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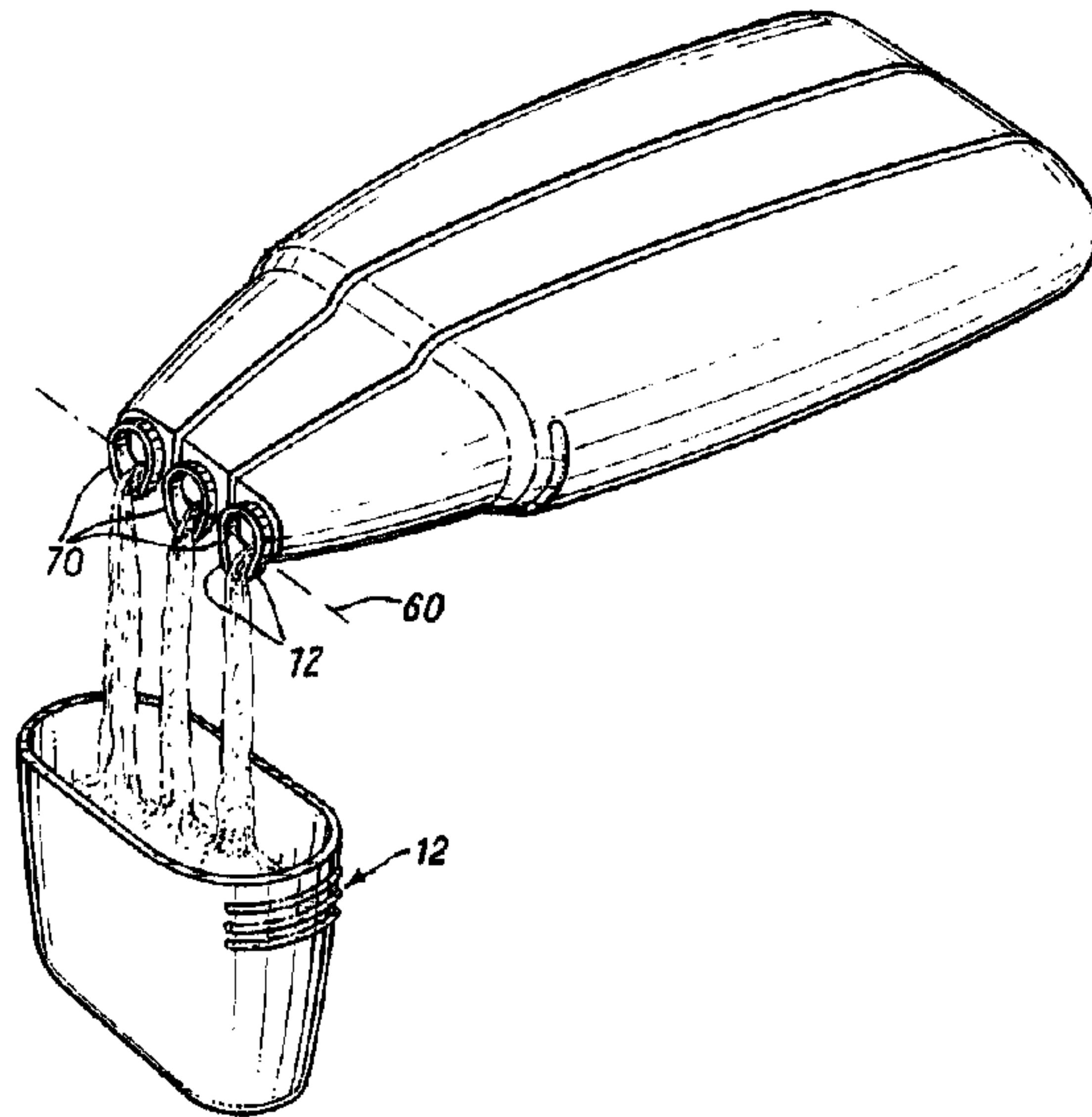
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(54) **CONTENANT DISTRIBUTEUR**

(54) **DISPENSING CONTAINER**



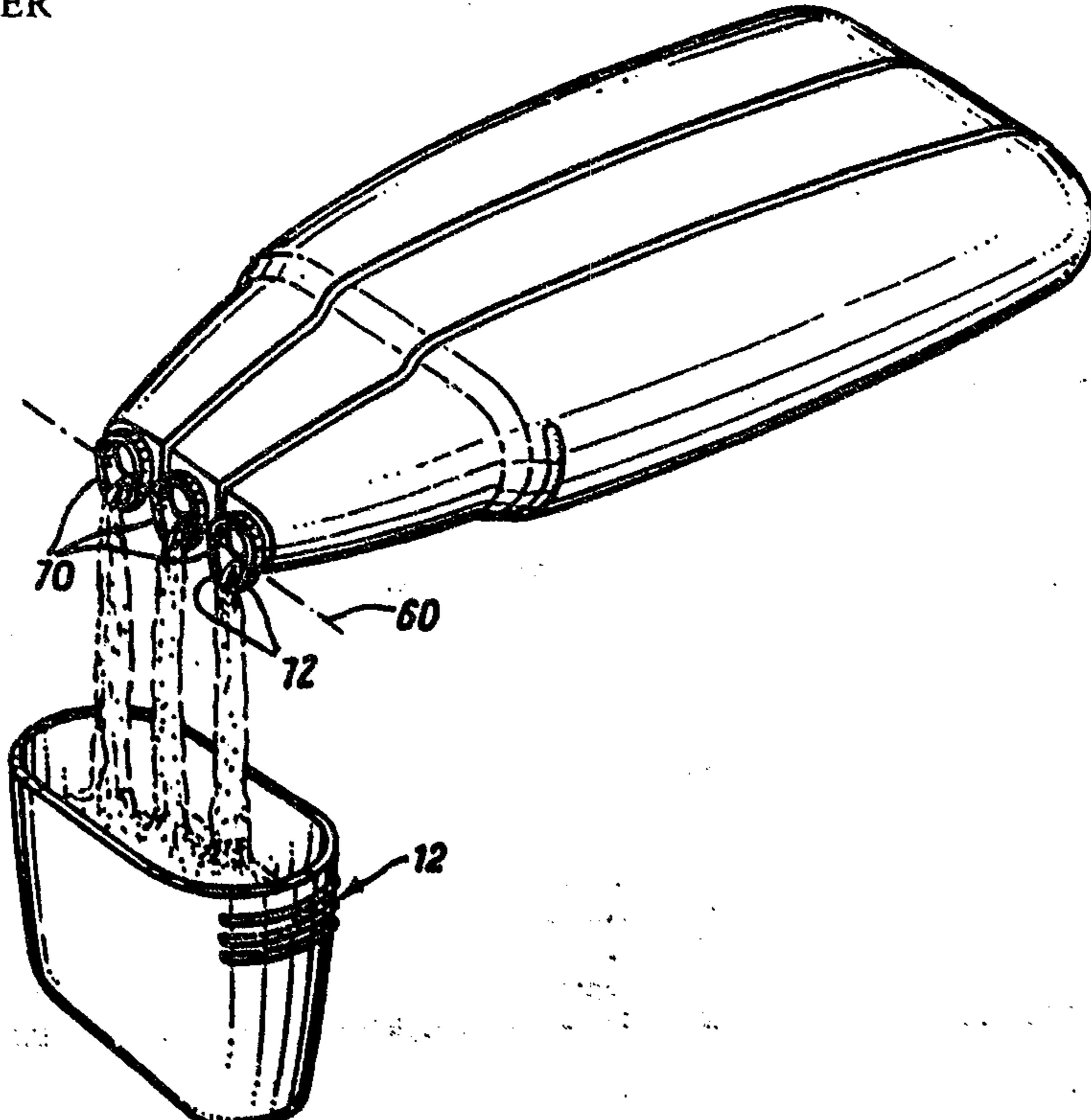
(57) Un récipient de distribution comprend une bouteille comportant au moins deux compartiments permettant de loger des éléments coulants divers. Lesdits compartiments sont conçus de manière à distribuer chacun leur contenu à des vitesses d'écoulement égales lors de l'inclinaison de la bouteille. De plus, on assure une protection contre la contamination croisée des contenus des différents compartiments lorsque la bouteille se redresse après une opération de distribution. Ladite bouteille est dotée d'un capuchon (12) pouvant rendre, simultanément, les sorties des compartiments (70) étanches lorsqu'il est fixé à la bouteille. Le capuchon se présente soit sous forme d'élément séparé soit sous forme de capuchon basculant. La bouteille est entièrement en plastique, des becs de versement directionnel pouvant être prévus de manière à assurer que le contenu des compartiments sorte en écoulements bien définis lors d'une opération de distribution.

