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Bezeichnung: Dispenser head and dispenser for dispensing
units of a pharmaceutical drug or a food
supplement or food

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München, den 5. November 2020
Deutsches Patent- und Markenamt
Die Präsidentin
Im Auftrag

Sebele

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25 **Title: Dispenser head and dispenser for dispensing units
of a pharmaceutical drug or a food supplement or
food**

Description

30 The description is related to dispensers for dispensing units
of a pharmaceutical drug or a food supplement or food.

The problems of the prior art are resolved by a dispenser head
according to claim 1 and by a dispenser according to another
35 independent claim. Further advantageous features are recited
in the further claims, in the following description and in the
figures.

According to a first aspect of the description, a dispenser
40 head for dispensing a unit, in particular in form of capsules

or tablets, of a pharmaceutical drug or a food supplement or food is provided. Said dispenser head comprises: a dosing duct extending along a dosing axis and connecting an inlet port for receiving the unit from a reservoir with an outlet port for dispensing the unit; a support section for the unit, which extends from the exit port parallel to the dosing axis; and a retention section, which extends from a distal end of the support section at least partly perpendicularly to the dosing axis.

The dispenser head allows the dispensing of a single unit that can be picked up by the user. The dispenser head can only dispense another individual unit after the aforementioned individual unit has been removed.

Advantageously, the support section supports the unit being provided via the exit port. The retention section stops the movement of the unit moving along the dosing axis and being supported by the support section. Then the user can collect the unit with his/her fingers. Advantageously, the retention section limits the removal of the unit along the dosing axis. The user will be provided with only one single unit at a time and is able to remove this single unit from the dispenser head avoiding unwanted contact with the capsules or tables inside the recipient/reservoir. Moreover, a plurality of units being kept in the container or reservoir are protected from being touched by the user. Therefore, the remaining plurality of units are protected from contamination.

Therefore, the dispenser head resolves dosing and contamination issues being associated with existing bottles and recipients.

Examples of a unit of a pharmaceutical drug comprise a capsule with an outer shell enclosing the pharmaceutical drug, a pill and tablet, each comprising the pharmaceutical drug, and the like.

Examples of food or food supplement comprise candies, sweeteners, sugar globules and the like.

10 According to an advantageous example, the exit port is delimited by a cutout opening towards the retention section and opening facing away from the support section.

Advantageously, the cutout allows to lift a distal part of the unit upward, so that the unit is not blocked by the retention section, and to remove the unit from the support section.

According to an advantageous example, two parallel walls that extend from the support section delimit the exit port.

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Advantageously, the unit, in particular a capsule, is not able to escape to the side.

According to an advantageous example, the retention section comprises a recess facing the exit port.

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The recess holds the unit after partly exiting the exit port. Together with the exit port and the support section, the recess maintains the capsule in its removal position.

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According to an advantageous example, the support section comprises a recess facing the dosing axis.

Advantageously, the recess of the support section receives the unit and prevents an unwanted dropping of the unit.

- 5 According to an advantageous example, the support section tapers towards the retention section.

The resulting lateral cutouts of the support section allow the user's fingers to grab the lateral side of the unit.

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According to an advantageous example, the dispenser head comprises an enclosing body; and a dosing body, which is arranged inside the enclosing body movably along an axis between a retracted position and a pick-up position, wherein
15 the dosing body comprises the dosing duct, the support section, and the retention section.

- Advantageously, gravity and/or additional force by the user cause the movement of the dosing body into the retracted or
20 pick-up position. By retracting the dosing body, the pick-up section is retracted. Advantageously, this retraction movement decouples sealing from the pick-up issue.

- According to an advantageous example, the enclosing body
25 comprises a distal opening through which the support section and the retention section extend, if the dosing body is in its pick-up position.

- Advantageously, the pick-up section passes through the distal
30 opening of the enclosing body, when the dosing body is moved into the pick-up position

According to another advantageous example, the dispenser head comprises a lid with a closure section configured to close the distal opening.

- 5 Therefore, the dispenser can be sealed in order to avoid unwanted moisture entry.

According to an advantageous example, the dispenser head comprises an auxiliary weight body, which is movably attached to the dosing body.

Advantageously, the auxiliary weight body helps to reduce the weight of the dosing body itself on the one hand but increases the overall weight of the movable body.

15 According to an advantageous example, the auxiliary weight body comprises a desiccant.

Advantageously, the desiccant is integrated into the dispenser head. A loose desiccant bullet inside the reservoir can be avoided.

According to another aspect of the description, a dispenser for dispensing a unit of a pharmaceutical drug or a food supplement or food is provided, wherein the dispenser comprises the dispenser head according to the first aspect, and the reservoir for storing the plurality of units.

Figures 1, 5, and 10 each depict an example of a dispenser for dispensing single units;

Figures 2 and 3 each depict a schematical section of the dispensing head;

5 Figures 4a and 4b each depict the dispensing head of figures 1 to 3 in a perspective view; and

10 Figure 6 depicts a schematical section of the example of the dispensing head of figure 5;

Figure 7 and 8 each depict the dispensing head of figure 5 in a perspective view;

15 Figure 9 depicts a back view of the dispensing head of figure 5;

Figure 11 a dosing body of the dispensing head;

20 Figure 12 a sectional view with the dosing body in its retracted position;

Figure 13 a perspective view with the dosing body in its pick-up position; and

25 Figure 14 the dosing body and an enclosing body.

Figures 1 to 4 refer to a first example of a dispenser head 400 for a dispenser 40 and for dispensing a unit of a pharmaceutical drug or a food supplement or food. The
30 dispenser 40 comprises the dispenser head 400 and the reservoir 41.

A dosing duct 402 of a dosing body 452 extends along a dosing axis 404 and connects an inlet port 406 for receiving the unit C from the reservoir 41 with an outlet port 408 for dispensing the unit C. A support section 430 of the dosing body 452 for the unit C extends from the exit port 408 parallel to the dosing axis 404. A retention section 410 of the dosing body 452 extends from a distal end of the support section 430 at least partly perpendicularly to the dosing axis 404, wherein the retention section 410 is arranged distally to the outlet port 408, and wherein said retention section 410 extends into an imaginary continuation 412 of the dosing duct 402.

The exit port 408 is delimited by a concave cutout 432 opening towards the retention section 410. The concave cutout 432 opens facing away from the support section 430. Two parallel walls 602, 604, which extend from the support section 430, delimit the exit port 408.

The single retention section 410 is arranged distally to the outlet port 408. The retention section 410 extends into an imaginary continuation 412 of the dosing duct 402. The support section 430 for supporting the pharmaceutical unit extends from the exit port 408 parallel to the dosing axis 404. The retention section 410 is arranged at a distal end of the support section 430. The retention section 410 extends into the imaginary continuation 412.

The retention section 410 comprises a recess 434, which faces the exit port 408. The recess 434 follows partly an imaginary sphere. The support section 430 comprises a recess 436 facing the dosing axis 404. The recess 436 follows partly a

cylindrical wall of an imaginary cylinder with the dosing axis 404 as the cylinder axis. The recess 434 and the recess 436 are formed to accommodate the unit C in form of an elongated capsule. The recess 434 and the recess 436 enhance the retention of the unit c in order to avoid its unwanted detachment or falling out depending on the way the user opens/handles the dispenser.

Figures 2 and 3 depict that the unit C in form of an elongated capsule for dispensing is longer than a distance D1 between the retention element 410 and the cutout 432. The distance D1 prevents the capsule from falling out of the pick-up area. A clearance D2 between the retention element 410 and the exit port 408 is smaller than the distance D1 and allows grasping the unit C with the user's fingers.

Two parallel walls 602, 604 extend from the support section 430 and delimit the exit port 408. The walls 602, 604 delimit corresponding edges. The walls 602, 604 limit a lateral movement of the unit C against the edges of the retention section 434.

