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Funnel with piercing device for flowable product package.

Funnel (10) comprising an upper part (11) and a tube part (12), whereby a piercing element (15) protrudes from the upper part.

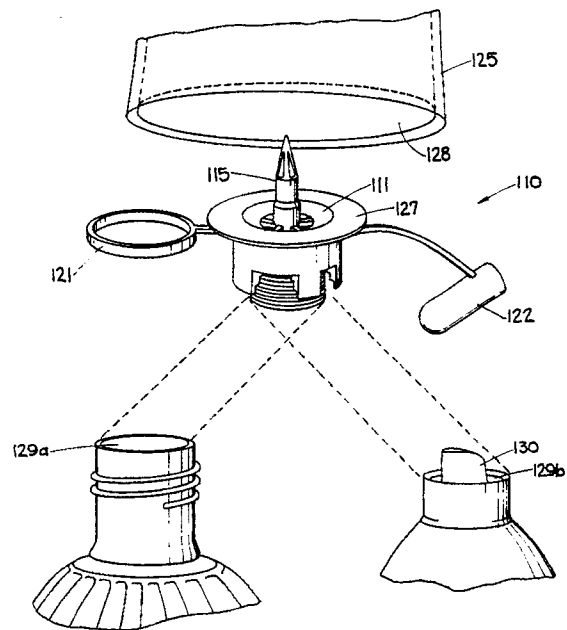


FIG. 5

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FUNNEL WITH PIERCING DEVICE FOR FLOWABLE PRODUCT PACKAGE

TECHNICAL FIELD

The present invention relates to a funnel with piercing device for flowable products, like liquids, and, more particularly, to a funnel which allows clean refilling of a container with product contained in another, possibly closed package.

BACKGROUND OF THE INVENTION

Many flowable products, and more particularly liquids, are frequently packed in plastic containers. Once the contents has been used, the plastic container is thrown away. These containers have frequently been designed in such a way that they are easy to handle in the context of the purpose the packed product is to serve. As a consequence, it is desirable to find a way to be able to reuse these containers, both from an economical and from an environmental point-of-view, by refilling them with product contained in a simple, cheap and easily disposable package.

Refilling of containers for fabric softening liquids has become current practice. In general, these containers consist of bottles with a neck and with or without an easy pouring, self-draining feature whereas the refill packages consist of soft, plastic-like pouches. A number of attempts have been made to improve the pouring feature of these pouches, but the resulting operation of refilling an empty container with the liquid poured from a pouch remains a messy operation.

Furthermore, in order to save packaging material, concentrated fabric softening liquids are now also commercialized, these concentrated softening liquids being transferred from a small package into a larger, reusable container to which water is added to obtain the desirable concentration.

One obvious way for refilling a container with a flowable product contained in another package is to use a funnel. Even with a funnel, pouring, e.g. a liquid, from a soft, plastic-like pouch, may still be a messy operation, especially in view of the fact that any improvement in pouring features of these pouches have to be low cost, given the fact that these refill packages are meant to be disposed of upon complete delivery of their contents.

A number of devices for opening packages which are not provided with an easy dispensing device, like a pouring spout or pouring apparatus, can be found on the market. They mostly consist of a piercing device extending into a pouring opening, said piercing device being forced into the closed package so that the contents can run along

the piercing device through the dispensing opening. More sophisticated executions will be combined with a second piercing device, which will allow entry of air while the product is dispensed through the dispensing opening, thereby avoiding guggling if the product to be dispensed is a liquid. It is however clear that such dispensing devices are not suitable at all for refilling the container into which they are forced to form a dispensing opening.

In light of the above, a principal object of the present invention is to provide a funnel with piercing device for a flowable product package.

It is another object of the invention to provide such a funnel with piercing device which can be used to refill a variety of containers having dispensing/refilling openings of various sizes.

It is a further object of the invention to provide a funnel with piercing device which can be conveniently kept with the container to be refilled and is easy to handle during the refilling operation.

It is still another object of the invention to provide a funnel with piercing device which incorporates a stabilizing feature for the refill package during the refilling operation.