(57) The dispensing container has a bottle with at least two compartments for accommodating different fluent components. The compartments are so designed that they dispense their contents at equal flow rates when the bottle is tilted. In addition, security is provided against cross-contamination of the contents of the different compartments when, after a dispensing operation, the bottle is righted again. The bottle is provided with a cap (12) that seals off the outlets (70) from the compartments simultaneously when fitted to the bottle. The cap can be a separate component or it can be provided as a flip-top cap. The bottle is made entirely of plastics material and directional pouring spouts can be provided to ensure that the contents of the compartments leave in well-defined streams during a dispensing operation.

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(54) Title: DISPENSING CONTAINER**(57) Abstract**

The dispensing container has a bottle with at least two compartments for accommodating different fluent components. The compartments are so designed that they dispense their contents at equal flow rates when the bottle is tilted. In addition, security is provided against cross-contamination of the contents of the different compartments when, after a dispensing operation, the bottle is righted again. The bottle is provided with a cap (12) that seals off the outlets (70) from the compartments simultaneously when fitted to the bottle. The cap can be a separate component or it can be provided as a flip-top cap. The bottle is made entirely of plastics material and directional pouring spouts can be provided to ensure that the contents of the compartments leave in well-defined streams during a dispensing operation.

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DISPENSING CONTAINER

This invention relates to a dispensing container having multiple compartments.

There are numerous applications in which a multi-compartment container would be useful to dispense different components of a mixed product simultaneously. For instance, German patent document DE 3220693A discloses a two-compartment bottle which is designed to dispense different liquid components of a mixed drink in a single pour.

In some cases, it would be desirable with such a multi-compartment container to prevent any mixing of the components stored in the different compartments until such time as they are actually dispensed into a receiving vessel. This would be particularly so where the components are intended to react with one another, physically or chemically, to produce a required mixed product. In the case of the German specification referred to above, the pouring necks of the two compartments are separated from one another solely by a common dividing wall and there is a strong possibility of one component contaminating the other at the neck during pouring and even thereafter as the bottle is righted again and drops of liquid at the mouth flow back, possibly into the wrong compartment.

The present invention provides a dispensing container which includes:

a) a moulded bottle formed in one piece and comprising at least two distinct compartments for accommodating different fluent materials, each compartment having an outlet at an operatively upper end thereof, the

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compartments having equal total volumes and also having equal cross-sectional areas at each level of the bottle;

- b) a pouring spout communicating with each of the compartment outlets, the pouring spouts being spaced apart from one another with the centres of the pouring spouts lying on an imaginary straight line, each pouring spout being defined by a continuous circumscribing wall which is spaced apart from the circumscribing wall of any other pouring spout not shared by any other pouring spout; and
- c) a single cap dimensioned to fit onto the operatively upper end of the bottle and having sealing means for sealing all the pouring spouts simultaneously when so fitted; and the design of the spout and bottle being such that when the cap is removed and the bottle is tilted away from an upright orientation with the imaginary straight line remaining horizontal, the contents of the compartments are dispensed simultaneously at equal flow rates and in distinct streams, from the compartments, without cross-contamination between adjacent streams, and when the bottle is thereafter returned to an upright orientation, fluent material originating from one compartment is prevented from flowing back into any other compartment and cross-contamination of the compartments is avoided characterised in that the container further includes:
- d) an air vent associated with each compartment outlet which is also sealed by the cap when the cap is fitted onto the operatively upper end of the bottle; and furthermore wherein the provision of an air vent for each compartment outlet allowing air to enter each

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compartment as the contents of the compartments are dispensed, thereby ensuring that the contents of the compartments are dispensed smoothly in their distinct streams.

5 Preferably, the pouring spouts are directional pouring spouts. The pouring spouts may be provided by a one-piece spout member fitted to the outlets of the compartments. Alternatively, the pouring spouts are provided by a member fitted to the operatively upper end of 10 the bottle and the cap is a flip-top cap formed in one piece with the member and joined to the member at a live hinge. In yet another alternative, the pouring spouts are formed in one piece with the bottle.

The bottle in one embodiment has three compartments each 15 for accommodating a different fluent material. In this case, the bottle may have a central compartment and two outer compartments symmetrically arranged on opposite sides of the central compartment, the central compartment having a generally rectangular cross-sectional shape over 20 at least a part of the height of the bottle and the two outer

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compartments each having a generally semi-circular cross-sectional shape over the same part of the height of the bottle.

