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(54) **A DISPENSER**

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(56) References cited:

EP-A1- 2 011 467	WO-A1-95/04690
WO-A1-95/04690	WO-A1-2004/002397
WO-A2-2005/027819	CN-Y- 2 151 747
US-A- 1 649 580	US-A- 2 880 913
US-A- 3 093 256	US-A- 3 108 721
US-A- 4 010 861	US-A- 4 339 046
US-A- 4 691 847	US-A- 4 691 847
US-A- 5 260 062	US-A- 5 269 426
US-A- 6 138 848	US-A1- 2005 035 078
US-A1- 2006 043 117	US-A1- 2006 060 553
US-A1- 2006 097 014	US-A1- 2010 193 459

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EP 3 060 191 B1

Description**Related Applications**

5 **[0001]** This application claims priority to Australian Provisional Patent Application No. 2013904071 in the name of JAG Mayer Pty Ltd, which was filed on 22 October 2013, entitled "A Dispenser" and to Australian Innovation Patent No. 2013101385 in the name of JAG Mayer Pty Ltd, which was filed on 22 October 2013, entitled "A Dispenser"

Field of the invention

10 **[0002]** The present invention relates to bottles and like containers which are suitable for use as feeders. It is particularly suitable for the feeding of infants and of people who are suffering from disabilities, such as, persons who are recovering from facial or dental surgery and the incapacitated elderly, however, it should be appreciated that the present invention is not limited to that use, only. For example, embodiments of the present invention are also suitable for use as dispensers
15 of material other than foods.

Background of the Invention

20 **[0003]** Common problems at infant feeding time are the mess created, the wasted food and the time spent cleaning up. There is a need for a re-usable feeding dispenser that is non-spill, easy to fill and easy to clean. Parents also need a container that they can give to toddlers so that they can feed themselves independently.

[0004] Single-use packaging for ready to eat baby foods are accordingly a popular choice for today's parents. A trip down the baby/toddler aisle at the supermarket will confirm this by the sheer numbers of brands and the different types of foods being offered in these packages. Yoghurts, smoothies, fruit jellies, porridge, bolognese, creamy chicken and
25 vegetable purees are just a few of the ready-to-eat meals and snacks that are being offered in these single use packages.

[0005] More recently, re-usable squeezable silicone type containers have entered the marketplace giving parents the option of feeding their children homemade meals in transportable feeding dispensers. However the solution provided by these dispensers is in itself flawed. The inability to empty the entire contents out of these containers is both frustrating and wasteful. Also toddlers are able to create a mess when given these containers by excessively squeezing the food
30 out onto themselves and onto their environment, such as the floor, walls car seats and the like. Known devices are disclosed in WO95/04690A1, US4010861A and WO2004/002397A1.

[0006] It is an object of the embodiments described herein to overcome or alleviate at least one of the above noted drawbacks of related art systems or to at least provide a useful alternative to related art systems.

Summary of the Invention

35 **[0007]** In contrast to any related or prior art noted herein, the present invention provides a kit for a dispenser or material with the features defined in independent claim 1.

[0008] It is preferred that the material is food or drink.

40 **[0009]** It is preferred that the kit of parts further comprise at least one mouthpiece attachment which is adapted for readily-detachable mounting to a second end of the tubular body.

[0010] It is preferred that the kit of parts further comprise a pump attachment, the pump attachment comprising a pump which is adapted for readily-detachable mounting to the second end of the tubular body and which is adapted to pump material out of the tubular body.

45 **[0011]** It is preferred that the pump attachment further comprise a spoon which is mounted on the pump attachment and which is adapted to receive material which the pump pumps out of the tubular body.

[0012] It is preferred that the kit of parts further comprise a top cap which is mountable to the dispenser to cover at least one of a mouthpiece attachment and the pump attachment.

50 **[0013]** It is preferred that the kit of parts further comprise a valve which is mountable in the dispenser to permit airflow only in the direction from the exterior of the tubular body to the interior of the tubular body.

[0014] It is preferred that the kit of parts further comprise a valve which is mountable at the second end of the tubular body so as to permit the flow of material only in the direction from the interior of the tubular body to the exterior of the tubular body.

55 **[0015]** It is preferred that the valve to permit the flow of material only in the direction from the interior of the tubular body is weaker than is the valve to permit airflow only in the direction from the exterior of the tubular body.

[0016] It is preferred that the tubular body is substantially circular in internal cross-section.

[0017] The periphery which is adapted to form the sliding seal comprises at least one of:

a radially-extending circumferential seal;
a radially-extending scraping and sealing blade; and
a radially-extending locating and alignment ring which is located between the radially-extending circumferential seal
and the radially-extending locating and alignment ring.

[0018] It is preferred that the radially-extending circumferential seal is formed separately from the bung.

[0019] It is preferred that at least one of:

the radially-extending scraping and sealing blade; and
the radially-extending locating and alignment ring

is formed integrally with the bung.

[0020] It is preferred that the base cap is adapted to serve as a mounting for the top cap so as not to substantially occlude the airflow through the aperture into the tubular body.

[0021] It is preferred that the base cap comprises:

a central body, the periphery of which carries longitudinally-running channels; and
an outer peripheral skirt which surrounds the periphery of the central body,

the base cap being adapted to receive a peripheral edge of the top cap between the longitudinally-running channels and the outer peripheral skirt.

[0022] It is preferred that the at least one mouthpiece attachment is one of:

a teat mouthpiece which is adapted to allow the flow of a liquid through it;
a sipper mouthpiece which is adapted to allow the flow of pureed material through it; and
a spout mouthpiece which is adapted to allow the flow of mashed material through it.

[0023] It is preferred that the sipper mouthpiece comprises a body which has a blunt end which is pierced by a slit in that blunt end.

[0024] It is preferred that the body of the sipper mouthpiece is substantially elliptical in cross-section.

[0025] It is preferred that the spout mouthpiece comprises:

a base;
an open-ended spout which extends from the base; and
a valve in the base which allows flow of material into the spout.

[0026] It is preferred that the pump comprises:

a pump bung which:

is adapted for reciprocating movement along the longitudinal axis of the tubular body; and
has a periphery which is adapted to form a sliding seal between that periphery and the internal side walls of the tubular body;

a valve which is adapted to allow the flow of material from the interior of the tubular body as the pump bung moves into the pump body but to prevent the flow of material into the interior of the tubular body as the pump bung moves out of the pump body; and
biasing means to bias the pump bung to move in a direction out of the pump body.

[0027] It is preferred that the biasing means comprises a helical spring.

[0028] It is preferred that the helical spring is mounted in a housing which comprises:

a spring stop relative to which the pump bung is longitudinally moveable; and
a spring top cap:

relative to which the pump bung is fixed; and
which is reciprocally moveable within the spring stop.

[0029] It is preferred that the pump attachment further comprises a pump tube which is adapted to deliver material from the outlet of the a valve which is adapted to allow the flow of material from the interior of the tubular body to the spoon.

[0030] It is preferred that the spring stop and the spring top cap are mounted substantially co-axially around the pump tube.

[0031] It will be seen that embodiments of the present invention provide a non-squeezable re-usable feeding dispenser, which offers the same benefits as the squeezable dispensers as well as solutions to common wastage problems such as: toddlers excessively squeezing contents from flexible dispensers, the inability to get all of the contents out of the dispensers and spoons and/or bowls being knocked to the floor.

Brief description of the drawings

[0032] For a better understanding of the invention, and to show how it may be carried into effect, embodiments are shown, by way of non-limiting example only, in the accompanying drawings. In the drawings:

Figure 1A is an elevational view of an embodiment;
 Figure 1B is a cross-sectional view of the embodiment of figure 1A;
 Figures 1C and 1E are elevational views of preferred forms of the embodiment of figure 1A;
 Figure 1D is a cross-sectional view of the embodiment of figure 1C;
 Figure 1F is an exploded view of the embodiment of figure 1A;
 Figure 1G is a top view of the embodiment of figure 1A;
 Figure 1H is a view from below of the embodiment of figure 1A;
 Figure 2A is an elevational view of an embodiment ;
 Figure 2B is a cross-sectional view of the embodiment of figure 2A;
 Figure 2C is an exploded view of the embodiment of figure 2A;
 Figure 3A is an elevational view of an embodiment ;
 Figure 3B is a cross-sectional view of the embodiment of figure 3A;
 Figures 3C and 3E are elevational views of preferred forms of the embodiment of figure 3A;
 Figure 3D is a cross-sectional view of the embodiment of figure 3C;
 Figure 3F is an exploded view of the embodiment of figure 3A;
 Figure 3G is a top view of the embodiment of figure 3A;
 Figure 4A is an elevational view of an embodiment ;
 Figure 4B is a cross-sectional view of the embodiment of figure 4A;
 Figures 4C and 4E are elevational views of preferred forms of the embodiment of figure 4A;
 Figure 4D is a cross-sectional view of the embodiment of figure 4C;
 Figure 4F is an exploded view of the embodiment of figure 4A;
 Figure 4G is a top view of the embodiment of figure 4A;
 Figure 5A is an elevational view of an embodiment ;
 Figure 5B is a cross-sectional view of the embodiment of figure 5A;
 Figures 5C and 5E are elevational views of preferred forms of the embodiment of figure 5A;
 Figure 5D is a cross-sectional view of the embodiment of figure 5C;
 Figure 5F is an exploded view of the embodiment of figure 5A;
 Figure 5G is a top view of the embodiment of figure 5A;
 Figures 6A and 6B are cross-sectional views illustrating aspects of the operation of the embodiment of figure 5A;
 Figure 7A is an elevational view of an embodiment;
 Figure 7B is a cross-sectional view of the embodiment of figure 7A;
 Figure 7C is an exploded view of the embodiment of figure 7A; and
 Figure 7D is a top view of the embodiment of figure 7A.

