



US011459163B2

(12) **United States Patent**
Hildebrandt

(10) **Patent No.:** **US 11,459,163 B2**
(45) **Date of Patent:** **Oct. 4, 2022**

(54) **HYDRATION SQUIRT BOTTLE**

(71) Applicant: **Chi Wen Hildebrandt**, Orangevale, CA (US)
(72) Inventor: **Chi Wen Hildebrandt**, Orangevale, CA (US)
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 126 days.

(21) Appl. No.: **17/141,488**

(22) Filed: **Jan. 5, 2021**

(65) **Prior Publication Data**
US 2022/0212859 A1 Jul. 7, 2022

(51) **Int. Cl.**
B65D 83/00 (2006.01)
B65D 85/72 (2006.01)
B65D 43/02 (2006.01)
A45F 3/16 (2006.01)

(52) **U.S. Cl.**
CPC **B65D 83/0011** (2013.01); **A45F 3/16** (2013.01); **B65D 43/0231** (2013.01); **B65D 85/72** (2013.01)

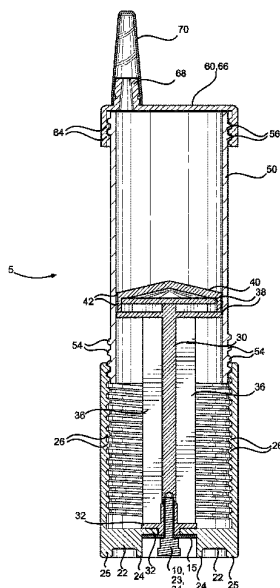
(58) **Field of Classification Search**
CPC B65D 83/0011; B65D 83/0027; B65D 83/0022; B65D 83/0033; B65D 83/0005; B65D 43/0231; B65D 43/0227; B65D 85/72; A45F 3/16
USPC 222/390, 391, 386; 220/703; 215/387
See application file for complete search history.

(56) **References Cited**
U.S. PATENT DOCUMENTS
2,199,877 A * 5/1940 Cervera B65D 83/0011 401/172
2,745,575 A * 5/1956 Spencer F16N 3/12 222/327
4,269,331 A * 5/1981 Watson B65D 83/0011 74/424.78
2014/0197171 A1 * 7/2014 Taylor B65D 83/0027 220/288
2018/0020808 A1 * 1/2018 Villarreal A45D 40/04 401/126
2019/0255305 A1 * 8/2019 Hendriks A61K 8/36

FOREIGN PATENT DOCUMENTS
WO WO 03/057581 A1 * 7/2003
* cited by examiner
Primary Examiner — Lien M Ngo
(74) *Attorney, Agent, or Firm* — Craig A. Simmermon

(57) **ABSTRACT**
Hydration squirt bottle is a squirt bottle with a special plunger actuator collar that is pivotally attached to a special plunger and mechanically linked to a special barrel and container wherein rotation of the plunger actuator collar relative to the barrel causes the plunger to move laterally into a barrel in order to cause liquid stored inside the barrel to squirt out from a spout on a cap. This invention helps older people or any other types of people that have difficulty staying hydrated or drinking fluid by squirting the water or beverage into the person's mouth through positive pressure, without the need for the person to drink from a standard cup or glass by sucking water from the cup or glass. In best mode, the squirt bottle is calibrated to squirt the exact amount of 20 cubic centimeters of water or beverage into the person's mouth per every one complete rotation of the plunger actuator collar.

