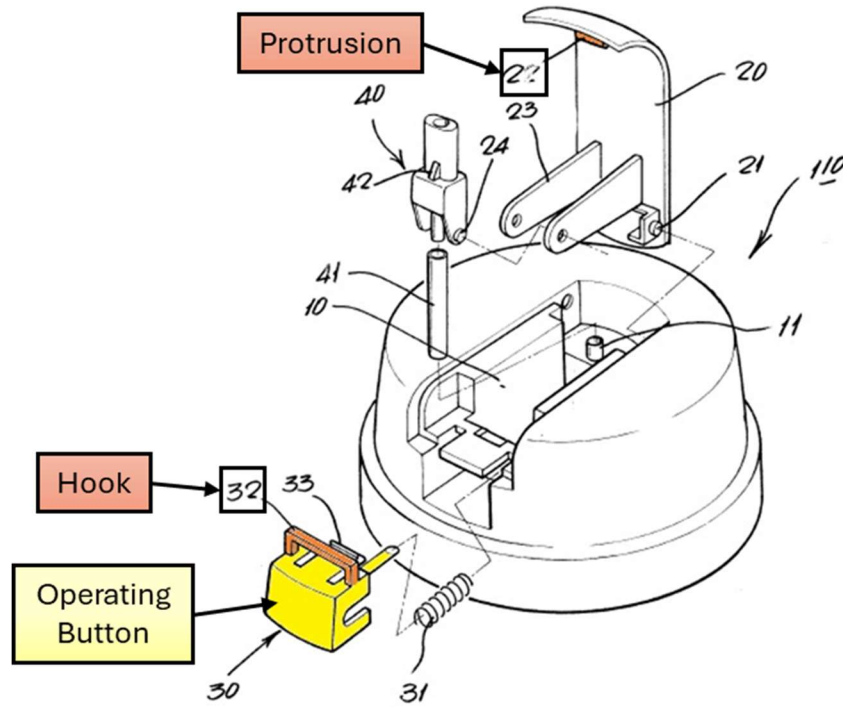
Ex. 1009, Figs. 1, 3.

b. 1[B][2]: “a first catch structure”

219. Limitation 1[B][2] recites that the cap assembly comprises “a first catch structure.” As I explain below, each of Park and Ribarits discloses this limitation.

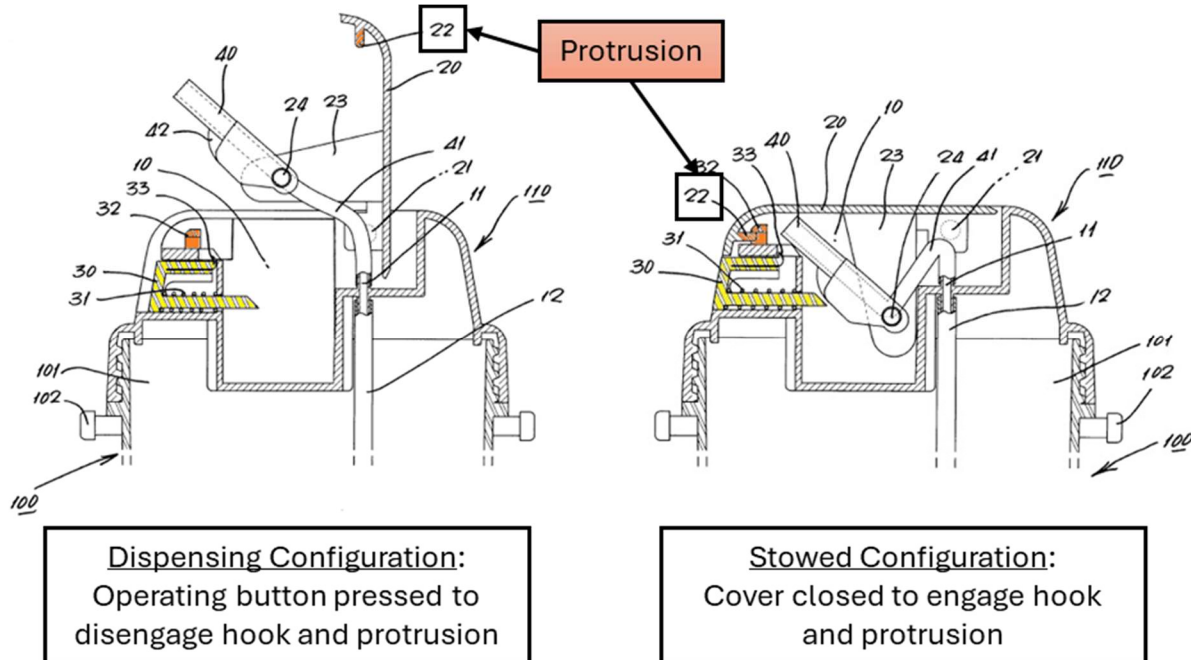
220. Park discloses a hook and corresponding protrusion on its “lid 110” that engage to maintain the lid in a closed configuration. As discussed below, a person of ordinary skill in the art would have understood Park’s hook and protrusion to constitute a first and second catch structure, as claimed.

221. Figure 3 shows “hook 32” (orange) on the upper surface of “operating button 30” (yellow), as shown below:



Ex. 1006, 4-5, Fig. 3. Figure 3 also shows “protrusion 22” on the underside of “cover 20.”

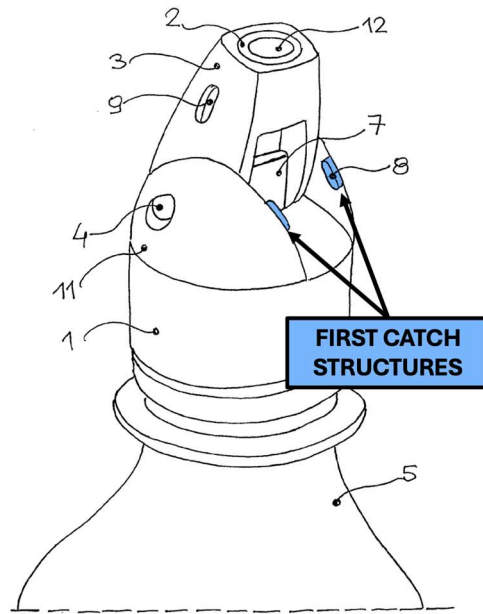
222. As shown in Figures 5 and 6 below, Park discloses that “hook 32” and “protrusion 22” are engaged in the stowed configuration (below, left) and disengaged in the dispensing configuration (below, right):



Ex. 1006, Figs. 5-6.

223. According to Park, “operating button 30” is “fastened at the front surface of the operating chamber 10” and “elastically installed” on the base of the cap assembly “by a spring 31 at the front end of the operating chamber 10.” Ex. 1006, 4). Thus, a person of ordinary skill in the art would have understood “hook 32” (i.e. the first catch structure) to be coupled to the base of “lid 110” (i.e. the cap assembly) via “spring 31.”

224. 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. 1009, 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. 1009, 2.

225. 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. 1009, 3.

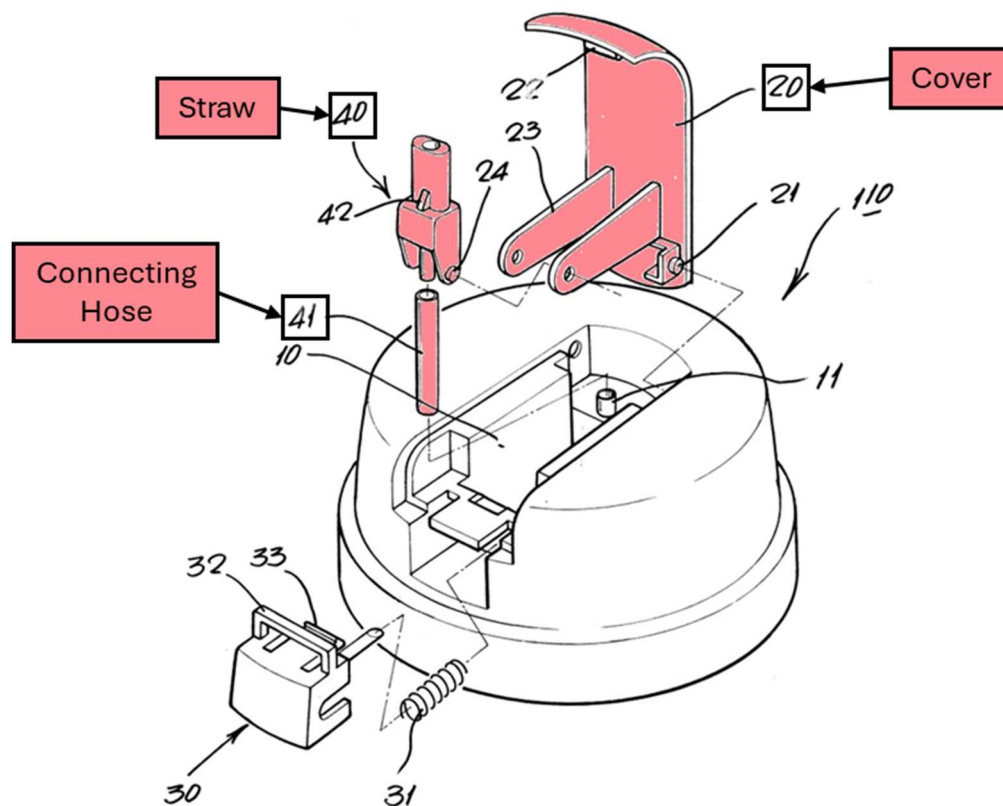
c. 1[B][3]: Mouthpiece Assembly

226. Limitation 1[B][3] recites “a mouthpiece assembly” and comprises three subparts. As explained below, it is my opinion that this limitation would have

been obvious over Park, in view of Ribarits and the knowledge of a person of ordinary skill in the art.

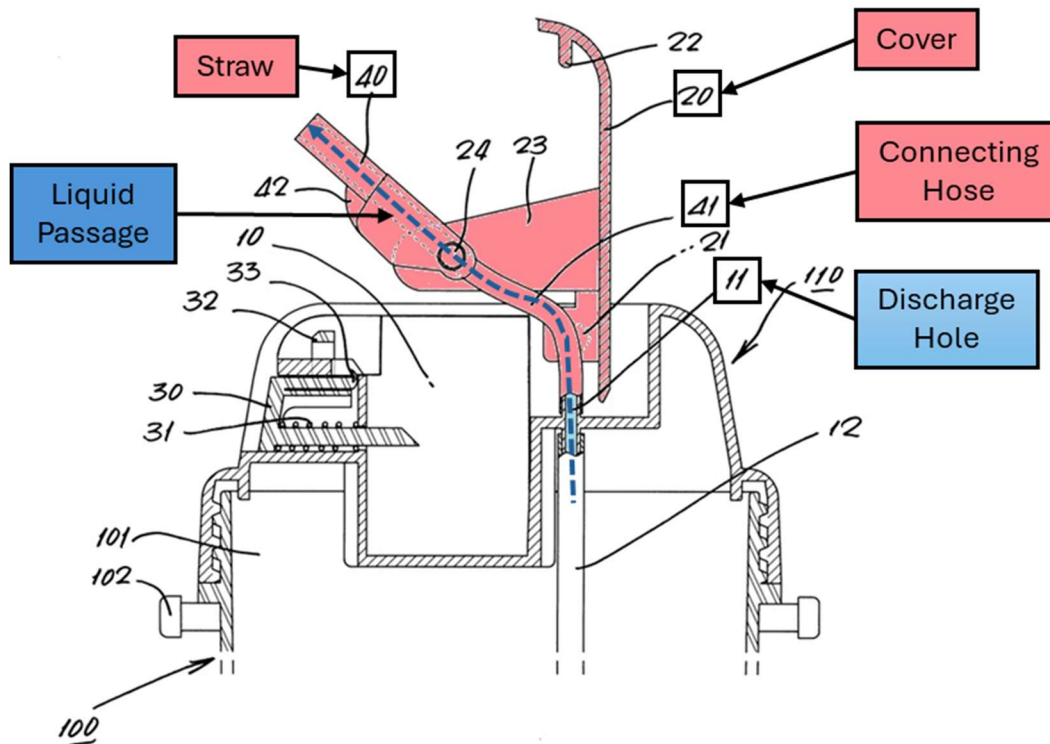
227. The first subpart of limitation 1[B][3] recites: “a mouthpiece assembly extending through the through-passage of the base and defining a liquid passage through which drink liquid from the liquid container may selectively flow, and further defining an inlet through which drink liquid in the internal compartment may enter the liquid passage and an outlet through which drink liquid from the internal compartment of the liquid container is selectively dispensed.”

228. As explained in limitation 1[B][1] above, Park discloses “discharge hole 11,” which a person of ordinary skill would have understood to be a through-passage through the base of Park’s “lid 110.” Park further discloses a mouthpiece assembly, which a person of ordinary skill in the art would have understood to include at least “straw 40,” “connecting hose 41,” and “cover 20.” The components of Park’s mouthpiece assembly are shown in green in Figure 3 below:



Ex. 1006, Fig. 3.

229. According to Park, “straw 40 ... is connected to the discharge hole 11 ... by a connecting hose 41 of a certain elastic and flexible soft material.” Ex. 1006, 4). The liquid passage defined by the components of Park’s mouthpiece assembly are illustrated in Figure 6, below:

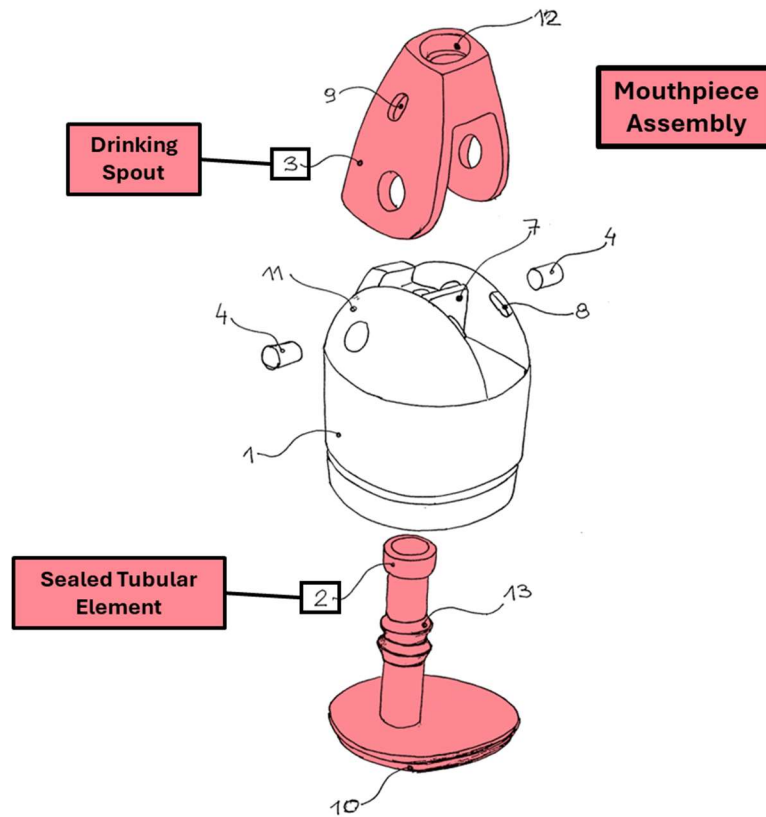


Ex. 1006, Fig. 6. As shown above, a person of ordinary skill in the art would have understood Park’s mouthpiece assembly to define a liquid passage wherein “discharge hole 11” defines an inlet through which liquid may enter from the container, and “straw 40” defines an outlet through which liquid may be dispensed to the user.

230. I note that limitation 1[B][3] recites “a mouthpiece assembly extending through the through-passage” Park’s mouthpiece assembly does not extend through the “discharge hole 11” (i.e. through-passage), as claimed. However, as explained below, Ribarits discloses such a mouthpiece.