Description of preferred embodiments of the invention

[0033] The embodiments of the feeder 1 that are illustrated in figures 1A to 1G comprise: a base cap 11, a valve carrier 14, a movable bung 8, a tube 2, a teat mouthpiece 9 and an upper collar 19.

[0034] Although the tube 2 of figures 1A to 1F is circular in cross-section, it may have any cross-section, so long as that cross-section is substantially constant throughout its entire length. The tube 2 has upper and lower open ends 3 and 4 and carries screw threads 6 and 7 adjacent those upper and lower ends. Although the screw threads 6 and 7 of figures 1A to 1G are external to the tube 2, those screw threads may be internal to the tube 2. An over-moulding 5 encases a substantial portion of the exterior surface of the tube 2 between the upper and lower screw threads 6 and 7. The lower end of the upper screw thread 6 terminates in a thread stop 20 to aid in the orientation of components which

are mounted on that screw thread.

[0035] The tube 2 of figures 1A to 1F is symmetrical, in the sense that the screw threads 6 and 7 are identical. According to alternative embodiments of the invention which are not illustrated in the drawings, the feeder 1 is constructed so that it is not symmetrical in this sense so that the user may identify different "top" and "bottom" ends. The identification of different "top" and "bottom" ends of the tube 2 is useful in the case where the tube 2 is marked with a scale to indicate the volume of the contents of the feeder 1.

[0036] The moveable bung 8 is moveable longitudinally within the tube 2 and comprises a top 22, an upper blade 23, an intermediate blade 24 and a lower blade 26. Each of the blades 23, 24 and 26 extends around the periphery of the bung 8 and extends radially from the bung 8. The tolerances between the movable bung 8 and the inner surface of the tube 2 are such as to form a sliding seal between the movable bung 8 and the tube 2. The movable bung 8 is preferably constructed of a plastics polymer with a rubber over-mould to create a seal and to provide friction with the tube 2. This friction helps to support the movable bung 8 from moving downward. The top 22 of the movable bung 8 is shaped substantially to complement the underside of the teat mouthpiece 9. This helps to reduce the amount of contents left in the tube 2 when the movable bung 9 has reached the top of the tube 2 and is resting hard up against the underside of the mouthpiece 9. The blades 23, 24 and 26 around the movable bung 8 scrape along the inside wall of the tube 2 as the movable bung 8 moves up towards the mouthpiece 9, leaving virtually none of the contents behind. More specifically, the upper blade 23 serves as a radially-extending scraping and sealing blade. The intermediate blade 24 serves as a radially-extending locating and alignment ring and the lower blade 26 serves as a radially-extending circumferential seal.

[0037] A base cap 11 is mounted at the lower open end 4 of the tube 2 and prevents the movement of the bung 8 out of that end. For this purpose the base cap 11 carries an internal screw thread 18 which matches the external screw thread 7 of the tube 2. The base cap 11 is pierced by an air hole 12.

[0038] The base cap 11 also retains a valve carrier 14 in place over the lower open end 4 of the tube 2. The valve carrier 14 has a peripheral region 15, a valve 16 and a pull-tab 10. Possible forms of the valve 16 include a "dome valve" and a "sphere valve". As is illustrated in the drawings, but not claimed as invention, a dome valve (such as valve 16 as is illustrated in the drawings) comprises a dome portion the periphery of which is contiguous with a cylindrical portion. A sphere valve is not illustrated in the drawings but it comprises a portion which is substantially more than half of a hollow sphere, the periphery of which is contiguous with a cylindrical portion. A dome valve accordingly has a shallower shape compared to the spherical valve. The functional difference between the two valves is that the spherical valve is significantly stronger than is the dome valve with regards to back pressure.

[0039] The valve 16 is in alignment with the air hole 12 in the base cap 11. It permits the ready flow of air from the exterior of tube 2 into the interior of that tube and substantially prevents the flow of air in the opposite direction. The air is then trapped in the tube 2 by the one-way valve 16, keeping the bung 8 in place by not allowing it to fall downward. The pull-tab 10 enables easy removal of the valve carrier 14, such as for cleaning. As is shown in figure 1H, the base cap 11 comprises an outer peripheral skirt 25 which surrounds the periphery of a central body 30. The periphery of the central body 30 is formed into longitudinally-running channels 17.

[0040] An upper collar 19 has an internal screw thread 21 which matches the external screw thread 6 of the tube 2. The upper collar 19 retains a teat mouthpiece 9 in place over the upper open end 3 of the tube 2. The teat mouthpiece 9 has a teat 27 which projects outwardly from the mouthpiece base 28 and the peripheral area of the base 28 is gripped between the tube 2 and the upper collar 19. The teat 27 is pierced or slit in the known manner of teats for baby feeding bottles.

[0041] As is illustrated in figures 1C, 1D and 1E, it is preferred to provide a cap 31 which can be placed over the teat mouthpiece 9 for protection and to aid in the prevention of spillages. A substantially cylindrical protrusion 32 depends from the inner top surface of the cap 31 to hold an upper region of the teat 27. The cylindrical protrusion 32 seals off around the teat to reduce the risk of the spillage of material from the teat. The cap 31 is detachably held in place by being an interference fit over the upper collar 19. As is illustrated in figure 1E, the cap 31 can be stored adjacent the lower end 4 of the tube 2 by retention between the outer skirt 25 and the central body 30 of the base cap 11. The channels 17 in the central body 30 allow air to flow from the exterior, around the edge of the cap 31 and through the air hole 12 into the tube 2.

[0042] As is illustrated in figures 2A to 2C, it is preferred to provide a funnel 34 to aid in the loading of material into the feeder 1. The funnel 34 has a handle 36 which protrudes from the upper periphery of the funnel. It is preferred that the stem 37 of the funnel be a close fit within the upper open end 3 of the tube 2.

[0043] The embodiments that are illustrated in figures 3A to 3G differ from the embodiments of figures 1A to 1G in that the teat mouthpiece 9 has been replaced by a sipper mouthpiece 41. The sipper mouthpiece 41 is hollow and comprises a base 42 from which extends a sipper body 43 which is preferably substantially elliptical in cross-section and which terminates in a blunt end 44. The blunt end 44 is pierced by a slit 46 which extends across an axis of that end and operates in the same manner as do teats for baby feeding bottles.

[0044] The embodiments that are illustrated in figures 4A to 4G differ from the embodiments of figures 1A to 1G in that the teat mouthpiece 9 has been replaced by a spout mouthpiece 51. The spout mouthpiece 51 comprises an open-

ended spout 53 which extends upwardly from a base 52. A valve 54 in the base 52 allows for one-way flow of material from the tube 2 into the spout 53. The purpose the valve 54 is to prevent contents of the feeder 1 from spilling out when the feeder is on its side or upside down. This valve is designed to be weaker than the one-way air valve 16 located in the movable bung 8, to enable the contents of the feeder 1 to dispense smoothly.

[0045] The embodiments that are illustrated in figures 5A to 5G differ from the embodiments of figures 1A to 1G in that the teat mouthpiece 9 has been replaced by a spoon pump attachment 61.

[0046] The spoon pump attachment 61 allows parents to feed their infants single-handedly, whilst also promoting utensil education for the infant.

[0047] The spoon pump attachment 61 comprises a spoon 63 and a pump. The pump is dimensioned to dispense just enough contents to fill the spoon 63. The spoon 63 comprises a spoon head 68 and a spoon tube 64 so that the spoon head 68 is in communication with the hollow interior of the spoon tube 64. A spoon trigger 67 projects substantially radially from the spoon tube 64. The pump comprises the top cap pump pack 68, the helical spring 71, the pump bung 72 and the pump one way valve 77. The structure and function of the various components of the of the spoon pump attachment are as follows ·

Spoon top cap 62

[0048] A spoon top cap 62 snap fits onto the feeder 1, protecting the spoon 63 when it is not in use. It can also be clipped into the base cap 11 during use.

Spoon 63

[0049] The spoon 63 clips onto the top cap pump pack 68. It has a tube 64 that fits into the pump bung 72 and opens onto the spoon head 66. The contents of the feeder 1 will travel through the tube 64 onto the spoon head 66. Underneath the tube 64 at the back of the spoon head 66 is the spoon trigger 67 where the user applies pressure to engage the pump mechanism.

Top cap pump pack 68

[0050] A top cap pump pack 68 is fitted to the pump bung 72 with a quick release bayonet fitting. The bayonet fitting comprises the bayonet slots 74 in the pump bung tube 73 and corresponding projections 60 within the top cap pump pack 68. Together with the spring stop 69 it houses the spring 71. The top of the pump bung 72 and the tube 64 of the spoon run through the middle of the top cap pump pack 68, spring 71 and spring stop 69.

Spring 71

[0051] The coil spring 71 is fitted to the spring stop 69 and housed in the top cap pump pack 68. Its purpose is to return the spoon 63, top cap pump pack 68 and pump bung 72 back to its original position.