1 Claim, 5 Drawing Sheets



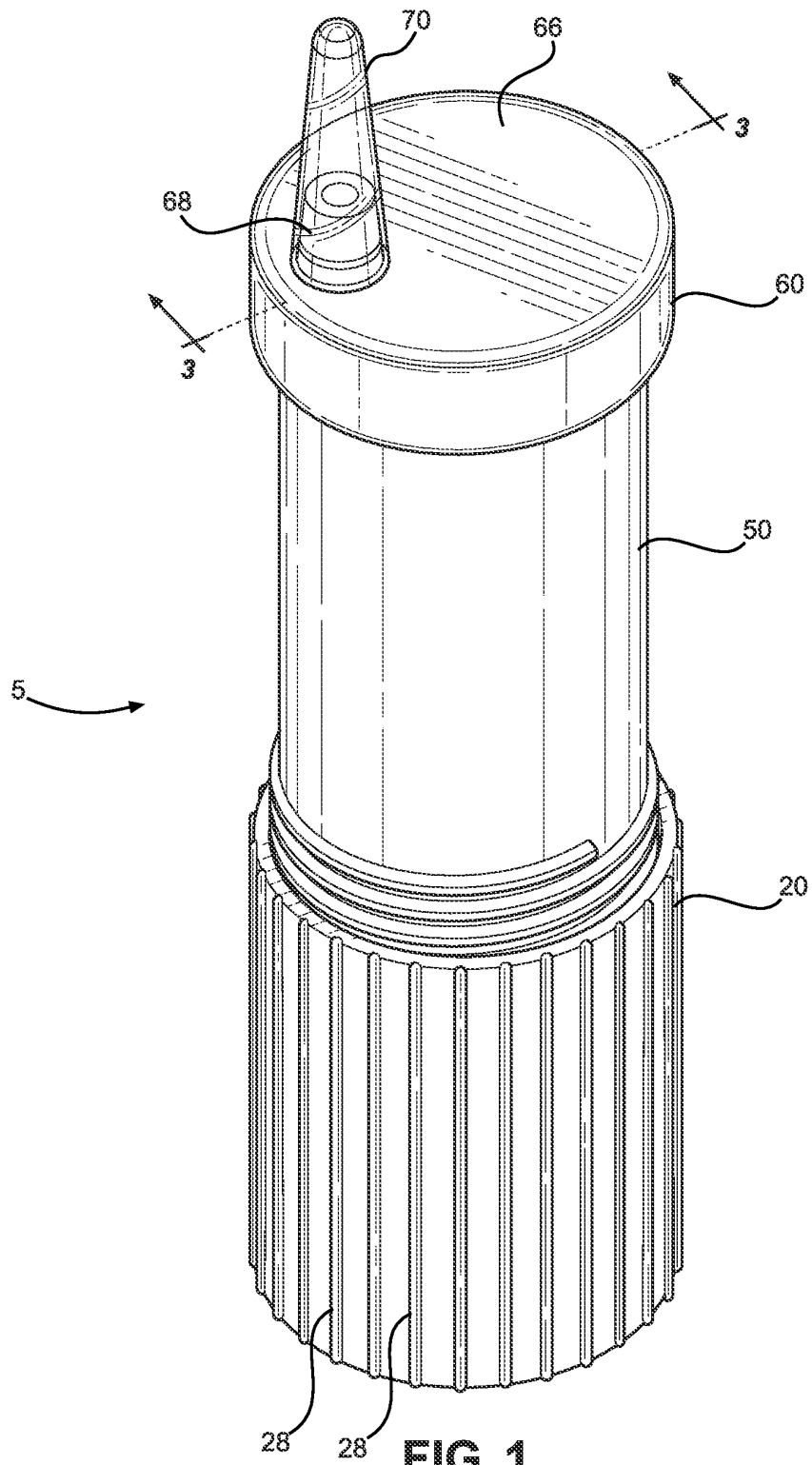


FIG. 1

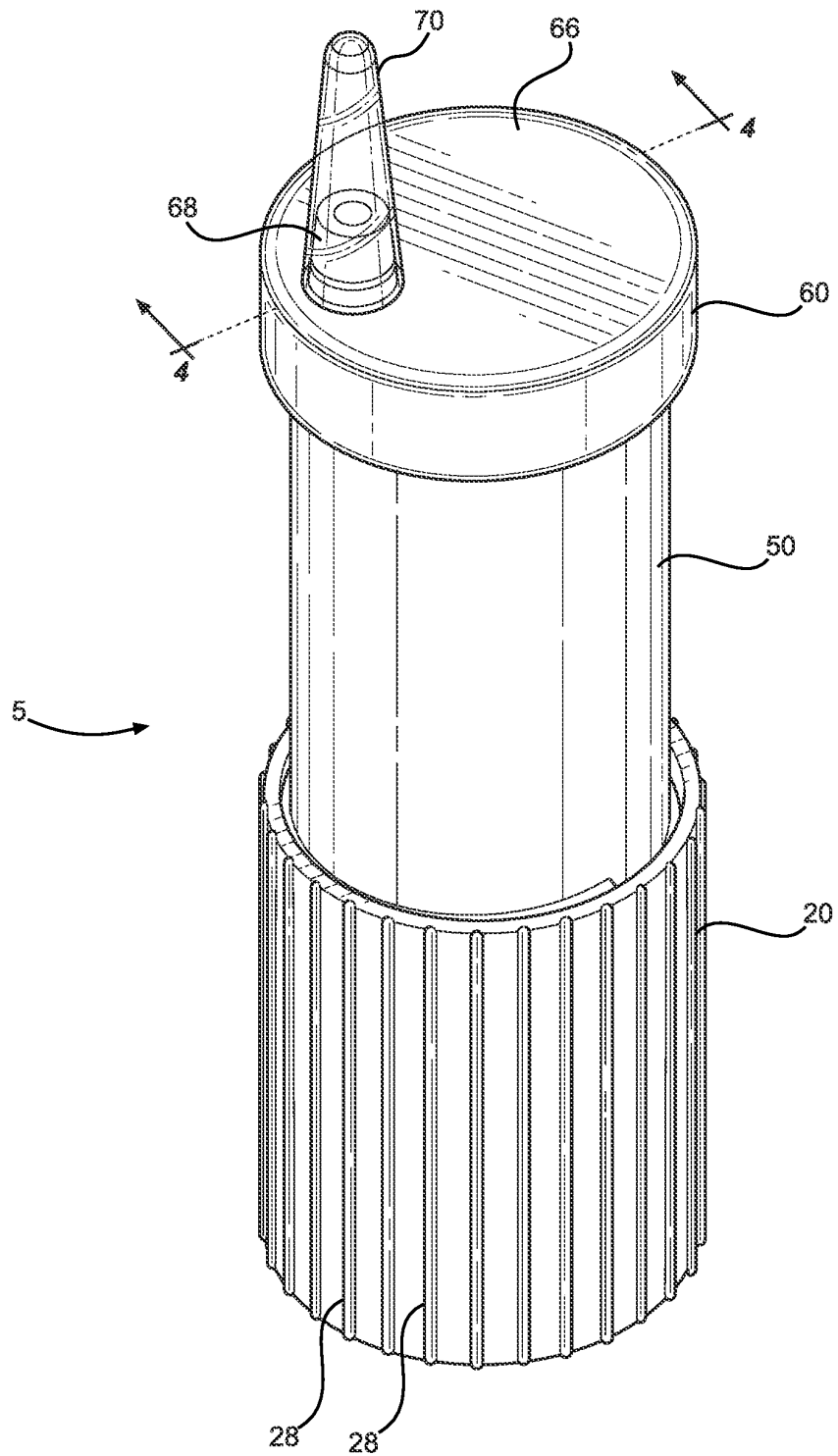


FIG. 2

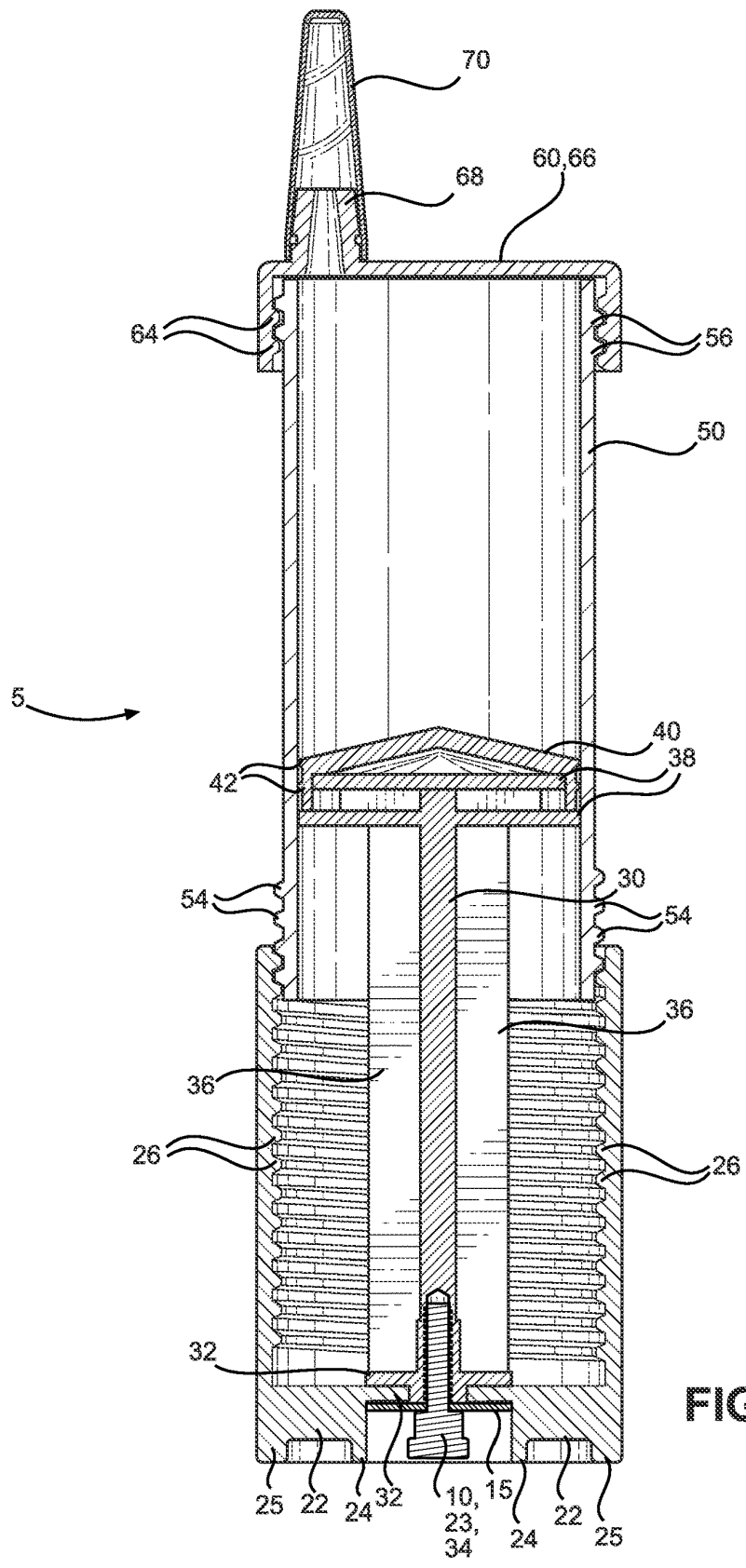


FIG. 3

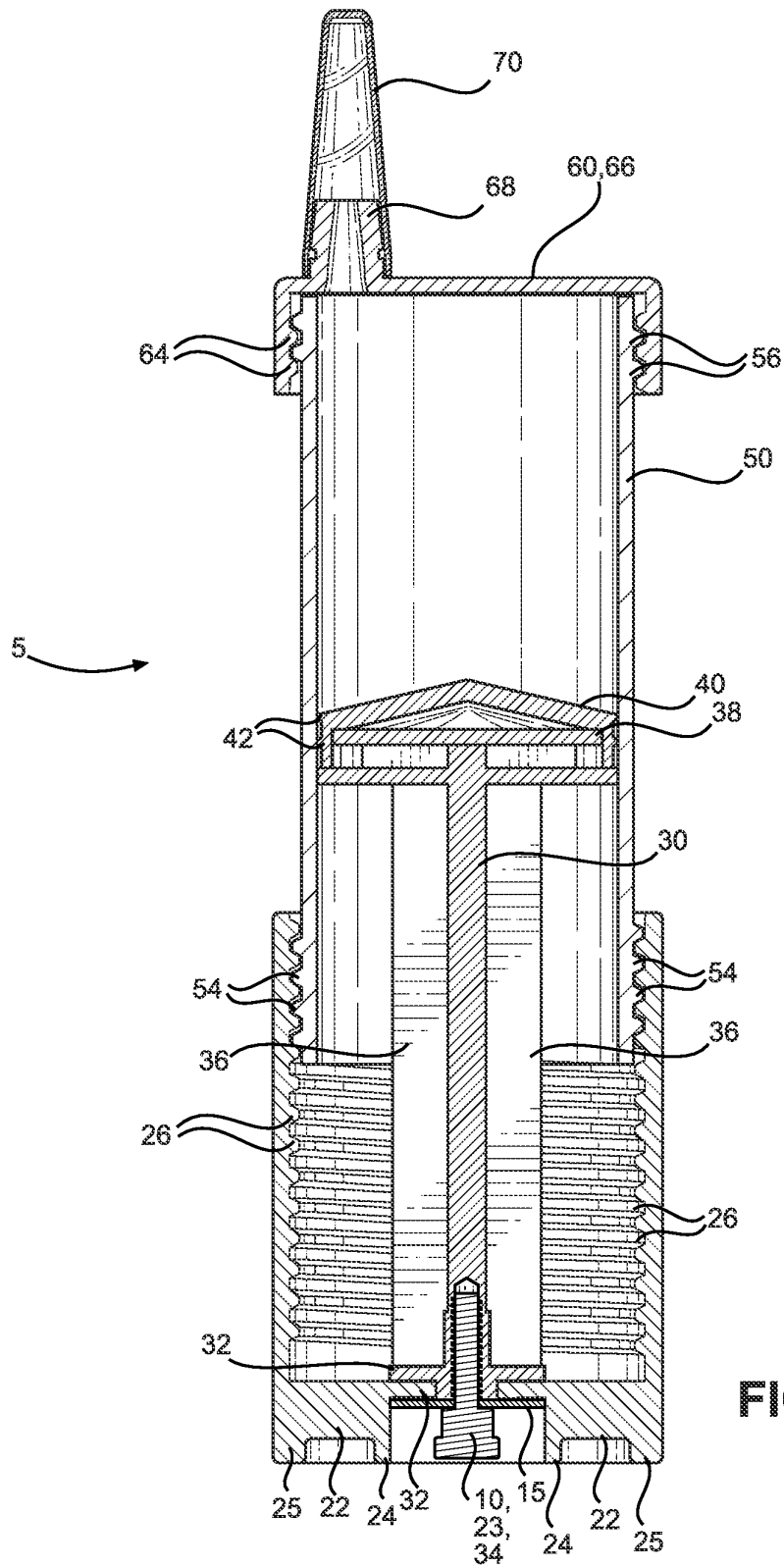


FIG. 4

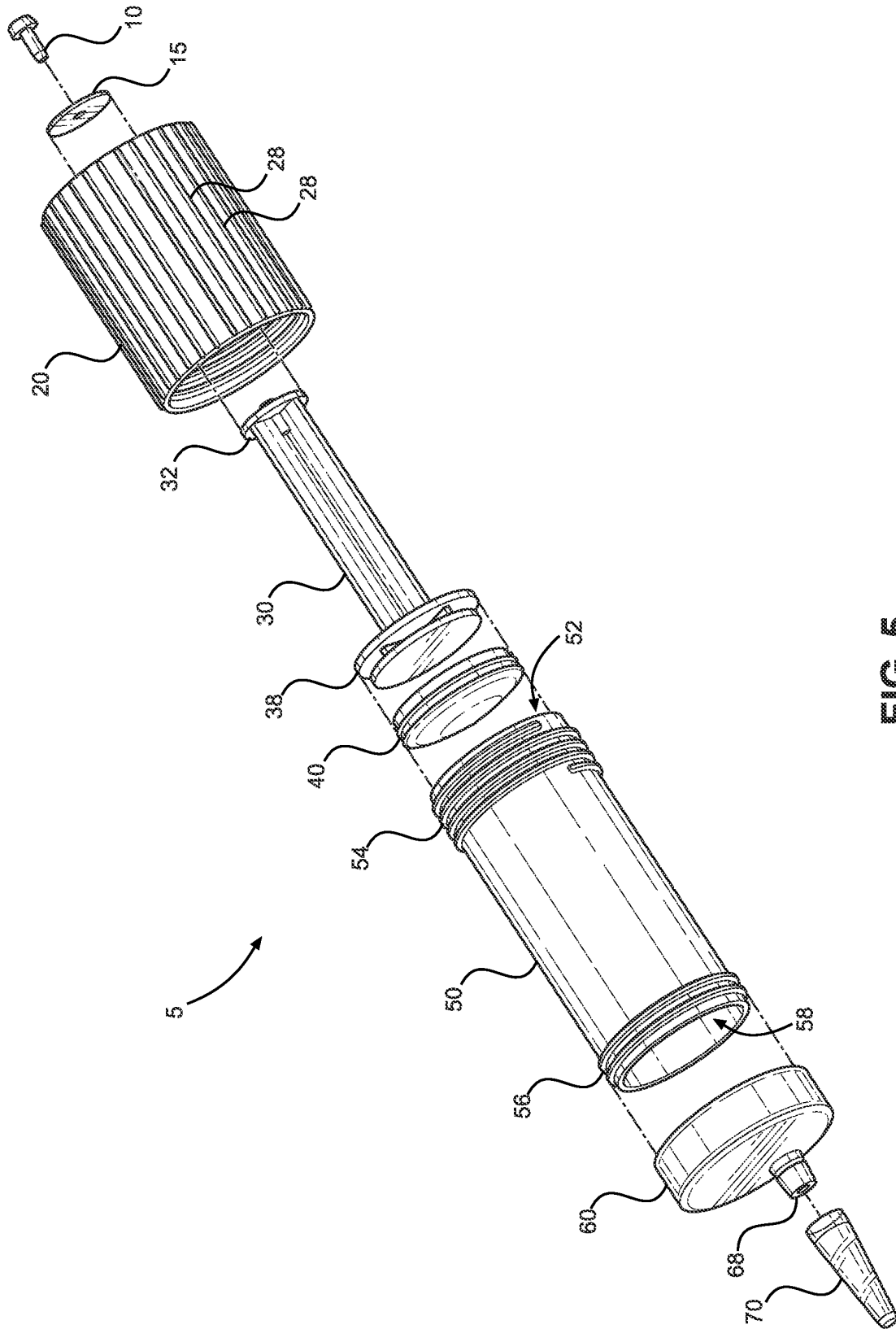


FIG. 5

1

HYDRATION SQUIRT BOTTLE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a squirt bottle or container for drinking water or any other beverage and more specifically to a squirt bottle that creates positive pressure inside the bottle or container to squirt the water or beverage out of a spout on the bottle or container when a plunger actuator collar is rotated to retract a plunger which creates internal pressure to cause the water or beverage to squirt out from the spout.

2. Description of Related Art

There are other squirt bottles in the prior art however there are none as shown and described here that include a special plunger actuator collar that is pivotally attached to a special plunger and mechanically linked to a special barrel or container wherein rotation of the plunger actuator collar relative to the barrel causes the plunger to move laterally into a barrel in order to cause liquid stored inside the barrel to squirt out from a spout on a cap. This invention helps older people or any other types of people that have difficulty staying hydrated or drinking fluid by squirting the water or beverage into the person's mouth through positive pressure, without the need for the person to drink from a standard cup or glass by sucking water from the cup or glass. A care giver or other health care