

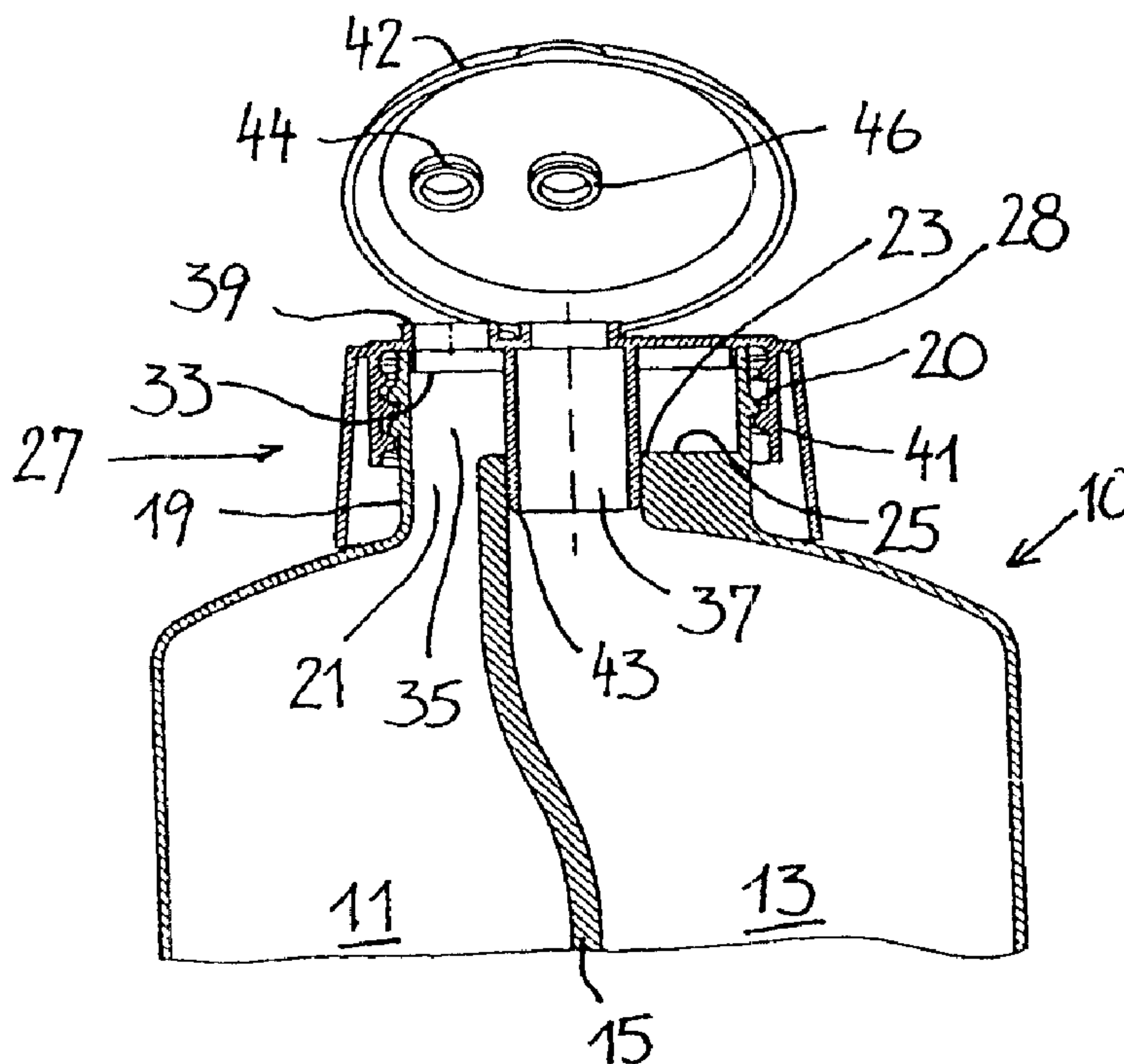


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(54) Titre : BOUTEILLE EN PLASTIQUE A PLUSIEURS CHAMBRES FABRIQUEE SELON UN PROCEDE DE SOUFFLAGE ET FERMETURE POUR LADITE BOUTEILLE

(54) Title: BLOWN MULTI-CHAMBERED PLASTIC BOTTLE AND CLOSURE THEREFOR



(57) **Abrégé/Abstract:**

The multi-chambered bottle has two chambers (11, 13), for example, with openings (21, 23), which are disposed inside the neck (19). The opening (23) is disposed coaxially with the neck (19). This allows a closure (27) to be screwed or snapped onto the neck that is provided with a thread (20) or a snap bead. In the process, the attachment (43) penetrates the opening (23) in a sealing manner. This creates two channels (35, 37), which lead from the chambers (11, 13) to the outlet openings (39, 40). The outlet openings can be closed with the cap (42).

Abstract

5 The multi-chambered bottle has two chambers (11, 13), for example, with openings (21, 23), which are disposed inside the neck (19). The opening (23) is disposed coaxially with the neck (19). This allows a closure (27) to be screwed or snapped onto the neck that is provided with a thread (20) or a snap bead. In the process, the attachment (43) penetrates the opening (23) in a sealing manner. This creates two channels (35, 37), which lead from the chambers (11, 13) to the outlet openings (39, 40). The outlet openings can be closed
10 with the cap (42).