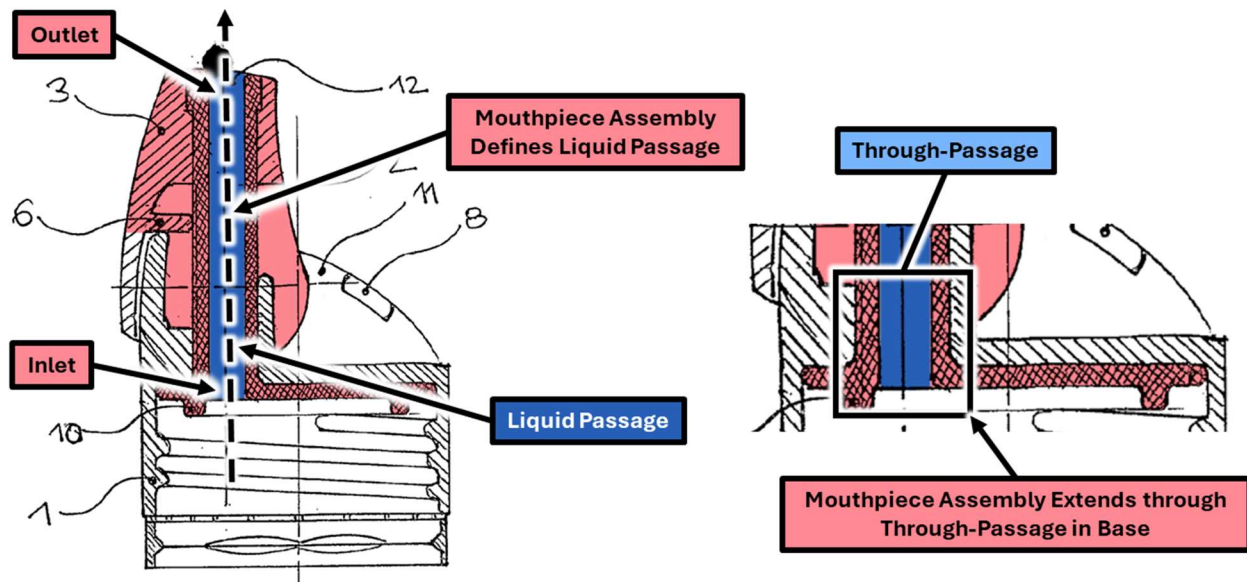
231. Ribarits discloses a mouthpiece assembly including at least “drinking

spout (3)” and “sealed tubular element (2),” as shown below:



Ex. 1009, Fig. 2.

232. Ribarits’ sealed tubular element is a flexible tube made from an elastic “rubber or latex” material, which, as shown below, extends through Ribarits’ through-passage to define a liquid passage from the container to the user:



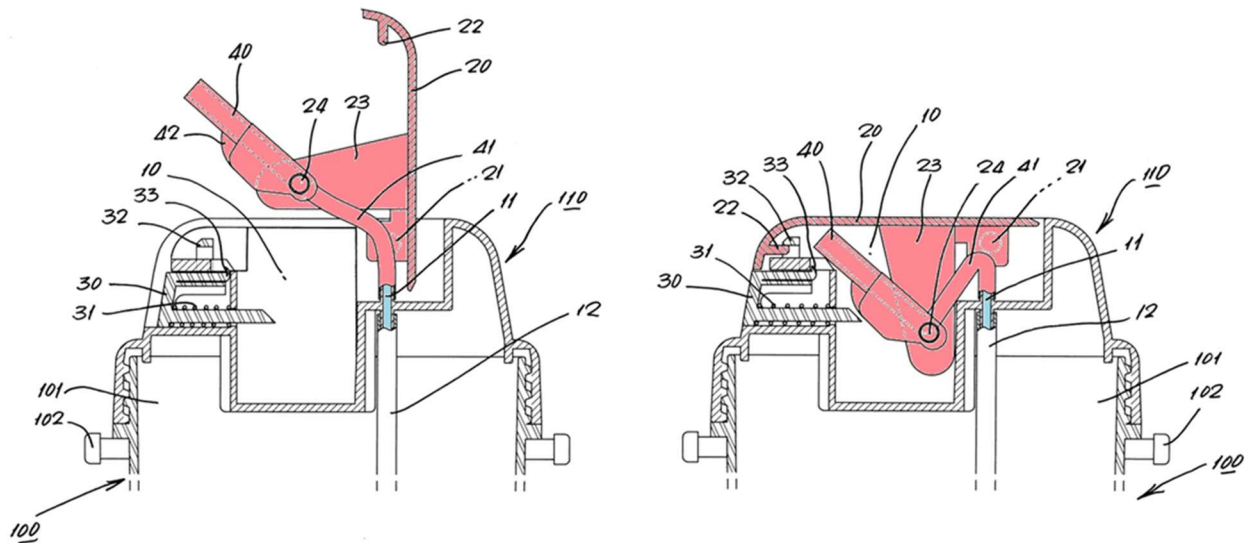
Ex. 1009 at 2, Fig. 3. Ribarits' flexible tube includes an inlet at its base and an outlet at its opposite end, through which liquid may be dispensed.

233. As explained in detail above (*see* ¶¶189-202), it is my opinion that, in view of the teachings of Park and Ribarits and the knowledge of a person of ordinary skill in the art, it would have been obvious to modify Park to include a mouthpiece assembly extending through the through-passage, such as that disclosed in Ribarits.

234. The second subpart of limitation 1[B][3] recites: “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 drink liquid is restricted from being dispensed from the liquid container through the liquid passage.” Each of Park and Ribarits discloses

this subpart.

235. As shown in Figures 5 and 6 below, Park's mouthpiece assembly can be opened into a dispensing configuration (below, right) or closed into a stowed configuration (below, left):

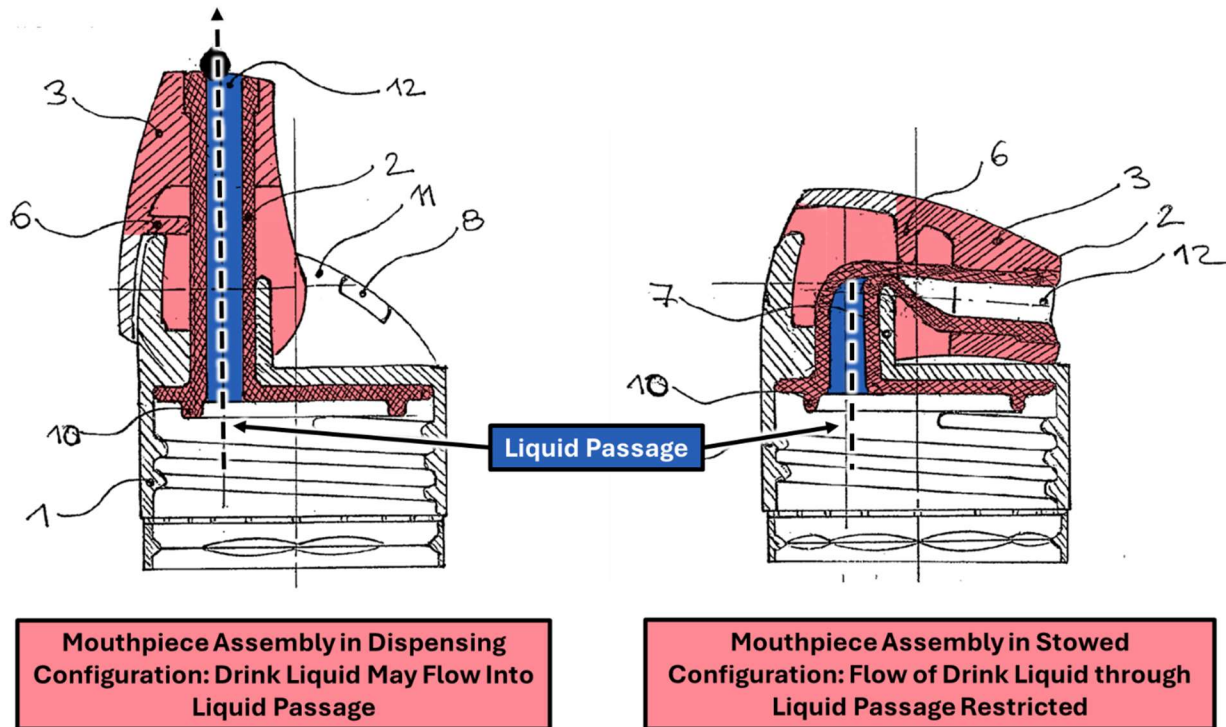


Ex. 1006, Figs. 5-6.

236. Park discloses: “when the straw 40 is sucked into the mouth, the contents of the water bottle 100 are directed through the guide hose 12 and the connecting hose 41, and out the straw 40.” Ex. 1006, 5. Thus, in the dispensing configuration, liquid flows from the internal compartment, through the liquid passage defined by the “connecting hose 41” and “straw 40,” and to the user. In contrast, Park discloses that in the stowed configuration, “the connecting hose 41 is double bent ... to completely close the discharge passage of the connecting hose 41,”

thereby restricting liquid from being dispensed from the container. Ex. 1006, 5.

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



Ex. 1009, 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. 1009, 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. 1009, 2.

238. The third subpart of limitation 1[B][3] recites: “wherein the mouthpiece assembly is biased to the dispensing configuration.” Each of Park and Ribarits discloses this subpart.

239. Park discloses:

“Since the connecting hose 41 is formed of a flexible soft material and has a certain elasticity, it always tries to unfold vertically, and when the lid 20 is opened, its elastic force causes the straw 40 to protrude, and then the lid 20 is closed, it accommodates this by bending.”

Ex. 1006, 4. Likewise, Park discloses:

“[T]he moment the cover 20 is opened, the straw 40 ... is also unfolded by the elastic force of the connecting hose 41, so that straw 40 maintains an angle that is most convenient for the user to suck into the mouth.”

Id. at 5.

240. Ribarits discloses that its “sealed tubular element” is constructed of flexible “elastic rubber or latex” material. Ex. 1009, 2. Like Park’s connecting hose, because Ribarits’ tubular element is comprised a resilient material, 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]: Tube Portion

241. Limitation 1[B][3][a] recites the mouthpiece assembly comprises “a tube portion” comprising three subparts. As I explain below, each of Park and Ribarits disclose this limitation.

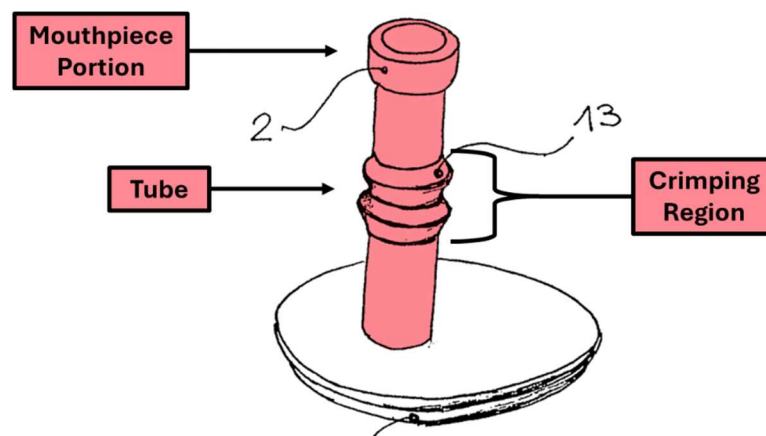
242. The first subpart of limitation 1[B][3][a] recites: “a tube portion that defines at least a portion of the liquid passage for drink liquid to flow from the internal compartment to the outlet of the mouthpiece assembly.” As explained above in limitation 1[B][3], each of Park and Ribarits discloses this subpart. Park discloses “connection hose 41” which defines part of the liquid passage between the inlet at the base of the lid and the outlet at the opposite end of “straw 40.” Ribarits discloses “sealed tubular element,” which defines a liquid passage from the fluid container, through the mouthpiece assembly, and to the user.

243. The second subpart of limitation 1[B][3][a] recites: “wherein the tube portion includes a crimping region constructed of a resiliently deformable material and adapted to prevent the flow of drink liquid through the liquid passage when the mouthpiece assembly is in the stowed configuration.” Each of Park and Ribarits discloses this subpart.

244. As explained above in limitation 1[B][3], Park discloses that “connecting hose 41 is double bent” in the stowed configuration, which closes “the discharge passage of the connecting hose 41” and restricts liquid from being

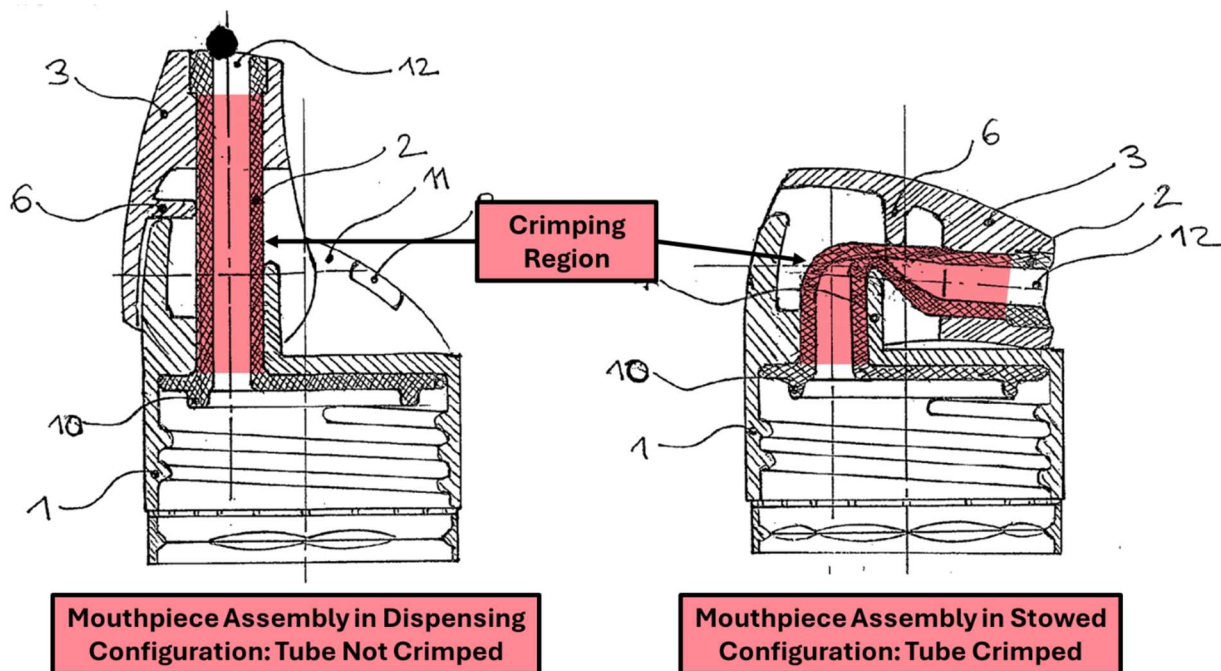
dispensed from the container. A person of ordinary skill in the art would have understood the portion of Park’s connecting hose that is “double bent” in the stowed configuration to constitute a “crimping region,” as claimed.

245. Ribarits discloses that its “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. 1009, 3, as shown below:



Ex. 1009, Fig. 2.

246. 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. 1009, 2. As shown in the below figures, in the stowed configuration, the tube collapses at the crimping region, thereby restricting fluid flow through the tube:

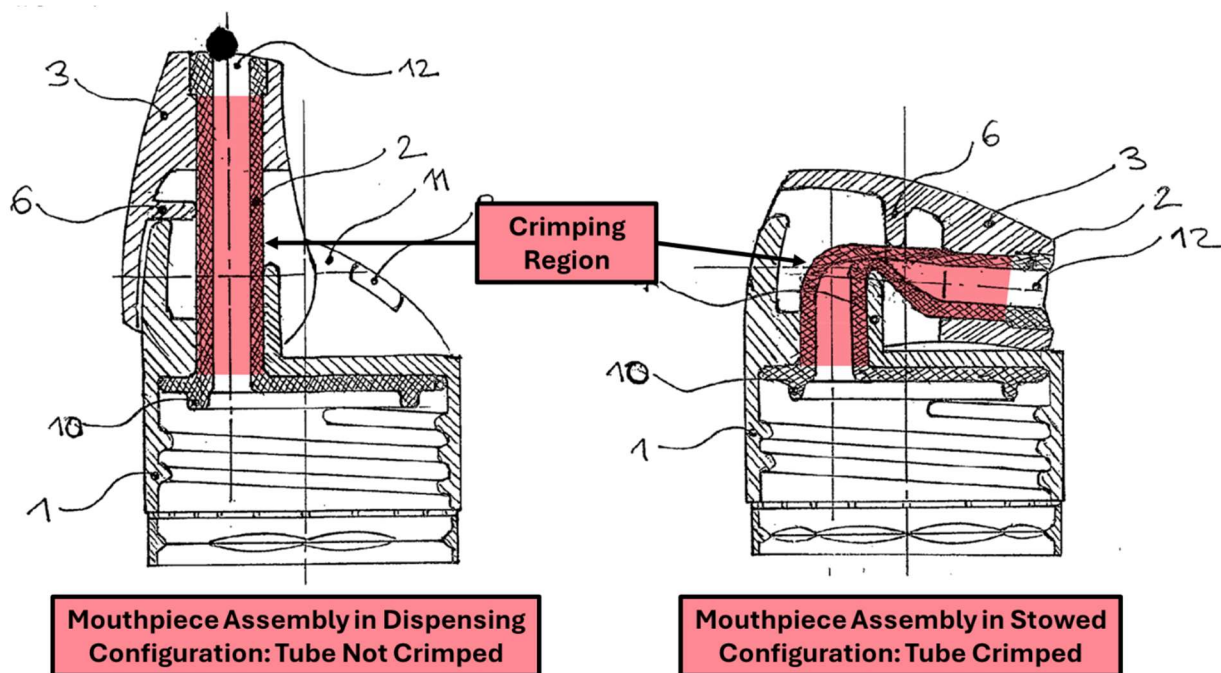


Ex. 1009, Fig. 3.

247. The third subpart of limitation 1[B][3][a] recites: “wherein the crimping region includes opposing walls that are in contact with each other to seal the liquid passage within the crimping region when the mouthpiece is in the stowed configuration.” Each of Park and Ribarits discloses this subpart.