SUMMARY OF THE INVENTION

In order to accomplish to above stated objectives, the present invention provides a funnel equipped with a piercing device and one or various areas for positioning the funnel on the container to be filled. In addition, means for attaching the funnel to the container and to hold it during the filling operation are provided, as well as means for stabilizing the refill package during the refilling operation.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the present invention, it is believed that the same will be better understood from the following description taken in conjunction with the accompanying drawings:

Figure 1 is a front elevational view of a preferred embodiment of the funnel with piercing device for a flowable product package of the present invention;

Figure 2 is a vertical, cross-sectional view of Figure 1, showing in addition a stabilizing means for the refill package during the refilling operation.

tion;

Figure 3 is a top view of the preferred embodiment of the funnel with piercing device for a flowable product package as shown in Figure 2; Figure 4 is a fragmentary, cross-sectional view of a container with the funnel of Figure 1 positioned on the dispensing/refilling opening of said container, with the refill package already in the emptying process;

Figure 5 is a perspective view of another funnel with piercing device according to the invention, ready to be positioned on either one of two containers (fragmentary view) with different dispensing/refilling openings, the refill package (fragmentary view) being ready to be pierced by the piercing element when the three objects are assembled.

Figure 6 is a fragmentary perspective view of a container equipped with a funnel with piercing device according to the invention, as found on the shelves.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings in detail, wherein like reference numbers indicate the same elements throughout the use, there is illustrated a preferred embodiment of a funnel with piercing device for flowable product package according to the present invention.

As can be seen from Figure 1, the funnel with piercing device (10) shows a cup-shaped upper part (11) and a tube part (12). Piercing element (15) protrudes from cup-shaped upper part (11). Hanging/holding extension (21) shows a possible embodiment of a feature allowing attachment of the funnel with piercing device on, e.g., a bottle neck, when not in use, which feature can also be used for holding the funnel with piercing device during the refilling operation. Protective cap (22) can be slid over the piercing element (15) when the funnel is not in use.

The cross-sectional view of Figure 2 shows how piercing element (15) is attached through supporting members (16) underneath cup-shaped upper part (11) to the inside wall of the tube (12). It also shows how piercing element (15) consists of a hollow tube (17) with a free end composed of radial members (18) joined into piercing point (19). Positioning surfaces (13 + 14) allow positioning of funnel with piercing device (10) on the container dispensing/refilling opening. In addition, a possible embodiment of the refill package stabilizing members (23) is shown.

The top view of Figure 3 shows the inside of funnel upper part (11), upper edge of funnel tube (12), supporting members (16), upper edge of tube

(17) of piercing element (15) and radial members (18) ending in piercing point (19).

The fragmentary, cross-sectional view of Figure 4 shows the funnel with piercing device according to the invention in operation on the container of which the dispensing/refilling opening, here the neck part of a bottle, is shown. As can be seen, the funnel with piercing device (10) rests with its positioning surface (13) on the edge of container neck (24). Refill package (25) has been pierced by piercing element (15). Product (26) runs over and through piercing element (15), through funnel tube (12), into container dispensing/refilling opening (29).

The perspective view of Figure 5 shows how a somewhat modified funnel with piercing device according to the invention (110) can be used on different container dispensing/refilling openings (129a, 129b). Funnel cup-shaped upper part (111) is provided with a flat circular rim (127) on which refill package (125) can rest after its bottom (128) has been pierced by piercing element (115). Extension (121) can be sized so as to fit over the neck defining the container's dispensing/refilling openings (129a, 129b). Container dispensing/refilling opening (129b) is equipped with a conventional pourspout with self-draining feature (130). Protective member (122) has been removed from piercing element (115).

Figure 6 shows a fragmentary, perspective view of the embodiment of the funnel with piercing device (110) illustrated in Figure 5, as it is stored by extension (121) on the container when not in use.