BLOWN MULTI-CHAMBERED PLASTIC BOTTLE AND CLOSURE THEREFOR

5 The invention relates to a plastic multi-chambered bottle, made by the blowing process, especially for separately holding different products, as well as to a closure for such a multi-chambered bottle.

10 Multi-chambered bottles are already on the market. They are used for instance as vessels for two-component adhesive. To that end, the chambers are completely separated from one another and each is provided with its own neck. A separate closure is required for each neck.

15 German Patent Disclosure DE-A-42 19 598 discloses a dual-chamber bottle that comprises two separate bottles, resting side by side on one another, each with its own bottle neck. The two bottles are held together by a common plastic closure and can be closed by it. It proves disadvantageous that this dual-chamber bottle comprises two parts and accordingly cannot be produced in one piece by blowing.

20 US Patent 5,765,725 describes a cylindrical bottle that is divided by a dividing wall into two chambers of semicircular cross section. This reference says nothing about how such a bottle is to be produced. Production by blowing from a length of tubing is precluded, because a dividing wall has to be created.

25 In European Patent Application EP-A-0 875 460, which was not published before the priority date of the present application, a plastic multi-chambered bottle made by the blowing process is described that has at least two separate chambers whose walls are joined

together by a rib and which have an opening inside or under a common neck. For bottles with chambers completely separated from one another, a spout is described, which terminates the neck and has channels that lead from the openings of the chambers to a spout part. The spout part is secured to the bottle by a fastening part. To that end, the fastening part has detent protrusions that snap onto an annular protrusion of the neck. Closing the various pour openings of the multi-chambered bottle requires additional closure means.

It is the object of the present invention to create a plastic multi-chambered bottle that can be made by the blowing process for separately holding different products, which requires only a single closure. A closure of this kind is also to be created.

According to the invention, this objection is attained by a multi-chambered bottle of plastic, produced by the blowing process, having at least two chambers separate from one another, whose walls are joined together by a rib, wherein each of the chambers, inside or below a common neck, has a respective opening, and having a closure with at least two channels, wherein each channel leads from the opening of one chamber to a pour opening, and having at least one cap for closing one or more pour openings.

One advantageous version of the multi-chambered bottle provides that the opening of one of the chambers is embodied as circular and disposed coaxially to the neck; that the neck has a thread, and that the closure is provided with a thread corresponding to this thread. This has the advantage that the closure can be joined in a simple way to the multi-chambered bottle by a screw connection.

The opening of one of chambers can be embodied in circular form and can be disposed coaxially to the neck. The opening is also advantageously calibrated. This makes it possible for one of the channels to be disposed coaxially to the neck and embodied as a

tubular attachment, which when the closure is in place protrudes fittingly into the coaxial opening of the chamber. This assures a tight connection of the chamber to the pour opening.

5 It is also possible for one or more or all of the openings of the chambers to be disposed eccentrically.

Furthermore, it is possible to provide a partition in the closure, the partition extending to the bottom of the neck and separating the channels from one another.

10 A flange that rests sealingly on the neck is advantageously provided on the closure.

The invention also pertains to a closure for a multi-chambered bottle which has at least two chambers separate from one another, whose walls are joined together by a rib, wherein each of the chambers has one opening inside or below a common neck, having at least two
15 channels in order to form passageways for the contents of the chambers to corresponding pour openings, and having at least one cap for closing one or more pour openings and having fastening means for mounting the closure on the multi-chambered bottle. Advantageously, one of the channels is disposed coaxially to the fastening means. The fastening means are expediently formed by a thread. The channel disposed coaxially to the neck can be formed by
20 a tubular attachment. The attachment then acts as a coupling to the corresponding chamber of the bottle. The tubular attachment is advantageously dimensioned such that with the closure in place, it engages the calibrated opening of the associated chamber in a sealing manner. Expediently, the closure has a partition, which extends from the spout through the bottle downward, so that when the closure in place the partition rests on the bottom of the neck.

Exemplary embodiments of the invention will now be described in conjunction with the drawing. Shown are:

5 Fig. 1, a side view of a dual-chamber bottle, in which the opening of one of the chambers is disposed coaxially to the neck;

Fig. 2, a section through the dual-chamber bottle of Fig. 1 taken along the line II-II;

10 Fig. 3, a top view of the bottle of Fig. 1;

Fig. 4, a section through the bottle of Fig. 1 with the closure in place;

15 Fig. 5, a dual-chamber bottle with the closure in place, in which the pour openings are disposed spaced apart from the bottle axis;

Fig. 6, a top view of the bottle of Fig. 5 without the closure;

Fig. 7, a three-chamber bottle with the closure in place;

20 Fig. 8, a variant of a dual-chamber bottle with a mirror-symmetrical embodiment of the chambers; and

Fig. 9, a top view of the bottle without the closure.

25 The multi-chambered bottle 10 shown in Figs. 1-4 can be made from plastic by the blowing process. It has two chambers 11, 13, whose walls are joined together by a rib 15.