For added security against cross-contamination, each compartment may be defined by its own continuous wall which is not shared by the wall defining any other 5 compartment, the walls of adjacent compartments being connected integrally to one another by means of joining portions. The joining portions of the walls of adjacent compartments can space those walls apart from one another to create externally visible, aesthetically pleasing grooves extending for the height of the bottle.

In one embodiment, the cap and bottle have cooperating clip formations which 10 engage one another in clipping fashion when the cap is correctly fitted over the upper end of the bottle. The bottle may have a continuous external shoulder towards its upper end against which the cap bears when clipped to the bottle. The cap may have internally projecting formations which plug the pouring spouts when the cap is clipped to the bottle. The clipping formations of the cap and the bottle 15 are preferably disengagable from one another to permit removal of the cap from the bottle when an appropriate squeezing action is applied to the cap in a direction transverse to the height of the bottle.

For convenient and accurate dispensing of the contents of the compartments it is preferred that the bottle have an external shape that is chosen to facilitate manual 20 gripping by a user in such manner that tilting of the bottle by the user to dispense therefrom will generally be such as to maintain the imaginary straight line horizontal.

Embodiments of the invention will now be described in more detail, by way of example only, with reference to the accompanying drawings in which :

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Figure 1 shows a cross-sectional view of the upper part of one embodiment of the invention;

Figure 2 shows a further cross-sectional view of the upper part of the embodiment of Figure 1; and

5 Figure 3 shows a plan view of the upper part of the embodiment of Figure 1 with the flip-top cap removed.

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Reference is now made to Figures 1 to 3 of the drawings which illustrate one embodiment of the invention. This embodiment has a bottle 100. Fitted over the neck region 102 of the bottle 100 is a moulded plastics member 104 having a side skirt 106 which engages the lower end of the neck region in a snug fit. The skirt 106 is formed with an elliptical depression 108 on one side thereof as illustrated. Three directional pouring spouts 110 are provided at the upper end of the elliptical depression. 10 The pouring spouts 110 are defined by a continuous wall 112 which extends from a base 114.

Moulded integrally with the member 104 is a cap 116 which is joined to the junction of the skirt 106 and the base 114 at a live hinge 118. The cap 116 has a base wall 120 and a 15 depending side skirt 122. The live hinge 118 is of a known type which permits the cap 116 to be pivoted in the direction indicated by the arrow 124 to an open position, and which then maintains the cap in that open position until such time as it is forced gently in the opposite 20 direction to return it to the illustrated, closed position. Thus the cap 116 acts as a captive, flip-top cap. Clip formations can if desired be incorporated on the cap and member 104 to ensure that the cap clips home when closed.

Depending from the underside of the base wall 120 of the 25 cap 116 is a series of six tubular sealing formations 121, only two of which are visible in the view of Figure 1.

The base 114 of the member 104 obturates the outlets 126 of the bottle, the outlets 126 corresponding to the outlets 52 of the first embodiment. In other words, the base 114 bears 30 upon the upper edges of the rims 128 which are provided at the outlets 126. Within the area circumscribed by each circular rim 128, two circular apertures 130, 132 are formed through the base 114. The apertures 130 are

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somewhat greater in diameter than the apertures 132. In practice, the apertures 130 will serve as pouring apertures while the apertures 132 will serve as air passages to avoid "glugging" when the bottle is tilted to dispense its 5 contents. It will be seen that the apertures 130, 132 lead into the directional pouring spouts 110.

The tubular sealing formations 121 are dimensioned to fit into and to plug the apertures 130 and 132 when the cap 116 is in the Figure 3, closed position. It will therefore be 10 appreciated that the flip-top cap 116 is captive and flip-top in nature.

The elliptical depression 108 in the member 104 facilitates opening of the cap 116. In use, the user grasps the bottle 10 and applies his thumbnail, or the end of his thumb, to 15 the edge 134 of the cap 116. He presses upwardly on this edge to pivot the cap, about the live hinge 118, to the open position, whereafter pouring can take place in the same manner as is illustrated in Figure 1.

As thus far described, the embodiment of the invention has 20 no provision for a cap into which the contents of the bottle 10 can be poured for mixing. It is accordingly also proposed to provide a separate cap 136, illustrated in broken outline in Figure 3, which has a base 138 and a side skirt 140 dimensioned to fit frictionally about the side 25 skirt 106 of the member 104. When a dispensing and mixing operation is to take place, the user merely pulls the cap 136 off the member 104 prior to flipping the flip-top cap 116 to the open position in the manner described above.

The principles of the invention extend to dispensing 30 containers of multi-compartment type having two or more than three compartments.

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CLAIMS

1.

A dispensing container which includes:

a) a moulded bottle formed in one piece and comprising
5 at least two distinct compartments for accommodating
different fluent materials, each compartment having
an outlet at an operatively upper end thereof, the
compartments having equal total volumes and also
having equal cross-sectional areas at each level of
10 the bottle;

b) a pouring spout communicating with each of the
compartment outlets, the pouring spouts being spaced
apart from one another with the centres of the pouring
spouts lying on an imaginary straight line, each
15 pouring spout being defined by a continuous
circumscribing wall which is spaced apart from the
circumscribing wall of any other pouring spout not
shared by any other pouring spout; and

c) a single cap dimensioned to fit onto the operatively
20 upper end of the bottle and having sealing means for
sealing all the pouring spouts simultaneously when so
fitted; and the design of the spout and bottle being
such that when the cap is removed and the bottle is
25 tilted away from an upright orientation with the
imaginary straight line remaining horizontal, the
contents of the compartments are dispensed
simultaneously at equal flow rates and in distinct
streams, from the compartments, without cross-
contamination between adjacent streams, and when the
30 bottle is thereafter returned to an upright
orientation, fluent material originating from one
compartment is prevented from flowing back into any
other compartment and cross-contamination of the

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compartments is avoided characterised in that the container further includes

d) an air vent associated with each compartment outlet which is also sealed by the cap when the cap is fitted onto the operatively upper end of the bottle; the provision of an air vent for each compartment outlet allowing air to enter each compartment as the contents of the compartments are dispensed, thereby ensuring that the contents of the compartments are dispensed smoothly in their distinct streams.

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2.

A dispensing container according to claim 1 wherein the pouring spouts are directional pouring spouts.

3.

5 A dispensing container according to claim 1 or claim 2 wherein the pouring spouts are provided by a one-piece spout member fitted to the outlets of the compartments.

4.

10 A dispensing container according to claim 1 or claim 2 wherein the pouring spouts are provided by a member fitted to the operatively upper end of the bottle, and wherein the cap is a flip-top cap formed in one piece with the member and joined to the member at a live hinge.