Although the preferred embodiment described on the basis of the attached drawings includes means for attaching the funnel with piercing device on the package when not in use and stabilizing features for the refill package during the refilling operation, a less sophisticated funnel with piercing device which does not comprise these elements is also covered by the present invention.

Where the refill package shown in the drawings is a plastic laminate pouch, any other refill packages, pierceable by the piercing device of the funnel according to the invention in any location of their configuration, are also encompassed. This applies, e.g., to cartons with or without liner, which can possibly have a partially weakened area for easier piercing.

Although the refill product described in the preferred embodiment is a liquid, the funnel with piercing device according to the invention works equally well with any other flowable product.

The funnel with piercing device described in the preferred embodiment is preferably made of polypropylene, polyethylene, polyester, polystyrene or recycled plastics, but can be made of any

suitable material known to the man of the art. The funnel with piercing device could also be assembled from separate parts made of different materials, like propylene, polyethylene, polyester, polystyrene or recycled plastics and metal. Although the piercing element shown in the drawings is made out of a hollow tube with a free end composed of radial members joined into a piercing point, this piercing element can be made without any openings in its free end and can be either hollow or full; upon piercing of the refill package by such a piercing element, the refill product runs over the outside of said element, through the tube of the funnel, into the container being refilled.

It is particularly advantageous to make at least the funnel tube out of transparent material, so that the product flow can be seen.

While the preferred embodiment describes a funnel with piercing device which is positioned on a conventional, open bottle neck, it will be evident to the man of the art that the tube part of the funnel can be so dimensioned as to fit on any dispensing/refilling openings inclusive of bottle necks with a pourspout as shown in Figure 5. The various areas for positioning the funnel on the container to be filled, which include the bottom of the upper part of the funnel, allow a large variety of dispensing/refilling openings, with or without inserts, with which the funnel with piercing device according to the inventor is compatible.

The embodiments represented in the attached drawings show a funnel with a generally circular upper part. The shape of the upper part of the funnel can of course be modified to any desired shape, as long as it fulfills the function of a funnel.

Various modifications of the described invention will be apparent to those skilled in the art. Examples of several such variations have been mentioned above. Accordingly, the scope of the present invention should be considered in terms of the following claims and is understood not to be limited to details or structures described and shown in the specification and drawings.

Claims

1. Funnel (10, 110) comprising an upper part (11, 111) and a tube part (12, 112) characterized in that it is equipped with a piercing device (15, 115).
2. Funnel according to Claim 1, characterized in that it is provided with positioning elements (13, 14, 113, 114).
3. Funnel according to Claim 1 or 2, characterized in that the piercing element (15, 115) consists of a hollow tube (17) which terminates in a free end composed of radial members (18, 118) joined into piercing point (19, 119).

4. Funnel according to Claim 1 or 2, characterized in that the piercing element (15, 115) consists of a tube with a full free end terminating into a piercing point (19, 119).

5. Funnel according to any of the preceding Claims, characterized in that stabilizing means (23, 127) are provided on the free edge of upper part (11, 111) of funnel (10, 110).

6. Funnel according to any of the preceding Claims characterized in that a protective member (22, 122) is attached to said funnel for possible covering of piercing element (15, 115).

7. Funnel according to any of the preceding Claims, characterized in that it comprises a hanging/holding extension (21, 121).

8. Funnel according to any of the preceding Claims, characterized in that at least the funnel tube is made of a transparent material.