The chambers 11, 13 can be different in size and can also have different shapes. The rib 15 is formed upon closure of the blowing mold, in that the two halves of the blowing mold press together the tubing along a practically vertical line, so that the two opposed walls are joined to one another. This also creates the indentations 17 that are visible in Fig. 2. In the
5 region of the neck 19, the chambers 11, 13 have openings 21, 23, which discharge inside or below this common neck 19. The opening 23 is advantageously calibrated. This makes a tight connection with the closure possible. A circular embodiment and coaxial disposition of the opening 23 relative to the neck 19 make it possible to use a closure provided with a thread. To that end, a male thread 20 can be provided on the neck. However, it would also
10 be possible to provide a female thread on the neck 19. Still other fastening means are also possible, however, such as a snap device as in Fig. 5. The opening 23 is located in the bottom 25 of the neck. The other opening 21 is practically semicircular. However, it would also be possible to make this opening circular, oval, or of some other shape.

15 The wall thickness of the multi-chambered bottle 10 described is expediently so thin that the pastelike contents, for instance, of the bottle can be expelled by pressure. However, one skilled in the art will readily appreciate that given a suitable embodiment of the bottle, it can also be suitable for liquid or powdered contents.

20 As Fig. 4, a closure 27 is screwed onto the neck 19 of the bottle 10. The closure is expediently made in one piece of plastic. The closure 27 has a flange 33, which protrudes into the neck 19 and seals it off. The closure furthermore has channels 35, 37, which lead from the openings 21, 23 of the chambers 11, 13 to the pour openings 39, 40. For fastening the closure 27, there is a thread 41, which fits the thread 20 of the neck 19. A cap 42,
25 pivotably connected to the closure body 28 with a film hinge, for instance, serves to close the pour openings 39, 40. To that end, pegs 44, 46 are provided on the cap 42, which when

the cap 42 is closed penetrate the pour openings 39, 40. It is also possible to split the cap 42 in a sense, or in other words to provide a separate cap for each pour opening 39, 40, so that each chamber 11, 13 can be evacuated independently of another chamber. Even a closure embodied in this way can still be made in one piece.

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The channel 37 disposed coaxially with the neck 19 is formed by a tubular attachment 43. This attachment 43 is dimensioned such that with the closure 27 in place, it sealingly engages the expediently calibrated opening 23.

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In the embodiment of Figs. 5 and 6, none of the openings 21, 23 is disposed concentrically with the neck 19. Accordingly, the closure 27 is not embodied so that it can be screwed on, either. The difference from the closure of Fig. 4 is thus essentially that instead of a thread, detent protrusions 41' are provided, which can snap onto an annular bead 20' of the neck 19. Otherwise, the closure 27 is embodied the same as that of Fig. 4,

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so that its description there can be referred to.

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The exemplary embodiment of Fig. 7 has a three-chamber bottle 10' with the chambers 11, 13 and 14. The three-chamber bottle is embodied analogously to the dual-chamber bottle of Figs. 5 and 6, so that reference may be made to the description above. Instead of one rib, two ribs 15' are provided, which once again extend vertically over a substantial portion of the bottle. The closure 27' is embodied such that all three chambers 11, 13, 14 communicate with a pour opening 39, 40.

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The multi-chambered bottle 10" of the third exemplary embodiment in Figs. 8 and 9 is embodied practically mirror-symmetrically, at least in the region of the neck 19. The

openings 21, 23 of the chambers 11, 13 are thus embodied practically identically. They are relatively large, thus facilitating filling of the bottle.

5 In accordance with the embodiment of the bottle, the closure 27" is also embodied largely symmetrically. The channels 35, 37 are separated from one another by a partition 49, which rests on the connection point 51 of the two chambers 11 and 13. This connection point 51 is in a sense a neck bottom 25, reduced to a narrow strip, as shown in Fig. 6. Although perfect sealing between the two chambers 11 and 13 is not achieved by the partition 49, still for many intended uses of the multi-chambered bottle this may suffice. For
10 pastelike products, for instance, there is virtually no risk of problematic mixing anyway.

The closure 27" has a cap 42, which is joined to the closure body 28 with a film hinge 53. As already mentioned earlier, the closure can also have separate caps for the different pour openings, yet can still be made in one piece.

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As a fastening means for placement of the closure on the bottle, the closure can have a thread 41. A snap device can be used instead, however.

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Various changes may be made without departing from the invention. For instance, various characteristics of the embodiments shown can be combined; for instance, a snap closure can be provided instead of a thread.

Claims

1. Multi-chambered bottle of plastic, produced by the blowing process, having at least two chambers (11, 13) separate from one another, whose walls are joined together by a rib (15), wherein each of the chambers (11, 13), inside or below a common neck (19), has a
5 respective opening (21, 23), and having a closure (27, 27', 27") with at least two channels (35, 37), wherein each channel leads from the opening (21, 23) of one chamber (11, 13) to a pour opening (39, 40), and having at least one cap (42) for closing one or more pour openings (39, 40).

2. Multi-chambered bottles of claim 1, characterized in that the opening (23) of one (13) of the chambers is embodied as circular and disposed coaxially to the neck (19).