5.

15 A dispensing container according to claim 1 or claim 2 wherein the pouring spouts are formed in one piece with the bottle.

6.

A dispensing container according to any one of the preceding claims wherein the cross-section of the bottle tapers in a direction from the bottom to the top thereof.

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7.

A dispensing container according to any one of the preceding claims wherein the bottle has three compartments each for accommodating a different fluent material.

8.

5 A dispensing container according to claim 7 wherein the bottle has a central compartment and two outer compartments symmetrically arranged on opposite sides of the central compartment, the central compartment having a generally rectangular cross-sectional shape over at least a part of the height of the bottle and the two outer compartments each having a generally semi-circular cross-sectional 10 shape over the same part of the height of the bottle.

9.

A dispensing container according to any one of the preceding claims wherein each compartment is defined by its own continuous wall which is not shared by the wall defining any other compartment, the walls of adjacent compartments being 15 connected integrally to one another by means of joining portions.

10.

A dispensing container according to claim 9 wherein the joining portions of the walls of adjacent compartments space those walls apart from one another to create externally visible grooves extending for the height of the bottle.

20 11.

A dispensing container according to any one of the preceding claims wherein the bottle is of blow-moulded construction.

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12.

A dispensing container according to any one of claims 1, 2, 3 or 5 wherein the cap and bottle have cooperating clip formations which engage one another in clipping fashion when the cap is correctly fitted onto the upper end of the bottle.

5 13.

A dispensing container according to claim 12 wherein the bottle has a continuous external shoulder towards its upper end against which the cap bears when clipped to the bottle.

14.

10 A dispensing container according to either one of claims 12 or 13 wherein the clipping formations of the cap and the bottle are disengagable from one another to permit removal of the cap from the bottle when an appropriate squeezing action is applied to the cap in a direction transverse to the height of the bottle.

15.

15 A dispensing container according to any one of the preceding claims wherein the cap carries internally projecting formations which plug the pouring spouts when the cap is correctly fitted to the bottle.