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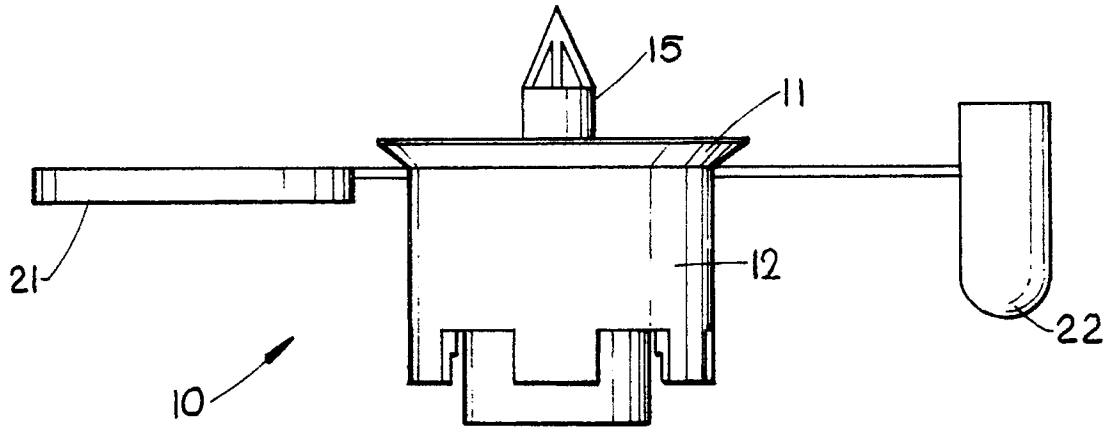