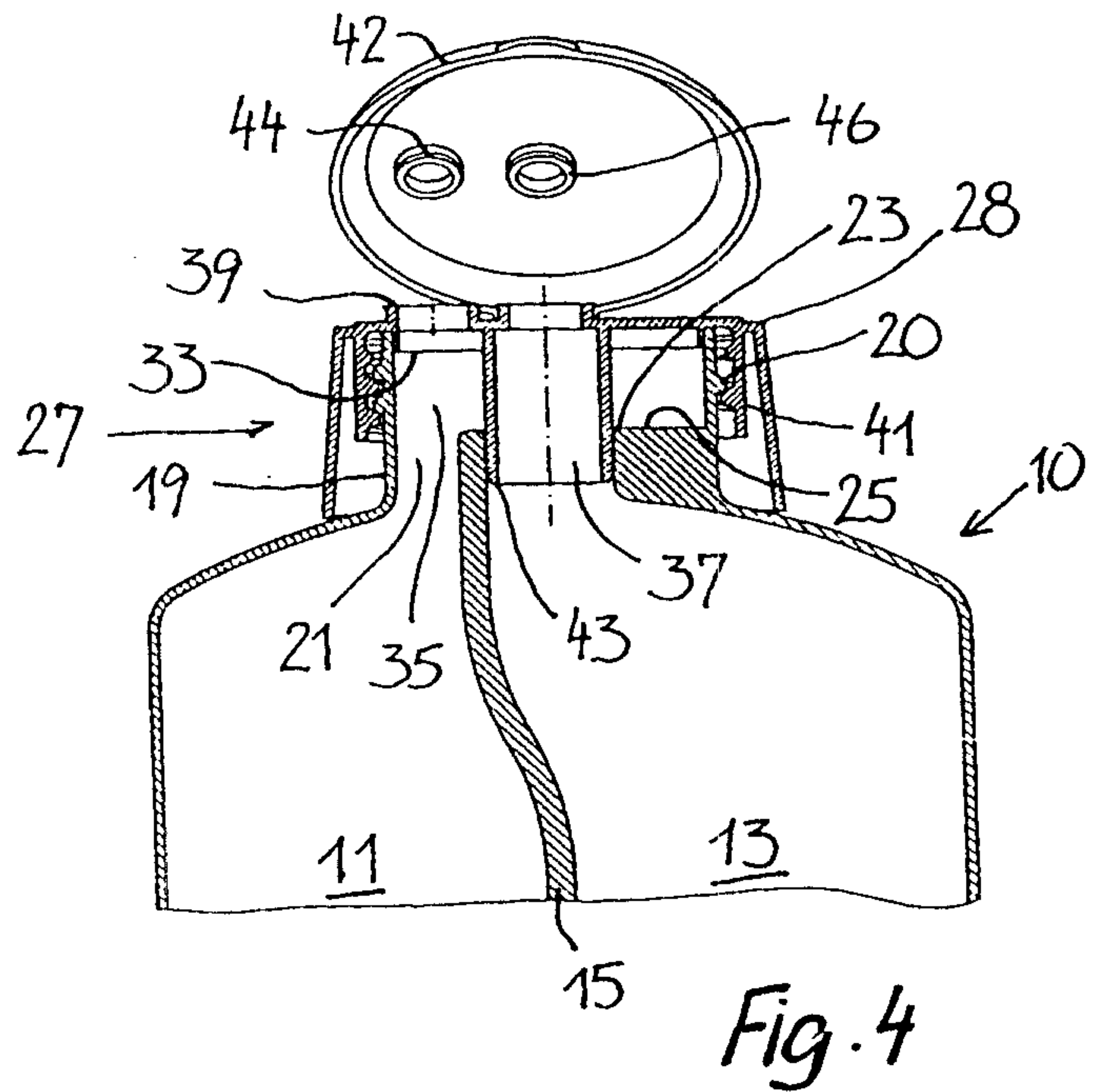
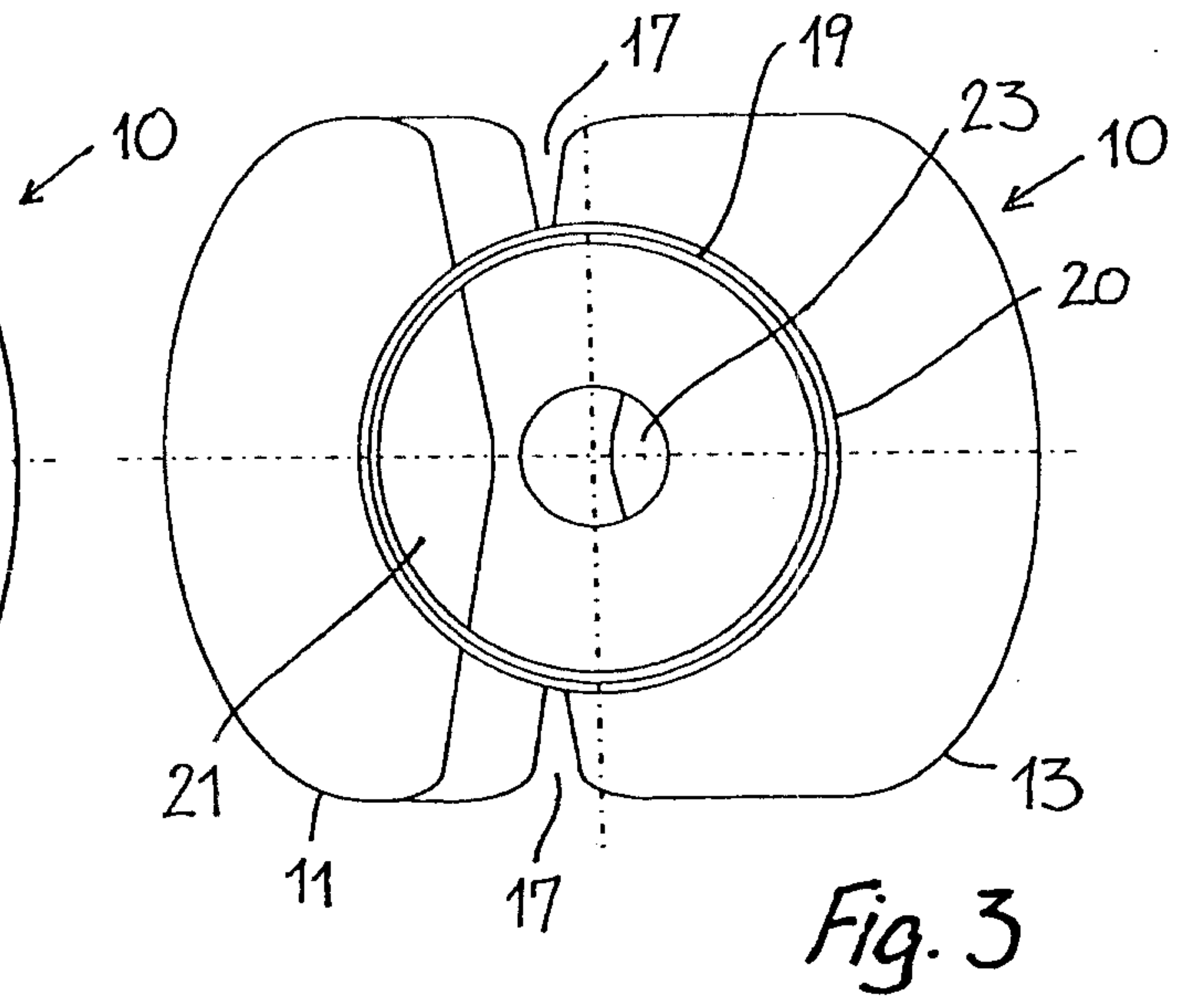
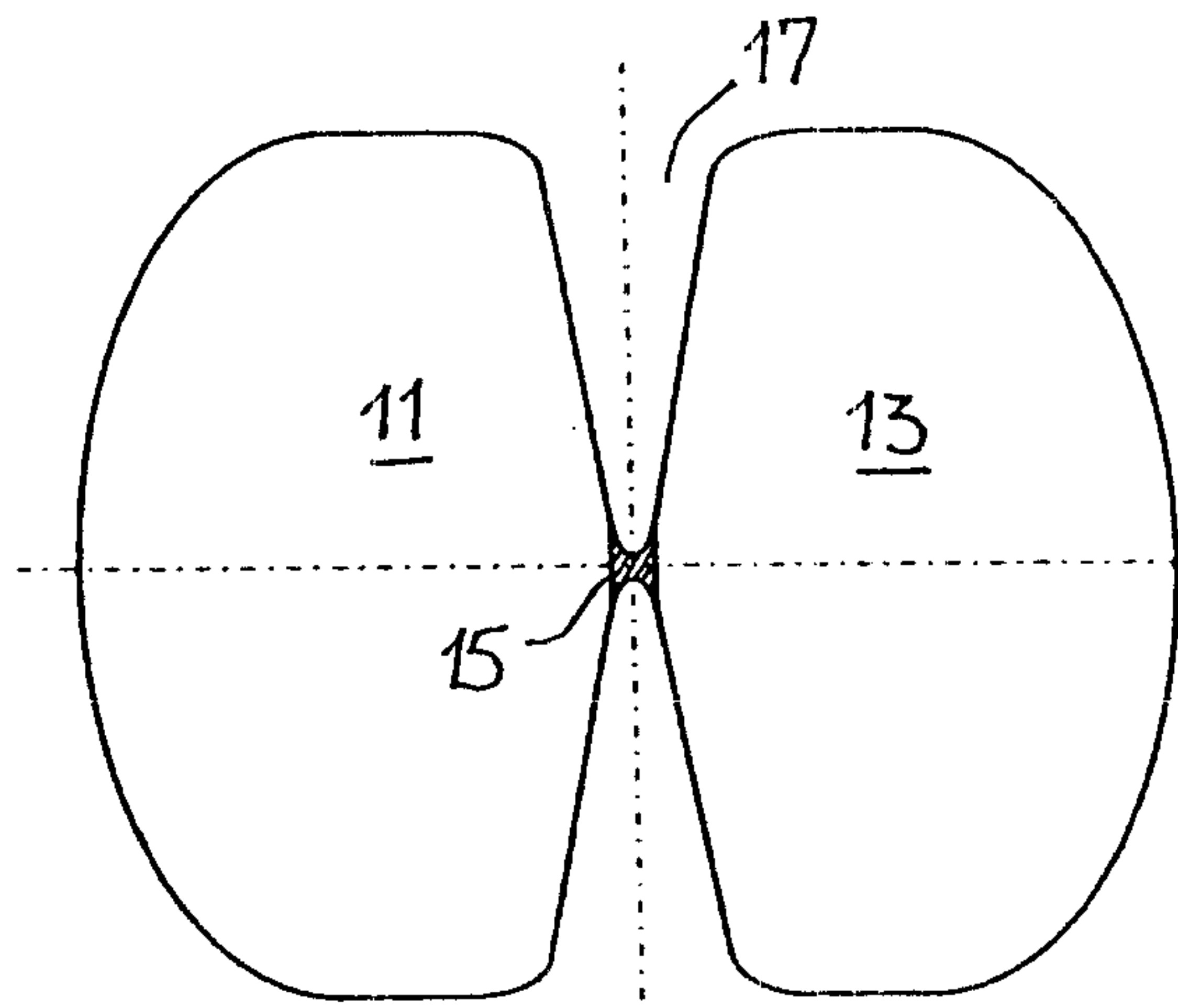
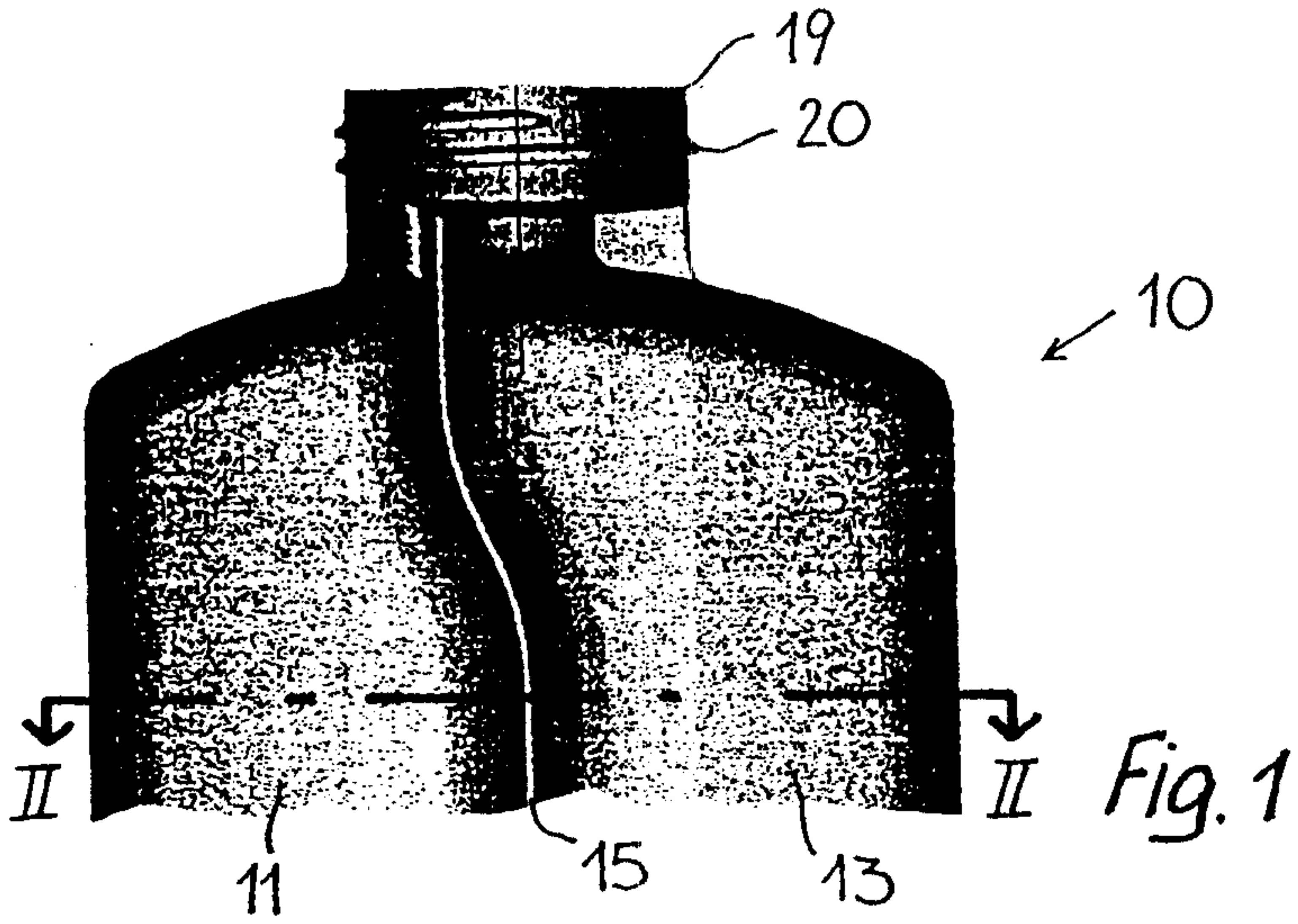
3. Multi-chambered bottles of claim 1, characterized in that one, or a plurality, or all of the openings (21, 23) of the chambers (11, 13, 14) are disposed eccentrically.
4. Multi-chambered bottles of one of claims 1-3, characterized in that the closure has a flange (33) that rests sealingly on the neck (19).
5. Multi-chambered bottles of one of claims 1-4, characterized in that one of the channels, in the form of a tubular attachment (43) protrudes sealingly into the opening (23) of one chamber.
6. Multi-chambered bottles of one of claims 1-4, characterized in that the closure has a partition (49), which extends to the bottom (51, 25) of the neck (19) and separates the channels (35, 37) from one another.
7. Multi-chambered bottles of any one of claims 1-6, characterized in that the neck (19) has a thread (20), and that the closure (27) is provided with a thread (41) corresponding to this thread (20).
8. Multi-chambered bottles of one of claims 1-6, characterized in that a snap bead (20') is disposed on the neck (19), and that the closure (27, 27', 27'') is provided with a snap device (41').
9. A closure for a multi-chambered bottle which has at least two chambers (11, 13) separate from one another, whose walls are joined together by a rib (15), wherein each of the chambers (11, 13) has one opening (21, 23) inside or below a common neck (19), having at least two channels (35, 37) in order to form passageways for the contents of the chambers