248. As explained above, when in the stowed configuration, Park’s “connecting hose 41 is double bent ... to completely close the discharge passage of the connecting hose.” Ex. 1006, 5. A person of ordinary skill in the art would have understood that, to “completely close the discharge passage,” opposing sides of Park’s connecting hose would have to come into contact, thereby creating a seal that prevents the flow of liquid through the hose.

249. As explained above, when in the stowed configuration, Ribarits’ “sealed tubular element” collapses to restrict fluid flow. In this position, as shown in Figure 3 (below, right), opposing walls of the tube come into contact to completely close the passage.



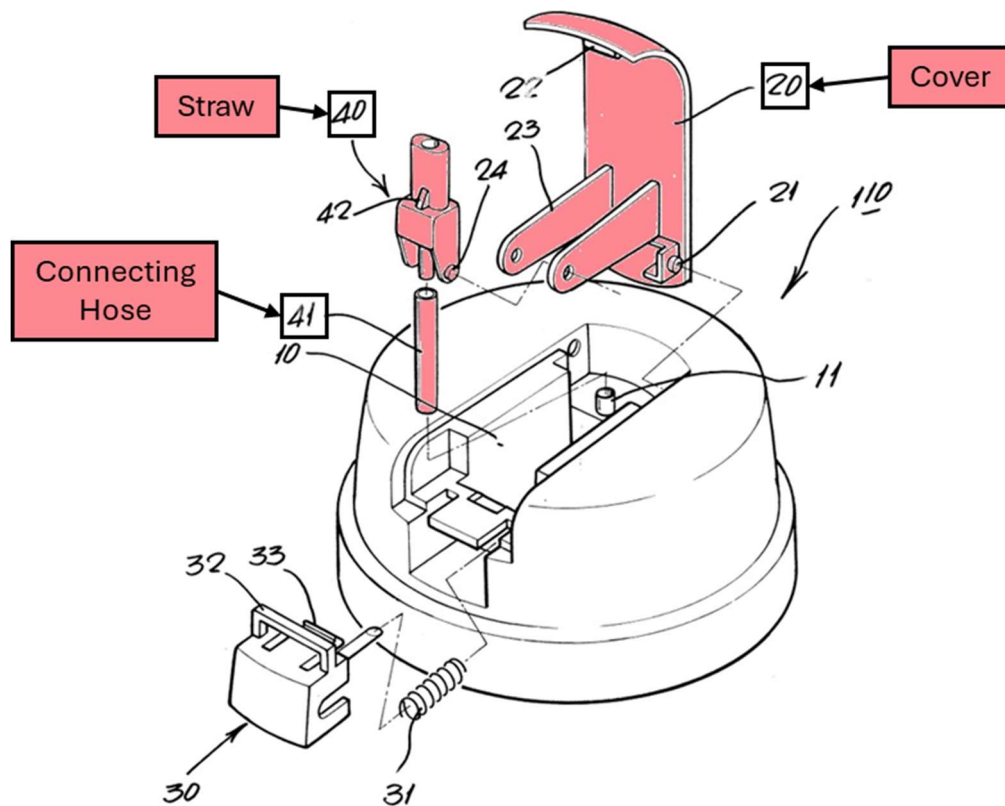
Ex. 1009, Fig. 3.

ii. **1[B][3][b]: Rigid Collar Member**

250. Limitation 1[B][3][b] recites the mouthpiece assembly comprises “a rigid collar member that is pivotally coupled to a portion of the cap assembly and through which the tube portion at least partially extends.” As explained below, it is my opinion that this limitation would have been obvious over Park, in view of Ribarits and the knowledge of a person of ordinary skill in the art.

251. Park discloses the “straw 40 is axially coupled to the bracket 23 of the cover 20 by the hinge shaft 24, which is freely rotatable using the shaft as a supporting point, and is connected to the discharge hole 11 formed in the center of the lid 110 by a connecting hose 41 of a certain elastic and flexible soft material.”

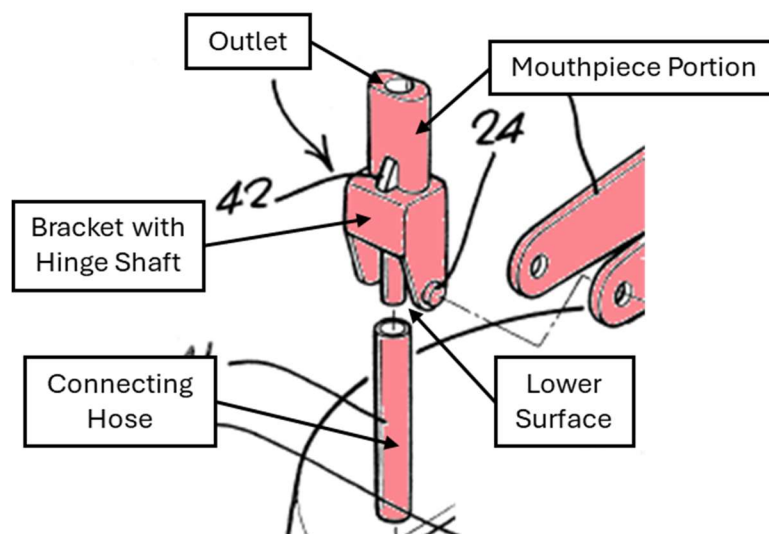
Ex. 1006, 4. These components are shown in figure 3 below:



Ex. 1006, Fig. 3. The “straw 40” is pivotally coupled to the cap assembly because it is connected to “cover 20” and freely rotates about “hinge shaft 24,” all of which are part of the mouthpiece assembly, which in turn is part of the cap assembly. Thus, a person of ordinary skill in the art would have understood the straw to be pivotally

coupled to the cap assembly.

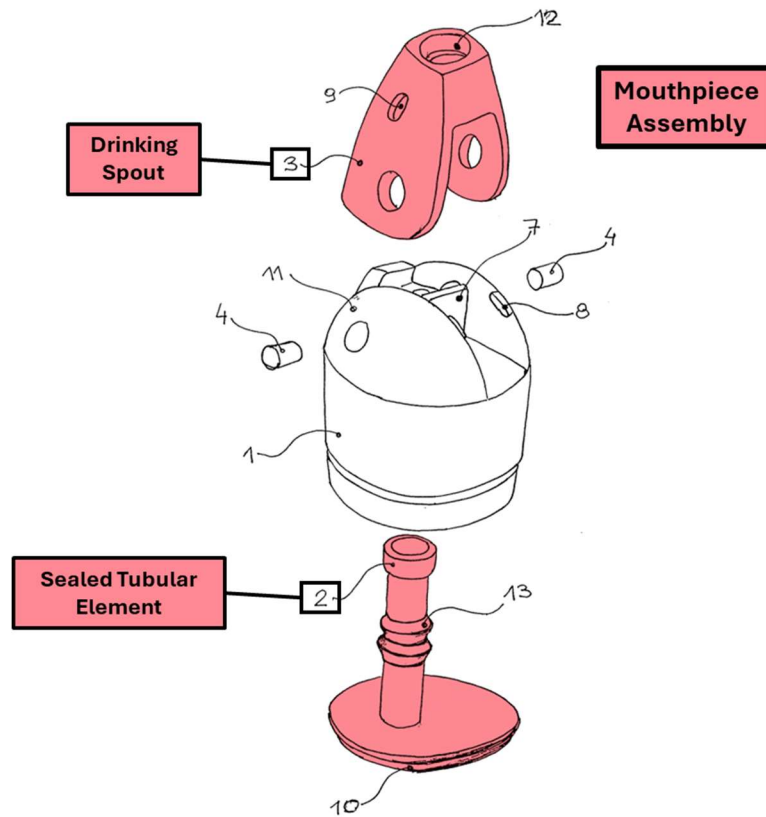
252. As I explained above, “straw 40” includes the outlet of the claimed “liquid passage.” I note, however, that Park’s “connecting hose 41,” which is the tube portion of the mouthpiece assembly, does not extend through the straw. Rather, Park’s “straw 40” is a single component that comprises: (i) a mouthpiece portion that contacts the user’s mouth during use; (ii) a bracket portion containing “hinge shaft 24” that allows the straw to pivot between the stowed and dispensing configurations; and (iii) a “lower surface” that connects to “connecting hose 41.”



Ex. 1006, Fig. 3. Because the claim recites that the “tube portion at least partially extends” through the “rigid collar member,” a person of ordinary skill in the art would not understand “straw 40” to constitute the claimed rigid collar member.

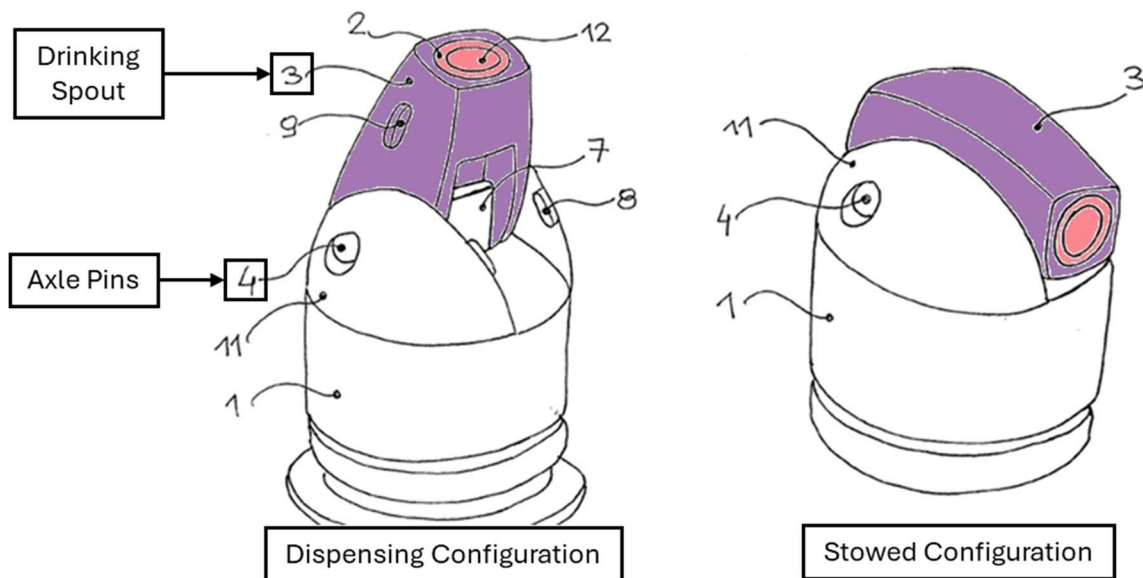
253. However, Ribarits discloses the claimed “rigid collar member.” As I explained above in limitation 1[B][3], Ribarits’ mouthpiece assembly includes

“drinking spout 3” and “sealed tubular element 2,” as shown below:



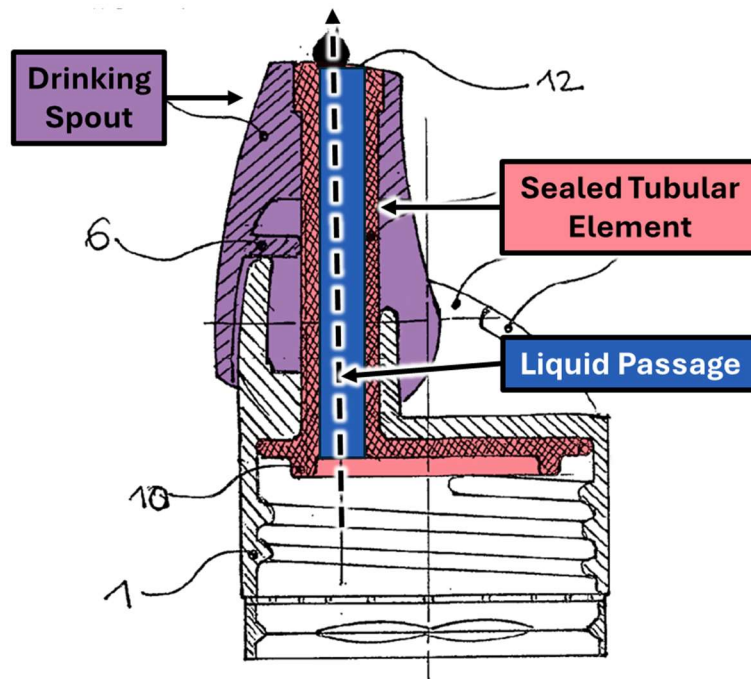
Ex. 1009, Fig. 2.

254. A pair of “axle pins 4” couple Ribarits’ “drinking spout” to the “closure cap 1.” This allows the drinking spout to pivot between a dispensing configuration and a stowed configuration, as shown below:



Ex. 1009, Fig. 1. For ease of reference, I have highlighted the drinking spout in purple in the figure above.

255. Ribarits’ “sealed tubular element,” which constitutes the tube portion of Ribarits’ mouthpiece assembly, extends through the drinking spout and defines the liquid passage through the spout, as shown below:



Ex. 1009, Fig. 3. Thus, a person of ordinary skill in the art would have understood Ribarits’ “drinking spout 3” to constitute the claimed rigid collar member.

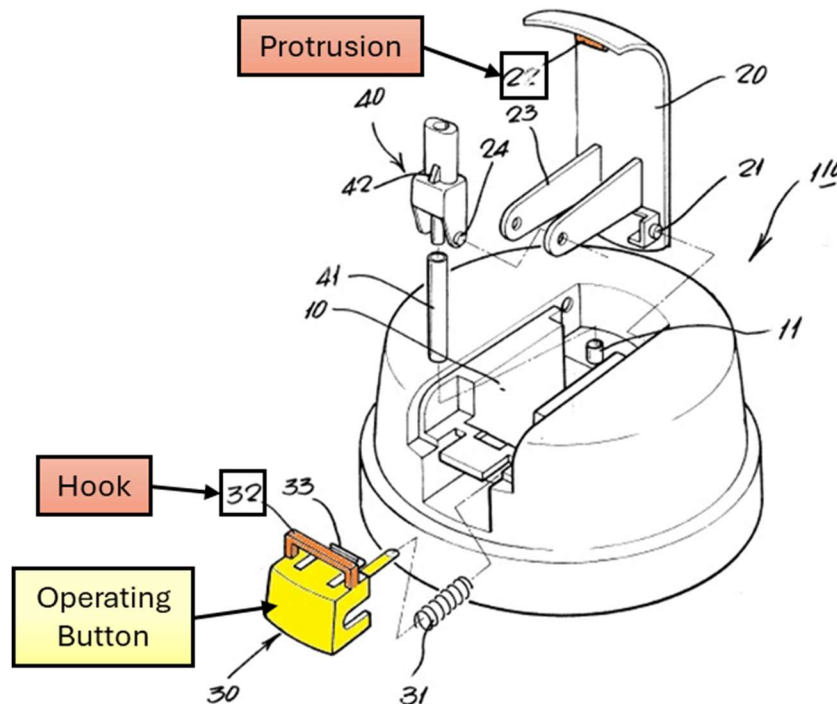
256. As explained in detail above (*see* ¶¶78-91), it is my opinion that, in view of the teachings of Park and Ribarits and the knowledge of a person of ordinary skill in the art, it would have been obvious to modify Park’s mouthpiece assembly to replace the bracket portion of Park’s “straw 40” with Ribarits’ rigid collar member (i.e. “drinking spout”).

iii. 1[B][3][c]: Second Catch Structure

257. Limitation 1[B][3][c] 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,

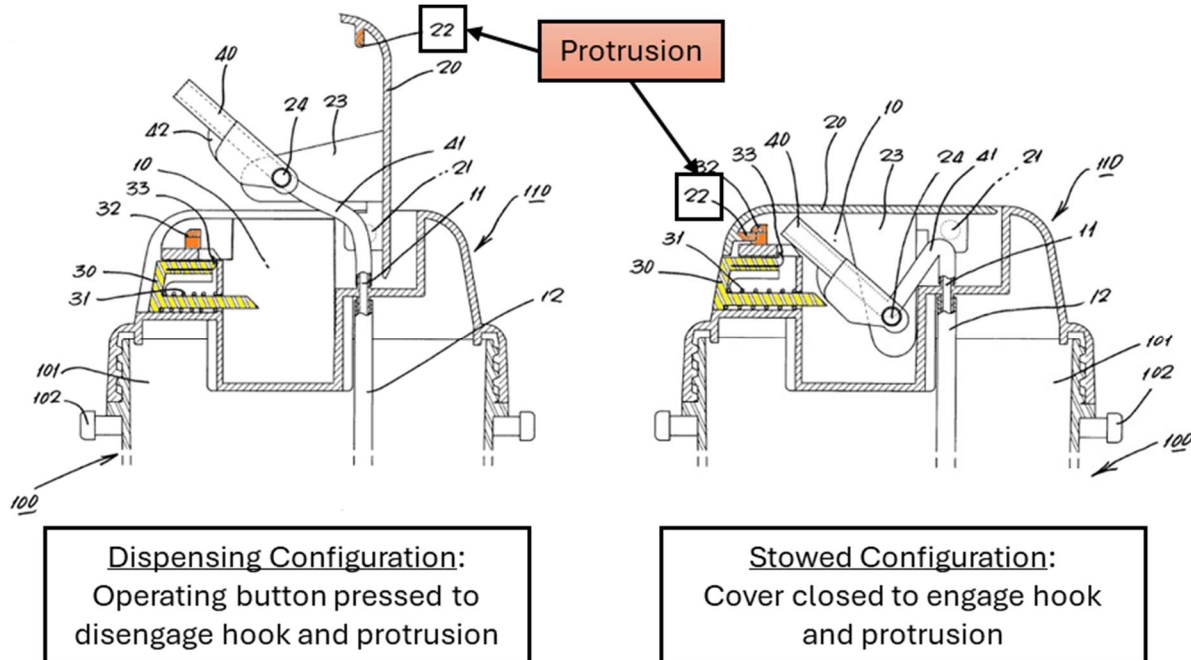
each of Park and Ribarits discloses this limitation.