A lid 490 comprises an inner locking section 492, which locks a pick-up area delimited by the retention section 410 and the support section 430.

Figures 5 to 9 refer to a second example of a dispenser head 700 for a dispenser 70. The dispenser 70 comprises the dispenser head 700 and the reservoir 71.

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A dosing duct 702 extends along a dosing axis 704 and connects an inlet port 706 for receiving the unit P from the reservoir

71 with an outlet port 708 for dispensing the unit P. A support section 730 for the unit P extends from the exit port 708 parallel to the dosing axis 704. A retention section 710 extends from a distal end of the support section 730 at least partly perpendicularly to the dosing axis 704, wherein the retention section 710 is arranged distally to the outlet port 708, and wherein said retention section 710 extends into an imaginary continuation 712 of the dosing duct 702.

10 The support section 730 tapers towards the retention section 710. A clearance D2 between short sidewalls 780, 782 of the exit port 708 and the retention element 710 is smaller than a diameter of the disc-like unit P but greater than a half of the diameter of the disc-like unit P.

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A lid 790, shown in Figure 6, comprises at least one inner locking protrusion 792, which locks a pick-up area provided by the retention section 710 and the support section 730. The at least one locking protrusion 792 blocks the unit P from exiting the exit port 708 by entering a lateral area of the pick-up area.

The inlet port 706, as shown in Figure 9, has a first clearance E1, which extends perpendicular to the support section 730. The first clearance E1 is greater than a height of the unit and less than twice the height. A second clearance E2 extends parallel to the support section 730. The second clearance E2 is greater than the diameter of the unit and less than twice the diameter. When referring to the height and diameter of the unit P, a cylindrical outer shape of the unit P is assumed. Therefore, the height of the unit P is a

cylinder height and the diameter of the unit P is a cylinder diameter.

The inlet port 706 has a half-moon-like funnel shape.

5 Therefore, the dosing duct 702 start half-moon-like shaped from the inlet port 706. The curved shape of the inlet port 706 is established by the long sides being bent in the same direction. The center cross-like stem F1 near the inlet port 706 inhibits a loos silica gel bullet from entering the dosing
10 duct 702 allowing units P to stream inside the dosing duct 702 via the inlet port 706. Moreover, this shape enables the dosing duct 702 to receive and eject only one single unit C at the outlet port 708.

15 Figures 10 to 14 refer to a third example of a dispenser head 100 for a dispenser 10. The dispenser 10 comprises the dispenser head 100 and the reservoir 11.

A dosing duct 102 extends along a dosing axis 104 and connects
20 an inlet port 106 for receiving the unit C from the reservoir 11 with an outlet port 108 for dispensing the unit C. A support section 130 for the unit C extends from the exit port 108 parallel to the dosing axis 104. A retention section 110 extends from a distal end of the support section 130 at least
25 partly perpendicularly to the dosing axis 104, wherein the retention section 110 is arranged distally to the outlet port 108, and wherein said retention section 110 extends into an imaginary continuation 112 of the dosing duct 102.

30 The dispenser head 100 comprises an enclosing body 150 and a dosing body 152. The dosing body 152 comprises the dosing duct 102, the support section 130, and the retention section 110.

The dosing body 152 is arranged inside the enclosing body 150 movably along an axis 156, which is parallel to the dosing axis 104, between a retracted position and a pick-up position.

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The enclosing body 150 comprises a distal opening 154 through which the support section 130 and the retention section 110, which form a pick-up section, extend, if the dosing body 152 is in its pick-up position. A lid 190 closes the distal opening 154. The lid 190 comprises a closure section 194 configured to close the distal opening 154. When the flip-off lid 190 is in its closed position, the closure section 194, for example comprising an outer cylindrical surface, engages with the distal opening 154, for example, comprising an inner cylindrical surface. Figure 12 shows the dosing body 152 in its retracted position. Figure 13 shows the dosing body 152 in its pick-up position.

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The dispenser head 100 comprises an auxiliary weight body 160, which is for example cylindrically shaped and which is movably along an axis 162 parallel to the dosing axis 104 and movably attached to the dosing body 152. When the auxiliary weight body 160 moves and is stopped at a stopping area of the dosing body 152, the impact generated helps to move the dosing body 152 into the desired position. The auxiliary weight body 160 comprises a desiccant like silica gel for keeping the units being accommodated in the reservoir 11 dry during shelf life.

30

The auxiliary weight body 160 is received in a receiving section 164 of the dosing body 152. The receiving section 164 comprises a cylindrical inner wall and a base. As shown in figure 14, the base of the receiving section 164 comprises an

opening 174 smaller than the dimensions of the unit C. The opening 174 allows that the desiccant of the auxiliary weight body 160 has a fluid connection to the reservoir 11.

- 5 At least one hook 166 secures the auxiliary weight body 160. The at least one hook 166 and the receiving section 164 represent guiding means for the auxiliary weight body 160.

- 10 Lateral longitudinal grooves 170a-d are arranged laterally on the dosing body 152. As shown in Figure 14, each one of the longitudinal grooves 170a-d of the dosing body 152 engages in a corresponding one of longitudinal inner projections 172a-d of the enclosing body 150. Therefore, the grooves 170a-d and the projections 172a-d represent guiding means for the dosing
15 body 152. The former guiding means allow that the dosing body 152 slides from its retracted position to the pick-up position and vice versa.

Claims

- 5 1. A dispenser head (400; 700; 100) for dispensing a unit (C; P) of a pharmaceutical drug or a food supplement or food, said dispenser head (400; 700; 100) comprising:
- 10 a dosing duct (402; 702; 102) extending along a dosing axis (404; 704; 104) and connecting an inlet port (406; 706; 106) for receiving the unit (C; P) from a reservoir (41, 71, 11) with an outlet port (408; 708; 108) for dispensing the unit (C; P);
- 15 a support section (430; 730; 130) for the unit (C; P), which extends from the exit port (408; 708; 108) parallel to the dosing axis (404; 704; 104); and
- a retention section (410; 710; 110), which extends from a distal end of the support section (430; 730; 130) at least partly perpendicularly to the dosing axis (404; 704; 104).
- 20 2. The dispenser head (400; 100) according to claim 1, wherein the exit port (408; 108) is delimited by a cutout (432; 132) opening towards the retention section (410; 110) and opening facing away from the support section (430; 130).
- 25 3. The dispenser head (400; 700; 100) according to claim 1 or 2, wherein two parallel walls (602, 604; 1102, 1104) that extend from the support section (430) delimit the exit port (408).

4. The dispenser head (400; 100) according to one of preceding claims, wherein the retention section (410; 110) comprises a recess (434) facing the exit port (408; 108).
- 5 5. The dispenser head (400; 100) according to one of the claims 2 to 4, wherein the support section (430; 130) comprises a recess (436) facing the dosing axis (404; 104).
- 10 6. The dispenser head (700) according to one of the claims 2 to 5, wherein the support section (730) tapers towards the retention section (710).
7. The dispenser head (700) according to one of the preceding claims, wherein a clearance (D2) between the exit port (708) and the retention element (710) is
15 smaller than a diameter of the unit (P).
8. The dispenser head (700) according to one of the preceding claims, wherein a first clearance (E1) of the inlet port (706) is greater than a height of the unit (P) and less than twice the height of the unit (P), and wherein a second clearance (E2), perpendicular to the first clearance (E1), in particular extending parallel
20 to the support section (730), is greater than a diameter of the unit (P) and less than twice the diameter (P).
9. The dispenser head (400, 100) according to one of the claims 1 to 6, wherein a first distance (D1) between the retention element 410 and the cutout (432) is smaller
25 than a longitudinal extension of the unit (C), in particular in form of an elongated capsule.

