Jan. 2, 1940. J. J. ZEUGNER 2,185,699

DOSE-MEASURING BOTTLE CLOSURE

Filed May 20, 1938

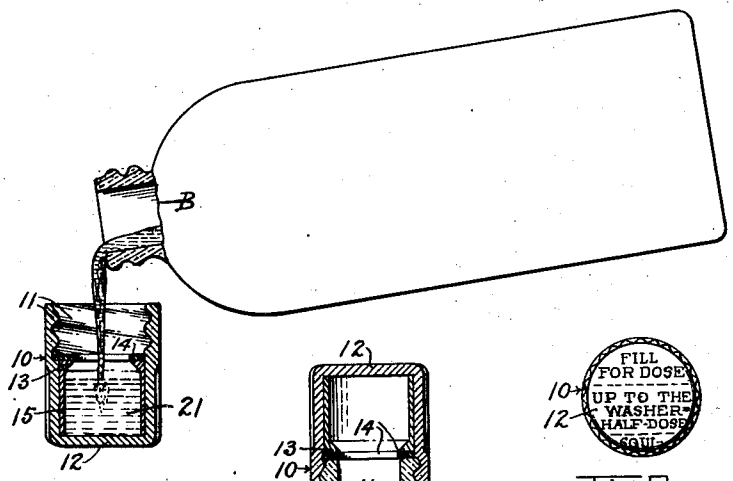


Fig. 1.

Fig. 2.

Fig. 3.

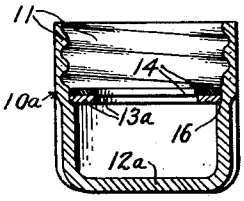


Fig. 4.

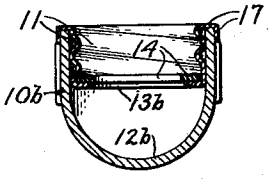


Fig. 5.

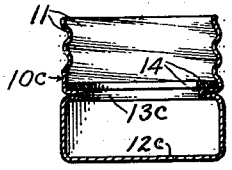


Fig. 6.

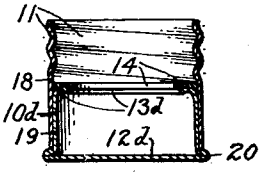


Fig. 7.

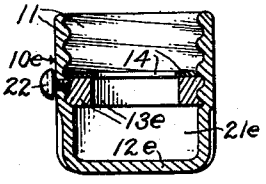


Fig. 8.

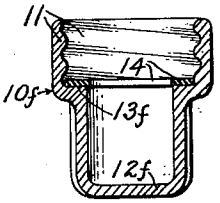


Fig. 9.

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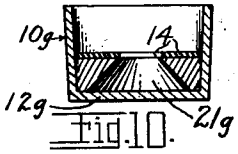


Fig. 10.

By Sterling P. Buck,
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UNITED STATES PATENT OFFICE

2,185,699

DOSE-MEASURING BOTTLE CLOSURE

John J. Zeugner, Baltimore, Md.

Application May 20, 1938, Serial No. 209,119

1 Claim. (Cl. 221—147)

This invention relates to dose-measuring bottle closures.

The primary object of this invention is to provide an improved type of dose-measuring bottle closure by which I provide ample measuring capacity without increasing the length of screw-threads and without detrimentally affecting the ability of the user to perfectly seal the bottle on which it is used.

Another object is to provide a new type of dose-measuring bottle closure that consists of very few and very simple parts of such shape that they can be manufactured by ordinary methods of molding, casting, pressing or spinning, from any one of a large variety of materials, for instance, sheet-metal, metal tubing, cast metal, Bakelite, or one of the molded viscous or cellulose materials.

Another object is to utilize the gasket as a measure-index for an adult's half-dose of the medicine or for a children's dose.

Another object is to provide an air-chamber above the contents or a bottle filled to its top, so as to facilitate the mixing of the contents by shaking the bottle before the closure is removed.