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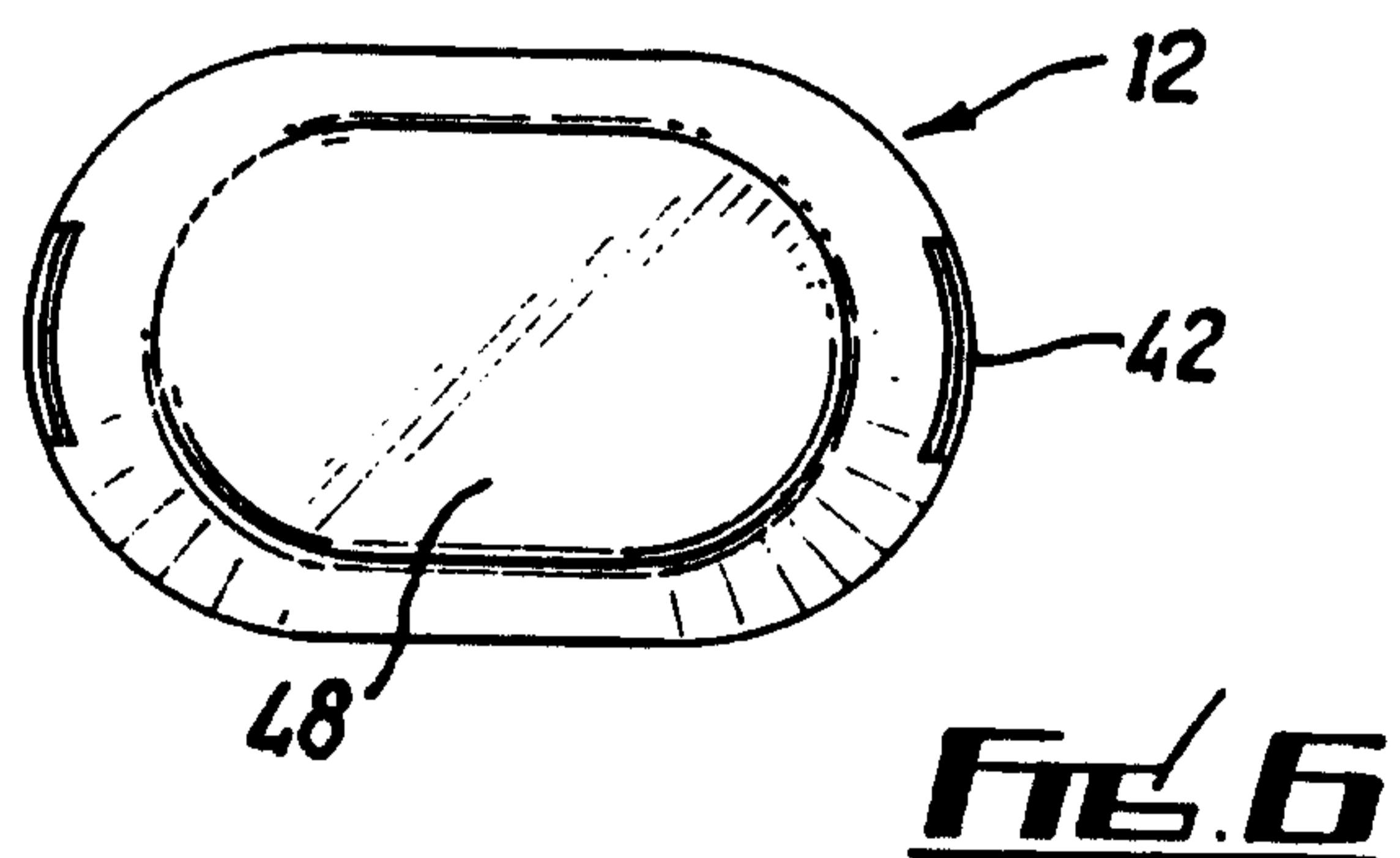
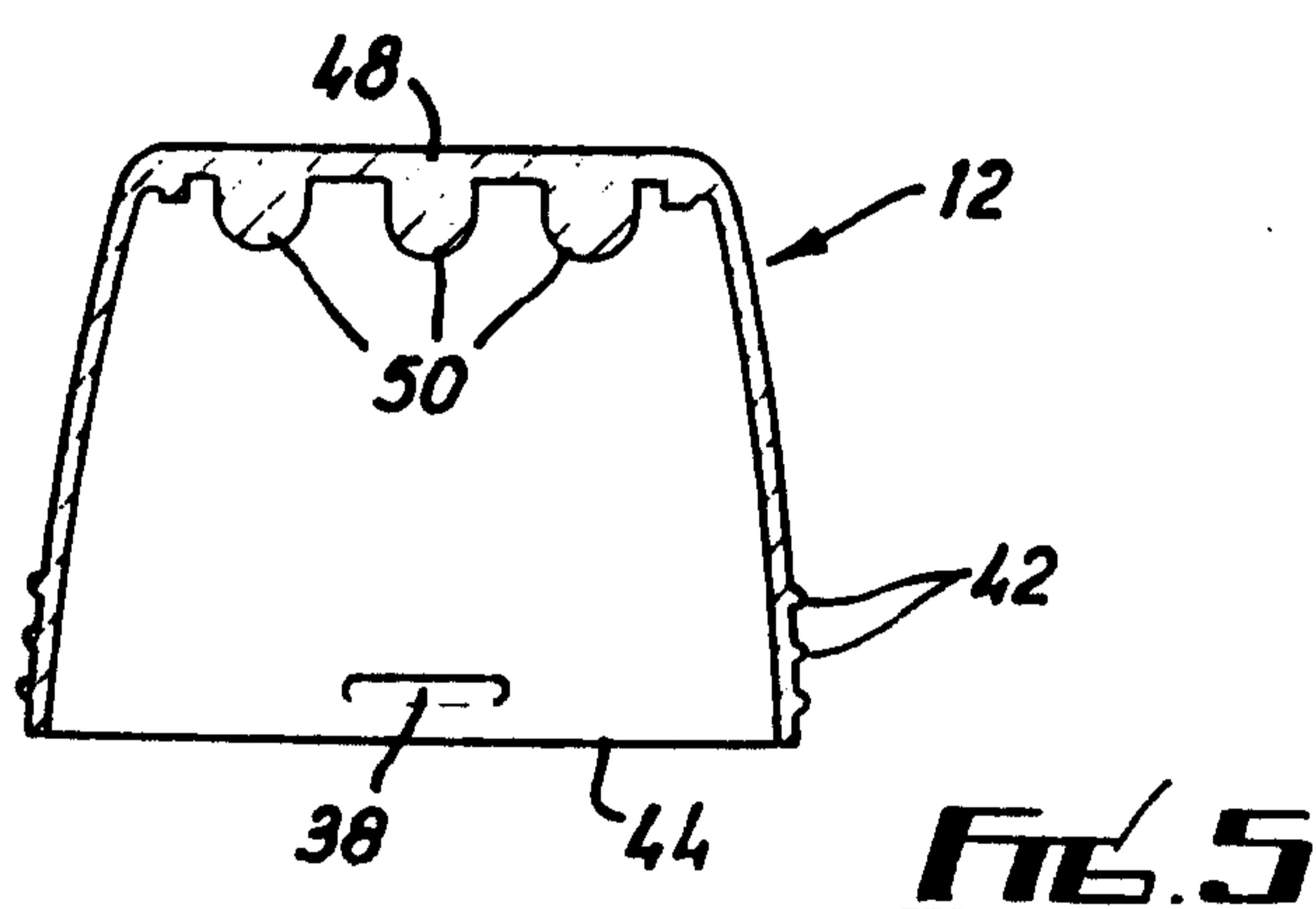
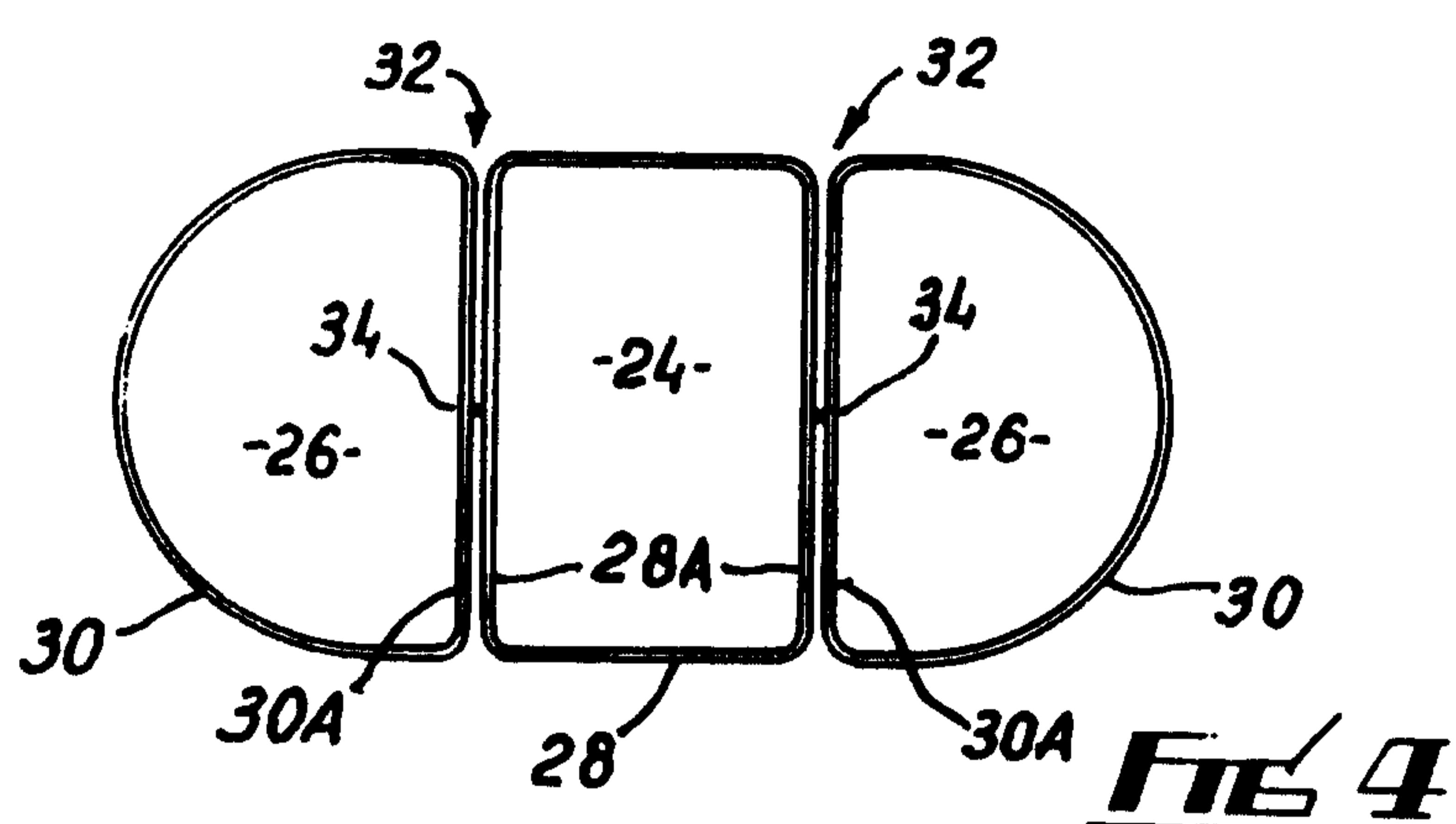
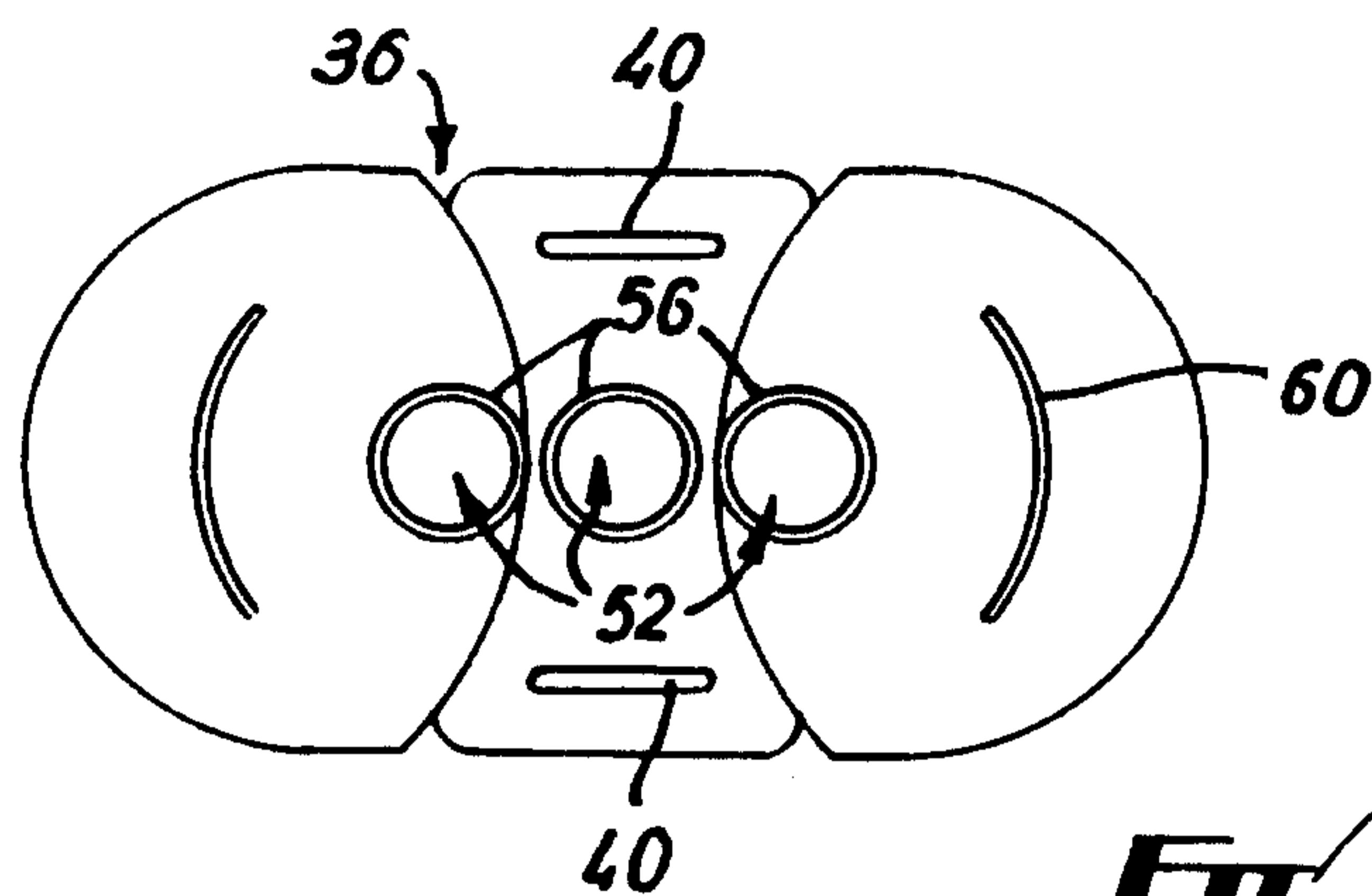
20 A dispensing container according to any one of the preceding claims wherein the bottle has an external shape that is chosen to facilitate manual gripping by a user in such manner that tilting of the bottle by the user to dispense therefrom will generally be such as to maintain the imaginary straight line horizontal.