FIG. 1

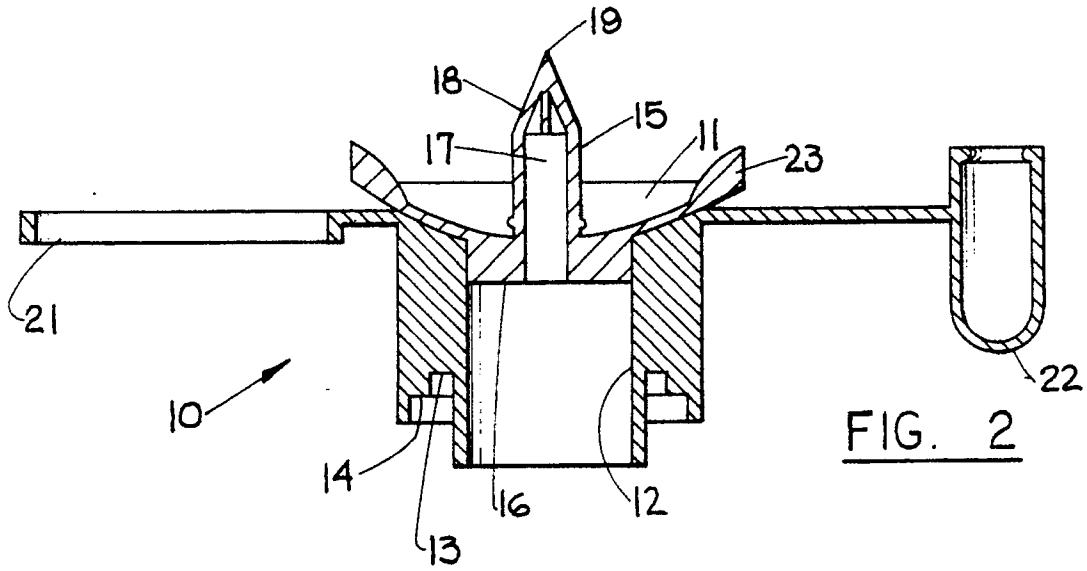


FIG. 2