Spring Stop 69

[0052] The spring stop 69 is fastened to the feeder tube 2 by the pump collar 68. Its purpose is to house the spring 71 and attach the pump mechanism to the tube 2.

Pump Collar 78

[0053] The threaded pump collar 78 fastens the spoon pump attachment 61 to the tube 2. It has an extended collar that reaches above the top cap pump pack 68 to the base of the spoon attachment 61 in order to protect the user from pinching skin when pumping the spoon attachment 61.

Pump Bung 72

[0054] The top of the pump bung 72 is a tube 73 that attaches to the top cap pump pack 68. The tube 64 of the spoon fits into the tube 73 at the top of the pump bung 72. The pump one-way valve 77 clips into the base of the pump bung tube 73. The pump bung 72 comprises a body 75 which receives a radially-extending circumferential seal 76. The outer periphery of the seal 76 forms a sliding seal with the internal wall of the tube 2. A radially-extending location/alignment ring 79 is integrally formed with the body 75 below the circumferential seal 76 and a radially extending scraper/seal blade 80 is integrally formed with the body 75 below the location/alignment ring 79. The circumferential seal 76, the

location/alignment ring 79 and the scraper/seal blade 80 result in the pump bung 72 fitting tightly within, and sealing with, the tube 2.

[0055] When downward pressure is applied to the spoon trigger 67, the pump bung 72 will move downward inside the feeder tube 2. The contents will be forced to squeeze through the pump one-way-valve 77 out through the spoon tube 64 onto the spoon head 66.

Pump One-way Valve 77

[0056] The pump one-way valve 77 clips into the base of the pump bung tube 73. The pump one-way valve 77 allows the contents of the feeder 2 to squeeze out onto the spoon 63, but will not allow the contents to be sucked back into the tube 2. The pump one-way valve 77 is designed to be weaker than the one-way valve 16 which is fitted at the bottom of the feeder. This will allow a smoother feed of the contents dispensing, rather than a squirt.

[0057] The embodiments that are illustrated in figures 7A to 7D differ from the embodiments of figures 1A to 1G in that the teat mouthpiece 9 has been replaced by a storage cap 81. The storage cap 81 fits onto the top of the tube 2 and is held in place by the upper collar 19. The storage cap 81 is intended for use on the tops of spare feeders and for the storage of feeders during travel or in refrigerators or in coolers.

[0058] The different mouthpieces are designed to accommodate different textures of materials. The teat mouthpiece 9 accommodates liquids, such as milk, water and juices. The sipper mouthpiece 41 accommodates purees, such as pureed vegetables, fruits, cereals, smoothies and yoghurt. The spout mouthpiece 51 accommodates mashes, such as mashed vegetables, fruits, proteins, and chunky soups.

[0059] The spoon pump attachment is designed to allow parents to feed their infants single-handedly, while also promoting utensil education for the infant. The spring-loaded pump is regulated to dispense just enough contents to fill the attached spoon.

[0060] The presently-described embodiments are manufactured in any suitable material by any suitable process, but particularly preferred materials and processes for various components are set out in the following table.

Component	Process	Material
1 Tube 2	Injection moulding	Tritan copolyester
2 Over-moulding 5	Over moulding	ABS (Acrylonitrile butadiene styrene)
3 Bung 8	Injection moulding	Polyurethane
4 Teat 9	Injection moulding	Silicones
5 Base cap 11	Injection moulding	ABS
6 Valve 16	Injection moulding	Polyurethane
7 Collar 19	Injection moulding	ABS
10 Top cap 31	Injection moulding	Tritan copolyester
11 Funnel 34	Injection moulding	ABS
12 Sipper mouthpiece 41	Injection moulding	Polyurethane
13 Spout mouthpiece 51	Over moulding	Polyurethane
14 Spoon 63	Injection moulding	Polyurethane
15 Spring stop 15	Injection moulding	ABS
16 Pump Bung 72	Injection moulding	HDPE (high-density polyethylene)
17 Pump one-way valve 77	Injection moulding	Polyurethane
18 Pump collar 78	Injection moulding	ABS
19 Storage cap	Injection moulding	ABS

[0061] While the present invention has been described with reference to a few specific embodiments, the description is illustrative of the invention and is not to be construed as limiting the invention.

[0062] Throughout this specification, the words "comprise", "comprised", "comprising" and "comprises" are to be taken to specify the presence of stated features, integers, steps or components but does not preclude the presence or addition

of one or more other features, integers, steps, components or groups thereof.

Claims

1. A kit of parts to assemble a dispenser of material, comprising:

a tubular body (2) of substantially invariant internal cross-sectional shape;
a bung (8) which:

is adapted to slide within the tubular body (2); and
has a periphery which is adapted to form a first sliding seal between that periphery and the internal side walls of the tubular body (2); and

a base cap (11) having an aperture (12) through it, the base cap being adapted:

for mounting at a first end (4) of the tubular body (2) so as to substantially occlude that end; and
to allow airflow through the aperture (12) into the tubular body (2) as the bung (8) moves in a direction away from the first end (4) of the tubular body (2); and

the base cap (11) having a valve carrier (14) in place over the first end (4) of the tubular body (2), the valve carrier (14) comprises a first valve (16) which permits airflow only in the direction from the exterior of the tubular body (2) to the interior of the tubular body in use,

characterised in that the first valve (16) comprises a portion which is substantially more than half of a hollow sphere, the periphery of which is contiguous with a cylindrical portion of the first valve (16), and
in that the periphery which is adapted to form the sliding seal comprises at least one of:

a radially-extending circumferential seal (26);
a radially-extending scraping and sealing blade (23); and
a radially-extending locating and alignment ring (24), which is located between the radially-extending circumferential seal (26) and the radially-extending scraping and sealing blade (23).

2. A kit of parts as claimed in claim 1, further comprising at least one mouthpiece attachment which is adapted for readily-detachable mounting to a second end of the tubular body (2) and in which the material is food or drink.

3. A kit of parts as claimed in any one of the preceding claims, further comprising a pump attachment (61), the pump attachment (61) comprising a pump which is adapted for readily-detachable mounting to the second end of the tubular body (2) and which is adapted to pump material out of the tubular body (2).

4. A kit of parts as claimed in claim 3, in which the pump attachment (61) further comprises a spoon (63) which is mounted on the pump attachment (61) and which is adapted to receive material which the pump pumps out of the tubular body (2).

5. A kit of parts as claimed in any one of the preceding claims, further comprising a top cap (31) which is mountable to the dispenser to cover at least one of a mouthpiece attachment and the pump attachment (61).

6. A kit of parts as claimed in any one of the preceding claims, in which the radially-extending circumferential seal (26) is formed separately from the bung (8), and in which at least one of:

the radially-extending scraping and sealing blade (23); and
the radially-extending locating and alignment ring (24),

is formed integrally with the bung (8).

7. A kit of parts as claimed in any one of the preceding claims, in which the base cap (11) is adapted to serve as a mounting for the top cap (31) so as not to substantially occlude the airflow through the aperture (12) into the tubular body (2), and wherein the base cap (11) comprises:

a central body (30), the periphery of which carries longitudinally-running channels (17); and
an outer peripheral skirt (25) which surrounds the periphery of the central body (30),

the base cap (11) being adapted to receive a peripheral edge of the top cap between the longitudinally-running
channels (17) and the outer peripheral skirt (25).

8. A kit of parts as claimed in any one of claims 2 to 7, in which the at least one mouthpiece attachment is one of:

a teat mouthpiece (9) which is adapted to allow the flow of a liquid through it;
a sipper mouthpiece (41) which is adapted to allow the flow of pureed material through it; and
a spout mouthpiece (51) which is adapted to allow the flow of mashed material through it, and in which the sipper
mouthpiece (41) comprises a body (43) which has a blunt end (44) which is pierced by a slit (46) in that blunt end.

9. A kit of parts as claimed in claim 8, in which the spout mouthpiece (51) comprises:

a base (52);
an open-ended spout (53), which extends from the base (52); and
a second valve (54) in the base (52) which allows flow of material into the spout (53).

10. A kit of parts as claimed in claims 3 or 4, or any one of claims 5 to 9 when dependent on claims 3 or 4, in which the
pump comprises:

a pump bung (72) which:

is adapted for reciprocating movement along the longitudinal axis of the tubular body (2); and
has a periphery which is adapted to form a second sliding seal between that periphery and the internal side
walls of the tubular body (2);

a third valve (77) which is adapted to allow the flow of material from the interior of the tubular body (2) as the
pump bung moves (72) into the tubular body (2) but to prevent the flow of material into the interior of the tubular
body as the pump bung (72) moves out of the tubular body; and
biasing means to bias the pump bung (72) to move in a direction out of the tubular body (2).

11. A kit of parts as claimed in claim 10, in which the biasing means is mounted in a housing which comprises:

a spring stop (69) relative to which the pump bung (72) is longitudinally moveable; and
a spring top cap:

relative to which the pump bung (72) is fixed; and
which is reciprocally moveable within the spring stop (69).

12. A kit of parts as claimed in either claims 10 or 11 when dependent on claim 4, in which the pump attachment (61)
further comprises a pump tube which is adapted to deliver material from the outlet of the third valve (77) which is
adapted to allow the flow of material from the interior of the tubular body to the spoon (63), and in which the spring
stop (69) and the spring top cap are mounted substantially co-axially around the pump tube.