profession could operate this invention by holding the spout up to the person's mouth and rotating the plunger actuator collar to squirt the water or beverage into the person's mouth, wherein the person would then swallow the water or beverage. Alternately, the person taking the drink could operate this invention by himself or herself by holding the spout up to their own mouth and rotating the plunger actuator collar to squirt the water or beverage into their mouth. In best mode, the squirt bottle is calibrated to squirt the exact amount of 20 cubic centimeters of water or beverage into the person's mouth per every one complete rotation of the plunger actuator collar.

BRIEF SUMMARY OF THE INVENTION

It is an aspect of hydration squirt bottle to include a special plunger actuator collar that is pivotally attached to a special plunger wherein rotation of the plunger actuator collar causes the plunger to move laterally into a special barrel or container in order to cause liquid stored inside the barrel or container to squirt out from a spout on a cap.

It is an aspect of hydration squirt bottle to include a special barrel or container that is mechanically linked to the plunger actuator collar.

It is an aspect of the plunger actuator collar to include helical thread on its interior surface that engages with distal exterior thread on the barrel.

It is an aspect of the barrel or container to include distal exterior thread that engages with helical thread on the inside of plunger actuator collar.

It is an aspect of the plunger to include a screw flange that is pivotally attached to the plunger actuator collar.

It is an aspect of the plunger to include a special plunger seal that makes a press fit or interference fit with the inside diameter of the barrel.

It is an aspect of hydration squirt bottle to include a cap with a spout.

2

It is an aspect of hydration squirt bottle to squirt water or beverage contained within the barrel out of the spout as the plunger actuator collar is rotated clockwise relative to the barrel.

It is an aspect of hydration squirt bottle to suck water or beverage in through the spout and into the barrel as the plunger actuator collar is rotated counterclockwise relative to the barrel.

It is an aspect of best mode hydration squirt bottle to be easily disassembled into its components by hand without any tools and washed in a dishwasher.

It is an aspect of hydration squirt bottle to be easily assembled from its components by hand without any tools.

It is an aspect of the plunger seal to be replaceable after the plunger seal wears out.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of hydration squirt bottle with plunger actuator collar and plunger located in the most proximal position which is the position of plunger when hydration squirt bottle is full and ready to squirt the first drink of water or beverage. FIG. 1 also defines cross sectional plane 3-3.

FIG. 2 is a perspective view of hydration squirt bottle with plunger actuator collar and plunger located in a position after several clockwise rotations of plunger actuator collar have occurred that provided several drinks for the patient. FIG. 2 also defines cross sectional plane 4-4.