Other objects and important features are pointed out or implied in the following details of description, in connection with the accompanying drawing in which, all views except Fig. 3 are in central vertical section:

Fig. 1 is illustrative of a bottle having its closure removed and receiving liquid from the bottle.

Fig. 2 illustrates the same form shown in Fig. 1; but the dose-measuring closure being in place on the mouth of the bottle that has its lower part broken off.

Fig. 3 illustrates the top of the closure having words thereon to serve as directions for measuring a dose or a half-dose.

Fig. 4 illustrates a second form of the invention.

Fig. 5 illustrates a third form of the invention.

Fig. 6 illustrates a fourth form of the invention.

Fig. 7 illustrates a fifth form of the invention.

Fig. 8 illustrates a sixth form of the invention.

F.g. 9 illustrates a seventh form of the invention.

Fig. 10 is an eighth form of the invention.

In the drawing, similar reference characters refer to similar parts throughout the several views; and referring thereto, the invention is described in detail as follows:

In brief and broad terms, the invention comprises, in combination, a hollow body having an open end and having all other points closed or imperforate, the open end being internally screw-threaded, and the intermediate or middle portion of the inner surface being an annular gasket-seat; and a gasket secured on said gasket-seat. More specifically, the invention is described in detail as follows:

The hollow body 10, 10*a*, 10*b*, 10*c*, 10*d*, 10*e*, 10*f*, or 10*g* may be of the respective shapes illustrated, or of other shapes and proportions, in accordance with the kinds of liquid or powdry materials to be put into the respective bottles B, hence according to the shapes of bottle-necks to which they are to be respectively fitted; also according to the arbitrary wishes and purposes of the manufacturing or bottling firms or persons who use such bottles and bottle closures. The internal screw-threads, though very slightly different in the several views, are sufficiently alike to have the same reference character 11 applied to each view containing screw-threads. The imperforate or closed ends are shown at 12, 12*a*, 12*b*, 12*c*, 12*d*, 12*e*, 12*f* and 12*g*. The gasket-seats are shown at 13, 13*a*, 13*b*, 13*c*, 13*d*, 13*e*, 13*f* and 13*g*. All the gaskets, being substantially the same, are indicated at 14.

In Figs. 1 and 2, the gasket-seat 10 is the broadened margin of a hollow cylinder 15 which is tightly fitted within the body 10 and localized by abutting against the closed end of the body 10.

In Fig. 4, an annular shoulder is provided at 16 for localizing the rigid gasket-seat 13*a*, the latter being tightly fitted to the wall around its periphery.

In Fig. 5, the cup or hollow body 10*b* has a screw-threaded thin-walled tube fitted therein, carrying the gasket-seat 13*b* at its inner end, and having a clamping flange 17 at its outer end tightly fitted around the outer end of the body 10*b* and serving to localize the gasket seat 13*b*.

In Fig. 6, a blank of sheet metal is pressed into cup-shape, has the screw-threads pressed therein, and has an intermediate part of its wall pressed inward and collapsed so as to form the gasket-seat integrally with the other parts of the hollow body.

In Fig. 7, a length of metal tubing 18 is formed with a screw-thread 11 at one end while its other end remains cylindrical and is pressed down over and around a cartridge-like cup 19 that has the gasket-seat 13*d* turned inward at its inner end, while its outer end has the annular protrusion 20 that serves to localize the gasket-seat medially in the member 18.

In Fig. 8, both members 10e and 13e are preferably die-cast or molded into originally separate units; but united by means of the screw-thread 11 being extended to constitute the means for localizing and fixing the gasket-seat in place.

In Fig. 9, the hollow body 10f may be die-cast or molded into the shape shown, including the gasket seat as an integral part thereof; and as the closed end portion is of smaller diameter than the open end portion, it is correspondingly longer so as to have approximately half of the capacity of the whole member.