10. The dispenser head (400, 100) according to claim 9, wherein a clearance (D2) between the retention element (410) and the exit port 408 is smaller than the first distance (D1).
- 5 11. The dispenser head (100) according to one of the preceding claims, wherein the dispenser head (100) comprises:
- an enclosing body (150); and
- 10 a dosing body (152), which is arranged inside the enclosing body (150) movably along an axis (156) between a retracted position and a pick-up position, wherein the dosing body (152) comprises the dosing duct (102), the support section (130), and the retention section (110).
12. The dispenser head (100) according to claim 11, wherein
15 the enclosing body (150) comprises a distal opening (154) through which the support section (130) and the retention section (110) extend, if the dosing body (152) is in its pick-up position.
13. The dispenser head (100) according to claim 12, wherein
20 the dispenser head (100) comprises a lid (190) with a closure section (194) configured to close the distal opening (154).
14. The dispenser head (100) according to claim 11, 12 or
25 13, wherein the dispenser head (100) comprises an auxiliary weight body (160), which is movably attached to the dosing body (152).
15. The dispenser head (100) according to claim 14, wherein the auxiliary weight body (160) comprises a desiccant.

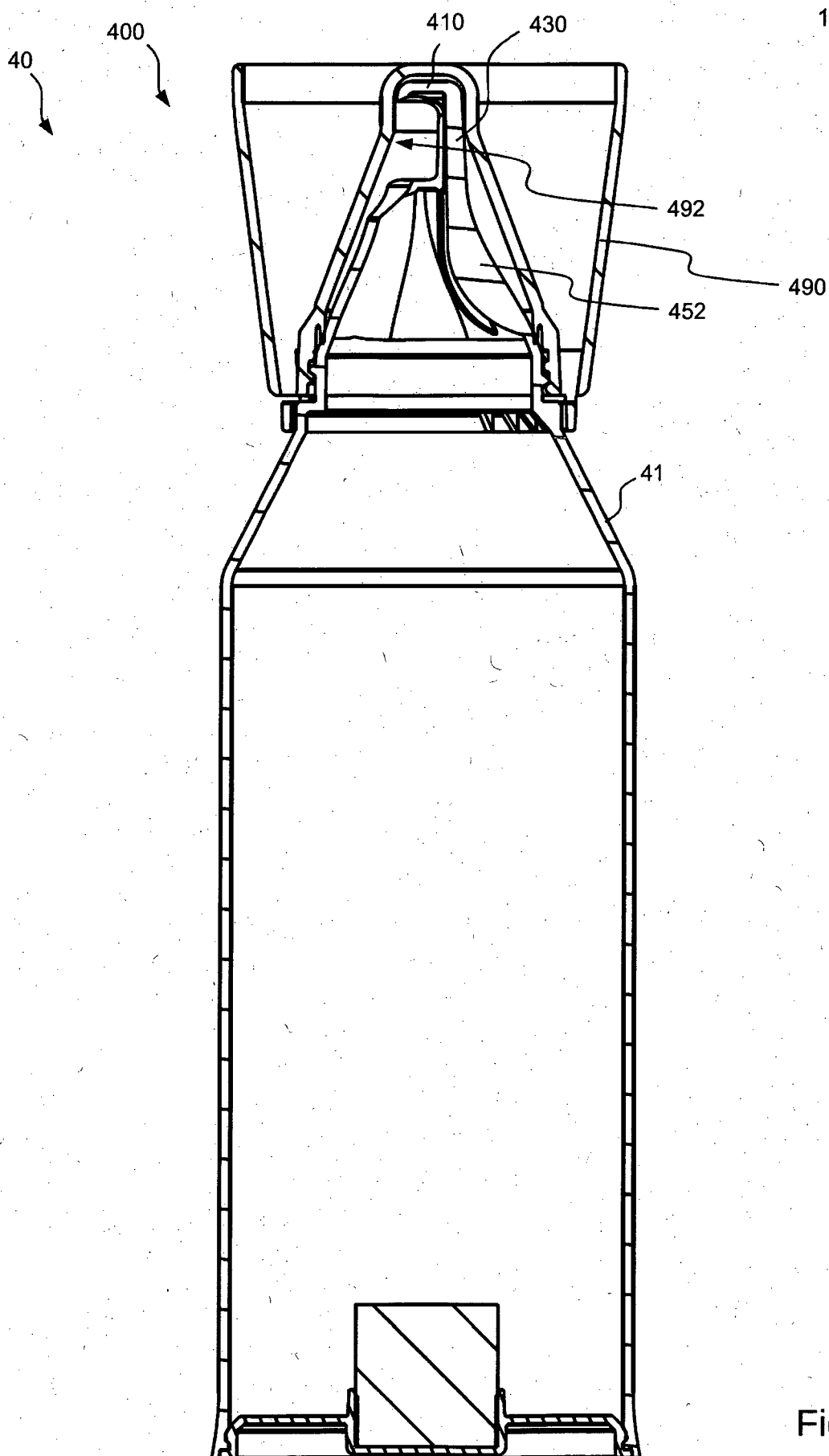
- 5 16. A dispenser (40, 70, 10) for dispensing a unit (P; C) of a pharmaceutical drug or a food supplement or food, wherein the dispenser (40, 70, 10) comprises the dispenser head (400; 700; 100) according to one of the preceding claims, and the reservoir (41; 71; 11) for storing the plurality of units (P; C).

Abstract

A dispenser head (100) for dispensing a unit (C) of a pharmaceutical drug or a food supplement or food is provided, said dispenser head (100) comprising: a dosing duct (102) extending along a dosing axis (104) and connecting an inlet port (106) for receiving the unit (C) from a reservoir (11) with an outlet port (108) for dispensing the unit (C); a support section (130) for the unit (C), which extends from the exit port (108) parallel to the dosing axis (104); and a retention section (110), which extends from a distal end of the support section (130) at least partly perpendicularly to the dosing axis (104).

15 (Figure 10)

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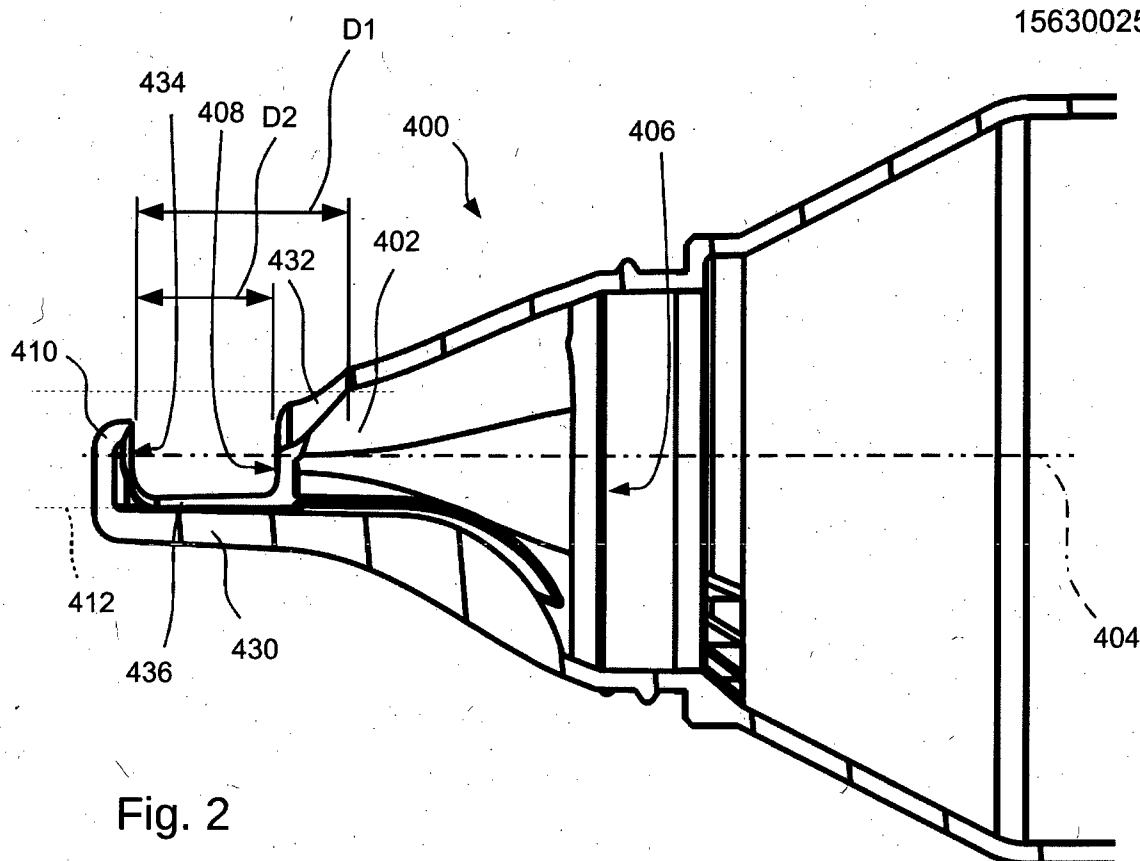