13. A dispenser of material, assembled from the kit of parts which is claimed in any one of claims 1 to 12.

Patentansprüche

1. Teilekit zum Zusammenbauen eines Spenders für Material, umfassend:

einen rohrförmigen Körper (2) von einer im Wesentlichen unveränderlichen Form des Innenquerschnitts;
einen Spund (8), der:

dafür geeignet ist, innerhalb des rohrförmigen Körpers (2) zu gleiten; und
einen Umfang aufweist, der dafür geeignet ist, eine erste Gleitdichtung zwischen diesem Umfang und den

inneren Seitenwänden des rohrförmigen Körpers (2) zu bilden; und
eine Bodenkappe (11) mit einer Öffnung (12) durch diese hindurch, wobei die Bodenkappe dafür geeignet ist:

an einem ersten Ende (4) des rohrförmigen Körpers (2) montiert zu werden, um dieses Ende im Wesentlichen zu verschließen; und

einen Luftstrom durch die Öffnung (12) in den rohrförmigen Körper (2) zuzulassen, wenn sich der Spund (8) in eine Richtung weg von dem ersten Ende (4) des rohrförmigen Körpers (2) bewegt; und wobei die Bodenkappe (11) einen Ventilträger (14) aufweist, der über dem ersten Ende (4) des rohrförmigen Körpers (2) platziert ist, der Ventilträger (14) umfasst ein erstes Ventil (16), welches einen Luftstrom nur in die Richtung von dem Äußeren des rohrförmigen Körpers (2) zu dem Inneren des rohrförmigen Körpers in Gebrauch zulässt,

dadurch gekennzeichnet, dass das erste Ventil (16) einen Abschnitt umfasst, der im Wesentlichen mehr als die Hälfte einer Hohlkugel beträgt, deren Umfang an einen zylindrischen Abschnitt des ersten Ventils (16) angrenzt, und

dass der Umfang, der dafür geeignet ist, die Gleitdichtung zu bilden, mindestens eines von Folgendem umfasst:

eine sich radial erstreckende Umfangsdichtung (26);

ein sich radial erstreckendes Schab- und Dichtungsblatt (23); und

einen sich radial erstreckenden Positionier- und Ausrichtungsring (24), der sich zwischen der sich radial erstreckenden Umfangsdichtung (26) und dem sich radial erstreckenden Schab- und Dichtungsblatt (23) befindet.

2. Teilekit nach Anspruch 1, ferner umfassend mindestens einen Mundstückaufsatz, der zum einfach lösbaren Montieren an ein zweites Ende des rohrförmigen Körpers (2) geeignet ist und in dem das Material ein Nahrungsmittel oder Getränk ist.

3. Teilekit nach einem der vorhergehenden Ansprüche, ferner umfassend einen Pumpenaufsatz (61), wobei der Pumpenaufsatz (61) eine Pumpe umfasst, die zum einfach lösbaren Montieren an dem zweiten Ende des rohrförmigen Körpers (2) geeignet ist, und die dafür geeignet ist, Material aus dem rohrförmigen Körper (2) zu pumpen.

4. Teilekit nach Anspruch 3, in dem der Pumpenaufsatz (61) ferner einen Löffel (63) umfasst, der auf dem Pumpenaufsatz (61) montiert und dafür geeignet ist, Material aufzunehmen, welches die Pumpe aus dem rohrförmigen Körper (2) pumpt.

5. Teilekit nach einem der vorhergehenden Ansprüche, ferner umfassend eine Deckkappe (31), die an dem Spender montierbar ist, um mindestens eines von einem Mundstückaufsatz und dem Pumpenaufsatz (61) zu bedecken.

6. Teilekit nach einem der vorhergehenden Ansprüche, in dem die sich radial erstreckende Umfangsdichtung (26) getrennt von dem Spund (8) gebildet wird und in dem mindestens eines von:

dem sich radial erstreckenden Schab- und Dichtungsblatt (23); und

dem sich radial erstreckenden Positionier- und Ausrichtungsring (24)

einstückig mit dem Spund (8) gebildet wird.

7. Teilekit nach einem der vorhergehenden Ansprüche, in dem die Bodenkappe (11) dafür geeignet ist, als eine Halterung für die Deckkappe (31) zu dienen, um den Luftstrom durch die Öffnung (12) in den rohrförmigen Körper (2) nicht im Wesentlichen zu verschließen, und wobei die Bodenkappe (11) Folgendes umfasst:

einen zentralen Körper (30), dessen Umfang in Längsrichtung verlaufende Kanäle (17) führt; und

einen Außenumfangsmantel (25), der den Umfang des zentralen Körpers (30) umgibt,

wobei die Bodenkappe (11) dafür geeignet ist, eine Umfangskante der Deckkappe zwischen den in Längsrichtung verlaufenden Kanälen (17) und dem Außenumfangsmantel (25) aufzunehmen.

8. Teilekit nach einem der Ansprüche 2 bis 7, in dem der mindestens eine Mundstückaufsatz eines der folgenden ist:

ein Sauger-Mundstück (9), das dafür geeignet ist, den Fluss einer Flüssigkeit durch dieses zuzulassen;

ein Schluck-Mundstück (41), das dafür geeignet ist, den Fluss von püriertem Material durch dieses zuzulassen; und

ein Tüllen-Mundstück (51), das dafür geeignet ist, den Fluss von zerquetschtem Material durch dieses zuzulassen, und in dem das Schluck-Mundstück (41) einen Körper (43) umfasst, der ein stumpfes Ende (44) aufweist, welches von einem Schlitz (46) in diesem stumpfen Ende durchdrungen ist.

9. Teilekit nach Anspruch 8, in dem das Tüllen-Mundstück (51) Folgendes umfasst:

eine Basis (52);

eine Tülle mit offenem Ende (53), die sich von der Basis (52) erstreckt; und

ein zweites Ventil (54) in der Basis (52), welches den Fluss von Material in die Tülle (53) zulässt.

10. Teilekit nach den Ansprüchen 3 oder 4 oder einem der Ansprüche 5 bis 9, wenn diese von den Ansprüchen 3 oder 4 abhängen, in dem die Pumpe Folgendes umfasst:

einen Pumpenspund (72), welcher:

für eine Hin- und Herbewegung entlang der Längsachse des rohrförmigen Körpers (2) geeignet ist; und

einen Umfang aufweist, der dafür geeignet ist, eine zweite Gleitdichtung zwischen diesem Umfang und den inneren Seitenwänden des rohrförmigen Körpers (2) zu bilden;

ein drittes Ventil (77), welches dafür geeignet ist, den Fluss von Material von dem Inneren des rohrförmigen Körpers (2) zuzulassen, wenn sich der Pumpenspund (72) in den rohrförmigen Körper (2) bewegt, aber den Fluss von Material in das Innere des rohrförmigen Körpers zu verhindern, wenn sich der Pumpenspund (72) aus dem rohrförmigen Körper heraus bewegt; und

Vorspannmittel, um den Pumpenspund (72) vorzuspannen, so dass er sich in eine Richtung aus dem rohrförmigen Körper (2) heraus bewegt.

11. Teilekit nach Anspruch 10, in dem das Vorspannmittel in einem Gehäuse montiert ist, welches Folgendes umfasst:

einen Federanschlag (69), relativ zu dem der Pumpenspund (72) in Längsrichtung bewegbar ist; und

eine Federdeckkappe,

relativ zu der der Pumpenspund (72) befestigt ist; und

die innerhalb des Federanschlags (69) hin- und her bewegbar ist.

12. Teilekit nach einem der Ansprüche 10 oder 11, wenn dieser von Anspruch 4 abhängt, in dem der Pumpenaufsatz (61) ferner einen Pumpenschlauch umfasst, der dafür geeignet ist, Material von dem Auslass des dritten Ventils (77) bereitzustellen, welcher dafür geeignet ist, den Fluss von Material von dem Inneren des rohrförmigen Körpers zu dem Löffel (63) zuzulassen, und in dem der Federanschlag (69) und die Federdeckklappe im Wesentlichen koaxial um den Pumpenschlauch montiert sind.

13. Spender von Material, zusammengebaut aus dem Teilekit nach einem der Ansprüche 1 bis 12.

Revendications

1. Kit de pièces pour assembler un distributeur de matériel, comprenant :

un corps tubulaire (2) ayant une forme de section transversale interne essentiellement invariable ;
une bonde (8) qui :

est adaptée pour coulisser à l'intérieur du corps tubulaire (2) ; et

a une périphérie qui est adaptée pour former un premier joint coulissant entre cette périphérie et les parois latérales internes du corps tubulaire (2) ; et

un capuchon de base (11) ayant une ouverture (12) le traversant, le capuchon de base étant adapté :

pour être monté au niveau d'une première extrémité (4) du corps tubulaire (2) pour obturer essentiellement cette extrémité ; et

pour permettre le passage de l'air à travers l'ouverture (12) dans le corps tubulaire (2) lorsque la bonde (8) s'éloigne de la première extrémité (4) du corps tubulaire (2) ; et

le capuchon de base (11) comportant un support de valve (14) se trouvant sur la première extrémité (4) du corps tubulaire (2), le support de valve (14) comprend une première valve (16) qui permet un passage de l'air uniquement dans la direction à partir de l'extérieur du corps tubulaire (2) vers l'intérieur du corps tubulaire lors de l'utilisation,

caractérisé en ce que la première valve (16) comprend une partie qui est essentiellement plus de la moitié d'une sphère creuse, dont la périphérie est contiguë à une partie cylindrique de la première valve (16), et

en ce que la périphérie qui est adaptée pour former le joint coulissant comprend au moins un parmi :

un joint circonférentiel s'étendant radialement (26) ;
une lame de grattage et d'étanchéité s'étendant radialement (23) ; et
une bague de positionnement et d'alignement s'étendant radialement (24), qui est située entre le joint circonférentiel s'étendant radialement (26) et la lame de grattage et d'étanchéité s'étendant radialement (23).