In Fig. 10, the closure 10g is outwardly tapering from its closed end to its open end; and instead of having screw-threads, it is held in place on the bottle, or on a metal receptacle or other form of receptacle by friction of its inner tapered surface; and the washer-seat or gasket-seat 13g and gasket 14 are or may be similarly held in place by friction at their peripheries; though it should be understood that adhesive material may be employed for securing these parts in place, as is true with the similar elements of the other forms of the invention. It should also be understood that by making the member 13g or 13e entirely of rubber or similar material, it will serve as both a gasket and a gasket seat. In this disclosure, Fig. 10, it is contemplated to use the member 13g as an adjunct or attachment for bottle closures of any of the usual forms known and used heretofore, where the prescribed dose is relatively small, as "half-teaspoon-full", "twenty drops" etc.; for experience has shown that the average person cannot properly judge as to half of a spoonful, or properly pour medicine so as to count the number of drops; so there are advantages in having the gasket seats removable and interchangeable; for instance, by having a number of gasket-seats of the same external dimensions, but having different sizes of cavities 21g therein, a pharmacist or physician can select a gasket seat for the dose desired, insert it in the bottle closure, and give directions to fill the closure only up to the gasket.

Moreover, when the form 13—15 (Fig. 1) of gasket seat is used, its inner end can be cut away for lowering the gasket and thus decreasing the dose-measuring chamber 21. Whereas, for increasing or decreasing the size of the dose-measuring chamber 21e, the gasket-seat 13e can be screwed inward or outward and then secured in place by any appropriate means, for instance, a set-screw 22.

The gaskets 14, while being indicated as made of rubber, may be of any suitable yielding material that conforms to the mouth of the bottle and is impervious to liquids; and it is preferable that each gasket-seat be cemented or vulcanized to the gasket-seat, or very tightly fitted in the hollow body, for avoiding possibility of the gasket being poured out with the measured contents of the dose-measuring closure.

By screwing any form of this invention snugly in its normal position, the gasket conforms to the mouth of the bottle so as to preclude any leakage around the interengaged screw-threads; yet, by a very few revolutions of the closure, it is removed from the bottle and ready to be used as a measuring receptacle in which either a pre-determined dose or half-dose may be more accurately measured and more safely handled and administered than is possible with a spoon or spoons.

In Fig. 1, the under side of the gasket-seat is of such beveled shape that assists in the draining of all measured contents from the receptacle, and this form of gasket-seat may be employed in lieu of those of Fig. 4, 5, 6, 7 or 8, without departure from the inventive ideas as expressed in the following claim; and the invention is susceptible of numerous other changes within the scope of the inventive ideas.

The cap in all the forms is characteristic in the fact that the glass, composition or material that it is made of, does not restrict the orifice of chamber adjacent the close end of the cap, itself, and thereby make it difficult to clean and hard to manufacture, as well as affect the dispensing of the proper amount from the cap, after it is measured into same. In some instances, the gasket is used to produce a restricted orifice, but this does not interfere with the cleaning, because the gasket may be taken out and allow full access to the interior chamber of the cap. In all cases, the liquid dose from this chamber is offered as little resistance as possible, as may be noted by the bevel at 14 in Figures 1, 2 and 10, and the clear open passage in the other figures.

What I claim as my invention is:

A bottle cap of the class described, comprising in combination, a hollow structure of bell-like form having an imperforated head, a screw-threaded portion for half the internal length; and another half portion adapted to form a chamber above the first mentioned portion, said screw-threaded portion being arranged for engagement on the neck of a bottle, a gasket means adapted to be located above the screw threaded portion for cushioning the bottle and cap together and having an extending portion for lining the second half portion and graduating the volume thereof independently of the cap itself and to control the flow of doses from the cap to suit the same, said gasket being adjustable in the cap and removable therefrom for permitting access to second half of the cap and for cleaning and inspection purposes, the two half portions of the structure being of proximate the same area and volume with unrestricted opening connection in between same.

JOHN J. ZEUGNER.