Fig. 2

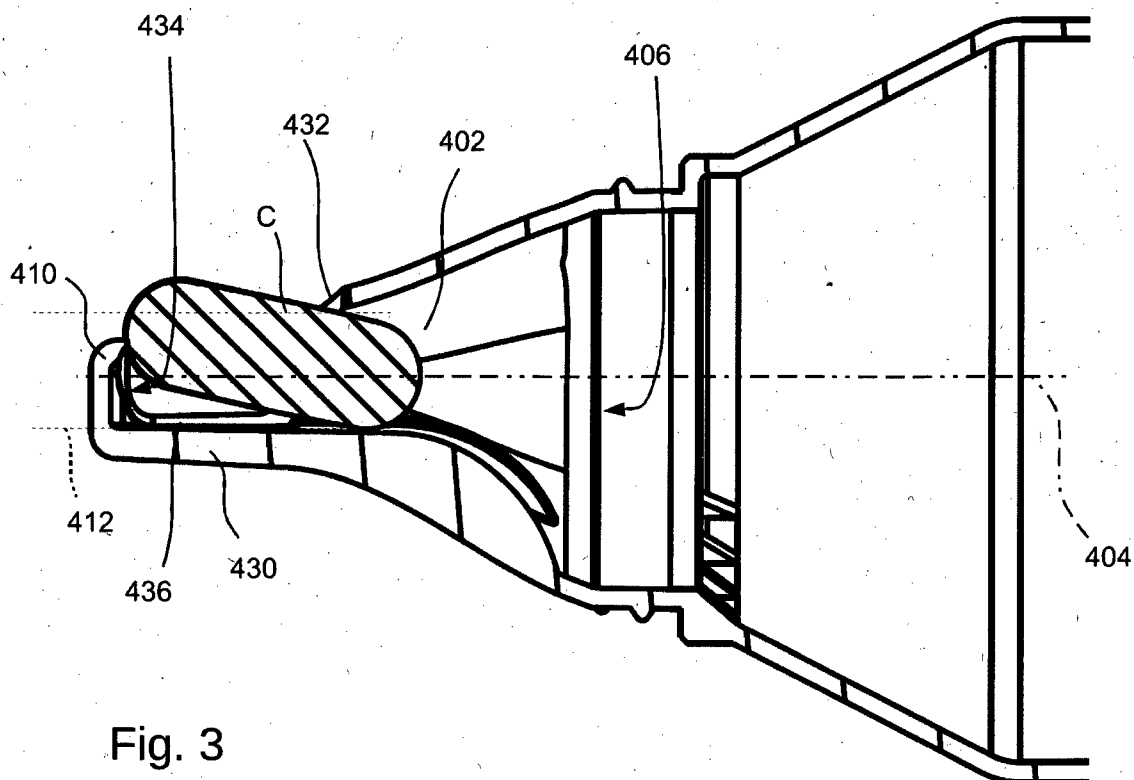


Fig. 3

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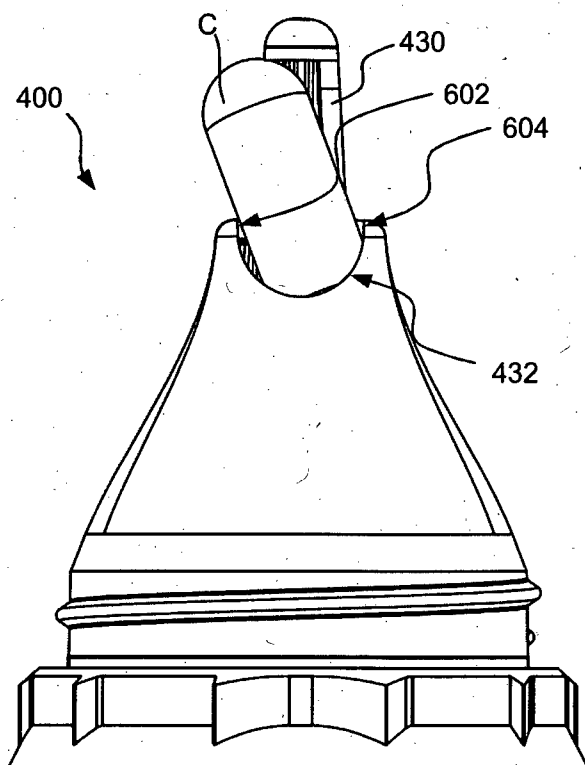