2. Kit de pièces selon la revendication 1, comprenant en outre au moins un accessoire d'embout buccal qui est adapté à un montage facilement détachable à une deuxième extrémité du corps tubulaire (2) et le matériel étant de la nourriture ou une boisson.

3. Kit de pièces selon l'une quelconque des revendications précédentes, comprenant en outre un accessoire de pompe (61), l'accessoire de pompe (61) comprenant une pompe qui est adaptée à un montage facilement détachable à la deuxième extrémité du corps tubulaire (2) et qui est adaptée pour évacuer du matériel hors du corps tubulaire (2).

4. Kit de pièces selon la revendication 3, l'accessoire de pompe (61) comprenant en outre une cuillère (63) qui est montée sur l'accessoire de pompe (61) et qui est adaptée pour recevoir du matériel que la pompe évacue du corps tubulaire (2).

5. Kit de pièces selon l'une quelconque des revendications précédentes, comprenant en outre un capuchon supérieur (31) qui peut être monté au distributeur pour couvrir au moins un parmi un accessoire d'embout buccal et l'accessoire de pompe (61).

6. Kit de pièces selon l'une quelconque des revendications précédentes, le joint circonférentiel s'étendant radialement (26) est formé séparément de la bonde (8), et au moins une parmi :

la lame de grattage et d'étanchéité s'étendant radialement (23) ; et
la bague de positionnement et d'alignement s'étendant radialement (24),
étant formée solidairement avec la bonde (8).

7. Kit de pièces selon l'une quelconque des revendications précédentes, le capuchon de base (11) étant adapté pour servir de support pour le capuchon supérieur (31) pour ne pas obstruer essentiellement le passage de l'air à travers l'ouverture (12) dans le corps tubulaire (2), et le capuchon de base (11) comprenant :

un corps central (30), dont la périphérie porte des canaux s'étendant longitudinalement (17) ; et
une collerette périphérique extérieure (25) qui entoure la périphérie du corps central (30),
le capuchon de base (11) étant adapté pour recevoir un bord périphérique du capuchon supérieur entre les canaux s'étendant longitudinalement (17) et la collerette périphérique extérieure (25).

8. Kit de pièces selon l'une quelconque des revendications 2 à 7, au moins un accessoire d'embout buccal étant un parmi :

un embout buccal de tétine (9) qui est adapté pour permettre l'écoulement d'un liquide à travers lui ;
un embout buccal paille (41) qui est adapté pour permettre l'écoulement de matériel en purée à travers lui ;
un embout buccal de bec (51) qui est adapté pour permettre l'écoulement de matériel écrasé à travers lui, et
l'embout buccal de succion (41) comprenant un corps (43) qui a une extrémité émoussée (44) qui est percée par une entaille (46) dans cette extrémité émoussée.

9. Kit de pièces selon la revendication 8, l'embout buccal de bec (51) comprenant :

une base (52) ;
un bec à extrémité ouverte (53), qui s'étend à partir de la base (52) ; et
une deuxième valve (54) dans la base (52) qui permet un écoulement de matériel dans le bec (53).

- 5 **10.** Kit de pièces selon les revendications 3 ou 4 ou selon l'une quelconque des revendications 5 à 9 lorsqu'elle dépend de la revendication 3 ou 4, la pompe comprenant :

une bonde de pompe (72) qui :

10 est adaptée pour effectuer un mouvement de va-et-vient le long de l'axe longitudinal du corps tubulaire (2) ; et
a une périphérie qui est adaptée pour former un deuxième joint coulissant entre cette périphérie et les parois latérales internes du corps tubulaire (2) ;
une troisième valve (77) qui est adaptée pour permettre l'écoulement de matériel à partir de l'intérieur du corps tubulaire (2) lorsque la bonde de pompe (72) se déplace dans le corps tubulaire (2) mais pour empêcher l'écoulement de matériel vers l'intérieur du corps tubulaire lorsque la bonde de la pompe (72) se déplace hors
15 du corps tubulaire ; et
un moyen de sollicitation pour solliciter la bonde de pompe (72) pour se déplacer dans une direction hors du corps tubulaire (2).

- 20 **11.** Kit de pièces selon la revendication 10, le moyen de sollicitation étant monté dans un logement qui comprend :

une butée de ressort (69) par rapport à laquelle la bonde de pompe (72) est mobile longitudinalement ; et
un capuchon supérieur de ressort :

25 par rapport auquel la bonde de pompe (72) est fixe ; et
qui est mobile selon un mouvement de va-et-vient dans la butée de ressort (69).

- 30 **12.** Kit de pièces selon l'une des revendications 10 ou 11 lorsqu'elle dépend de la revendication 4, l'accessoire de pompe (61) comprenant en outre un tube de pompe qui est adapté pour délivrer du matériel à partir de la sortie de la troisième valve (77) qui est adaptée pour permettre l'écoulement de matériel à partir de l'intérieur du corps tubulaire vers la cuillère (63), et la butée de ressort (69) et le capuchon de ressort étant montés essentiellement de façon coaxiale autour du tube de pompe.

- 13.** Distributeur de matériel, assemblé à partir du kit de pièces selon l'une quelconque des revendications 1 à 12.