258. As explained above in connection with limitation 1[B][2], Park discloses a set of corresponding catch structures that engage to maintain the assembly in a closed configuration. The second catch structure comprises “protrusion 22” on the underside of “cover 20,” which is adapted to be selectively engaged with “hook 32” (i.e. the first catch structure) to retain the mouthpiece assembly in the stowed configuration. Ex. 1006, 4-5.



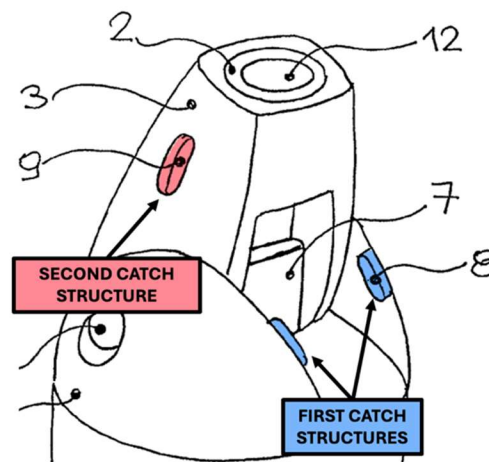
Ex. 1006, Fig. 3.

259. Figures 5 and 6, below, illustrate the selective engagement of the “hook 32” and “protrusion 22” during use:



Ex. 1006, Figs. 5-6.

260. As explained in limitation 1[B][2], 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. As shown below, the second catch structure comprises a pair of corresponding “knobs” on the drinking spout:



Ex. 1009, 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.

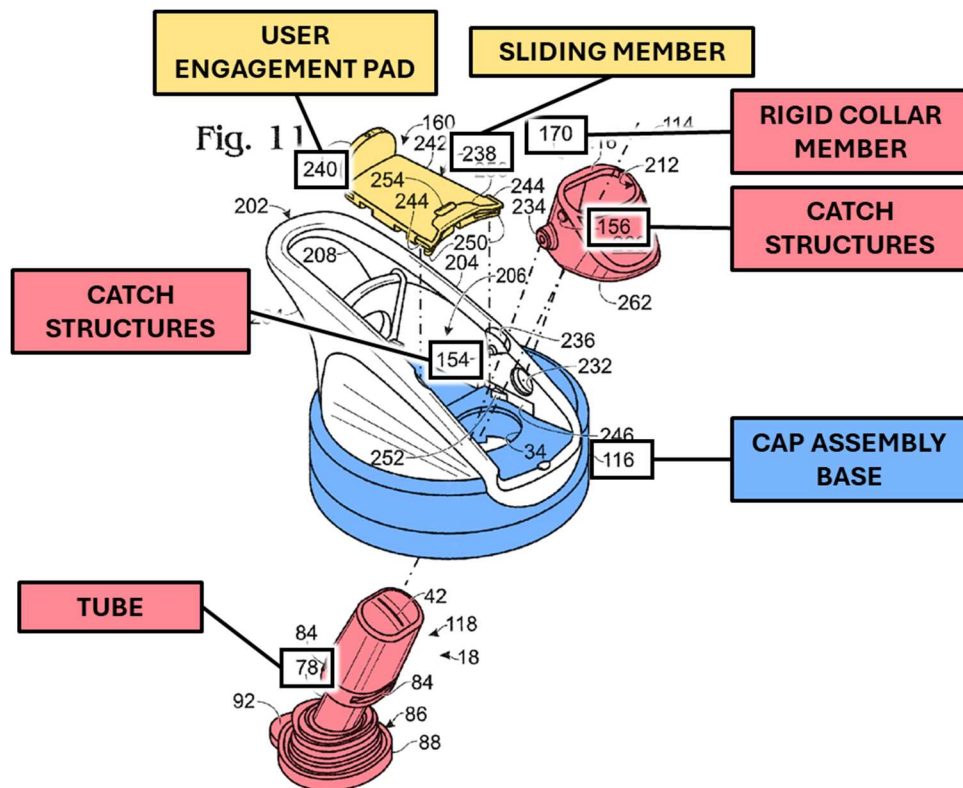
d. 1[B][4]: User Release Mechanism

261. 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.

262. 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 ’879 Patent specification discloses two embodiments of the user release mechanism. As I explain below, it is my opinion that Park discloses a user release mechanism that is

equivalent at least to the first of these two embodiments.

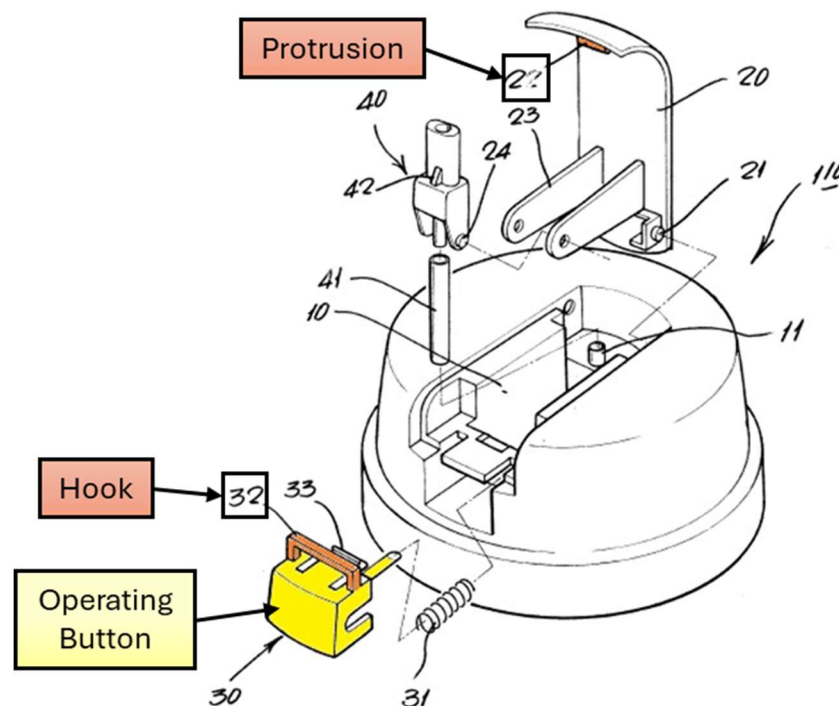
263. In the first embodiment described in the '879 Patent, the user release mechanism includes a “user engagement pad 240” and “sliding member 238,” as shown below.



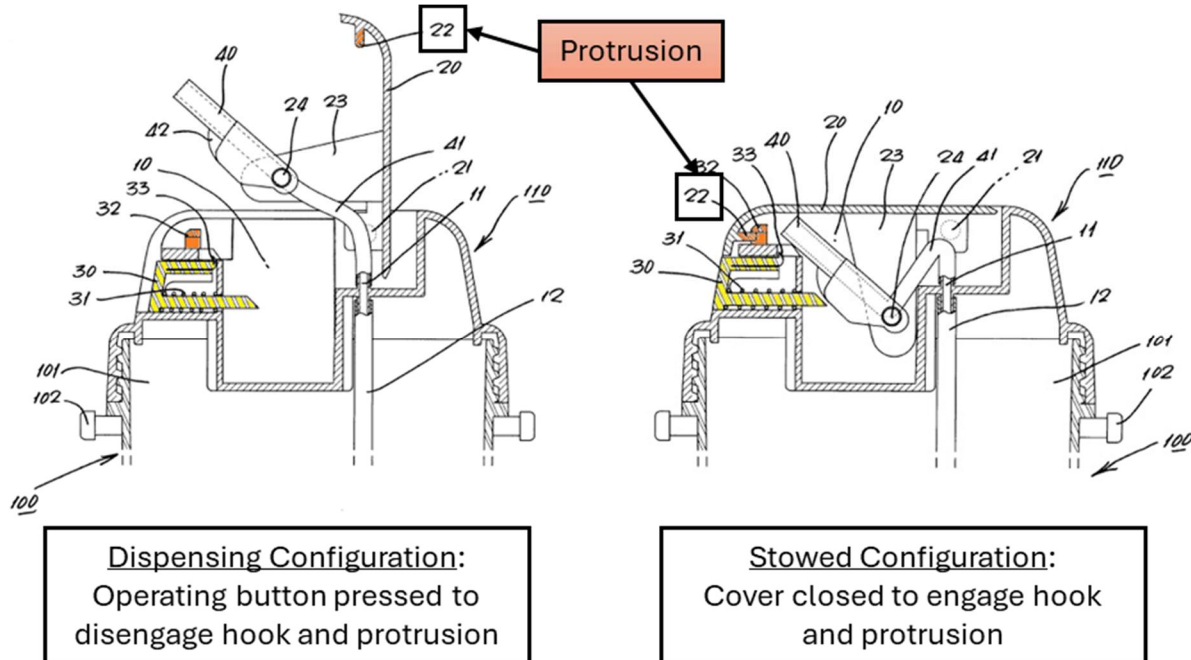
Ex. 1001, Fig. 11. In this embodiment, the mouthpiece is held in its closed configuration by catch structures 156 on rigid collar member 170 which engage with catch structures 154 on handle 202. The user activates the user release mechanism by pressing “user engagement pad 240,” which forces the “sliding member 238” to move between “base 116” and “rigid collar member 170,” which pressing the collar

upwards with sufficient 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).

264. Park discloses an equivalent structure to the embodiment described above. Specifically, Park discloses a “locking means” comprising “hook 32” on the upper surface of “operation button 30,” which slides within the “operating chamber 10” to engage or disengage “protrusion 22” on the underside of “cover 20.” The “locking means” is shown in Figure 3 below:



Ex. 1006, Fig. 3.



Ex. 1006, Figs. 5-6. Park describes the operation of “locking means,” as shown in Figures 5 and 6 above, as follows:

[W]hen a user wishes to drink the contents of the water bottle 100, the operating button 30 ... is pressed, and the operating button 30 is reciprocated by compressing the rear spring 31.

As a result, the hook 32 ... is disengaged from the protrusion 22 of the cover 20, and at this moment, the cover 20 is unfolded by the elastic force of the connecting hose 41

...

On the contrary, when the cover 20 is closed, a protrusion 22 formed on the lower surface of the cover 20 is coupled with the hook 32 of the operating button 30 and inserted and fastened into the operating chamber 10.

Ex. 1006, 5.

265. Park’s “locking means” is equivalent to the first embodiment of user

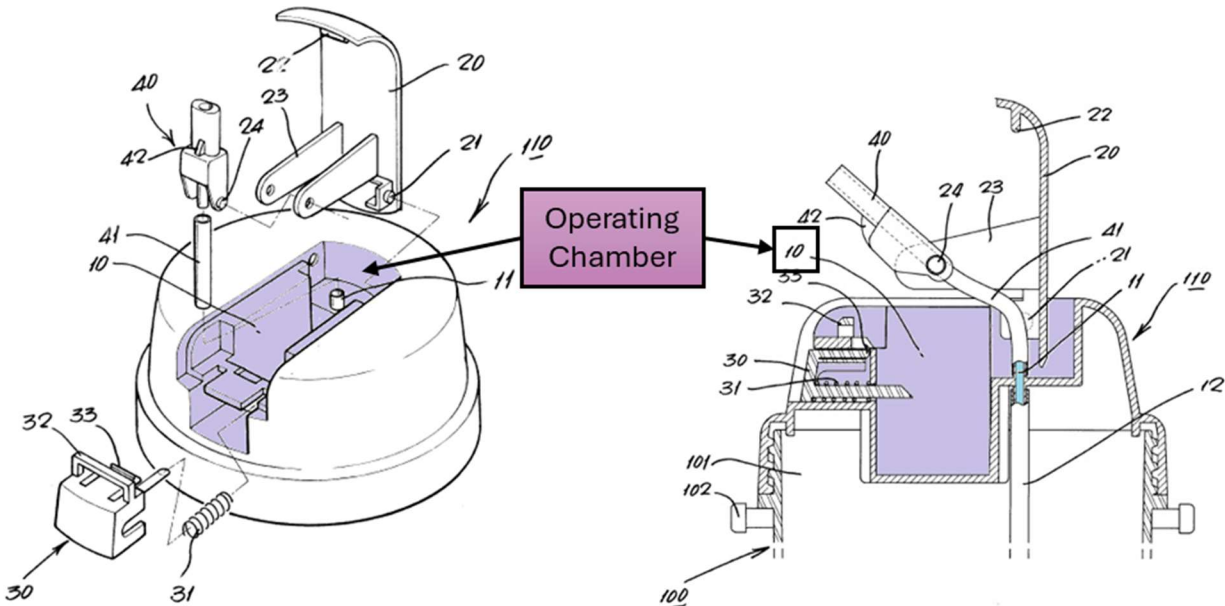
release mechanism described in the '879 Patent. That is because it performs the same function, in the same way, to achieve the same result. For example, in the first embodiment of the '879 Patent, the user presses on the “user engagement portion 260” of the mouthpiece assembly, which causes the catch structures to disengage and the mouthpiece to move to the dispensing configuration. Park’s “locking means” functions in substantially the same way: a user presses directly on the exterior surface of the “operation button 30,” which causes the button to slide, which disengages “hook 32” and “protrusion 22,” which in turn causes the mouthpiece assembly to move into the dispensing configuration.

266. 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 Park nonetheless discloses a structure that performs the function recited in the claim.

5. 1[C]: Stowing Region

267. Limitation 1[C] recites “wherein the cap assembly defines a stowing region sized to receive at least a portion of the mouthpiece assembly when the mouthpiece assembly is in the stowed configuration.” As I explain below, each of Park and Ribarits discloses this limitation.

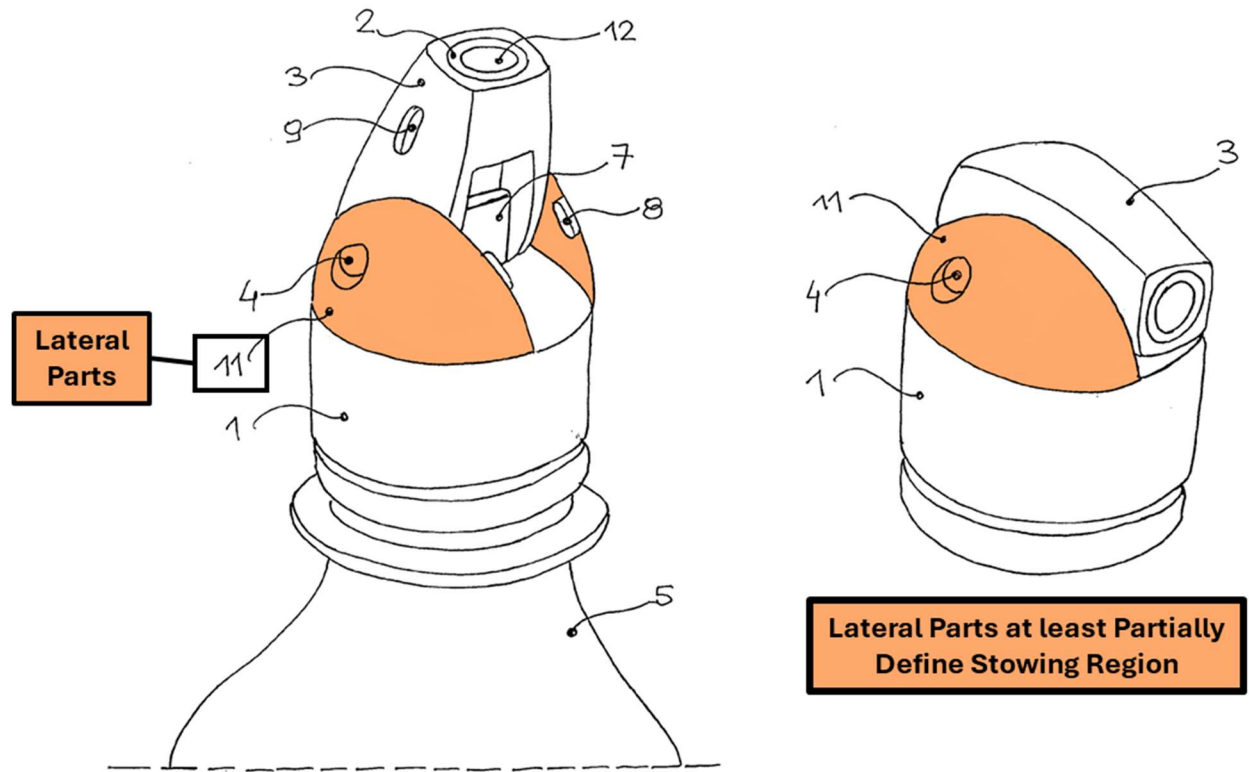
268. Park discloses “operating chamber 10,” which is shown in Figures 3 and 5 below:



Ex. 1006, Figs. 3, 5.