Fig. 4a

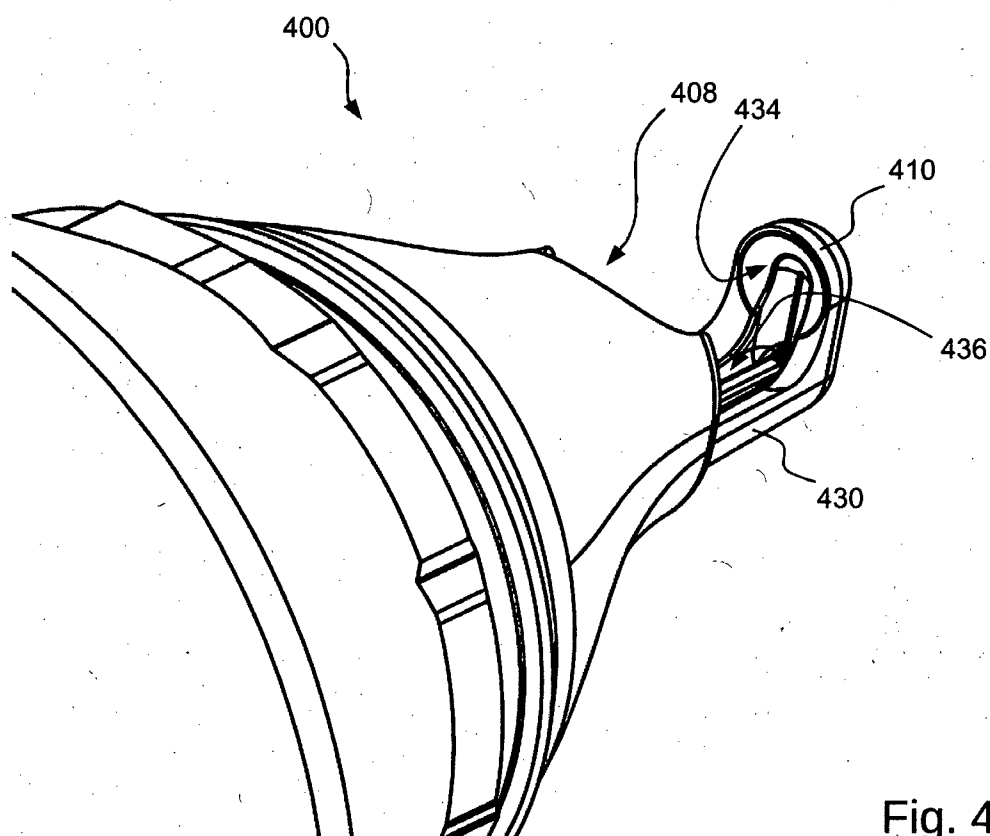


Fig. 4b

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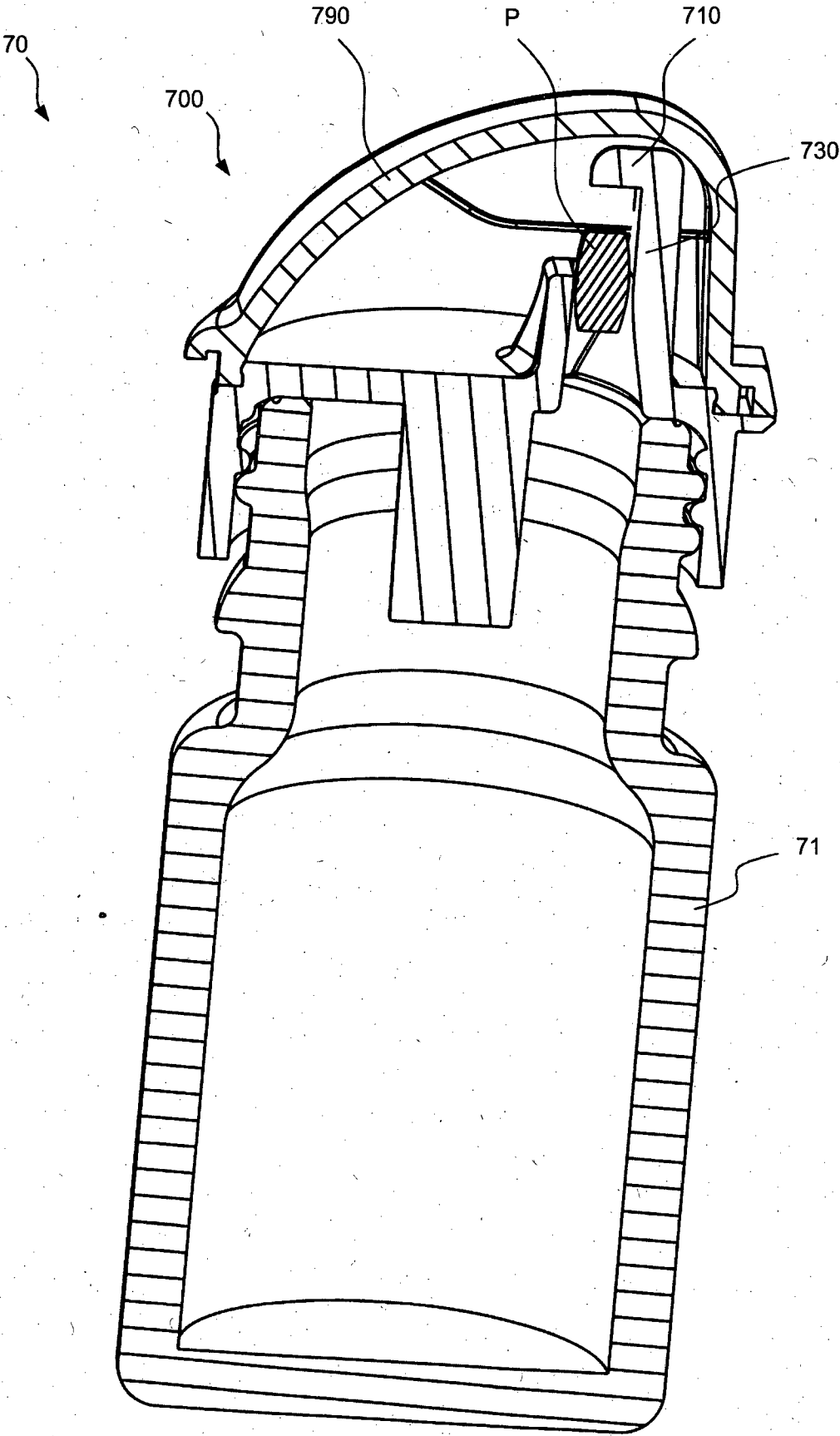


Fig. 5

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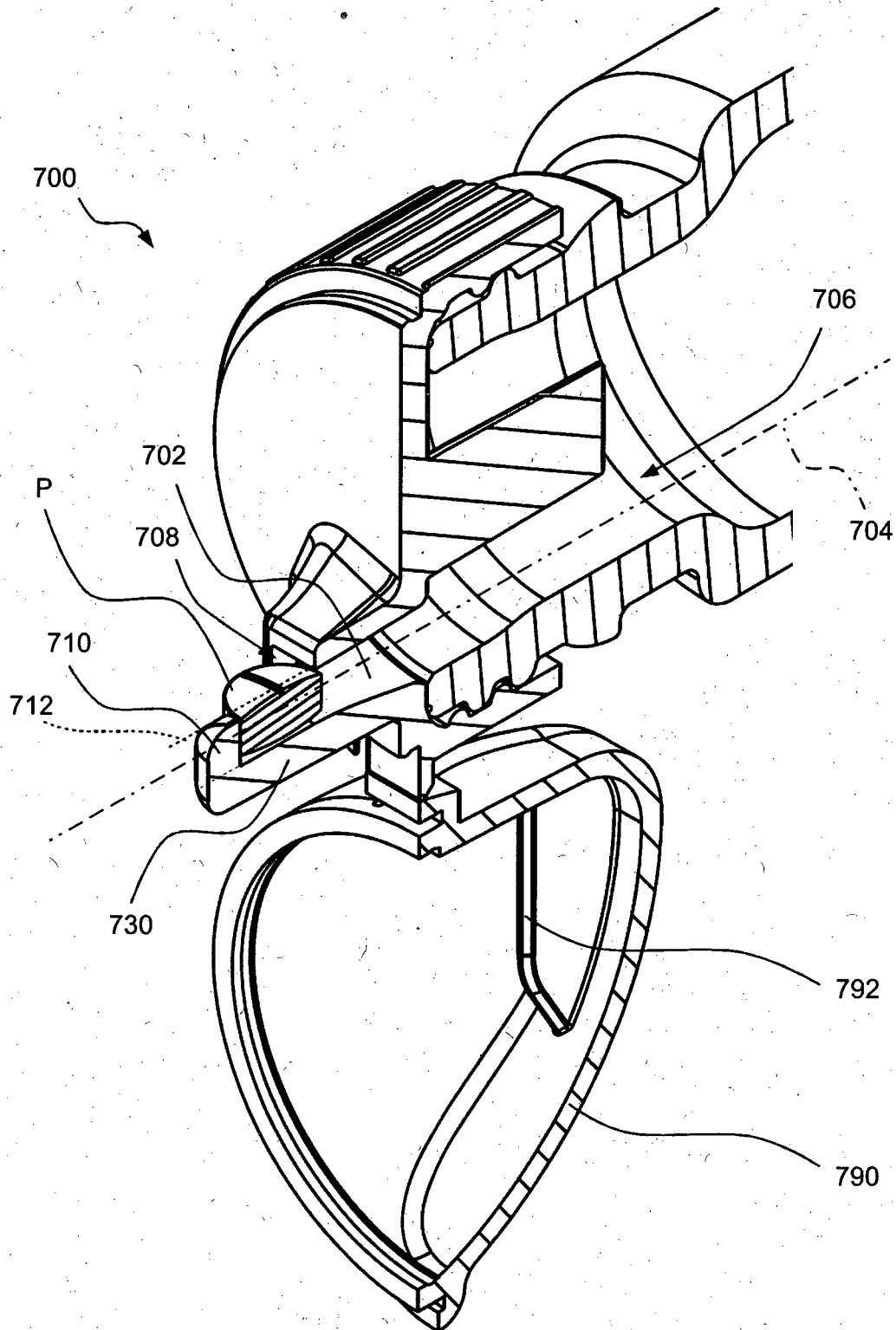