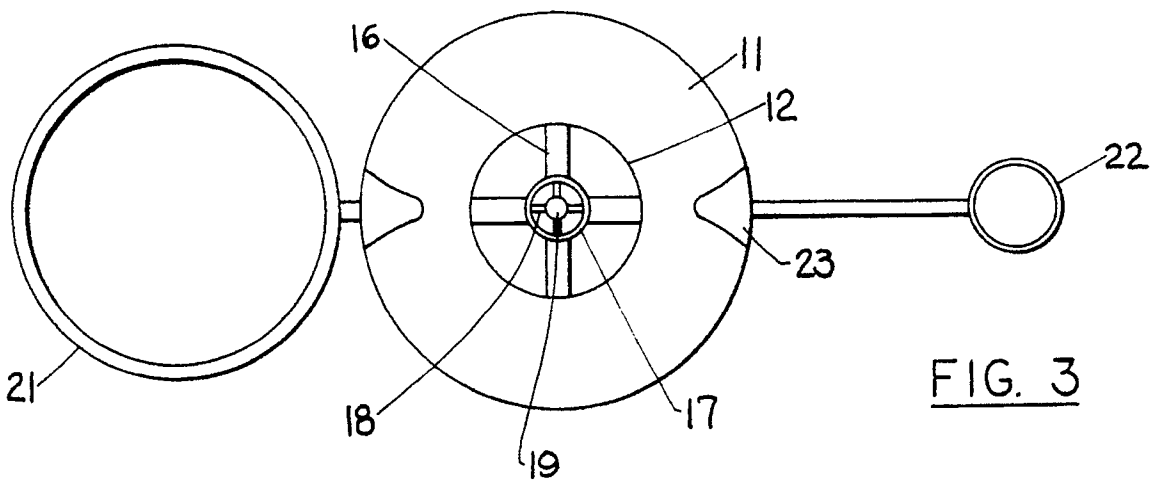
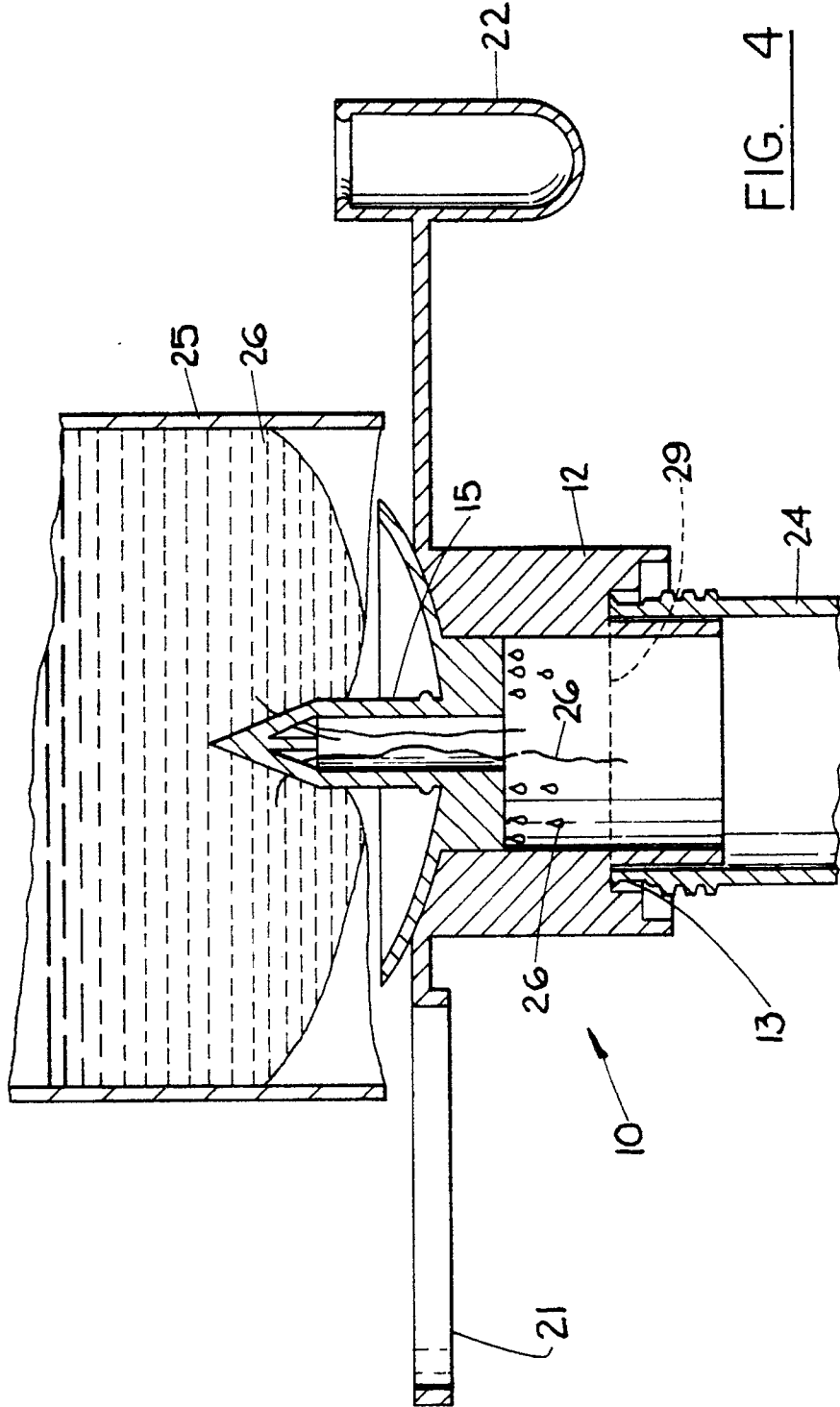