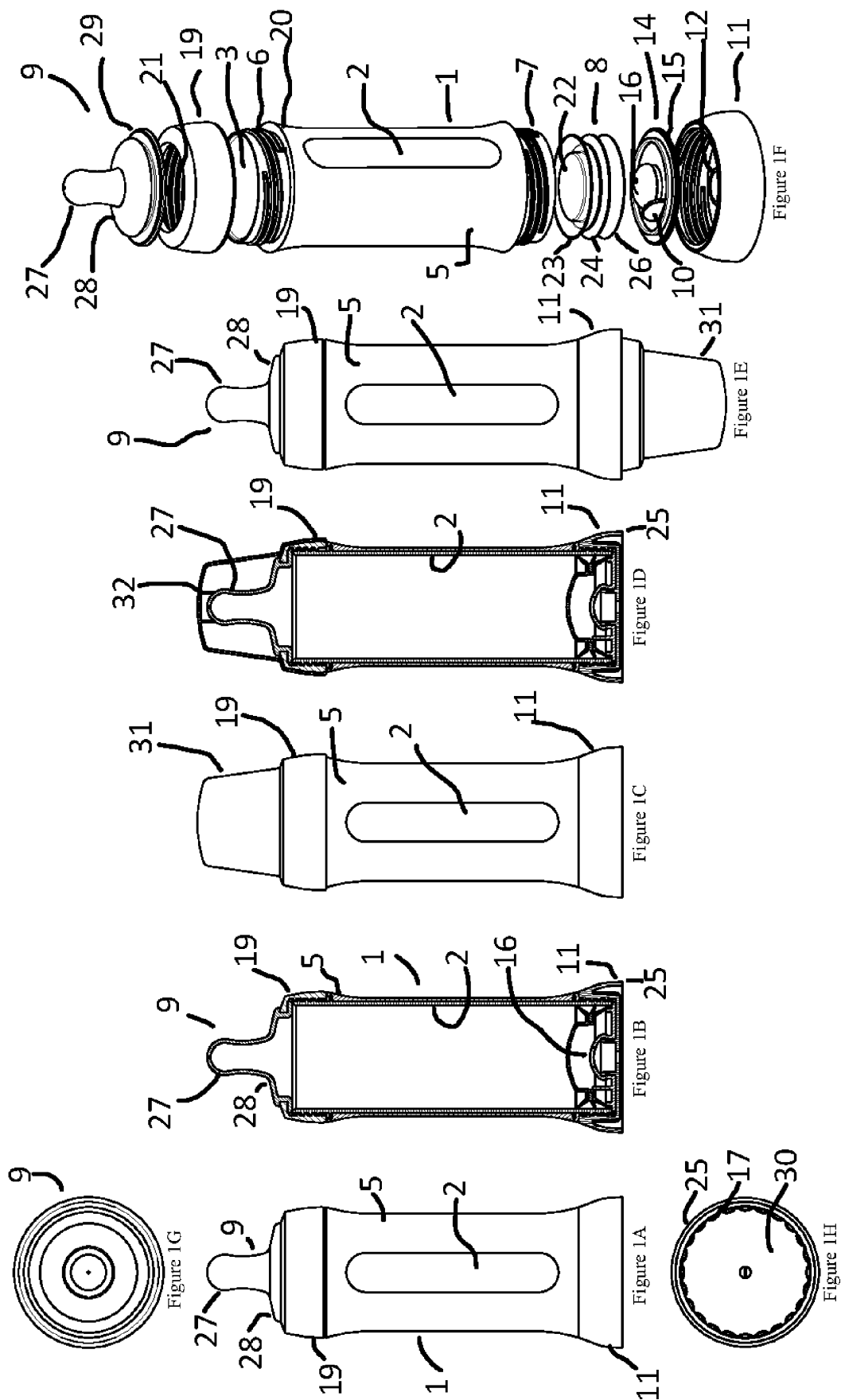
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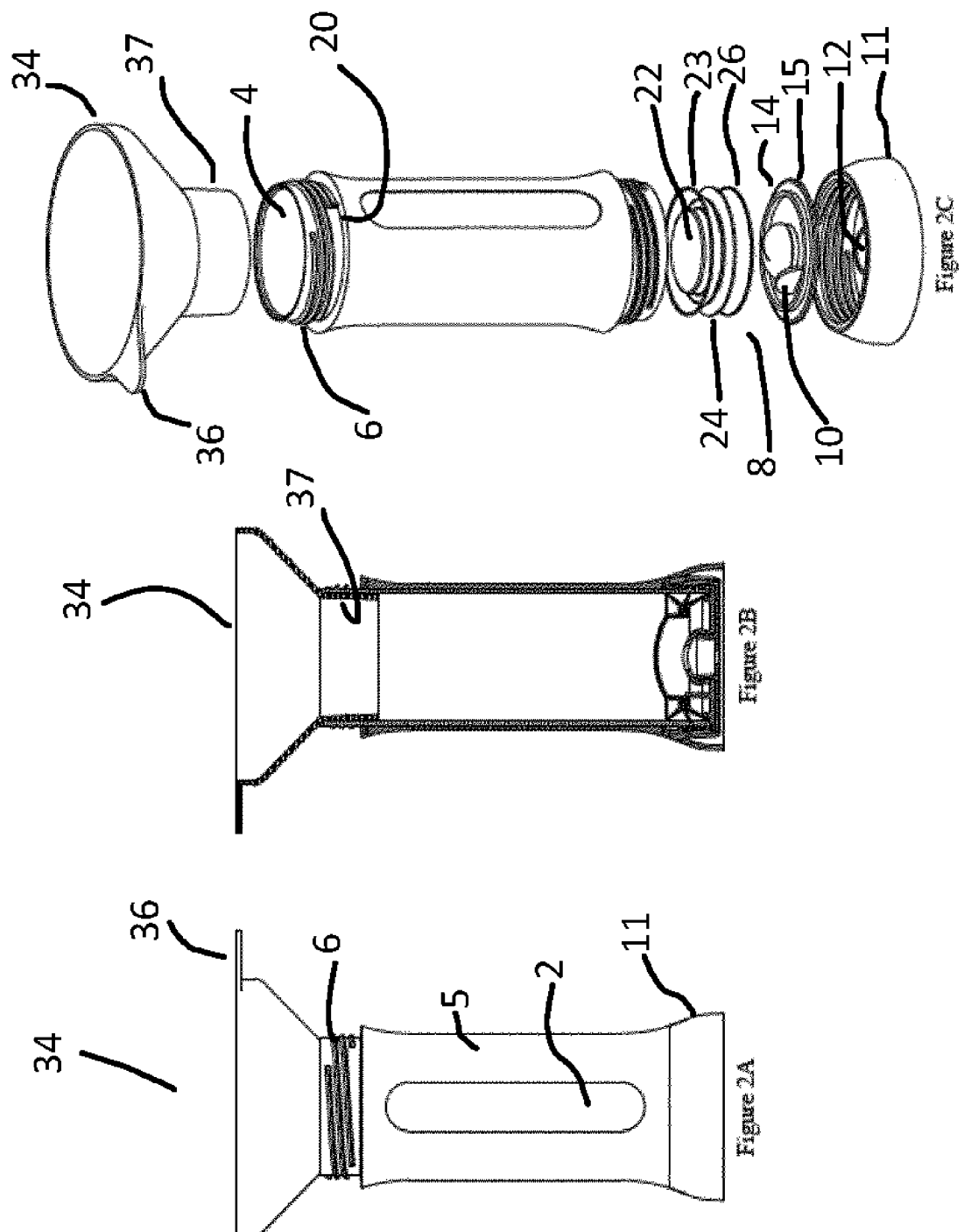
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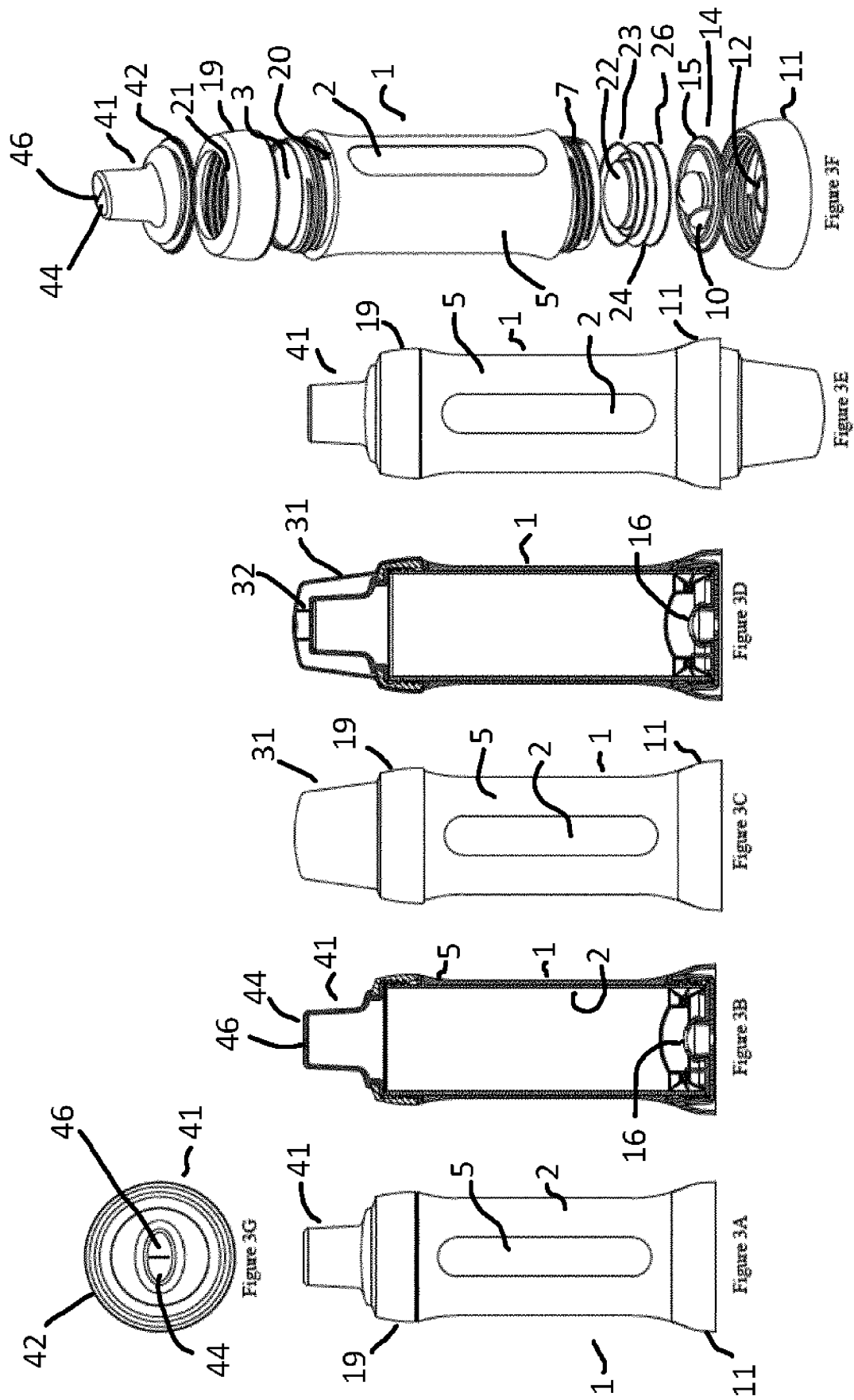
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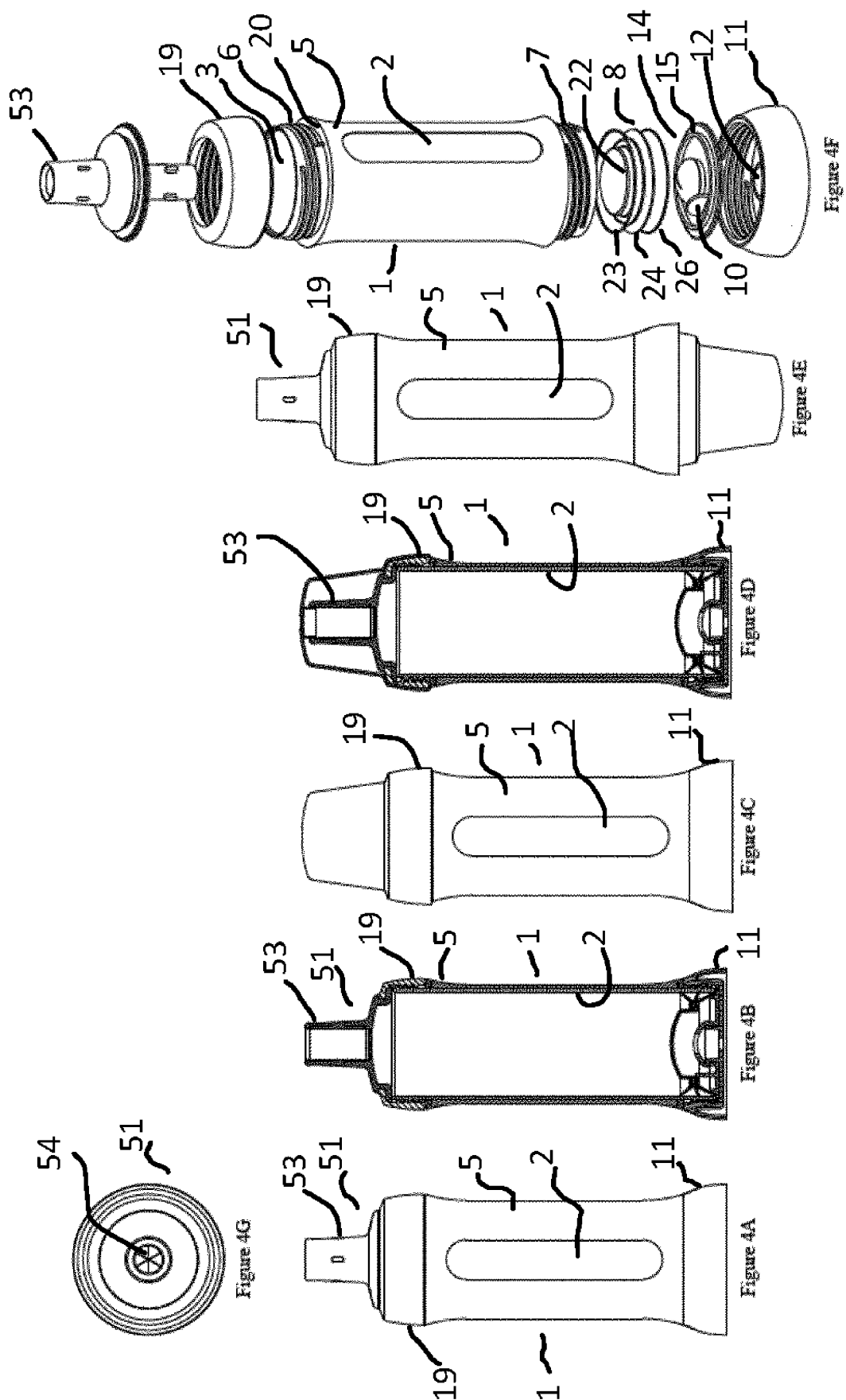
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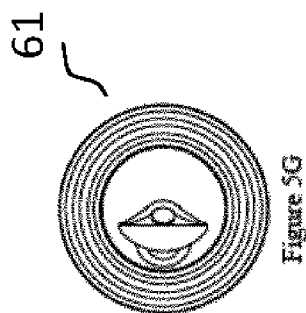