FIG. 3 is a cross sectional view taken from plane 3-3 in FIG. 1.

FIG. 4 is a cross sectional view taken from plane 4-4 in FIG. 2.

FIG. 5 is an assembly view of hydration squirt bottle.

DEFINITION LIST

Term	Definition
5	Hydration Squirt Bottle
10	Screw or Bolt
15	Washer
20	Plunger Actuator Collar (PAC)
22	Closed Proximal End of PAC
23	Screw Hole on Closed Proximal End
24	Inner Circular Ridge on Closed Proximal End
25	Outer Circular Ridge on Closed Proximal End
26	Helical Thread on PAC
28	Exterior Ridge or Groove on PAC
30	Plunger
32	Screw Flange on Plunger
34	Screw Hole on Screw Flange
36	Vertical Rib on Plunger
38	Head on Plunger
40	Plunger Seal
42	Blade on Plunger Seal
50	Barrel
52	Open Proximal End of Barrel
54	Proximal Exterior Helical Thread on Barrel
56	Distal Exterior Helical Thread on Barrel
58	Open Distal End of Barrel
60	Cap
64	Helical Thread on Cap
66	Closed Distal End of Cap
68	Spout on Closed Distal End of Cap
70	Spout Cover

DETAILED DESCRIPTION OF THE
INVENTION

Throughout this specification, the terms proximal and distal are used. Proximal is defined as the end of the instrument or item that is closest to the caregiver or person using the hydration squirt bottle **5**. Distal is defined as the end of the instrument or item that is farthest from the caregiver or person handling or using the hydration squirt bottle **5**. Thus the distal end is opposite from the proximal end and vice versa. Hydration squirt bottle **5** is typically used by a caregiver that handles the hydration squirt bottle **5** and squirts the beverage into the patient's mouth. With this frame of reference, the proximal end is the bottom of hydration squirt bottle **5** because the bottom is the end of hydration squirt bottle **5** that is closest to the caregiver when the hydration squirt bottle **5** is being used. The distal end is the top of hydration squirt bottle **5** because the top is the end of hydration squirt bottle **5** that is farthest from the caregiver when the hydration squirt bottle **5** is being used. Note that hydration squirt bottle **5** may also be used by one person to give himself or herself a drink.

Hydration squirt bottle **5** comprises: a screw or bolt **10**; a plunger actuator collar **20**; a plunger **30**; a plunger seal **40**; a barrel **50**; and a cap **60**. The components or elements of hydration squirt bottle **5** may be made of metal, plastic, glass, ceramic, wood, composites, or any other known type of material.

Screw or bolt **10** is a fastener or a rigid cylindrical member or a pin with male thread or helical ridges around its exterior surface at one end and a head at the other end. Screw or bolt **10** has a length and an outer diameter. The head on screw or bolt **10** also has a length and an outside diameter. Screw or bolt **10** functions to pivotally attach screw flange **32** on plunger **30** to the closed proximal end **22** on plunger actuator collar **20**. This pivotal attachment is required as discussed below to the cause plunger **30** to move laterally as the plunger actuator collar **20** is rotated. Screw or bolt **10** may be made of any known material. In best mode, screw or bolt **10** is made of stainless steel. In best mode, screw or bolt **10** is a thumbscrew with a large head that can be easily grasped to tightened and loosened by the human hand, without requiring any tools such as a driver or wrench. In best mode, hydration squirt bottle **5** further comprises a washer **15**. Washer **15** is a flat washer. Washer **15** has an inside diameter, an outside diameter, and a thickness. The inner diameter of washer **15** must be smaller than the outer diameter of the head on screw or bolt **10**. Washer **15** is positioned between the head on screw or bolt **10** and the proximal surface of closed proximal end **22** on plunger actuator collar **20** when pivotally attaching the screw flange **32** on plunger **30** to the closed proximal end **22** on plunger actuator collar **20**. Washer **15** provides a bearing surface for the head of screw or bolt **10** on which to rotate as the plunger actuator collar **20** is rotated to laterally move plunger **30**. Washer **15** is not required for this invention, however, it is included in best mode.

Plunger actuator collar **20** is a rigid cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, a closed proximal end **22**, and an open distal end. The outer diameter of plunger actuator collar **20** is about 1-10 inches. The length of plunger actuator collar **20** is about 2-20 inches. Closed proximal end **22** is a closed end on the rigid cylindrical shaped member of plunger actuator collar **20**. Closed proximal end **22** is a rigid planar disk shaped member with a center, an outer diameter, a proximal surface,

and a distal surface. The center of closed proximal end **22** has a screw hole **23**. Screw hole **23** is a circular hole or void through closed proximal end **22**. Screw hole **23** is located at the center of closed proximal end **22**. Screw hole **23** has a diameter that must be smaller than the outer diameter of the head on screw or bolt **10** and/or the outer diameter of washer **15**. The outer diameter of closed proximal end **22** is contiguous or integral with the side of the rigid cylindrical shaped member of plunger actuator collar **20** so that the outer diameter of the closed proximal end **22** is flush with the exterior surface of plunger actuator collar **20**. The proximal surface of closed proximal end **22** may have an inner circular ridge **24** around screw hole **23**. Inner circular ridge **24** is a circular shaped ridge or protrusion that is concentric with screw hole **23**. Inner circular ridge **24** has an inner diameter, an outer diameter, and a height. The inner diameter of inner circular ridge **24** must be greater than the outer diameter of the head on screw or bolt **10** and/or the outer diameter of washer **15** so that these members may nest within the inner circular ridge **24**. The height of inner circular ridge **24** must be greater than the length of the head of screw or bolt **10** plus the thickness of washer **15** so that these members may nest within the inner circular ridge **24**. Inner circular ridge **24** provides a recessed area for screw or bolt **10** and washer **15** to lie within, when properly installed, which allows the proximal end of the hydration squirt bottle **5** to stand on a flat surface like a table without teetering on the head of screw or bolt **10**. The proximal surface of closed proximal end **22** may have an outer circular ridge **25** at its outer diameter. Outer circular ridge **25** is a circular shaped ridge or protrusion that is concentric with screw hole **23** and inner circular ridge **24**. Outer circular ridge **25** has an inner diameter, an outer diameter, and a height. The outer diameter of outer circular ridge **25** is equivalent to that of plunger actuator collar **20** and contiguous with that of plunger actuator collar **20**. The height of outer circular ridge **25** is equivalent to that of inner circular ridge **24**. Inner and outer circular ridges **24**, **25** together provide a stable footing or foundation for the proximal end of the hydration squirt bottle **5** so that the hydration squirt bottle **5** easily stands on a flat surface like a table. The interior surface of plunger actuator collar **20** has helical thread **26** spiraling longitudinally along the entire length of the interior surface of plunger actuator collar **20**. Helical thread **26** is a ridge wrapped around the interior surface of plunger actuator collar **20** in the form of a helix along the entire length of the interior surface of plunger actuator collar **20**. As discussed below, helical thread **26** on plunger actuator collar **20** functions to mate with proximal exterior helical thread **54** on barrel **50** in order to laterally move plunger actuator collar **20** relative to barrel **50** when plunger actuator collar **20** is rotated relative to barrel **50**. In best mode, the exterior surface of plunger actuator collar **20** has a plurality of ridges or grooves **28**. Each ridge or groove **28** is a ridge or groove in the exterior surface of plunger actuator collar **20**. In best mode, each ridge or groove runs longitudinally from the closed proximal end **22** to the open distal end of plunger actuator collar **20**. In best mode, the entire exterior surface of plunger actuator collar **20** has ridges or grooves **28**. Ridges or grooves **28** provide friction on the exterior surface of plunger actuator collar **20** in order to allow plunger actuator collar **20** to be more easily grasped by the hand of the health care professional or any other person and rotated in order to squirt an amount of beverage into the patient's mouth. The human hand can more easily grasp onto plunger actuator collar **20** with longitudinal ridges or grooves **28** around the entire exterior surface of plunger actuator collar **20** as depicted.