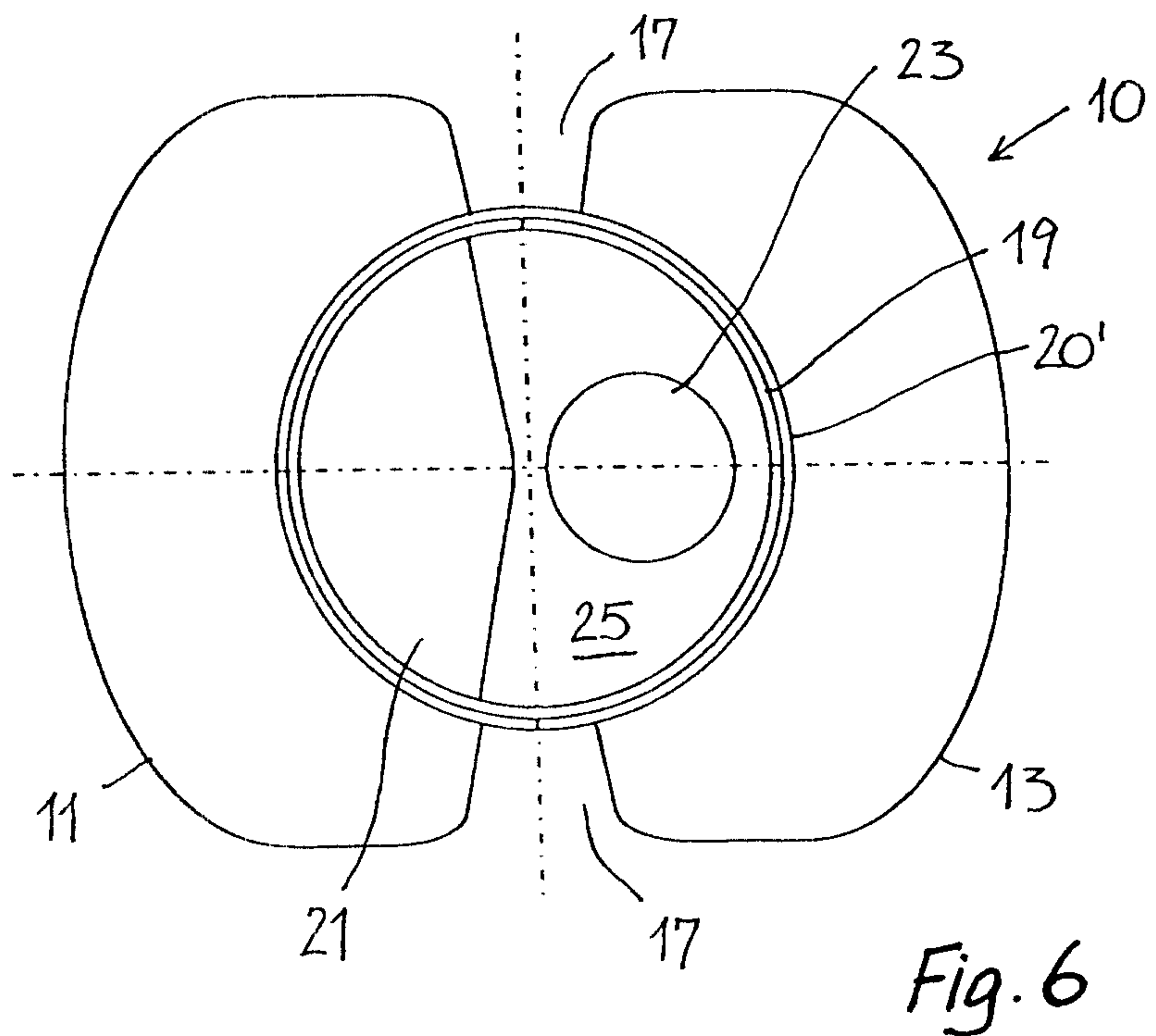
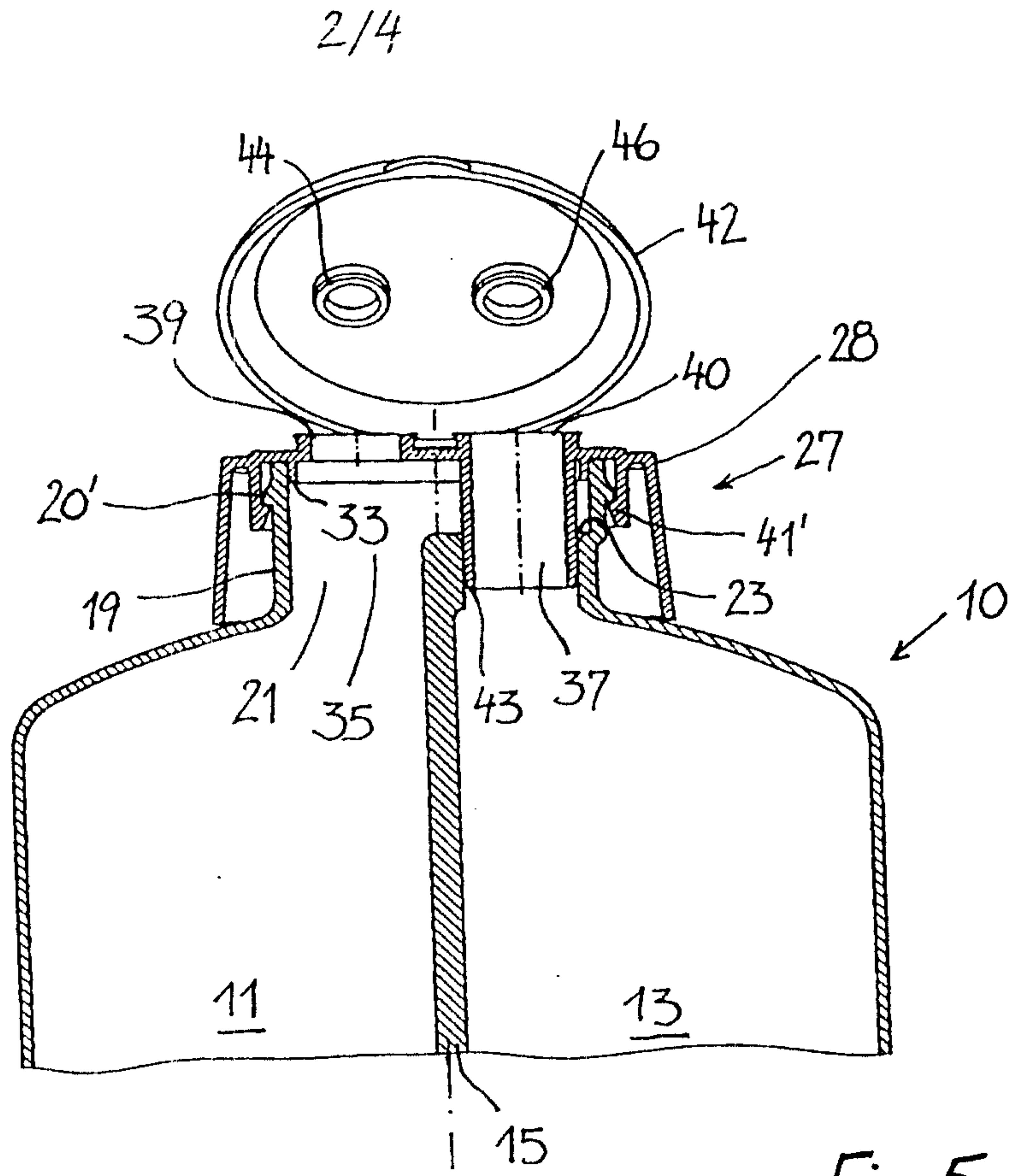
- 5 (11, 14) to corresponding pour openings (19, 20), and having at least one cap (42) for closing one or more pour openings (39, 40) and having fastening means (41, 41') for mounting the closure on the multi-chambered bottle.
10. Closure of claim 9, characterized in that one of the channels is disposed coaxially to the fastening means.
11. Closure of claim 9, characterized in that one channel or all of the channels (35, 37) are disposed eccentrically.
12. Closure of one of claims 9-11, characterized in that it has a flange (33) for sealingly contacting the neck (19).
13. Closure of one of claims 9-12, characterized in that at least one of the channels (37) is embodied in the form of a tubular attachment (43), which is dimensioned such that with the closure mounted in place, it sealingly engages the opening (23) of the associated chamber
5 (11).
14. Closure of one of claims 9-12, characterized in that at least one partition (49) is provided, which extends downward from the pour openings (39, 40), so that when the closure is mounted in place it rests on the bottom (51, 25) of the neck (19) of the bottle.
15. Closure of one of claims 9-14, characterized in that the fastening means are formed by a thread (41).

16. The closure of one of claims 9-14, characterized in that the fastening means are formed by a snap device (41').

17. The closure of one of claims 9-16, characterized in that a separately actuatable cap is provided for each pour opening (39, 40).

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