Figure 5G

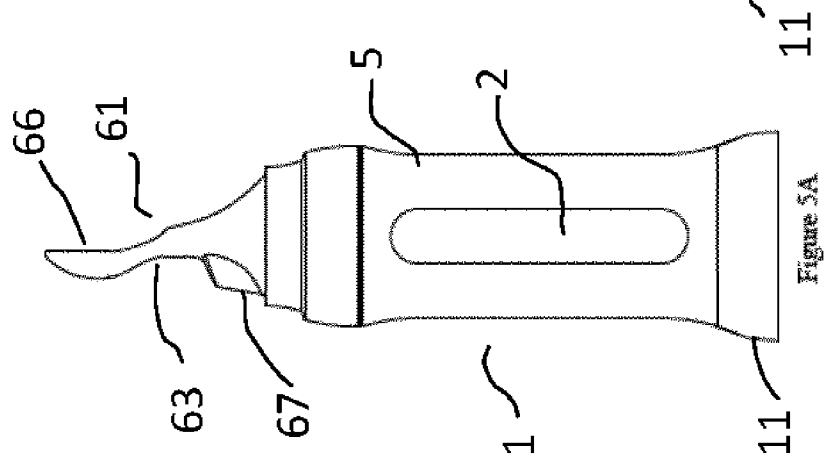


Figure 5A

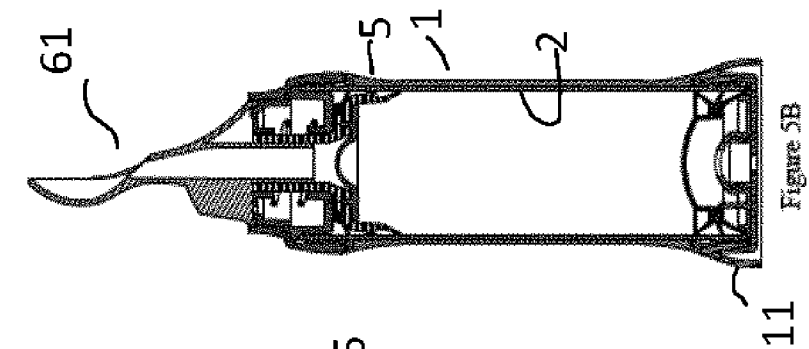


Figure 5B

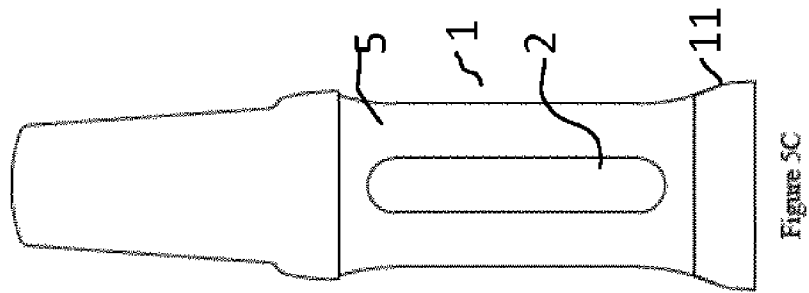


Figure 5C

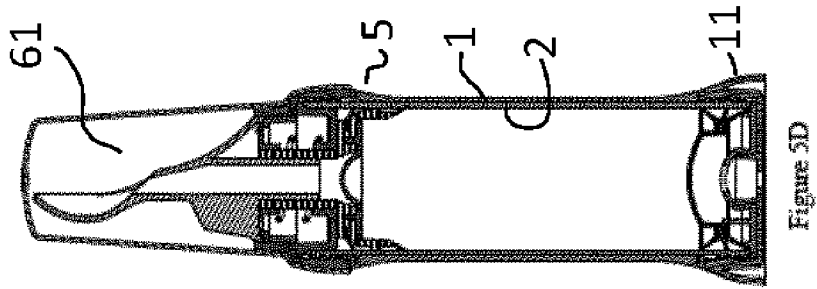


Figure 5D

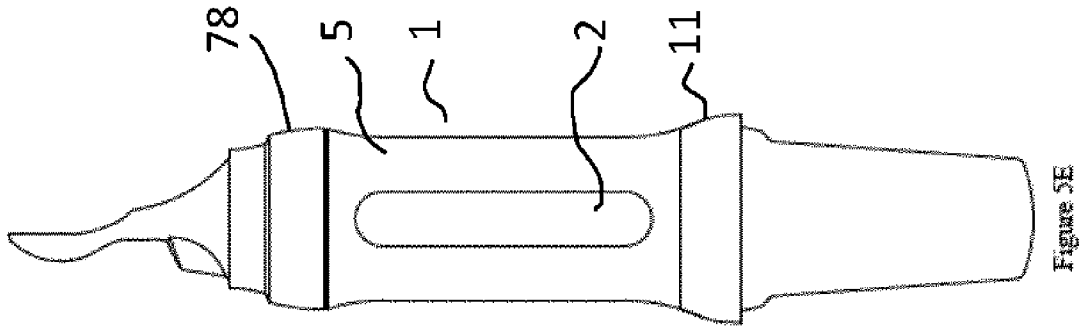


Figure 5E