Fig. 6

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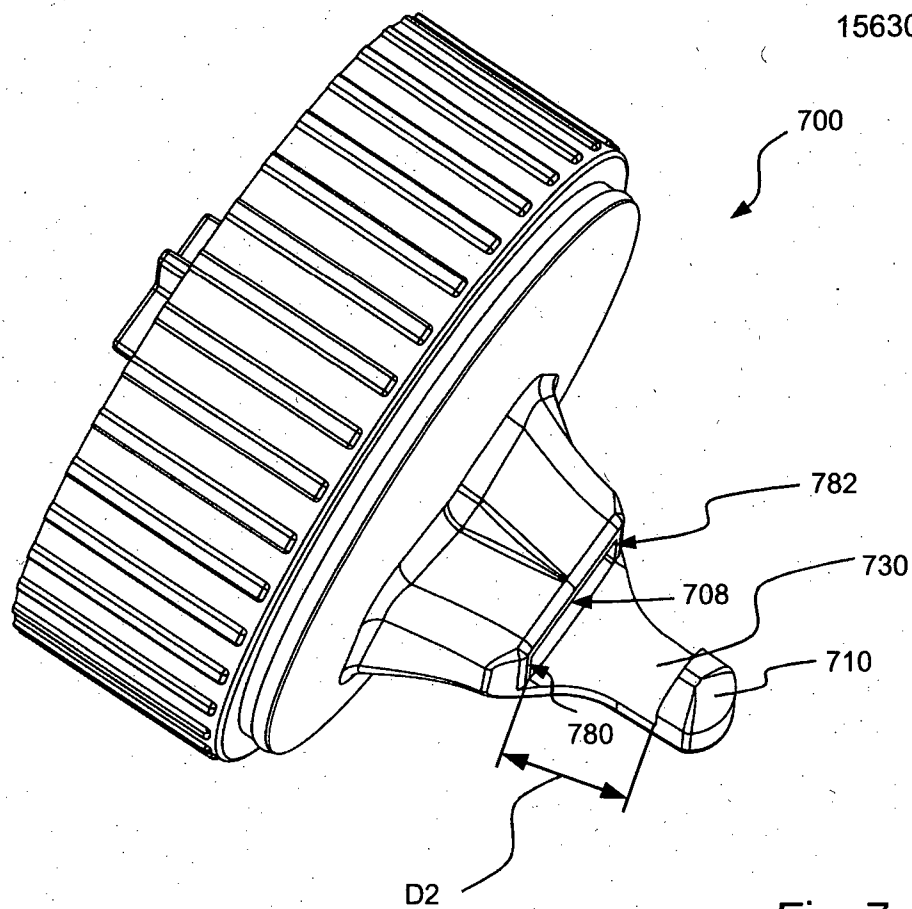


Fig. 7

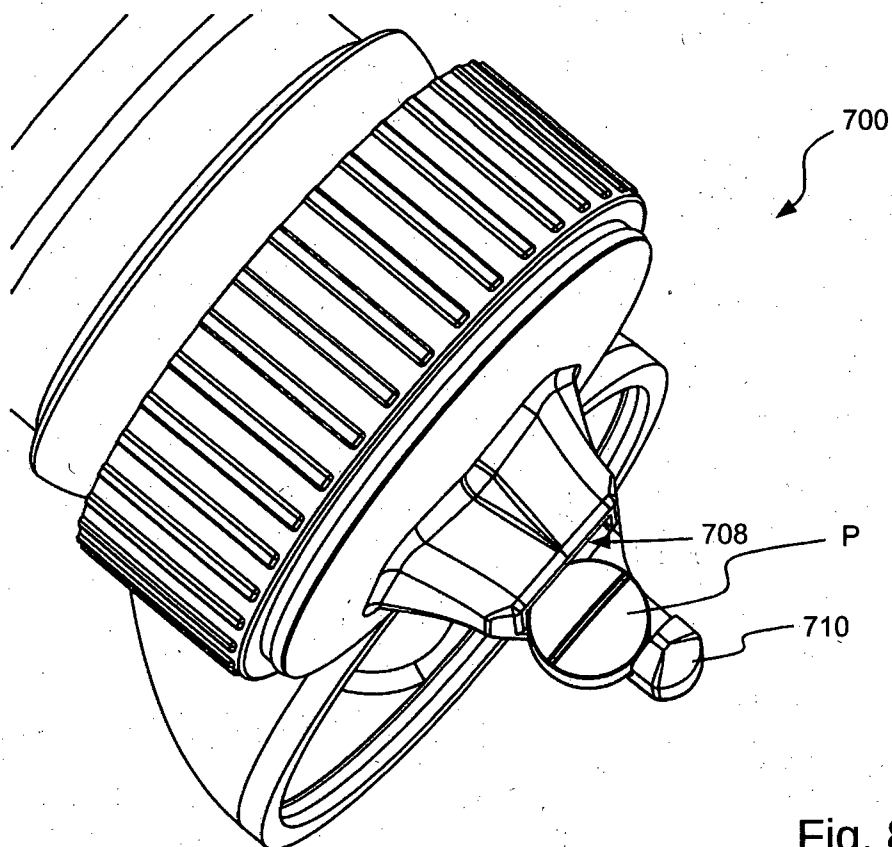


Fig. 8

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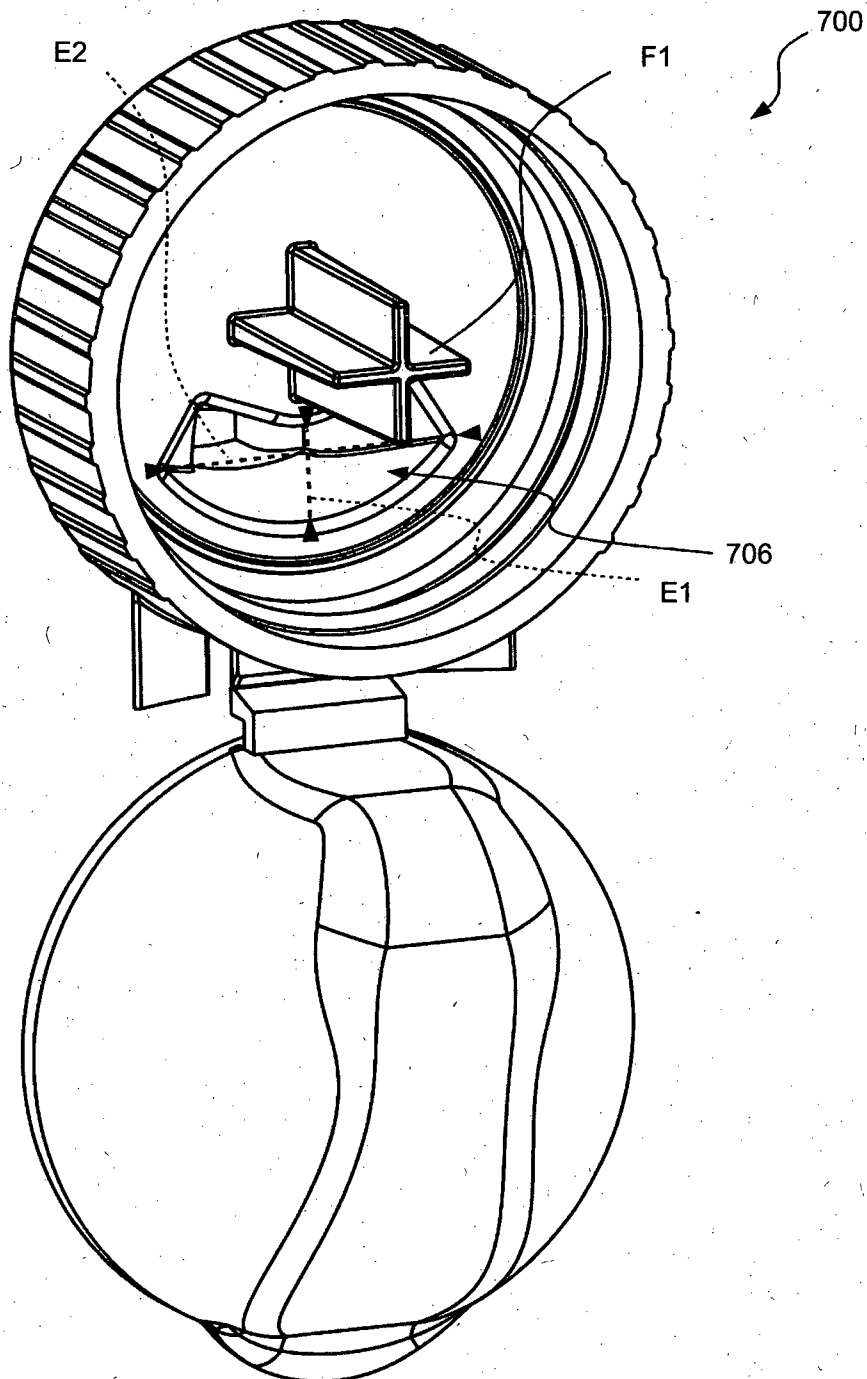