269. Park discloses: “In the process of closing the cover 20 ... the straw 40 ... is pivoted using the hinge shaft 24 ... and is securely accommodated into the operating chamber.” Ex. 1006, 5. Thus, a person of ordinary skill in the art would have understood “operating chamber 10” to constitute a stowing region, as claimed.

270. Ribarits also discloses a stowing region. Specifically, Ribarits discloses a pair of “lateral parts 11” that define a stowing region that receives at least a portion of the mouthpiece assembly, namely the “drinking spout,” when the mouthpiece assembly is in the stowed configuration, as shown below:



Ex. 1009, Fig. 1.

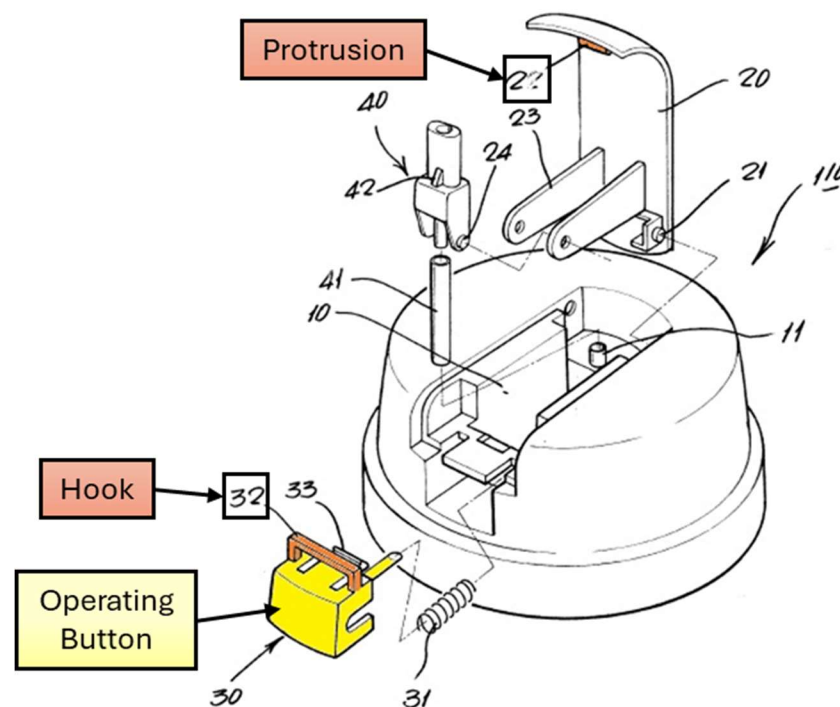
6. 1[D]: Sliding Member

271. Limitation 1[D] recites “wherein the user release mechanism includes a sliding member with a user engagement pad; wherein the user release mechanism is biased to urge the sliding member away from a position where the sliding member disengages the first and second catch structures; and wherein the sliding member is configured to slide relative to the base of the cap assembly to selectively disengage the first and the second catch structures.” As I explain below, Park discloses this limitation.

272. As explained above, Park discloses a “locking means” comprising “an

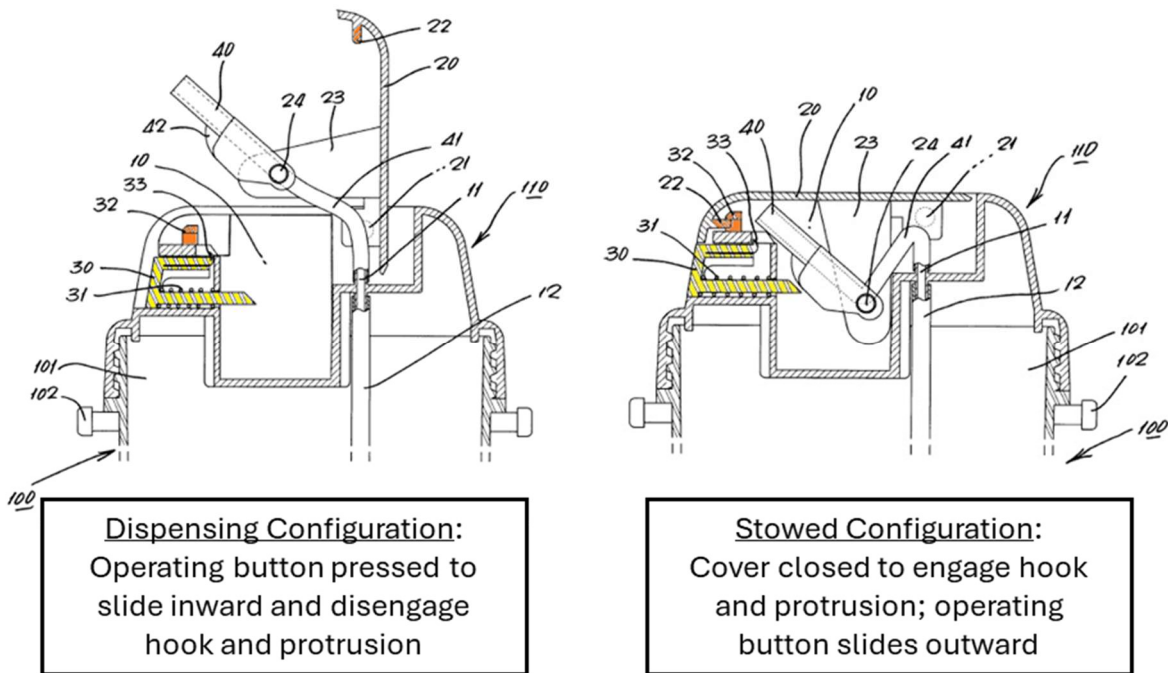
operating button 30 fastened at the front surface of the operating chamber 10” that “is configured to be moved forward and backward, and a hook 32 ... for locking and unlocking the cover 20” Ex. 1006, 4.

273. The “operating button 30 is elastically installed by a spring 31 and is configured to be moved forward and backward” within the “operating chamber 10,” as shown in Figure 3 below:



Ex. 1006, Fig. 3.

274. During operation, a user presses the exterior surface of the “operating button 30,” which causes the button to slide relative to the base of the lid within the channel, as shown in Figures 5 and 6:



Ex. 1006, Figs. 5-6.

275. The sliding movement of the “operating button 30” causes “hook 32” to disengage from “protrusion 22,” which causes “cover 20” to be “unfolded by the elastic force of the connecting hose 41” and “straw 40” to be opened into the dispensing configuration. Ex. 1006, 5. The “spring 31” biases “operating button 30” away from the dispensing configuration, such that when “cover 20” is closed, “hook 32” engages “protrusion 22” on the underside of “cover 20” to retain the mouthpiece assembly in the stowed configuration.

276. Accordingly, it is my opinion that claim 1 would have been obvious over Park, in view of Ribarits and the knowledge of a person of ordinary skill in the art.

B. Claim 3 is Obvious over Park, in view of Ribarits

277. Claim 3 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 Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

278. Claim 3 further recites, “wherein the sliding member is configured to slide relative to the base of the cap assembly within the stowing region to selectively disengage the first and the second catch structures.” As I explain below, Park discloses this additional limitation.

279. As explained in connection with limitation 1[D] above, Park discloses “operating button 30,” which is a sliding member. The operating button slides within the “operating chamber 10” (i.e. stowing region), relative to the base of Park’s “lid 110” (i.e. cap assembly). The sliding movement of the operating button within the operating chamber causes “hook 32” and “protrusion 22” to engage (in the stowed configuration) or disengage (in the dispensing configuration).

280. Because Park discloses the additional limitation of claim 3, it is also my opinion that claim 3 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

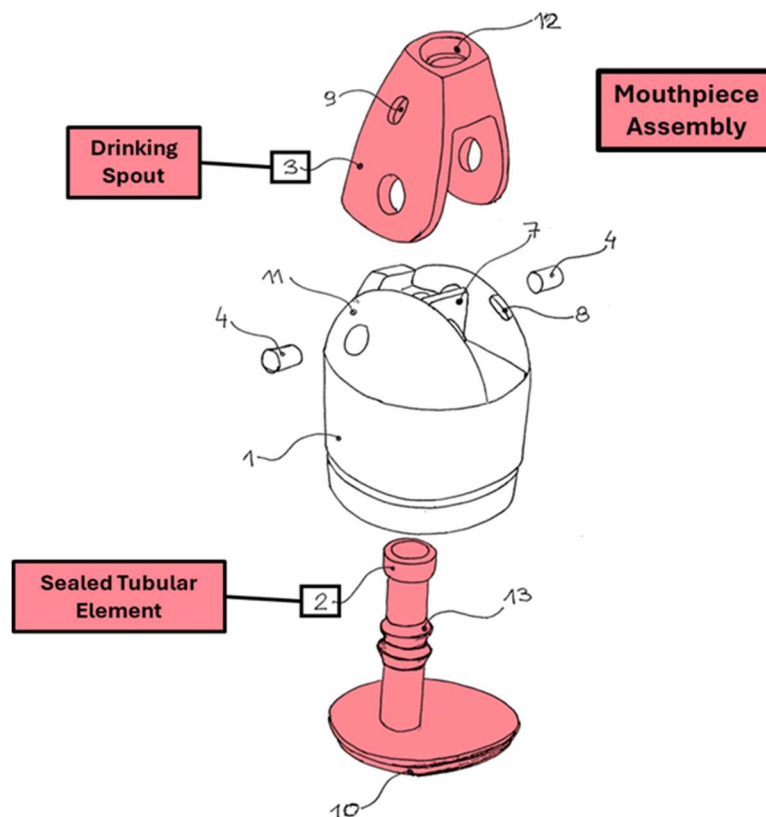
C. Claim 5 is Obvious over Park, in view of Ribarits

281. 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 obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

282. Claim 5 further recites, “wherein the tube portion includes structure for securing the tube portion to the rigid collar member and restricting relative movement between the tube portion and the rigid collar member.” As I explain below, Ribarits discloses this additional limitation.

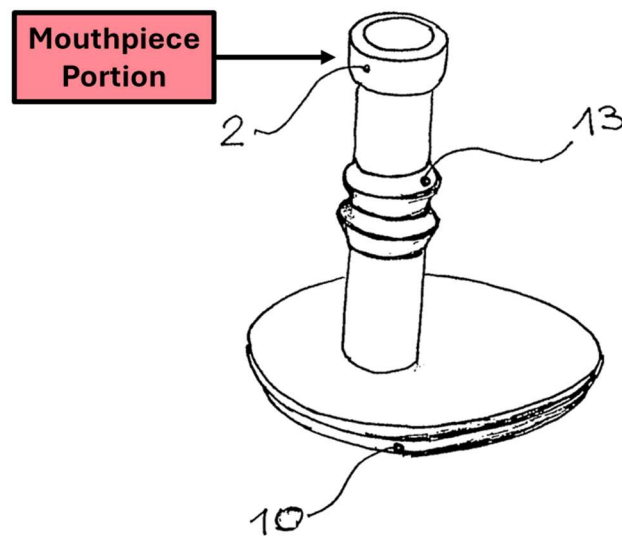
283. As explained in claim 1 above (and shown below), Ribarits’ mouthpiece assembly comprises “drinking spout 3” and “sealed tubular element 2”:



Ex. 1009, Fig. 2. The “sealed tubular element” constitutes the tube portion, and the

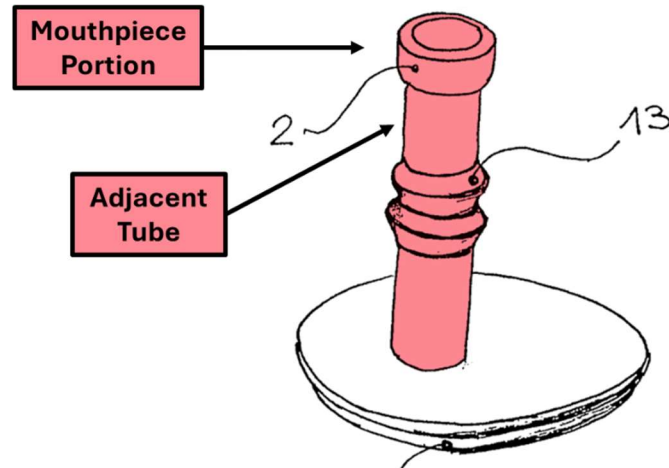
“drinking spout” constitutes the rigid collar member of Ribarits’ mouthpiece assembly.

284. The “sealed tubular element” includes a structure for securing the tube to the “drinking spout,” which I have identified below as the mouthpiece portion of “sealed tubular element.”

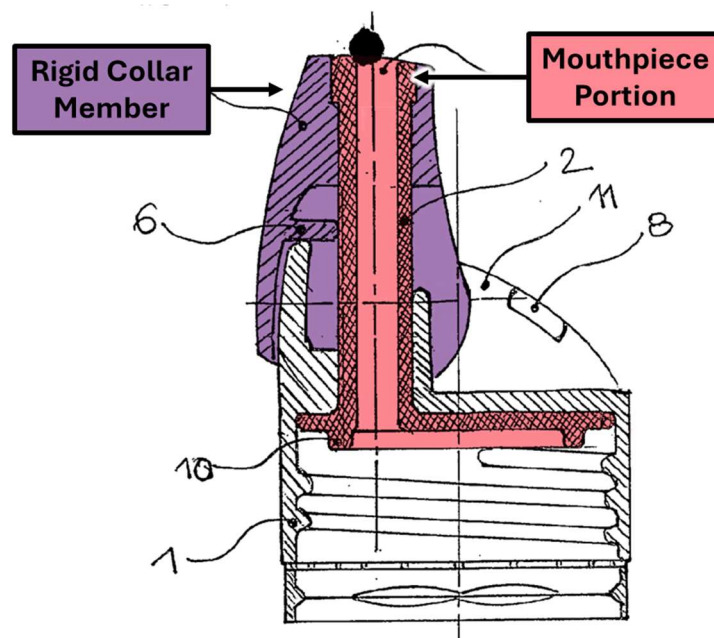


Ex. 1009, Fig. 2.

285. Ribarits’ mouthpiece portion has a larger diameter than the adjacent portion of the tube, as shown below:



Ex. 1009, Fig. 2. This structure fits within the outlet end of Ribarits' "drinking spout" and secures the "sealed tubular element" within the rigid collar member:



Ex. 1009, Fig. 3. The mouthpiece portion is fit within the rigid collar member via a friction fit, and thus restricts relative movement between the tube and the collar during use.

286. For the reasons I explained in claim 1 above, it would have been obvious to replace Park’s “straw” and “connection hose” with Ribarits’ “drinking spout” and “sealed tubular element.” In implementing that modification, a person of ordinary skill in the art also would have recognized the desirability of implementing a structure for securing the tube portion of the mouthpiece assembly to the rigid collar member, similar to that disclosed in Ribarits.

287. That is because, as in Ribarits, such structure ensures correct positioning of the tube portion within the rigid collar member, and prevents relative movement of the components during use of the device. Thus, a person of ordinary skill in the art would have recognized that a securing structure would ensure the intended crimping functionality of the device when pivoted to the stowed configuration.

288. Thus, it is also my opinion that claim 5 also would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

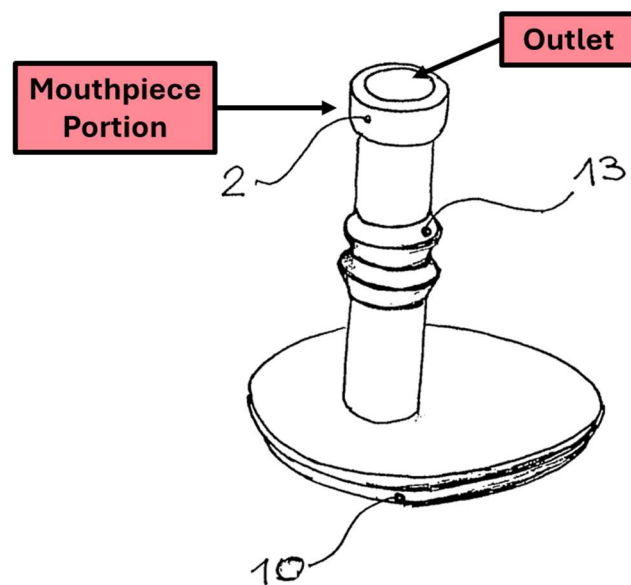
D. Claim 6 is Obvious over Park, in view of Ribarits

289. 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 obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

290. Claim 6 further recites, “wherein the mouthpiece assembly further

includes a mouthpiece portion that includes the outlet and is constructed of the resiliently deformable material.” As I explain below, Ribarits discloses this additional limitation.