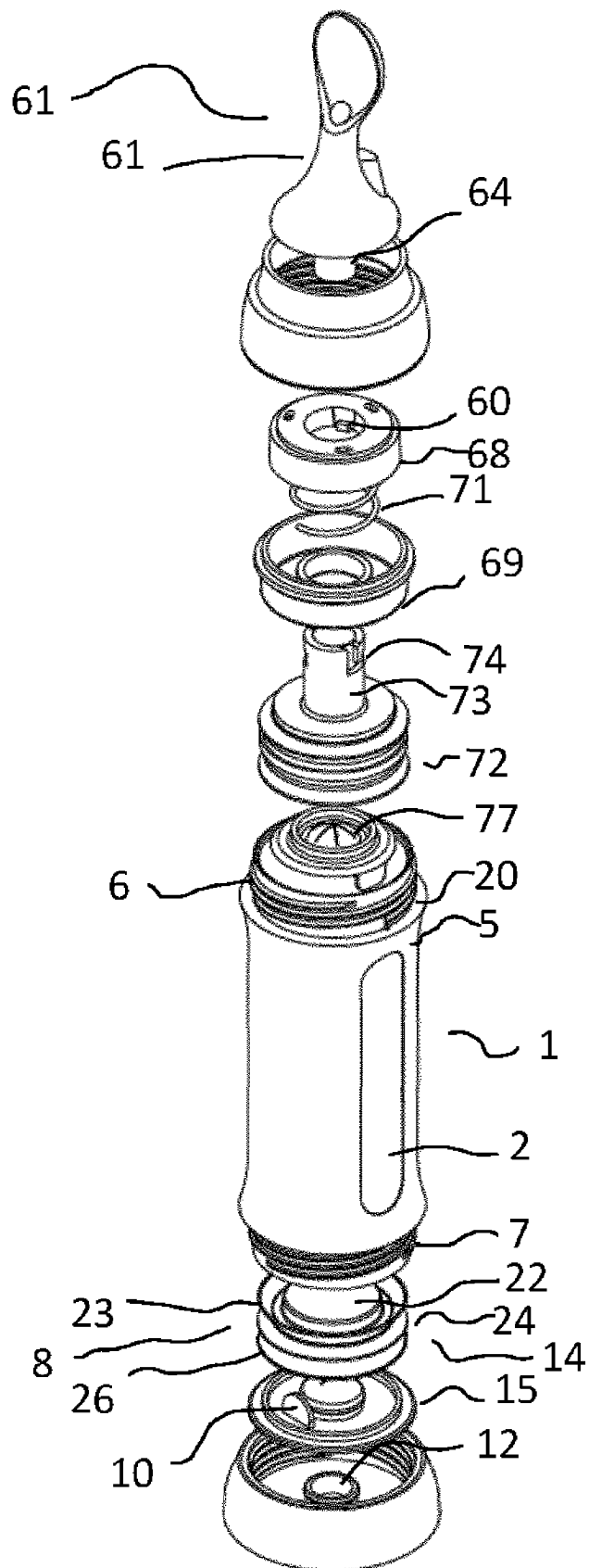
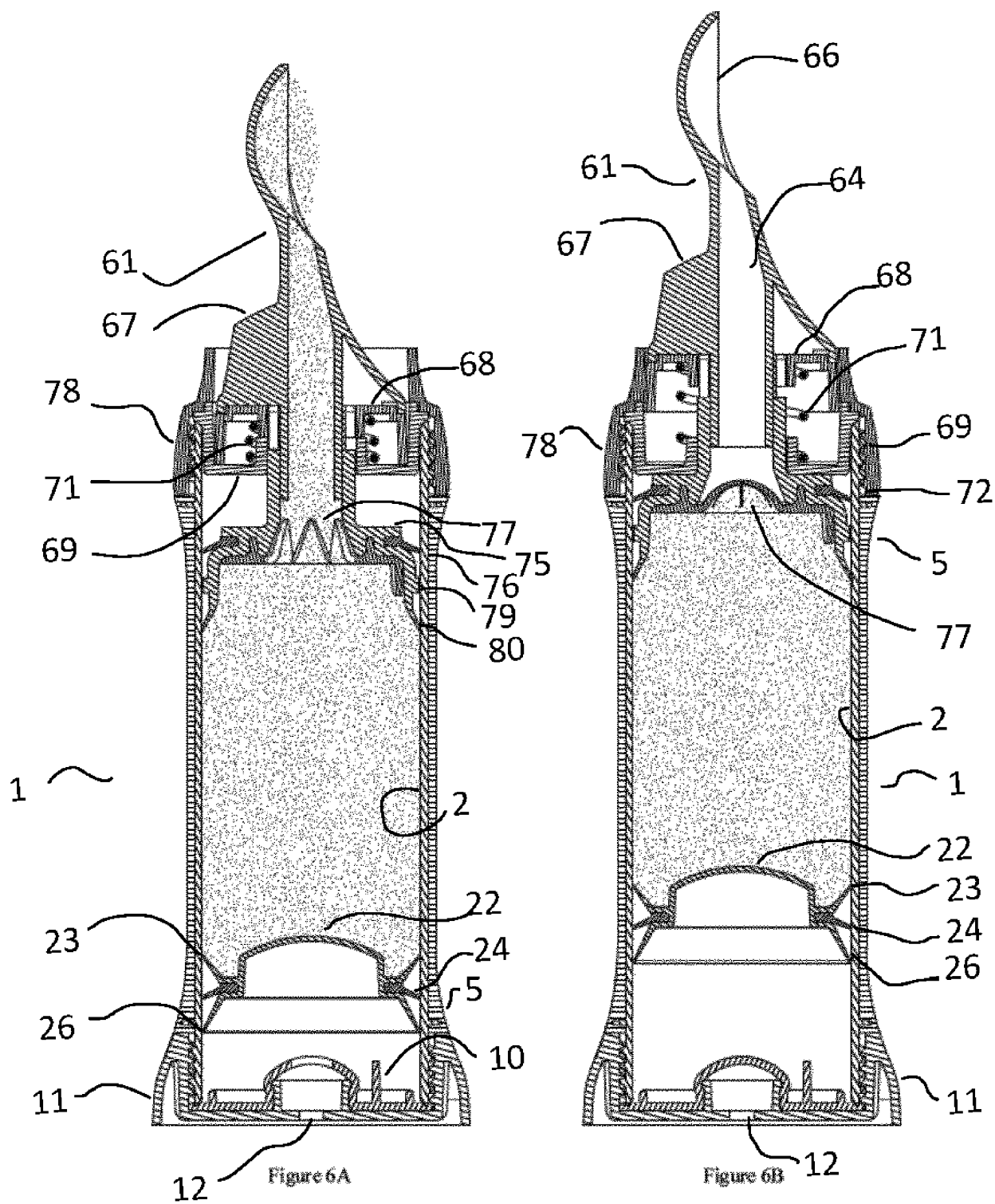
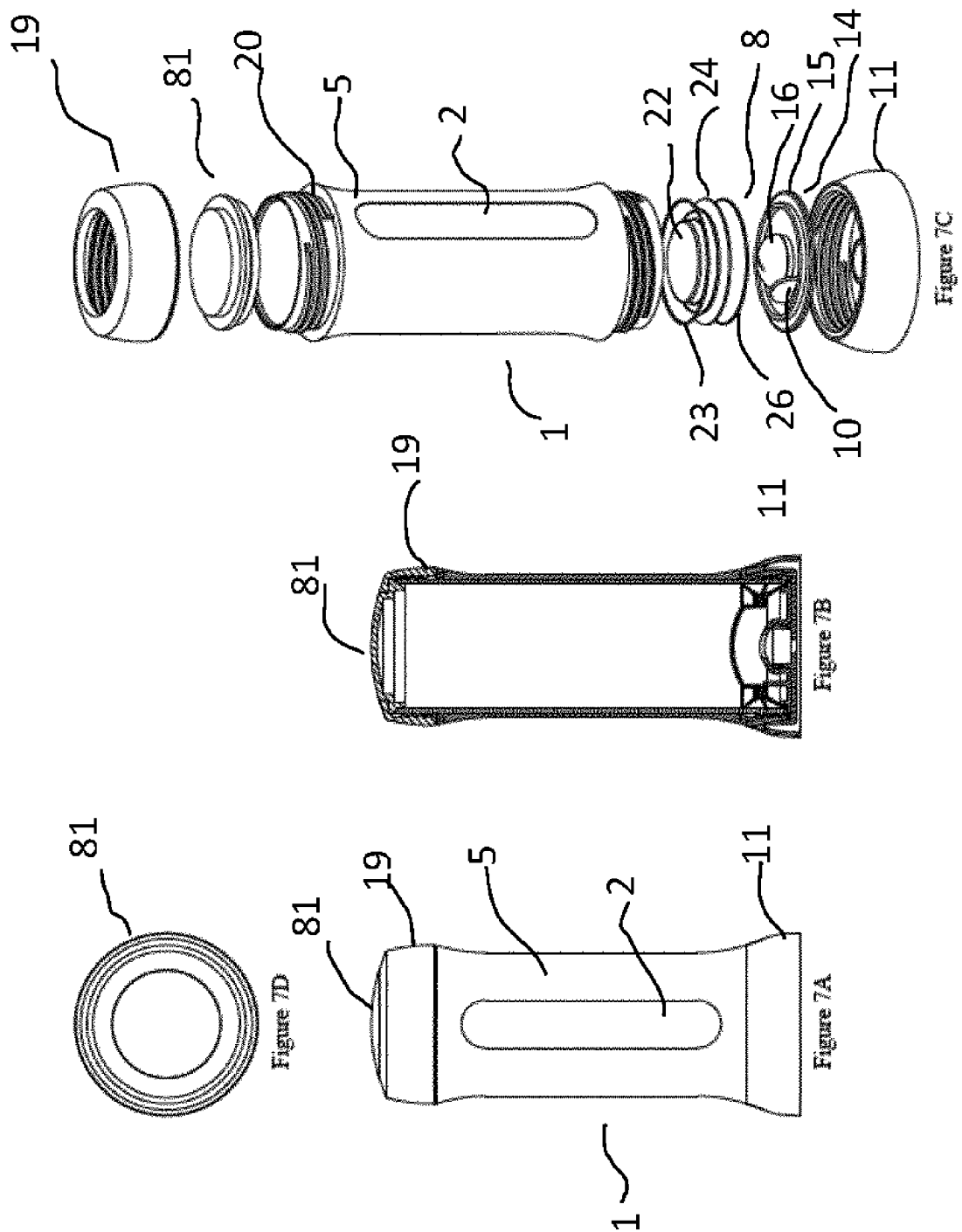


Figure 5F





REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- AU 2013904071 [0001]
- AU 2013101385 [0001]
- WO 9504690 A1 [0005]
- US 4010861 A [0005]
- WO 2004002397 A1 [0005]