FIG. 3



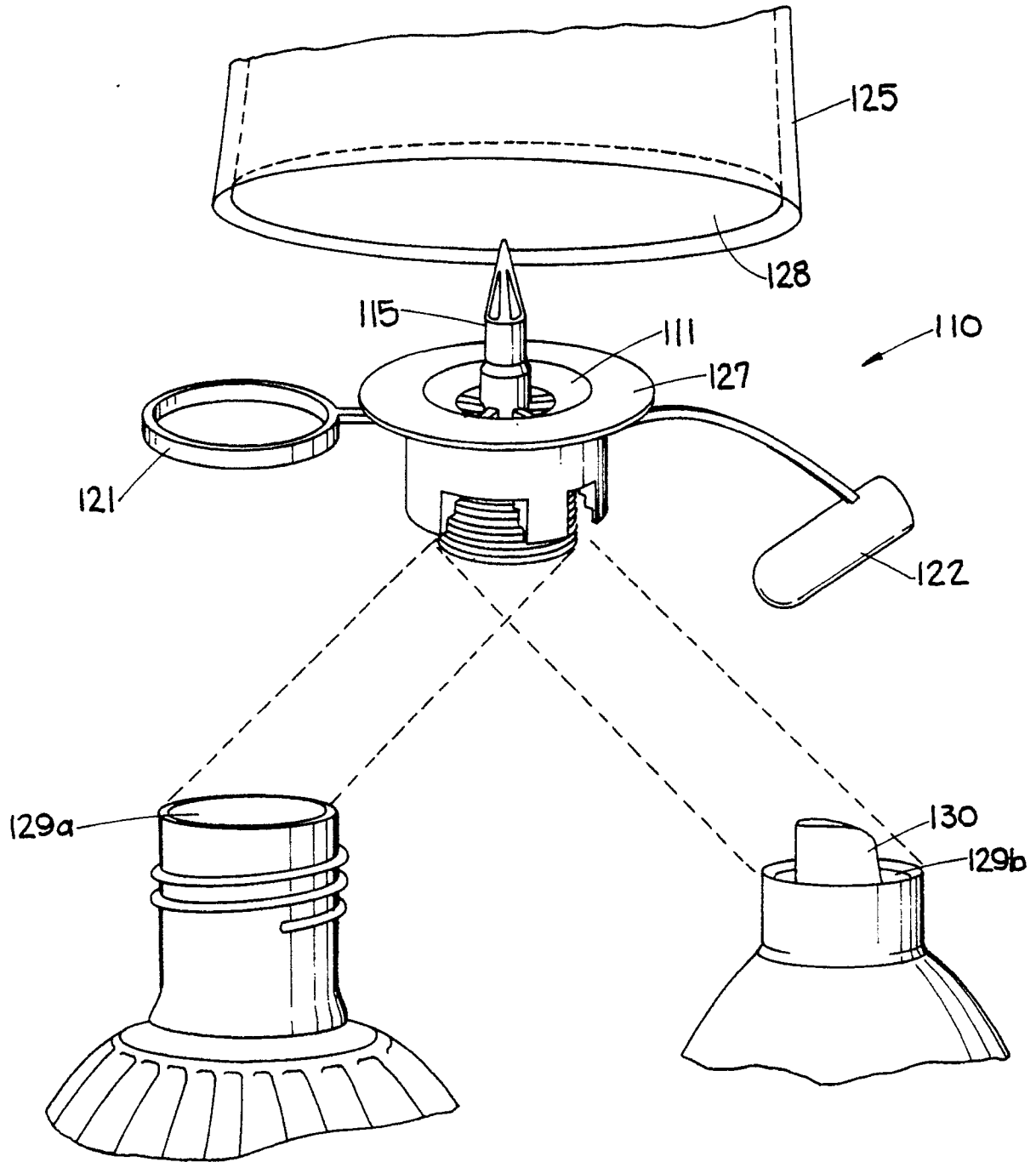


FIG. 5

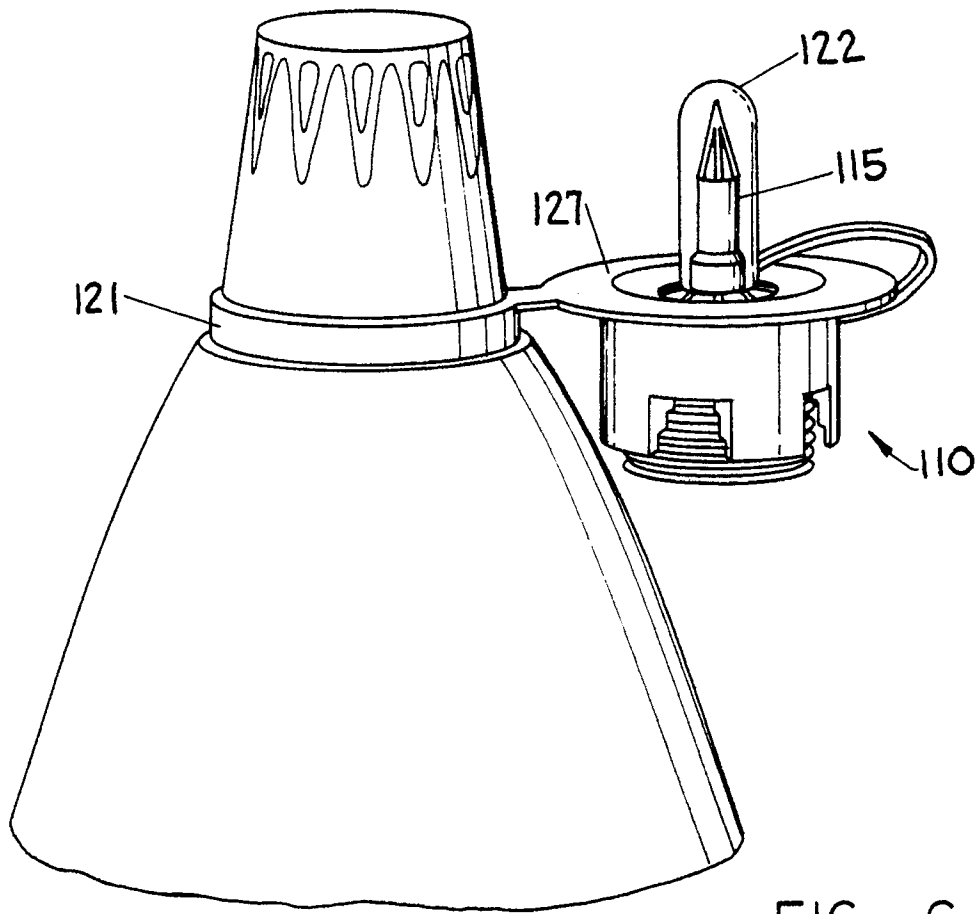


FIG. 6



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
P,X	EP-A-0 369 722 (DIVERSEY CORPORATION) * column 3, line 19 - column 4, line 12; figure 1 *	1,3	B 65 D 47/00 B 67 D 3/00
X	US-A-4 723 688 (MUNOZ) * column 3, lines 31-47; figure 2 *	1,5	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 D B 67 D
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 30-10-1990	Examiner LORENZ P A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			