291. As explained in claim 5 above, the “sealed tubular element” includes a mouthpiece portion, which I have identified below:



Ex. 1009, Fig. 2. As shown above, the mouthpiece portion includes the outlet of Ribarits’ mouthpiece assembly and is constructed of the same “rubber or latex” material as the rest of the “sealed tubular element.” A person of ordinary skill in the art would have understood such elastic material to be “resiliently deformable,” as claimed.

292. Because Ribarits discloses the additional limitations of claim 6, it is also my opinion that claim 6 would have been obvious to a person of ordinary skill

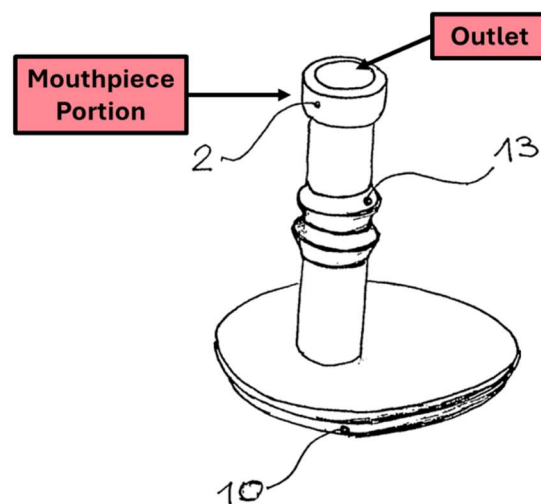
in the art over Park, in view of Ribarits.

E. Claim 7 is Obvious over Park, in view of Ribarits

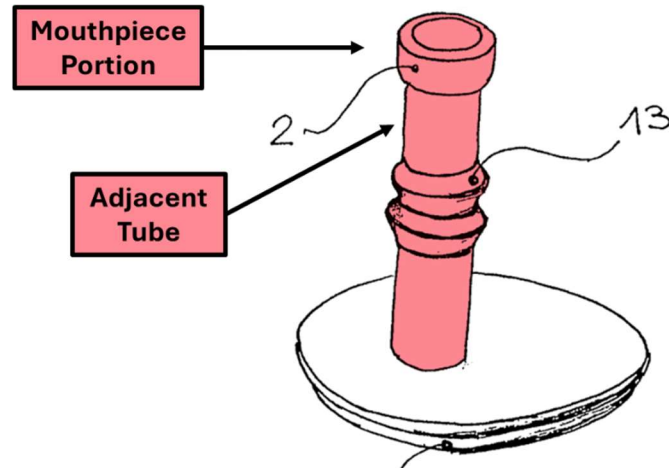
293. Claim 7 depends from Claim 6, and thus incorporates the limitations of Claim 6. As explained above, it is my opinion that Claim 6 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

294. Claim 7 further recites, “wherein the mouthpiece assembly includes mouthpiece-securing structure that secures the mouthpiece portion to the rigid collar member and restricts relative movement between the mouthpiece portion and the rigid collar member.” As I explain below, Ribarits discloses this additional limitation.

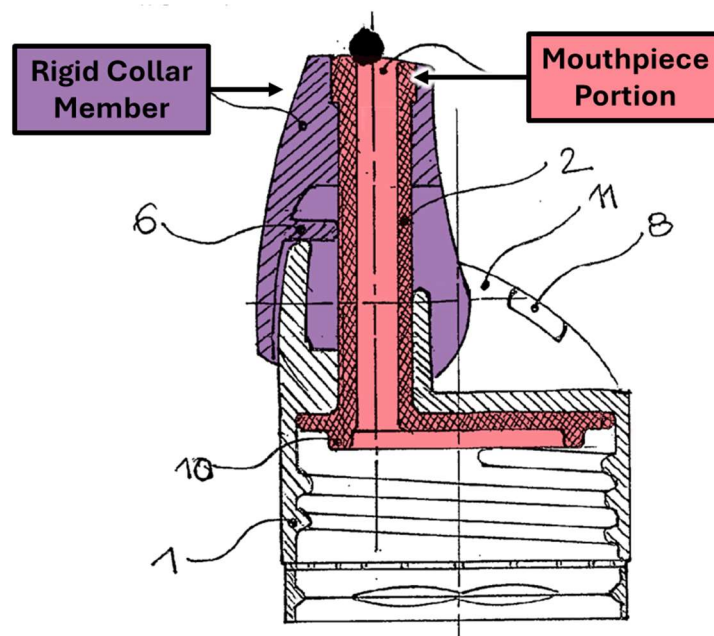
295. Ribarits’ “sealed tubular element” includes a mouthpiece portion:



Ex. 1009, Fig. 2. Ribarits’ mouthpiece portion has a larger diameter than the adjacent portion of the tube, as shown below:



Ex. 1009, Fig. 2. This structure fits within the outlet end of Ribarits' "drinking spout" and secures the "sealed tubular element" within the rigid collar member:



Ex. 1009, Fig. 3. The mouthpiece portion is fit within the rigid collar member via a friction fit, and thus restricts relative movement between the tube and the collar during use. Thus, a person of ordinary skill in the art would have understood the

mouthpiece portion would restrict relative movement between the mouthpiece portion and the drinking spout (i.e. the rigid collar member).

296. For the same reasons I explained in claim 5 above, it would have been obvious to a person of ordinary skill in the art to modify Park to include Ribarits' mouthpiece-securing structure. Accordingly, it is also my opinion that claim 7 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

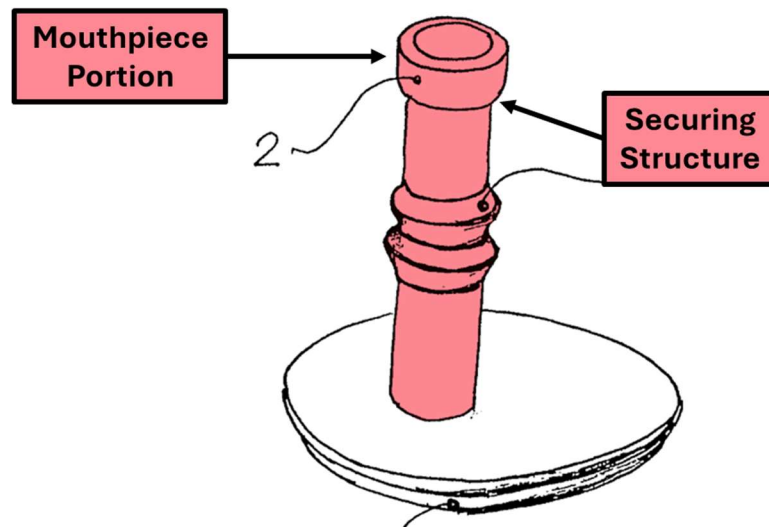
F. Claim 8 is Obvious over Park, in view of Ribarits

297. Claim 8 depends from Claim 7, and thus incorporates the limitations of Claim 7. As explained above, it is my opinion that Claim 7 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

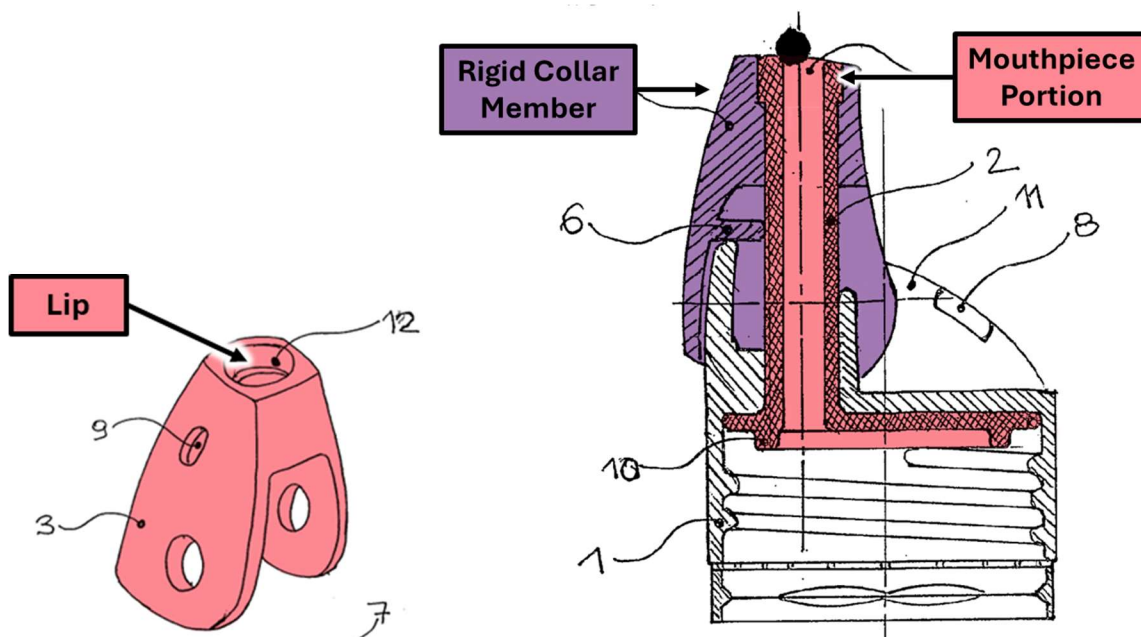
298. Claim 8 further recites, “wherein one of the mouthpiece portion and the tube portion includes the mouthpiece-securing structure; wherein the mouthpiece-securing structure includes one or more of a channel and a depression; wherein the rigid collar member includes one or more of a lip, a flange, and a protrusion; and wherein the one or more of the channel and the depression defines a seat that engages and mates with the one or more of the lip, the flange, and the protrusion.” As I explain below, Ribarits discloses this additional limitation.

299. As I explained in claim 7 above, the mouthpiece portion of Ribarits'

“sealed tubular element” includes the mouthpiece-securing structure. As shown below, that structure includes a circumferential depression:



Ex. 1009, Figs. 2-3. The circumferential depression forms a seat that engages with a corresponding circumferential lip on Ribarits’ “drinking spout,” as shown below:



Ex. 1009, Figs. 2-3.

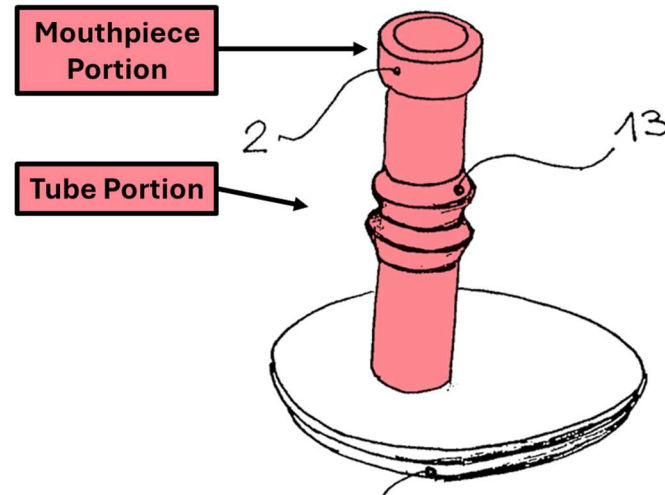
300. For the same reasons I explained in claim 5 above, it would have been obvious to a person of ordinary skill in the art to include a securing structure, such as that disclosed in Ribarits, in the proposed modification of Park. Accordingly, it is also my opinion that claim 8 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

G. Claim 10 is Obvious over Park, in view of Ribarits

301. Claim 10 depends from Claim 6, and thus incorporates the limitations of Claim 6. As explained above, it is my opinion that Claim 6 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

302. Claim 10 further recites, “wherein the mouthpiece portion and the tube portion are constructed as a unitary assembly of the resiliently deformable material.” As I explain below, Ribarits discloses this additional limitation.

303. Ribarits’ “sealed tubular element” is made from a resilient elastic material, such as “rubber or latex,” and is constructed as a unitary assembly that includes both the mouthpiece portion and the tube portion, as shown below:



Ex. 1009, 2, Fig. 2.

304. For the same reasons I explained in claim 1 above, it would have been obvious to a person of ordinary skill in the art to replace Park’s “straw” and “connecting hose” with Ribarits’ “drinking spout” and “sealed tubular element,” which would have included the mouthpiece portion of the sealed tubular element. Accordingly, it is also my opinion that claim 10 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

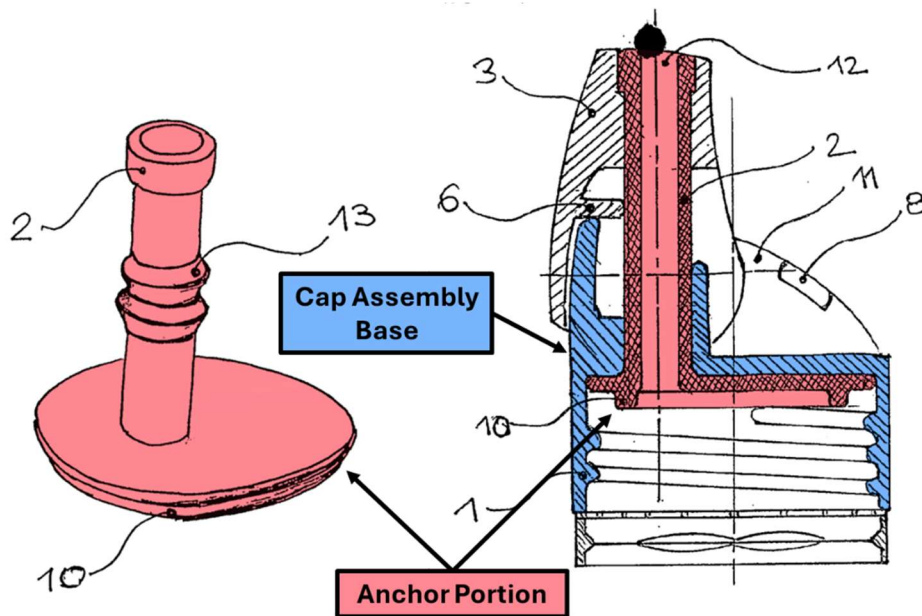
H. Claim 11 is Obvious over Park, in view of Ribarits

305. Claim 11 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 Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

306. Claim 11 further recites, “wherein the mouthpiece assembly further includes an anchor portion that extends from the tube portion.” As I explain below,

Ribarits discloses this additional limitation.

307. Ribarits discloses “sealing rings 10” at the base of its “sealed tubular member,” as shown below:



Ex. 1009, Figs. 2-3. As shown above, the sealing rings extend from the base of the tube portion, and form a tight seal with the base of the cap assembly.

308. Because the sealing rings are larger than the diameter of the tube portion, a person of ordinary skill would have understood the sealing rings to prevent the tube from slipping vertically through the “drinking spout.” Thus, a person of ordinary skill in the art would have understood the “sealing rings 10” to constitute an “anchor portion,” as claimed.

309. As discussed in connection with claim 1 above, it is my opinion that it

would have been obvious to a person of ordinary skill in the art to replace Park's straw and connecting hose with Ribarits' drinking spout and sealed tubular element. In implementing that modification, a person of ordinary skill in the art also would have been motivated to include an anchor, such as that disclosed in Ribarits, to secure the tube portion of the mouthpiece assembly on the inlet side of Park's "discharge hole."

310. For example, in replacing Park's "connecting hose" with Ribarits' "sealed tubular element, a person of ordinary skill in the art would have been motivated to design the tube to be easily inserted from the underside of Park's "lid 110" and through "discharge hole 11." In view of the teachings of Ribarits, a person of ordinary skill in the art would have understood that a simple circumferential flange could be incorporated on either side of the through-passage to ensure a tight fit between the tube and the through-passage, and to maintain the position of the mouthpiece assembly within the through-passage. A person of ordinary skill in the art also would have recognized that such a design could be readily inserted into or removed from the through-passage, which would have the added benefit of facilitating cleaning, maintenance, or replacement of the mouthpiece assembly.

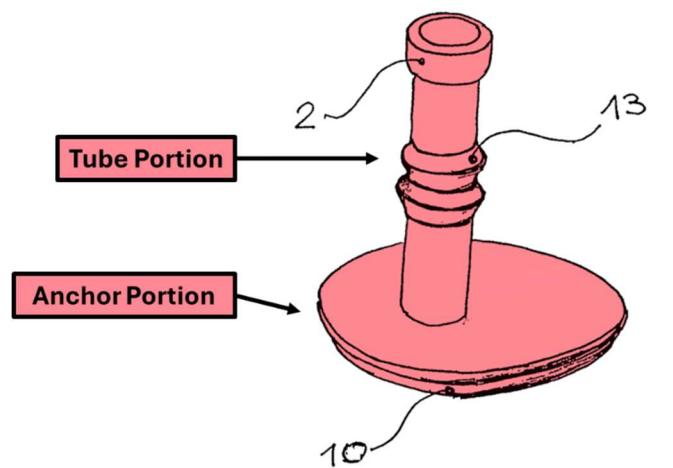
311. Accordingly, it is also my opinion that claim 11 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

I. Claim 12 is Obvious over Park, in view of Ribarits

312. Claim 12 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Claim 11 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

313. Claim 12 further recites, “wherein the anchor portion has a greater exterior perimeter than the tube portion.” As I explain below, Ribarits discloses this additional limitation.