Fig. 9

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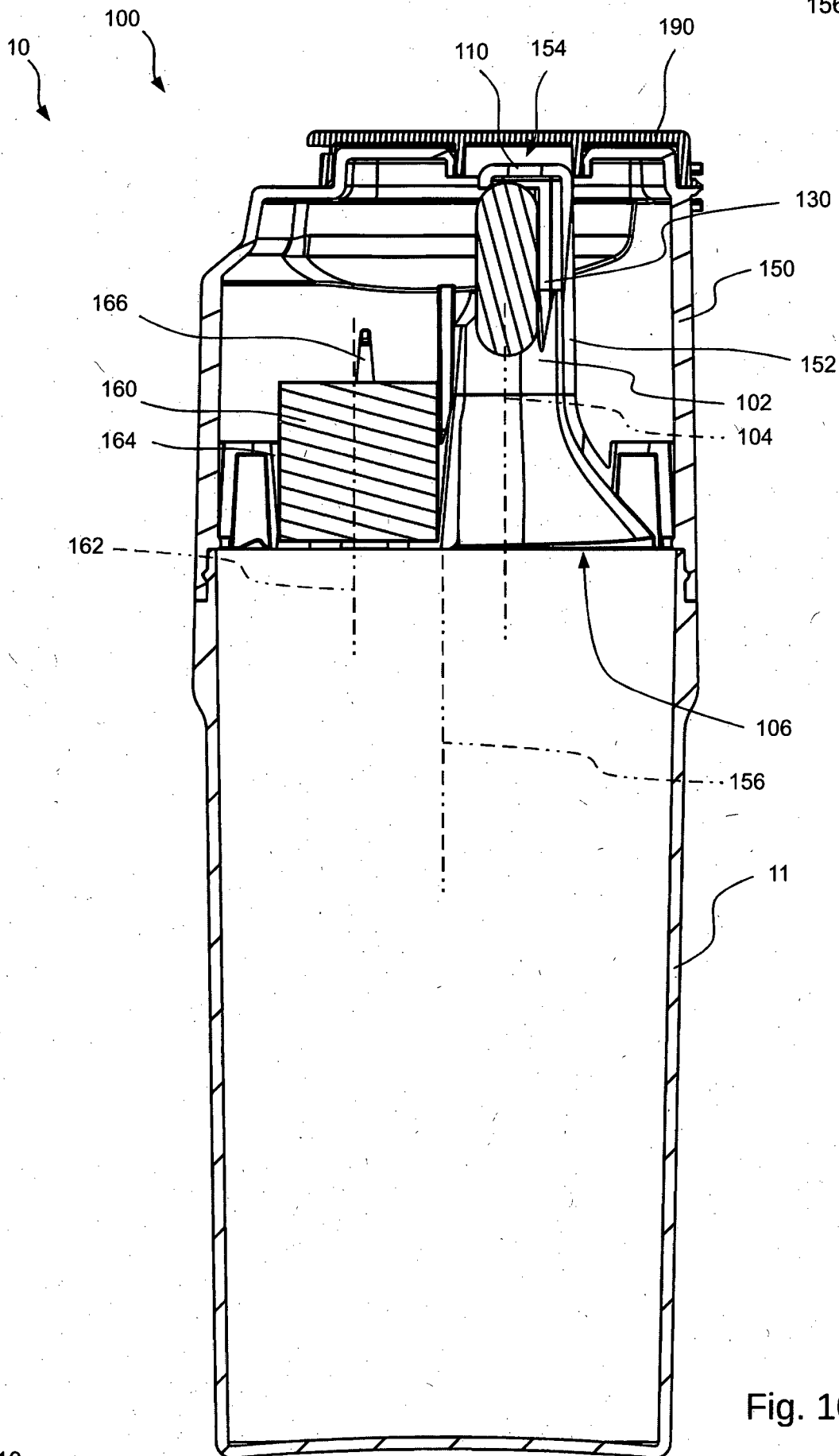


Fig. 10

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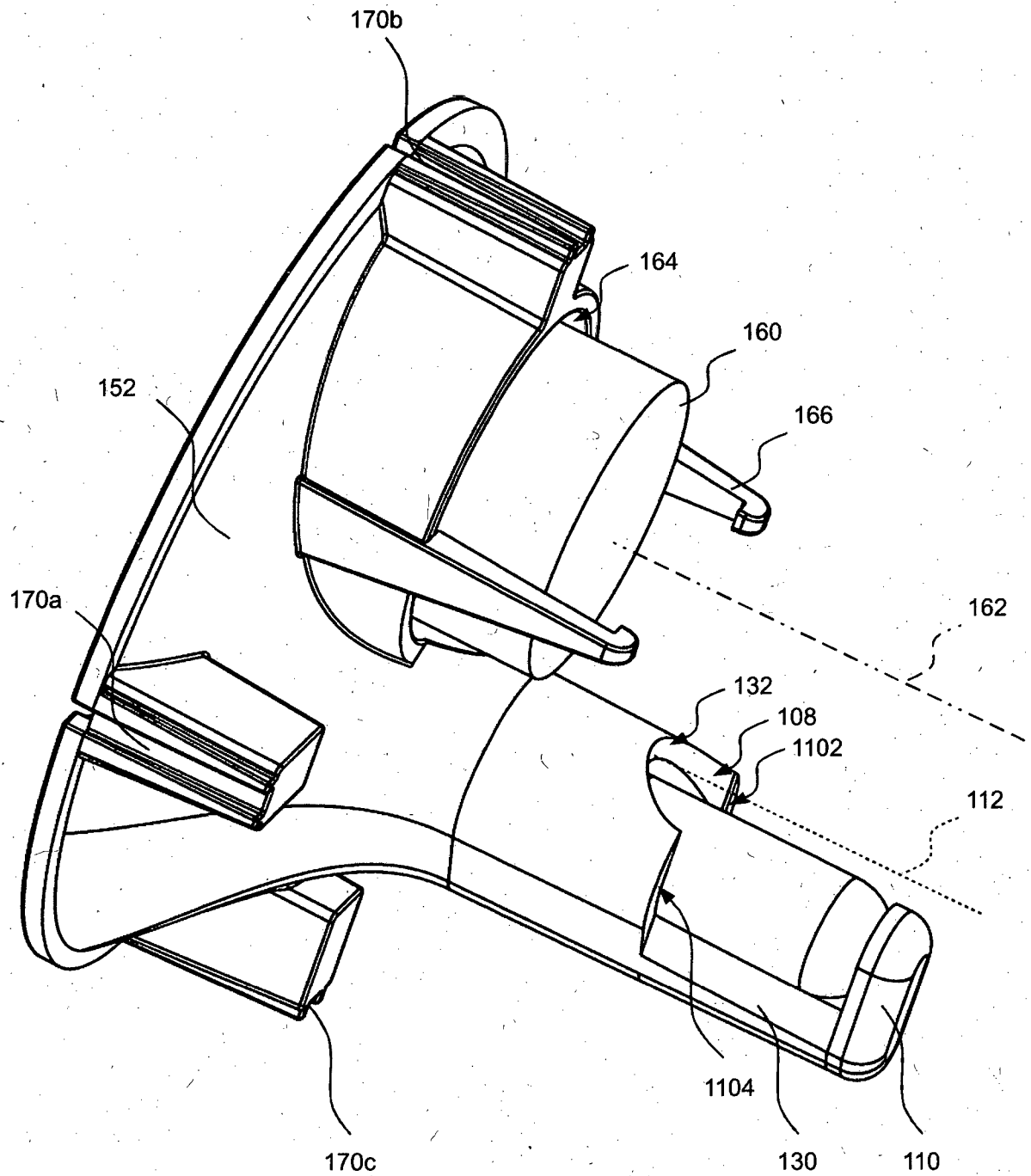