5

Note that ridges or grooves **28** are not required for this invention, however, they are included in best mode. In best mode, the exterior surface of plunger actuator collar **20** has markings or graduation marks. As stated, in best mode, hydration squirt bottle **5** ejects or squirts an exact amount of water or beverage per every complete one rotation of plunger actuator collar **20** relative to barrel **50**. Thus, it is helpful to have markings or graduation marks on the exterior surface of plunger actuator collar **20** in order to show or indicate exactly when one rotation has been completed. Markings or graduation marks could consist of one or more lines or notches that are conspicuous and visible on the exterior surface of plunger actuator collar **20**. Note that markings or graduation marks are not required for this invention, however, they are included in best mode.

Plunger **30** is a rigid oblong member with a proximal end, a distal end, a length, and a longitudinal axis. The length of plunger **30** is about 1 to 10 inches. The proximal end of plunger has a screw flange **32**. Screw flange **32** is a rigid planar disk shaped member with a center, an outer diameter, a proximal surface, and a distal surface. The outer diameter of screw flange **32** must be less than the inner diameter of plunger actuator collar **20**. The center of screw flange **32** has a screw hole **34**. Screw hole **34** is a circular hole or void through screw flange **32**. Screw hole **34** is located at the center of screw flange **32**. Screw hole **34** sized to mate with thread on screw or bolt. Screw hole **34** may have female thread that is sized to mate with the male thread on screw or bolt or just may be an unthreaded hole that accepts and engages with screw or bolt **10**. Screw or bolt is used to pivotally attach the proximal end of screw flange **32** to the distal surface of closed proximal end **22** of plunger actuator collar **20**. Screw or bolt is inserted through screw hole **23** on plunger actuator collar **20** and into screw hole **34** on screw flange **32** on plunger **30** and only tightened to semi loose position that allows the screw flange **32** and closed proximal end **22** to rotate relative to one another. Pivotal attachment is such that the plunger **30** may rotate along its longitudinal axis as plunger **30** is moved laterally in and out of barrel **50** as plunger actuator collar **20** is rotated. The distal end of plunger **30** has a head **38**. Head **38** is a rigid planar disk shaped member with a center, an outer diameter, a proximal surface, and a distal surface. The outer diameter of head **38** must be sized to make a slip fit with the inner diameter of barrel **50** or sized just slightly smaller than the inner diameter of barrel **50**. The outer diameter of head **38** is larger than that of screw flange **32**. The distal surface of screw flange **32** is rigidly connected to the proximal surface of head **38** by four vertical ribs **36**. Each vertical rib **36** is a rigid planar member with a proximal end, a distal end, and a length. The proximal end of each vertical rib **36** is rigidly attached to the distal surface of screw flange **32**. The distal end of each vertical rib **36** is rigidly attached to the proximal surface of head **38**. The four vertical ribs **36** function to rigidly connect screw flange **32** to head **38** so that the plane of screw flange **32** is parallel with that of head **38** and remain that way as plunger **30** moved laterally in and out of barrel **50** as plunger actuator collar **20** is rotated.

Plunger seal **40** is an elastomeric or flexible cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and a closed open distal end. Plunger seal **40** is reversibly attachable to the distal surface of head **38**. The inner diameter of plunger seal **40** is sized to make a press fit or an interference fit with the outside diameter of head **38** so that the open proximal end of plunger seal **40** may be pressed onto or snapped over the

6

outside diameter of head **38** to reversibly attach there to. Plunger seal **40** may be attached to head **38** by grabbing and pulling on it to stretch it over head **38** to install it over head **38**. Plunger seal **40** may be removed from head **38** by grabbing and pulling on it to stretch it off of head **38** to pull it off of head **38**. This is possible since plunger seal **40** is elastomeric or flexible. Plunger seal **40** is reversibly attachable to the distal surface of head **38** in order to allow for replacement of plunger seal **40**. Plunger seal **40** is a wear item that may wear out because it continuously rubs against the interior surface of barrel **50**. The exterior surface of the side of plunger seal **40** includes one or more blades **42**. Each blade **42** is a raised edge or ridge around the entire exterior surface of the side of plunger seal **40**. Each blade **42** runs around the entire circumference of the exterior surface of the side of plunger seal **40**. Each blade is integral to plunger seal **40** and thus made of the same elastomeric or flexible. Each blade **42** has an outer diameter that is sized to make a press fit or an interference fit with the inner diameter of barrel **50**. The outer diameter of each blade **42** is slightly larger than the inner diameter of barrel **50**. Plunger seal **40** functions to make a liquid tight slideable connection with the inside surface of barrel **50** as the plunger **30** is moved laterally in and out of barrel **50**. Each blade **42** wipes the interior surface of barrel **50** as the plunger **30** is moved laterally in and out of barrel **50**. In best mode, plunger seal **40** has two blades **42** as depicted. The closed distal end of plunger seal **40** is integral to the side of plunger seal **40** to make a liquid tight connection there between. In best mode, as depicted, head **38** may further comprise a second rigid planar disk shaped member with a center, an outer diameter, a proximal surface, and a distal surface. In this mode, the proximal surface of the second rigid planar disk shaped member is rigidly attached to the distal surface of the first rigid planar disk shaped member. In this mode, the plunger seal **40** is attached to the distal surface of the second rigid planar disk shaped member. In this mode,