314. As explained in claim 11 above, Ribarits’ “sealing rings 10,” which a person of ordinary skill in the art would have understood to constitute the claimed “anchor portion,” have a greater perimeter than the tube portion of the mouthpiece assembly:



Ex. 1009, Fig. 2.

315. Because Ribarits discloses the additional limitation of claim 12, it is

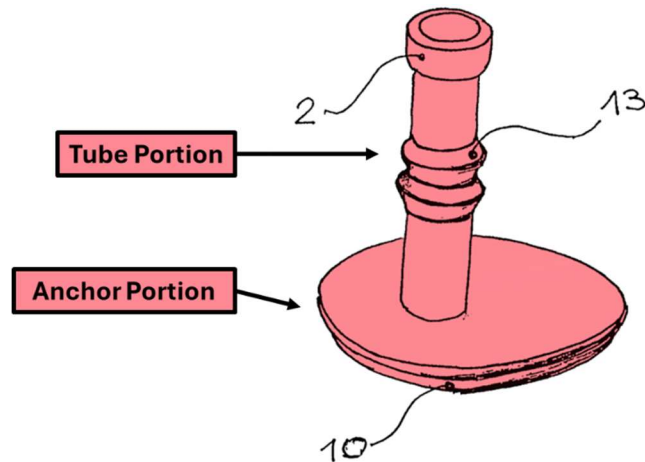
also my opinion that claim 12 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits, for the same reasons discussed in claim 1 and claim 11 above.

J. Claim 13 is Obvious over Park, in view of Ribarits

316. Claim 13 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Claim 11 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

317. Claim 13 further recites, “wherein the anchor portion and tube portion are constructed as a unitary assembly of the resiliently deformable material.” As I explain below, Ribarits discloses this additional limitation.

318. Ribarits’ “sealed tubular element” is made from a resilient elastic material, such as “rubber or latex,” and is constructed as a unitary assembly that includes both the “sealing rings 10,” which a person of ordinary skill in the art would have understood to be the claimed “anchor portion,” and the tube portion, as shown below:



Ex. 1009, 2, Fig. 2.

319. Because Ribarits discloses the additional limitation of claim 13, it is also my opinion that claim 13 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits, for the same reasons discussed in claims 1 and 11 above.

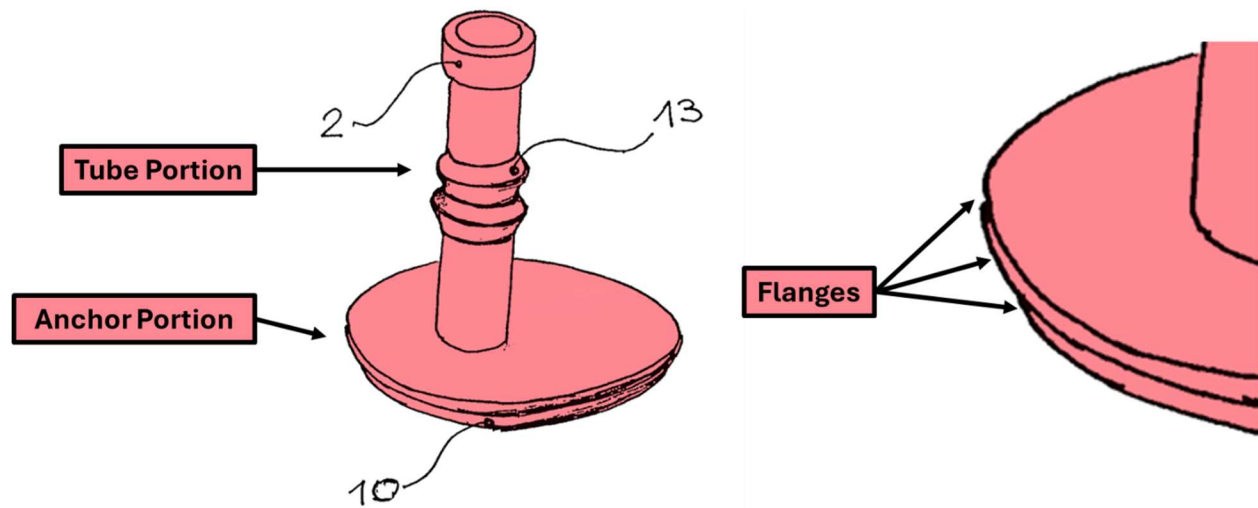
K. Claim 15 is Obvious over Park, in view of Ribarits

320. Claim 15 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Claim 11 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

321. Claim 15 further recites, “wherein the anchor portion includes a projecting flange that provides a friction-fit arrangement with the through-passage of the base.” As I explain below, Ribarits discloses this additional limitation.

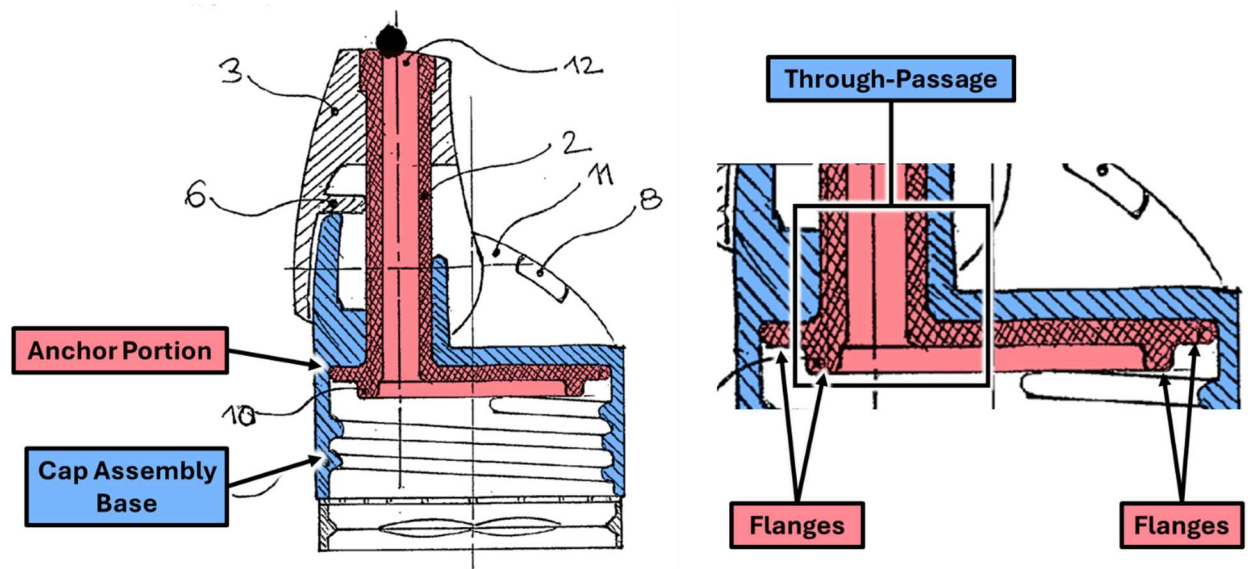
322. As explained in claim 11 above, Ribarits’ mouthpiece assembly

includes “one or several projecting sealing rings (10)” (Ex. 1009, 3 (Claim 2)), which a person of ordinary skill in the art would have understood to be the claimed “anchor portion.” These sealing rings are shown below:



Ex. 1009, Fig. 2). As shown above, the sealing rings comprise a series of flanges that project outwardly from the tube portion of Ribarits’ “sealed tubular element.”

323. As explained in claim 11 above and shown below, the sealing rings form a tight seal with the through-passage, by virtue of the friction fit between the sealing rings and the base of Ribarits’ “closure cap” when in the cap is screwed onto the liquid container:



Ex. 1009, Fig. 3.

324. Because Ribarits discloses the additional limitation of claim 15, it is also my opinion that claim 15 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits, for the same reasons discussed in claims 1 and 11 above.

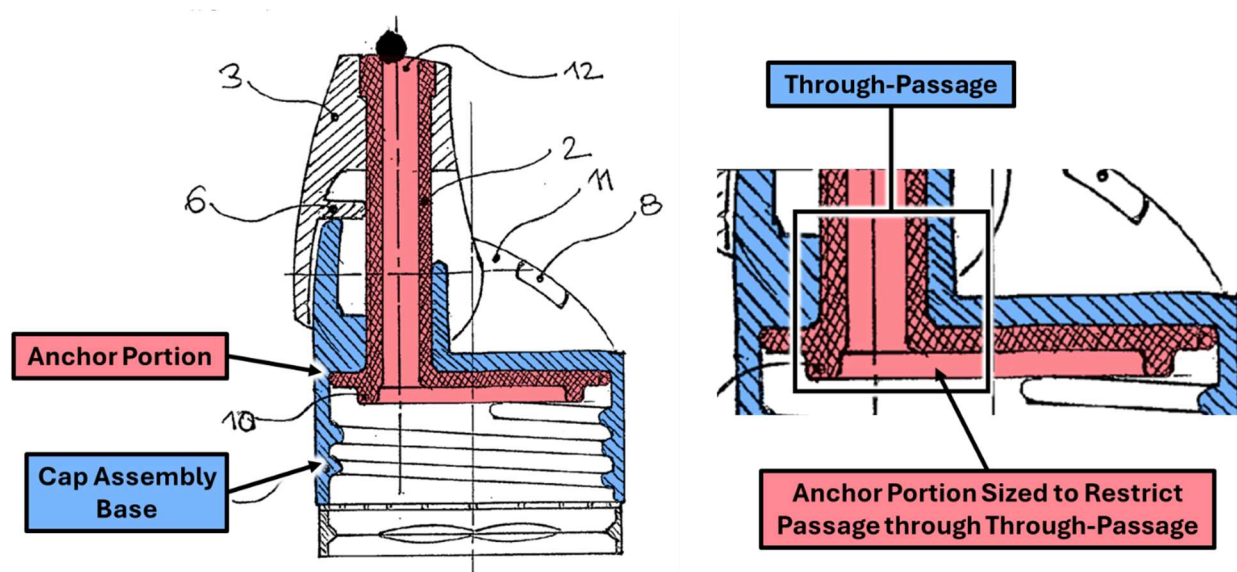
L. Claim 16 is Obvious over Park, in view of Ribarits

325. Claim 16 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained above, it is my opinion that Claim 11 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

326. Claim 16 further recites, “wherein the anchor portion is sized to restrict passage of the anchor portion through the through-passageway and thus restrict removal of the mouthpiece assembly via a top side of the cap assembly.” As I explain below,

Ribarits discloses this additional limitation.

327. Ribarits’ “sealing ring 10,” which a person of ordinary skill in the art would have understood to be the claimed “anchor portion,” extends outward to prevent it from passing through the through-passage at the base of the cap assembly, as shown below:



Ex. 1009, Fig. 3.

328. As explained above in claim 11, because Ribarits’ sealing ring is a unitary assembly with, and has a greater diameter than, the tube portion, it prevents slippage of the tube portion through the through-passage. Likewise, because Ribarits’ “sealed tubular element” includes a mouthpiece portion that seats within Ribarits’ “drinking spout,” the sealing rings also restrict removal of the drinking spout from Ribarits’ cap assembly.

329. Because Ribarits discloses the additional limitation of claim 16, it is also my opinion that claim 16 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits, for the same reasons discussed in claims 1 and 11 above.

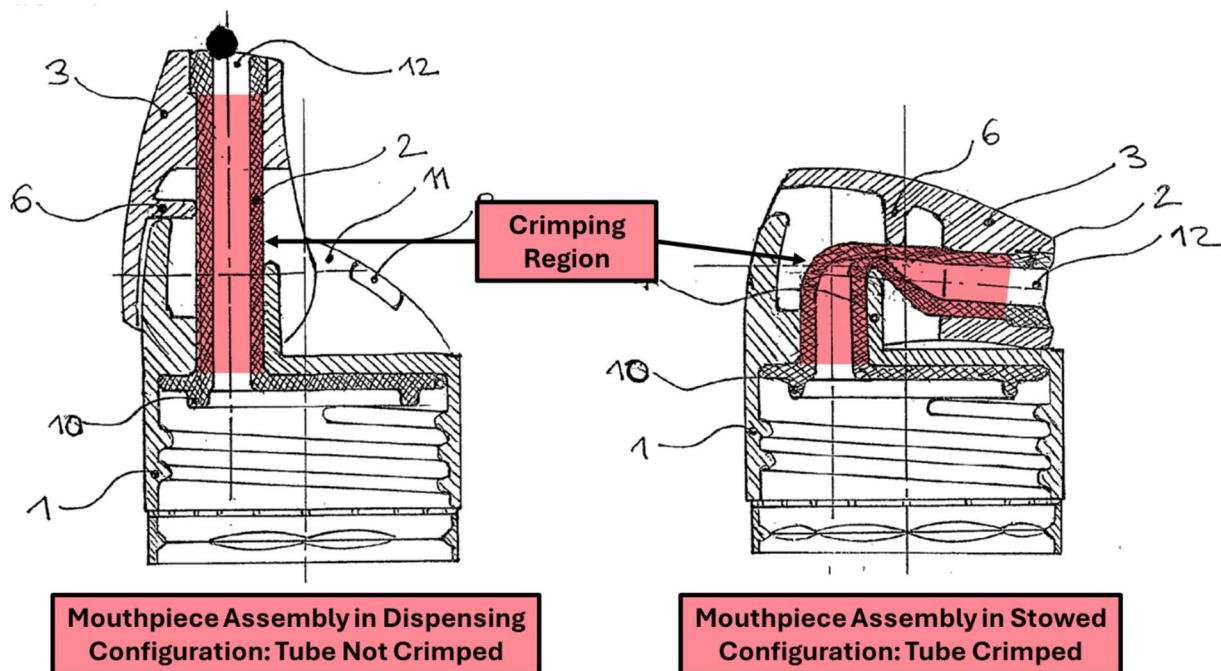
M. Claim 17 is Obvious over Park, in view of Ribarits

330. Claim 17 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 Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

331. Claim 17 further recites, “wherein the crimping region at least partially biases the mouthpiece assembly to the dispensing configuration.” As I explain below, each of Park and Ribarits discloses this additional limitation.

332. As discussed above in connection with limitation 1[B][3], Park’s “connection hose 41” includes a crimping region that collapses when Park’s mouthpiece assembly is in the stowed configuration, and biases the mouthpiece assembly to the dispensing configuration.

333. Like Park’s “connection hose,” Ribarits’ flexible tube includes a crimping region that collapses to restrict fluid flow through the tube when in the stowed configuration.



Ex. 1009, Fig. 3.

334. Ribarits' flexible tube is also comprised of an elastic rubber or latex material. Ex. 1009, 2. Thus, as in Park, a person of ordinary skill in the art would have understood the tube—and thus the crimping region—to be biased to the dispensing configuration.

335. Because each of Park and Ribarits discloses the additional limitation of claim 17, it is also my opinion that claim 17 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

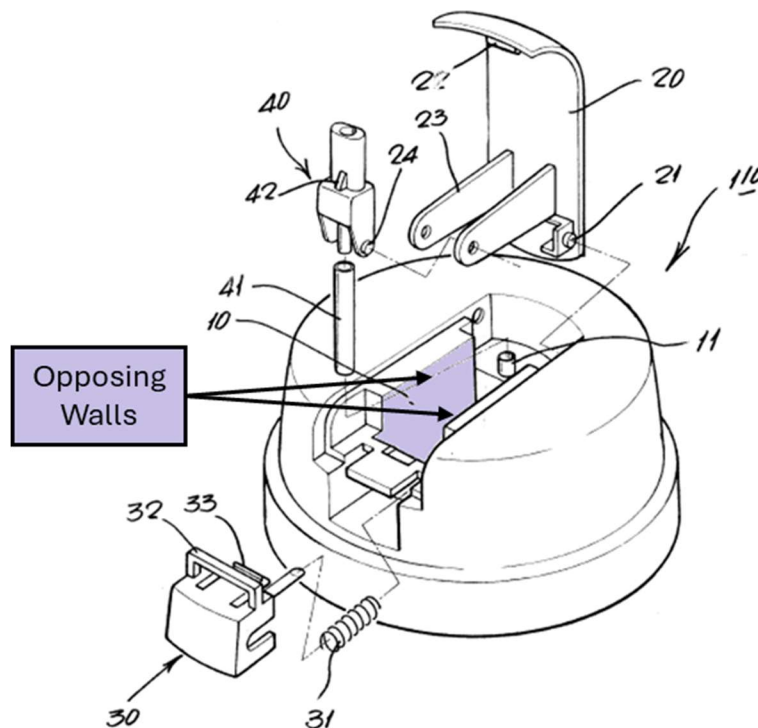
N. Claim 18 is Obvious over Park, in view of Ribarits

336. Claim 18 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 Park

in view of Ribarits and the knowledge of a person of ordinary skill in the art.