Fig. 11

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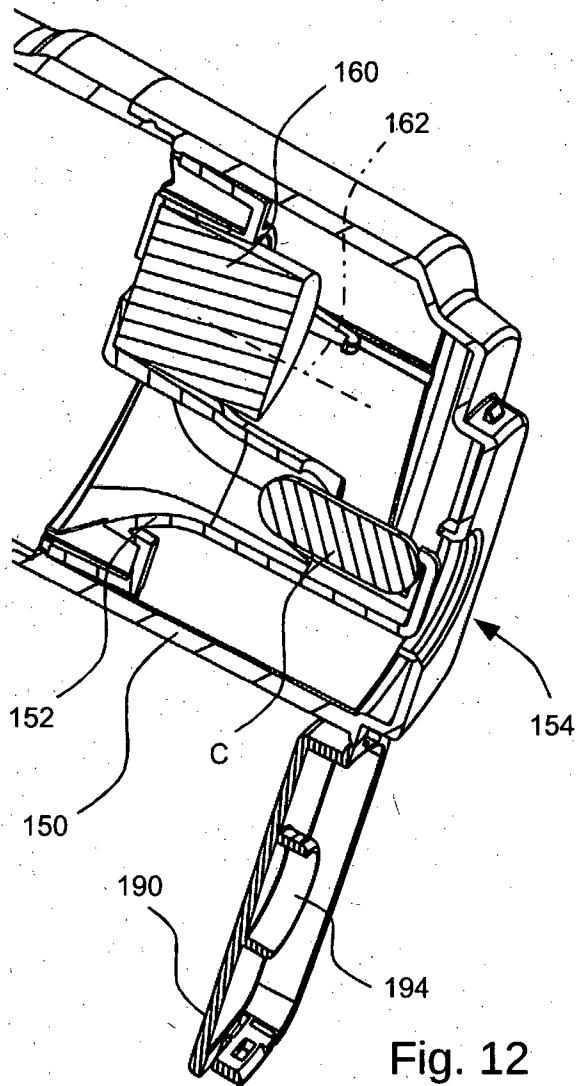


Fig. 12

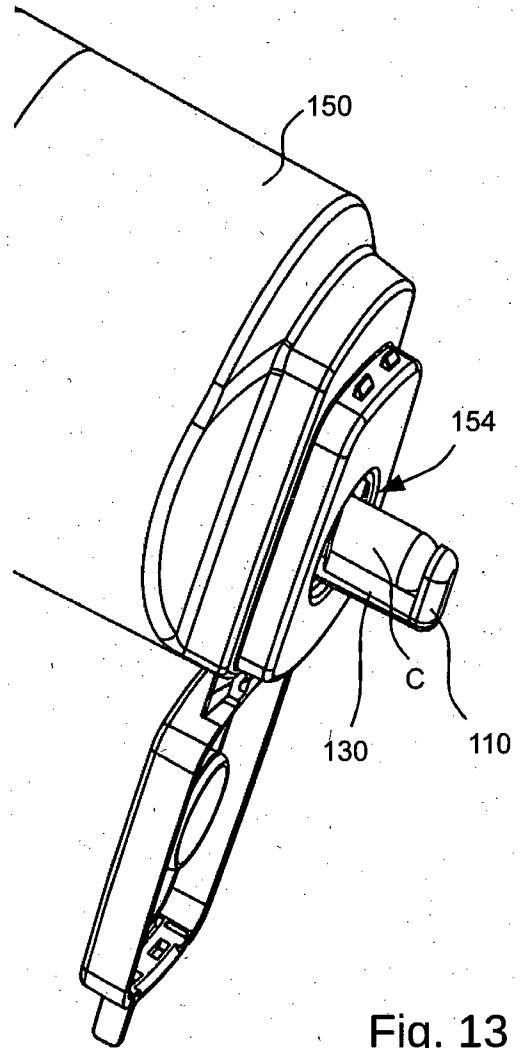


Fig. 13

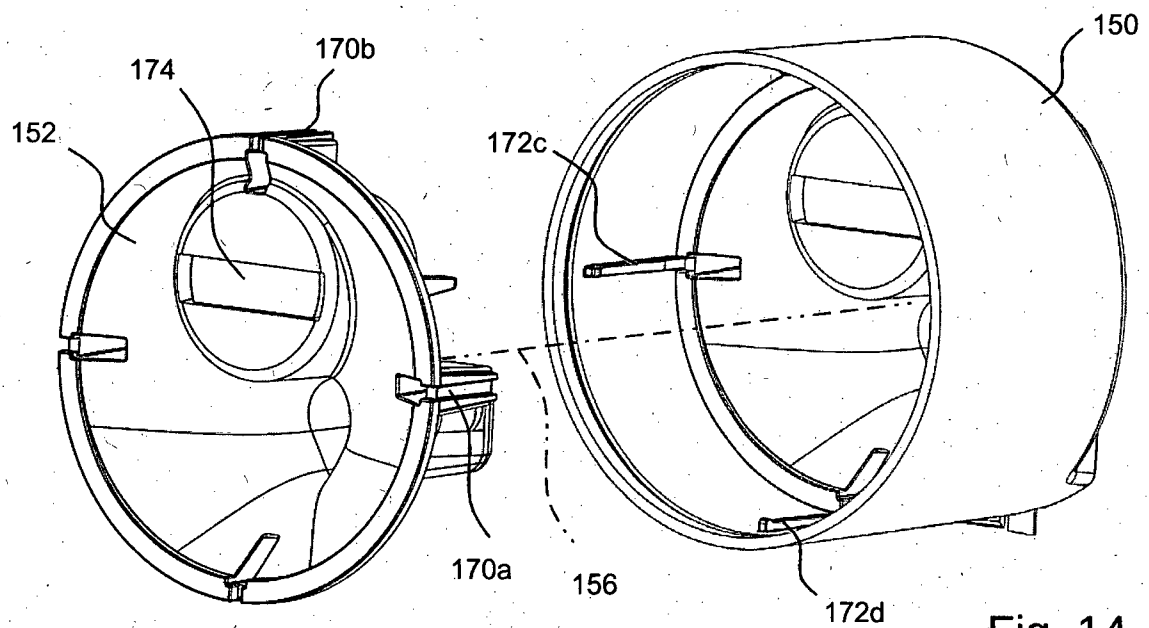


Fig. 14