Barrel **50** is a rigid cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end **52**, and an open distal end **58**. The outer diameter of barrel **50** is sized to make a clearance fit with the inner diameter of plunger actuator collar **20**. The outer diameter of barrel **50** is slightly smaller than the inner diameter of plunger actuator collar **20**. The length of barrel **50** is about 2-20 inches. There is proximal exterior helical thread **54** located on the exterior surface of barrel **50** at the proximal end. Proximal exterior helical thread **54** is helical thread spiraling longitudinally along the exterior surface of the barrel **50** at the proximal end of barrel **50**. Helical thread is a ridge wrapped around the exterior surface of barrel **50** in the form of a helix. Proximal exterior helical thread **54** starts at the proximal end of barrel **50** and extends about 0.5 to 5 inches from the proximal end. Proximal exterior helical thread **54** is sized to mate with helical thread **26** on plunger actuator collar **20**. Proximal exterior helical thread **54** functions in tandem with helical thread **26** on plunger actuator collar **20** to cause the plunger actuator collar **20** to move relative to barrel **50** when the plunger actuator collar **20** is rotated relative to barrel **50**. As plunger actuator collar **20** is rotated clockwise, as viewed from the proximal end, this causes the plunger actuator collar **20** to tighten down or insert into the open proximal end **52** of the barrel **50**. In this way, rotating the plunger actuator collar **20** clockwise causes water or beverage contained in hydration squirt bottle **5** to be ejected or squirted out of spout **68**. As plunger actuator collar **20** is rotated counterclockwise, as viewed from the

proximal end, this causes the plunger actuator collar 20 to loosen up or extend from the open proximal end 52 of the barrel 50. In this way, rotating the plunger actuator collar 20 counterclockwise causes water or beverage to be sucked into hydration squirt bottle 5 through spout 68. There is distal exterior helical thread 56 located on the exterior surface of barrel 50 at the distal end. Distal exterior helical thread 56 is helical thread spiraling longitudinally along the exterior surface of the barrel 50 at the distal end of barrel 50. Helical thread is a ridge wrapped around the exterior surface of barrel 50 in the form of a helix. Distal exterior helical thread 56 starts at the distal end of barrel 50 and extends about 0.5 to 5 inches from the distal end. Distal exterior helical thread 56 is sized to mate with helical thread 64 on cap 60. In best mode, the exterior surface of barrel 50 has markings or graduation marks. As described below, in best mode, hydration squirt bottle 5 ejects or squirts an exact amount of water or beverage per every complete one rotation of plunger actuator collar 20 relative to barrel 50. Thus, it is helpful to have markings or graduation marks on the exterior surface of barrel 50 in order to show or indicate exactly when one rotation has been completed. Markings or graduation marks could consist of one or more lines or notches that are conspicuous and visible on the exterior surface of barrel 50. Note that markings or graduation marks are not required for this invention, however, they are included in best mode.

Cap 60 is a rigid cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and a closed distal end 66. The outer diameter of cap 60 is equivalent to that of plunger actuator collar 20. The length of cap 60 is about 0.2-2 inches. The interior surface of cap 60 has helical thread 64 spiraling longitudinally along the entire length of the interior surface of cap 60. Helical thread 64 is a ridge wrapped around the interior surface of cap 60 in the form of a helix along the entire length of the interior surface of cap 60. Helical thread 64 is sized to mate with distal exterior helical thread 56 on barrel 50. Helical thread 64 functions to mate with distal exterior helical thread 56 on barrel 50 in order to reversibly attach cap 60 to barrel 50. The open proximal end of cap 60 is screwed onto distal exterior helical thread 56 in order to attached cap 60 to barrel 50. This attachment must be a liquid tight connection between these members. The open proximal end of cap 60 is unscrewed off of the distal exterior helical thread 56 in order to remove cap 60 from barrel 50. Closed distal end of cap 60 is a closed end on the rigid cylindrical shaped member of cap 60. Closed end is a rigid planar disk shaped member with a center, an outer diameter, a proximal surface, and a distal surface. The outer diameter of closed end is contiguous or integral with the side of the rigid cylindrical shaped member of cap 60 so that the outer diameter of the closed end is flush with the exterior surface and outer diameter of cap 60 to make a liquid tight connection there between. The distal surface of closed distal end of cap 60 has a spout 68. Spout 68 is a rigid cylindrical member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and an open distal end. The length of cap 60 is about 0.2 to 2 inches. The longitudinal axis of cap 60 is parallel or at an angle with the longitudinal axis of barrel 50. The open proximal end of spout 68 is rigidly attached to the distal surface of the closed distal end of cap 60 to make a liquid tight connection therewith. The open proximal end of spout 68 passes right through to the proximal surface of the closed distal end of cap 60 so that there is an open channel or path way for liquid to flow through the closed

distal end 66 to barrel 50. Spout 68 is an open flow channel or pathway for liquid to flow. The open distal end of spout 68 is placed inside of the person's mouth or close to the person's mouth in order for the person to drink from the hydration squirt bottle 5 and to use the hydration squirt bottle 5.

In best mode, as depicted, hydration squirt bottle 5 may further comprise spout cover 70. Spout cover 70 is a rigid cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and a closed distal end 66. The inner diameter of spout cover 70 is sized to make a press fit or interference fit with the outer diameter of spout 68. The length of cap 60 is about 0.2-2 inches. Spout cover 70 is reversibly attachable to spout 68. Spout cover 70 is pressed or snapped onto or over the distal end of spout 69 to form a liquid tight connection there with. Spout cover 70 functions to prevent water or beverage contained inside of hydration squirt bottle 5 from leaking or spilling out of the spout 68 on hydration squirt bottle 5 when hydration squirt bottle 5 is upside down or sideways. The spout cover 70 must be removed in order to use hydration squirt bottle 5 or to take a drink from hydration squirt bottle 5. In best mode, the inside diameter of spout cover 70 may have a snap ridge or ridge around the inside diameter located adjacent to the proximal end of spout cover 70, as depicted. Also, in best mode, the outside diameter of spout 68 may have a snap groove or groove around the outside diameter located adjacent to the proximal end of spout 68, as depicted. snap ridge or ridge in spout cover 70 snaps into or locks into the snap groove or groove in spout 68 to snap or lock these members together. Spout cover 70 is not required for this invention, however, it is included in best mode.