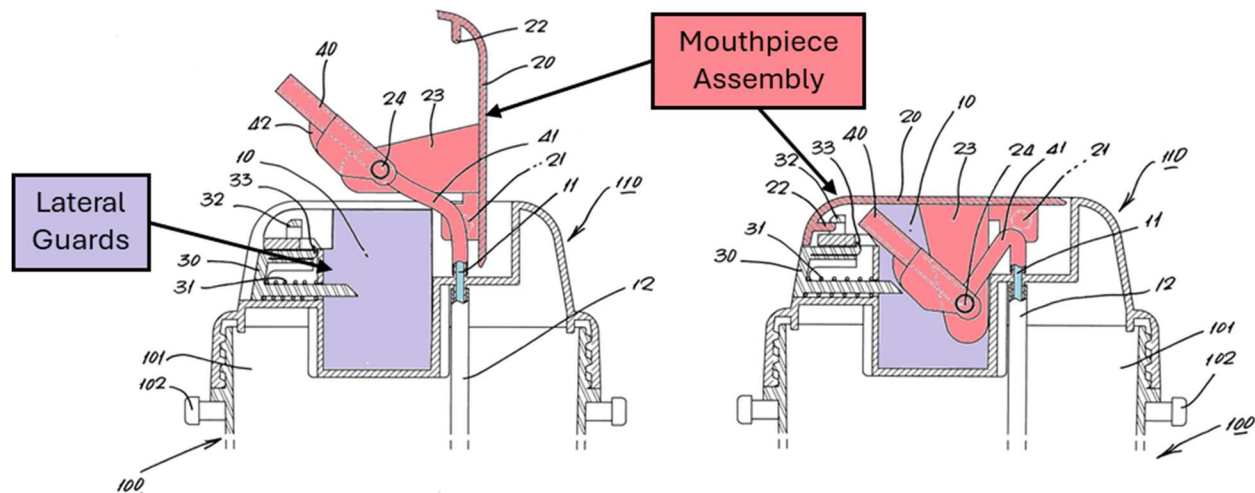
337. Claim 18 further recites, “wherein the cap assembly further includes a pair of lateral guards that at least partially define the stowing region, and wherein at least a portion of the mouthpiece assembly is received between the pair of lateral guards when the mouthpiece assembly is in the stowed configuration.” As I explain below, each of Park and Ribarits discloses this additional limitation.

338. As I explained in claim 1, Park discloses “operating chamber 10,” which constitutes the stowing region of Park’s “lid 110.” As shown in Figure 3 below, a pair of opposing walls define the lateral boundary of the operating chamber:



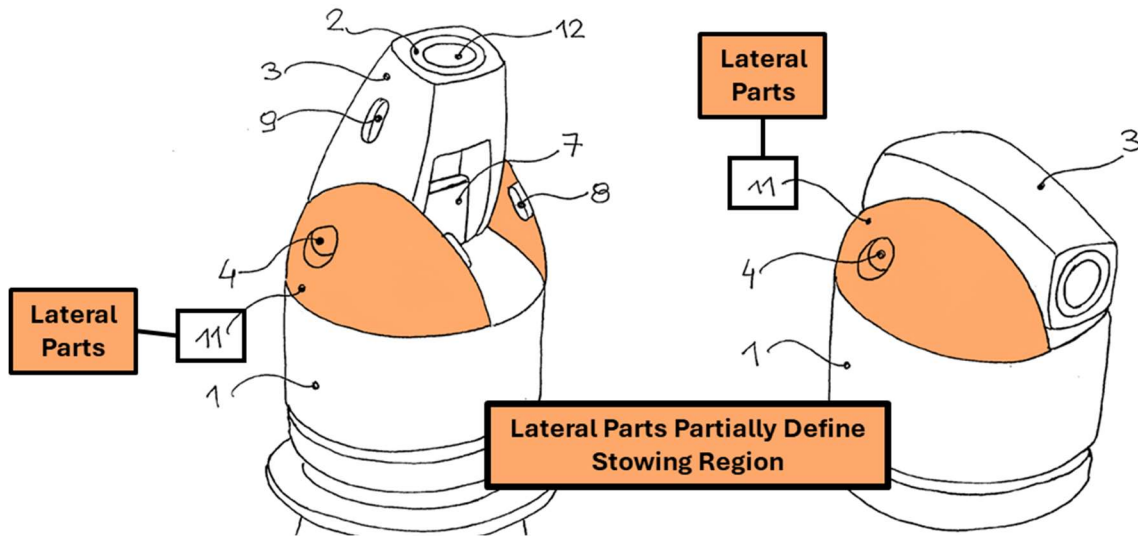
Ex. 1006, Fig. 3.

339. Park discloses that “[i]n the process of closing the cover 20 ... the straw 40 ... is pivoted using the hinge shaft 24 ... and is securely accommodated into the operating chamber 10.” *Id.* at 5. This is shown in the figures below:



Ex. 1006, Figs. 5-6. Thus, a person of ordinary skill in the art would have understood at least a portion of Park’s mouthpiece assembly, namely “straw 40,” to be received within stowing region of “lid 110” when in the stowed position.

340. As I explained in claim 1, Ribarits discloses a pair of “lateral parts” that define a stowing region, as shown below:



Ex. 1009, Fig. 1. When pivoted to the stowed configuration, Ribarits’ “drinking spout” is received within the space between the lateral parts.

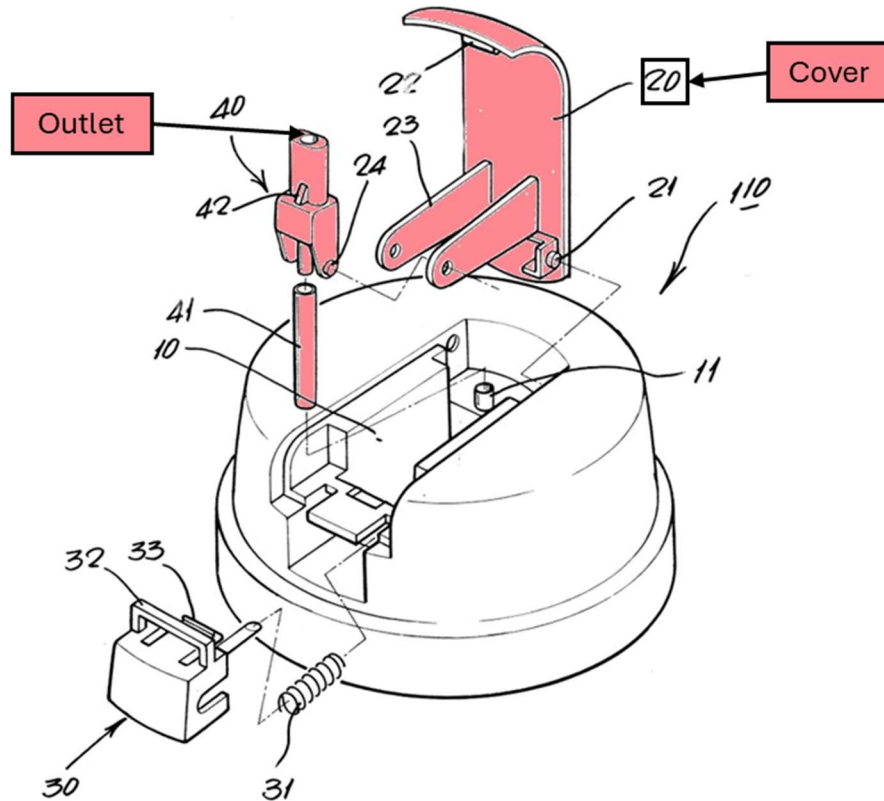
341. Because each of Park and Ribarits discloses the additional limitation of claim 18, it is also my opinion that claim 18 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

O. Claim 19 is Obvious over Park, in view of Ribarits

342. Claim 19 depends from Claim 18, and thus incorporates the limitations of Claim 1. As explained above, it is my opinion that Claim 18 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

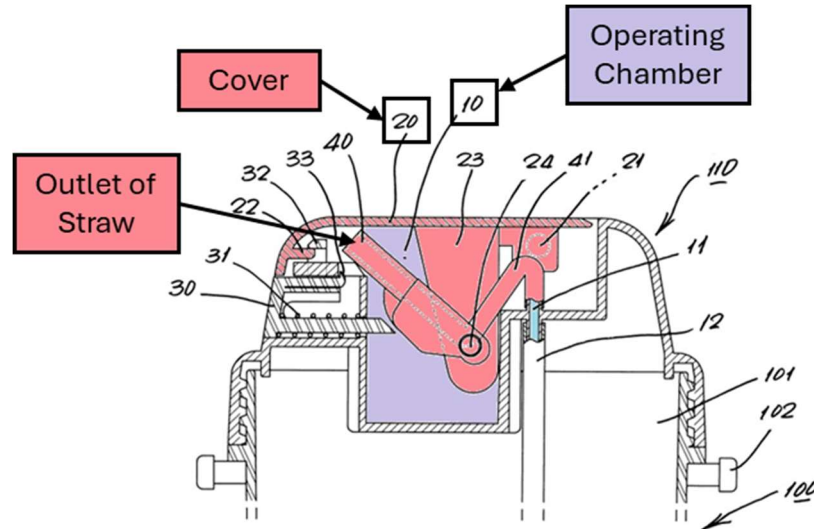
343. Claim 19 further recites, “wherein the cap assembly further includes a dust cover portion that extends between the lateral guards and which extends across the outlet when the mouthpiece assembly is in the stowed configuration.” As I explain below, Park discloses this additional limitation.

344. Park discloses “cover 20,” which is part of the mouthpiece assembly of Park’s “lid 110” (i.e. cap assembly), as shown below:



Ex. 1006, Fig. 3.

345. In the stowed configuration, “cover 20” is closed over the top of “operating chamber 10” to cover the outlet of “straw 40,” as shown below:



Ex. 1006, Fig. 5. Accordingly, a person of ordinary skill in the art would have understood Park’s “cover 20” to constitute a dust cover, as claimed.

346. Because Park discloses the additional limitation of claim 19, it is also my opinion that claim 19 would have been obvious to a person of ordinary skill in the art over Park, in view of Ribarits.

VI. GROUND 3: CLAIM 14 IS OBVIOUS IN VIEW OF PARK, RIBARITS AND KIYOTA

A. Claim 14 is Obvious over Park, in view of Ribarits

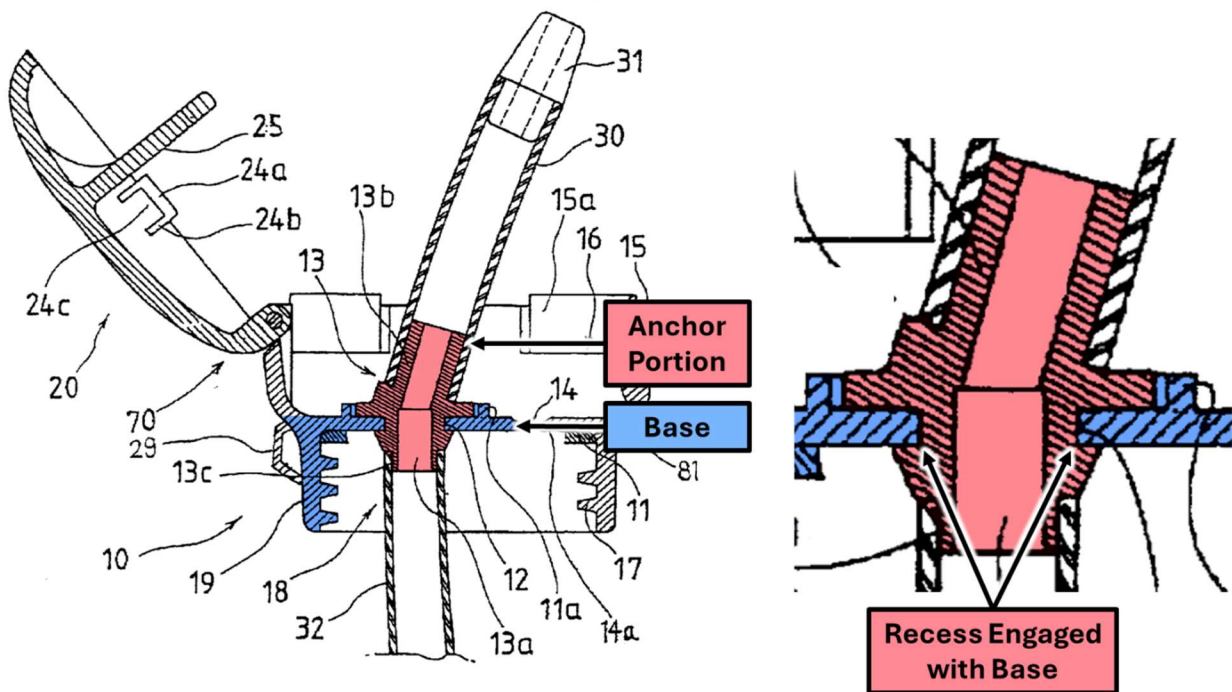
347. Claim 14 depends from Claim 11, and thus incorporates the limitations of Claim 11. As explained in Ground 2 above, it is my opinion that Claim 11 is obvious over Park in view of Ribarits and the knowledge of a person of ordinary skill in the art.

348. Claim 14 further recites, “wherein the anchor portion defines a recess

that is sized and shaped to engage and mate with corresponding structure of the base of the cap assembly.” As I explain below, this additional limitation would have been obvious over Park and Ribarits, in further view of the Kiyota and the knowledge of a person of ordinary skill in the art.

349. As I explained in connection with claim 14 in ground 1, above, Kiyota discloses that “coupling tube 13,” which a person of ordinary skill in the art would understand to constitute an “anchor portion,” defines a recess that is sized and shaped to engage and mate with corresponding structure of the base of the cap assembly. This is shown in Kiyota’s Figure 6 below:

FIG. 6



Ex. 1004, Fig. 6.

350. As I explained above, it is my opinion that, in view of Ribarits and the knowledge of a person of ordinary skill in the art, it would have been obvious to replace Park’s “straw 40” and “connection hose 41” with Ribarits’ “drinking spout” and “sealed tubular element.”

351. A person of ordinary skill in the art would have looked to the teachings of Kiyota to further modify and improve Park’s and/or Ribarits’ design. That is because Kiyota is directed to similar subject matter as both Park and Ribarits. For example, Kiyota discloses drink containers with cap assemblies of substantially the same functionality as both Park and Ribarits. As explained above, Kiyota discloses cap assemblies having mouthpieces that can be opened and closed into dispensing and stowed configurations, and includes elastic tube elements with crimping regions that collapse in the stowed configuration to prevent leakage when the drink containers are not in use.

352. In view of the teachings of Kiyota, a person of ordinary skill in the art would have recognized the desirability of modifying the design of Ribarits’ anchor portion to include a recess sized and shaped to engage and mate with the base of the cap assembly, as taught by Kiyota. That is because such a design would have ensured a tight seal between the anchor portion and the cap assembly base, and would have prevented slippage of the tube portion during use.

353. Accordingly, it is my opinion that it claim 14 would have been obvious to a person of ordinary skill in the art in view of Ribarits and Park, and in further view of Kiyota.

VII. CONCLUSION

354. For the above reasons, it is my opinion that the prior art either anticipates or renders obvious claims 1, 3, 5-8, and 10-19 of the '879 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: November 5, 2024

By: _____

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

Appendix A

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

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Westbrook, CT 06498

(C) 860-304-2151
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 than 10 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	<u>Trove Brands LLC</u> v. Camelbak Products LLC and Vista Outdoor, Inc., Beverage containers
3/7/24	IPR2024-00642	10,660,473	<u>Loco Crazy Good Cookers, Inc</u> v. North Atlantic Imports, LLC, Barbecue griddles
7/20/2022, 11/11/2022	<i>Ex Parte Reexamination</i>	8,118,204	Senco Brands, Inc. v. <u>Hitachi Koki, USA, Ltd.</u> , Portable battery powered fastening tool
6/30/2022, 12/16/2022 2/22/2023	PGR2022-00030 Deposition	11,235,486	Gillette Company, LLC v. <u>Sphere USA, LLC</u> , Hand held razor
4/6/22 6/4/21 4/4/2023	IPR2022-0084 <i>Ex Parte Reexamination</i> Deposition	10,597,107 RE46,964	<u>DGL Group, Ltd.</u> v. Hangzhou Chic Intelligent Technology Co., Ltd., Hoverboards
1/23/20	<i>Ex Parte Reexamination</i>	9,592,349 and 8,920,382;	<u>Taiwan Semiconductor Manufacturing Co Ltd</u> v. STC.UNM, Patient controlled analgesia devices
1/18/20	PGR2020-00001	10,174,547	Dong Guan Leafy Windoware Co. Ltd. v. <u>Anli Spring Co., Ltd. Et. al.</u> , Spring powered blinds and curtains
4/9/20	PGR 2020-00056	10,422,617 B1	<u>Apex Tool Group LLC</u> v. Milwaukee Electric Tool Corp., Tape measures
5/6/2019 7/18/2019	IPR2019-01067 IPR2019-01364	9,958,107 10,054,259	<u>Quest USA Corp.</u> 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 Zampello, 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.

Stanley Fastening Systems, East Greenwich, RI.

- Developed and fabricated a prototype of a CO₂ 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 Handleless 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 Nicholas Russo, 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 Truong, 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 ASME 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, January 13, 2015.

“Water Purification System”, US Patent No. 9,084,949, 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.