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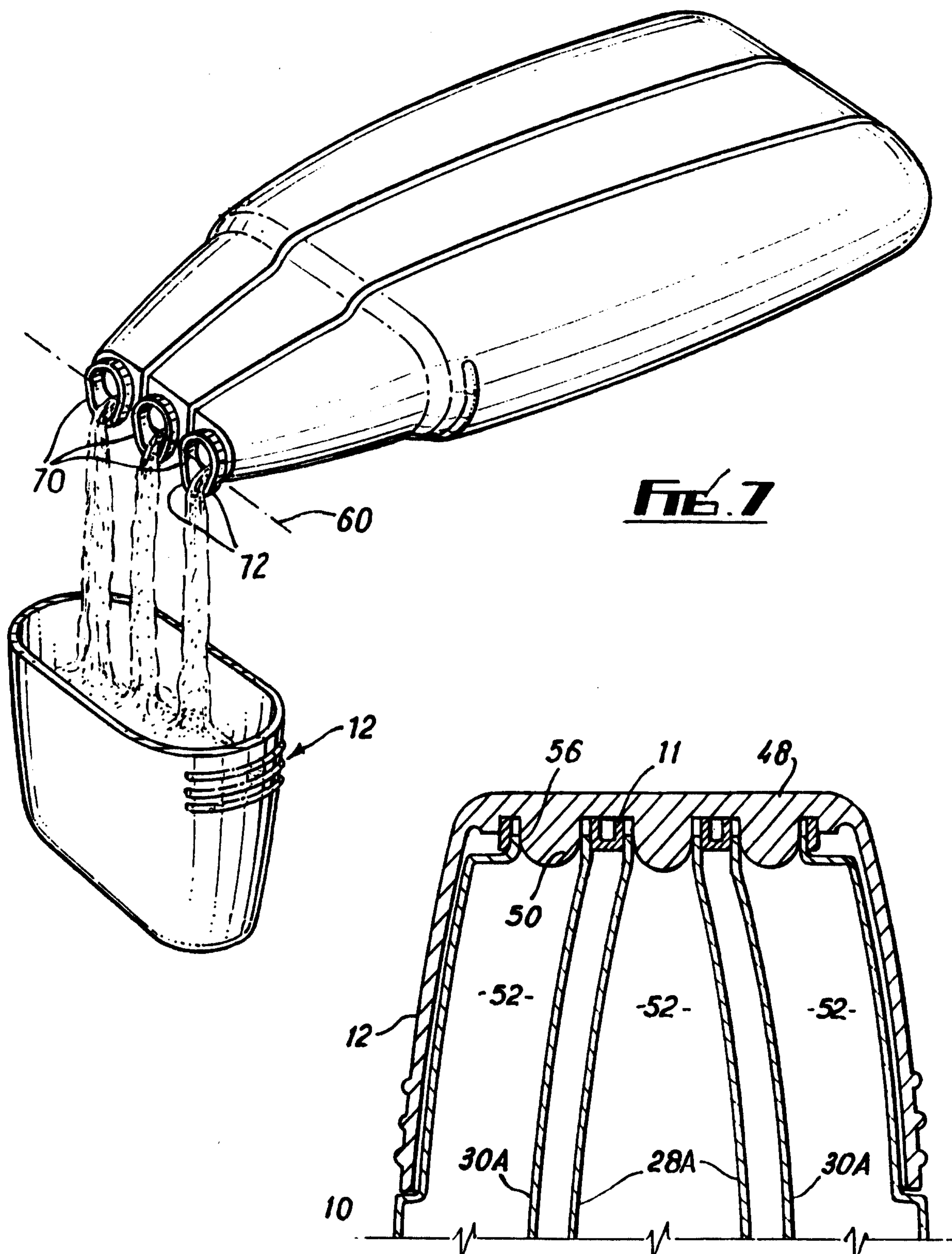
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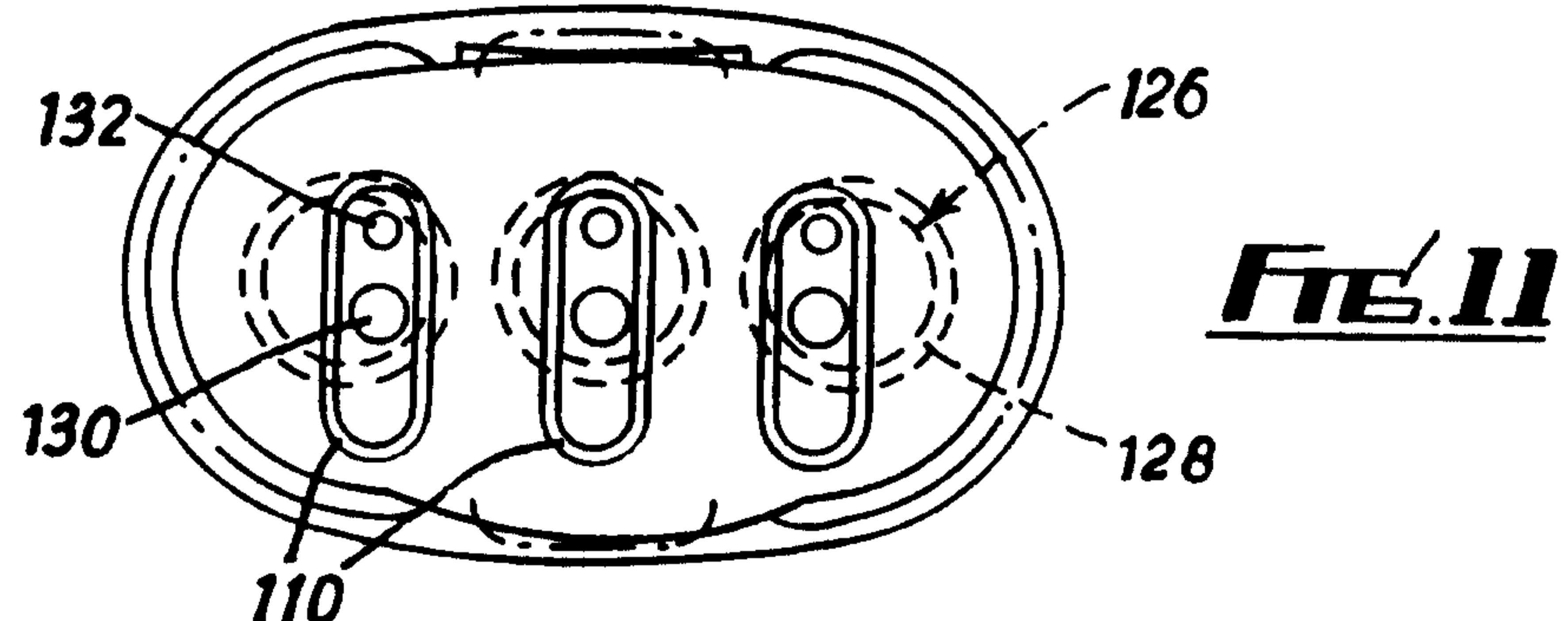
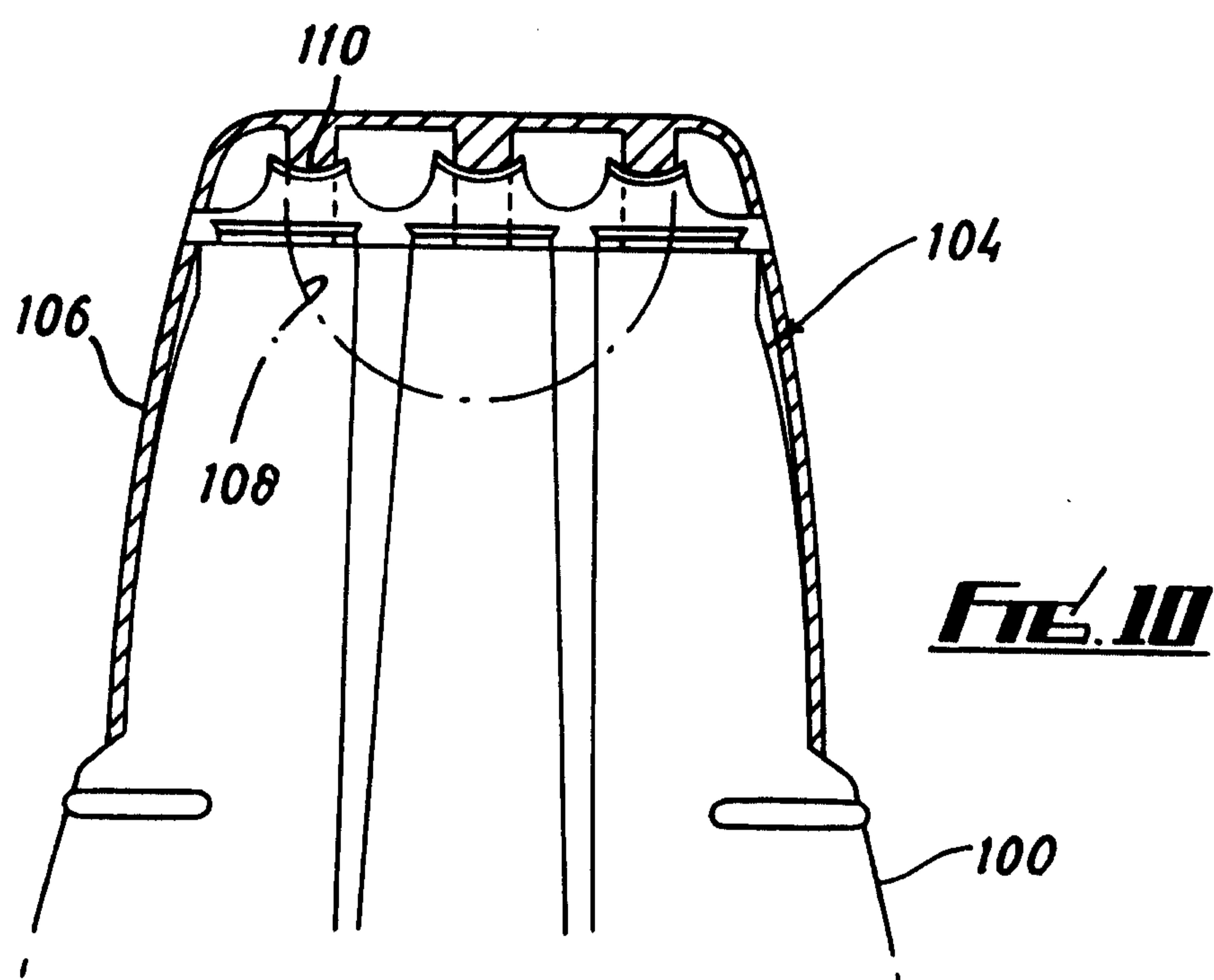
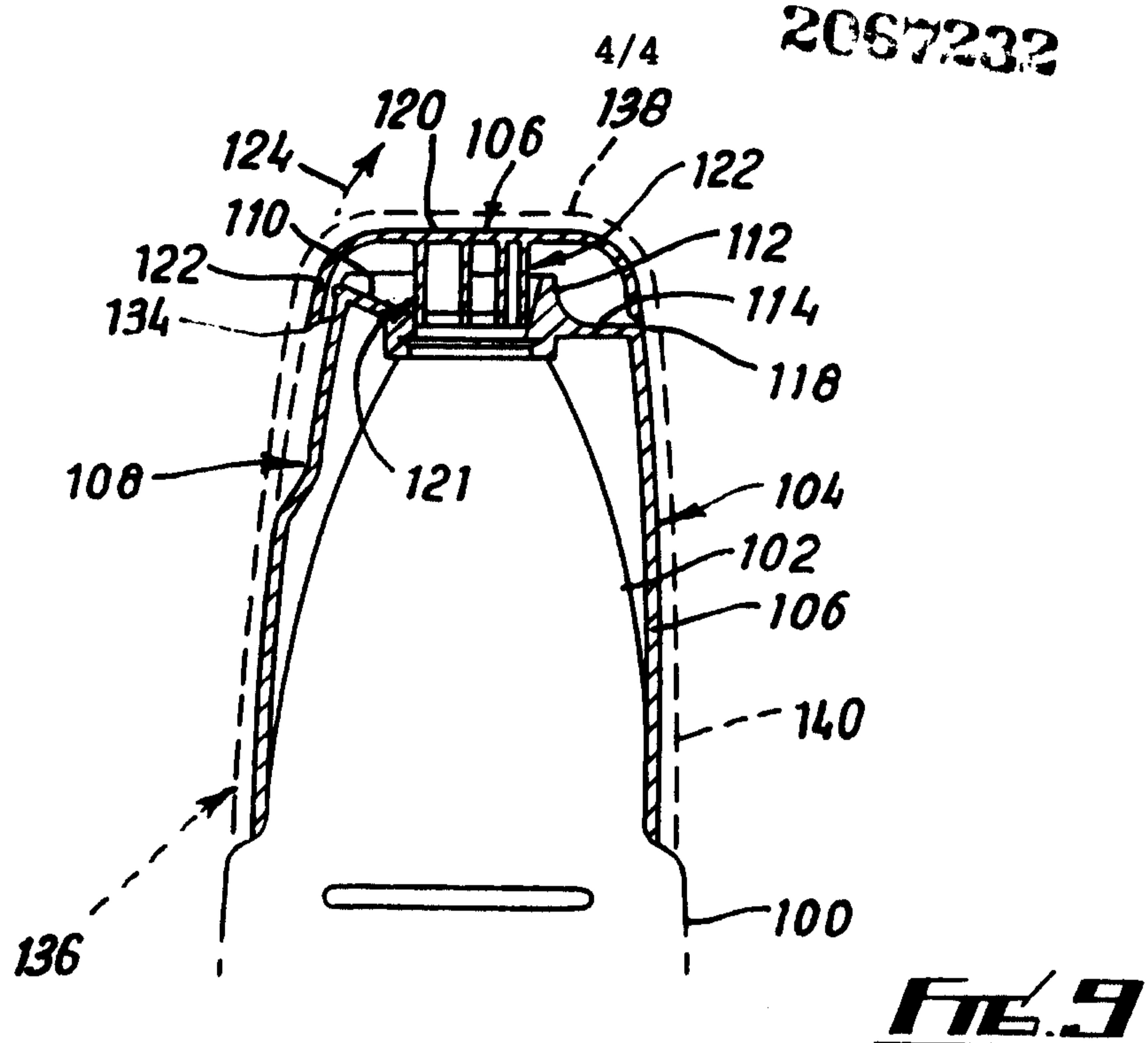
A dispensing container according to any one of the preceding claims wherein the compartments accommodate components of a liquid mouthwash.

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**SUBSTITUTE SHEET**

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FIG. 8**SUBSTITUTE SHEET**



SUBSTITUTE SHEET