Hydration squirt bottle 5 is properly configured and used as follows. The screw flange 32 on plunger 30 is reversibly attached to the distal surface of the closed proximal end 22 of plunger actuator collar 20 using screw or bolt 10. As stated, this attachment is a pivotal attachment where the plunger actuator collar 20 may rotate relative to plunger 30 however the screw flange 32 remains adjacent and contiguous with the distal surface of the closed proximal end 22 of plunger actuator collar 20 during the rotation. The head 38 of plunger 30 along with the plunger seal 40 attached to the head 38 is then inserted into the open proximal end of barrel 50. Next the helical thread 26 at the distal end of plunger actuator collar 20 is then started, threaded, or engaged onto the proximal exterior helical thread 54 on barrel 50, which causes the plunger seal 40 to penetrate the open proximal end of barrel 50 to form a liquid tight press fit or interference fit with barrel 50. At this point, hydration squirt bottle 5 may be filled with water or other beverage through the open distal end 58 of barrel 50. Next, the open proximal end of cap 60 is placed onto the open distal end 58 of barrel 50 and the helical thread 64 on cap 60 is then started, threaded, or engaged onto the distal exterior helical thread 56 on barrel 50. Cap 60 is then tightened down onto barrel 50 to form a liquid tight connection therewith. Now the hydration squirt bottle 5 may be used to take a drink by rotating the plunger actuator collar 20 clockwise as viewed from the proximal end in order to squirt water or beverage out of the spout 68 on cap 60. The rotation of plunger actuator collar 20 clockwise causes the plunger 30 and the plunger seal 40 to move towards the distal end of barrel 50 causing water or beverage to squirt out of the spout 68.

A plurality of drinks may be taken from hydration squirt bottle 5 before it is empty or depleted of water or beverage. When the plunger 30 and the plunger seal 40 reaches the

proximal surface of the closed distal end 66 of cap 60 after a plurality of clockwise rotations of plunger actuator collar 20, the hydration squirt bottle 5 is empty and must be refilled with water or beverage to use it again. In order to do this, the cap 60 may be removed and the plunger 30 and the plunger seal 40 may be retracted back to the original position by rotating the plunger actuator collar 20 counterclockwise until the plunger 30 and the plunger seal 40 is retracted back to the proximal end of barrel 50. Next more water or beverage is poured into the open distal end 58 of barrel 50 to refill the barrel with water or beverage. Then the cap 60 is reattached and the hydration squirt bottle 5 is ready for use again. Another way to refill hydration squirt bottle 5 is to leave cap 60 attached to barrel 50 and simply dip the distal end of spout 68 into a larger cup of water or beverage and rotate the plunger actuator collar 20 counterclockwise to suck water or beverage into the barrel 50 to refill the barrel with water or beverage. The plunger actuator collar 20 would be rotated several counterclockwise turns until the plunger 30 and the plunger seal 40 is retracted back to the proximal end of barrel 50 at which point the hydration squirt bottle would then be full of water or beverage and capable of using again.

What claimed is:

1. A hydration squirt bottle comprising: a screw or bolt; a plunger actuator collar; a plunger; a plunger seal; a barrel; and a cap, wherein,
 - said screw or bolt is a fastener or a rigid solid cylindrical member with male thread or helical ridges at a first end and a head at a second end,
 - said plunger actuator collar is a rigid hollow cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, a closed proximal end, and an open distal end,
 - said closed proximal end of said plunger actuator collar has a center, and a proximal surface, and a distal surface, said center of said closed proximal end of said plunger actuator collar has a screw hole,
 - said interior surface of said plunger actuator collar has a helical thread spiraling longitudinally along said length of said plunger actuator collar,
 - said plunger is a rigid oblong member with a proximal end, a distal end, a length, and a longitudinal axis,
 - said proximal end of said plunger has a screw flange,
 - said screw flange is a rigid planar disk shaped member with a center, an outer diameter, a proximal surface, and a distal surface,
 - said center of said screw flange has a screw hole,
 - said distal end of said plunger has a head,
 - said head on said plunger is a rigid planar disk shaped member with a center, an outer diameter, a proximal surface, and a distal surface,
 - said plunger seal is an elastomeric or flexible hollow cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and a closed open distal end,
 - said barrel is a rigid hollow cylindrical shaped member with a side, an inner diameter, an interior

surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and an open distal end,
 said exterior surface of said barrel has a proximal exterior helical thread and a distal exterior helical thread,
 said proximal exterior helical thread on said barrel is a helical thread spiraling longitudinally along said exterior surface of said barrel at said proximal end of said barrel,
 said distal exterior helical thread on said barrel is a helical thread spiraling longitudinally along said exterior surface of said barrel at said distal end of said barrel,
 said cap is a rigid hollow cylindrical shaped member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and a closed distal end,
 said interior surface of said cap has a helical thread spiraling longitudinally along said length of said cap,
 said closed distal end of said cap is a rigid planar disk shaped member with a center, a proximal surface, and a distal surface,
 said distal surface of said closed distal end of said cap has a spout,
 said spout is a rigid cylindrical member with a side, an inner diameter, an interior surface, an outer diameter, an exterior surface, a length, a longitudinal axis, an open proximal end, and an open distal end,
 said open proximal end of said spout is rigidly attached to said distal surface of said closed distal end of said cap,
 said open proximal end of said plunger seal is reversibly attachable to said distal surface of said head on said plunger,
 said outer diameter of said plunger seal is sized to make a press fit or an interference fit with said inner diameter of said barrel,
 said outer diameter of said barrel is sized to make a clearance fit with said inner diameter of said plunger actuator collar,
 said proximal exterior helical thread on said barrel is sized to mate with said helical thread on said plunger actuator collar,
 said distal exterior helical thread on said barrel is sized to mate with said helical thread on said cap,
 said proximal surface of said screw flange on said plunger is pivotally attached to said distal surface of said closed proximal end of said plunger actuator collar by inserting said screw or bolt into said screw hole on said closed proximal end of said plunger actuator collar and said screw hole on said screw flange on said plunger,
 said distal end of said plunger actuator collar is attached onto to said proximal end of said barrel by threading said helical thread on said plunger actuator collar onto said proximal exterior thread on said barrel,
 said proximal end of said cap is attached to said distal end of said barrel by threading said helical thread on said cap onto said distal exterior thread on said barrel, and the clockwise rotation of said plunger actuator collar relative to said barrel causes said plunger seal to move distally toward said distal end of said barrel while keeping a liquid tight connection with said interior surface of said barrel.

* * * * *