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J. E. KEILLY

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COMBINED STOPPER AND APPLICATOR

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Fig. 1.

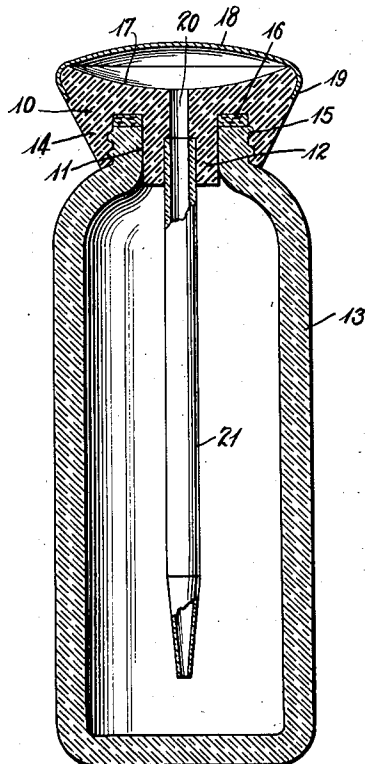


Fig. 3.

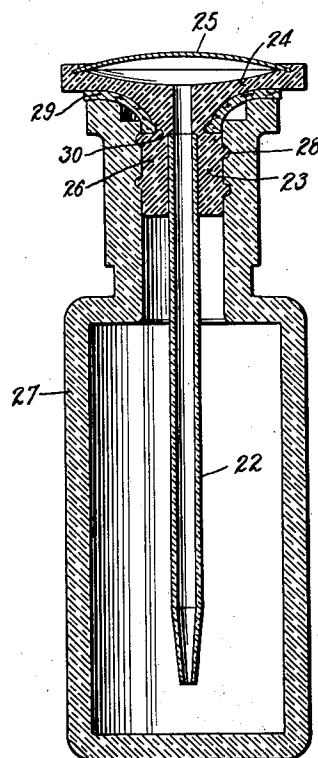
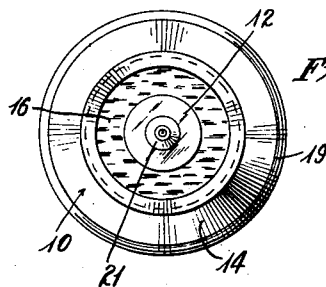


Fig. 2.



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COMBINED STOPPER AND APPLICATOR

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This invention relates to a combined stopper and applicator.

It is aimed to provide a novel construction permitting the use of a flexible metal diaphragm as distinguished from one of rubber or the like so that continued use and the elements will not deteriorate and render the device useless.

Another object is to provide a relatively large stopper or the like which will withstand considerable pressure and enable practical use to be made of screw threads as an attaching means between the same and a container.

A further object is to provide a construction wherein the stopper serves as a holder for the applicator.

It is still another object of the invention to provide a construction wherein the flexible disc is used in connection with a body of bakelite or phenol condensation product.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with the accompanying drawings illustrating operative embodiments and wherein:

Fig. 1 is a view showing the invention in connection with a container and primarily in central vertical section;

Fig. 2 is an inverted plan view of the combined stopper and applicator; and

Fig. 3 is a view similar to Fig. 1 but taken through a modified form.

Referring specifically to the device of Figs. 1 and 2, it comprises a body 10 of bakelite or equivalent phenol condensation product which has a groove at 11 defining a stopper 12 adapted to extend into the mouth of a conventional container as at 13. This also provides a depending flange 14 on the body which surrounds the bottle at the neck. Inter-engaging screw threads 15 are provided between such neck and stopper body 10.

A sealing gasket 16 may be interposed in the groove 11 so that an oil-proof or tight joint will be provided. The relatively large construction of the stopper and the fact that it is made of bakelite enables a very firm grip to be had thereon and the same to withstand

considerable pressure when necessary to effect a tight joint.

The upper surface of the body 10 is preferably dish-shaped as at 17 and disposed across the top of the body is a flexible metallic diaphragm 18, which diaphragm has a downwardly and inwardly extending and thus constricted attaching flange 19 which embraces the exterior of the body 10. The flange 19 is attached to the body when the latter is plastic so that an hermetic joint or bond between the same will result. Said diaphragm normally assumes the position shown in the drawings and its inherent flexibility automatically restores it to that position after depression or flexure therefrom.

The body 10 has a central bore or passageway as at 20 with which an applicator, shown in the form of a tube 21 communicates, such tube being for instance of bakelite or glass and secured to the body 10 while the latter is plastic so that an hermetic joint or bond will result.

In the use of the device the diaphragm 18 may be flexed vertically in order to depress the same and upon restoration to normal position, as shown in Fig. 1, cause air to draw into the tube 21, a portion of the material which may be contained in the bottle 13.

The device when unscrewed from the bottle at 15 may be again engaged at the diaphragm 18 in order to flex the same and expel the contents of the applicator in successive drops.

A modified form of the invention is shown in Fig. 3 wherein an applicator 22 is used similar to that at 21 and secured in a bakelite body 23 while the latter is flexed. Such body 23 has a top or gripping portion 24 that is relatively wide with a metal diaphragm 25 similar to that at 18, hermetically secured thereto while the bakelite is in a plastic condition.

This body 23 has a stopper 26 which extends into the neck or mouth of the bottle 27 and has screw-threaded engagement therewith as at 28.

In addition, a gasket 29 is removably applied to the body 23, the same being dilatable and engaged in a groove 30 of the body. Such gasket will extend partly into the neck

of the container 27 and also across the top thereof, as shown, in order to provide a double gasket or sealing effect.

5 Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim:

1. A combined stopper and applicator device having a body, a metallic diaphragm secured thereto, and providing an air space between the same and the body, and an applicator extending from the body arranged in communication with said space.

10 2. A combined stopper and applicator device having a body, a metallic diaphragm secured thereto, and providing an air space between the same and the body, and an applicator extending from the body arranged in communication with said space, said body having a stopper adapted to extend into a container and having a flange outwardly thereof adapted to surround the neck of a container.

15 3. A combined stopper and applicator device having a body, a metallic diaphragm secured thereto, and providing an air space between the same and the body, and an applicator extending from the body arranged in communication with said space, said body having a stopper adapted to extend into a container and having a flange outwardly thereof adapted to surround the neck of a container, said flange in its inner surface having screwthreads to engage corresponding screwthreads on the container.

20 4. A combined stopper and applicator device having a head of a phenol condensation product, a flexible disc held in hermetically bonded relation thereon by such product and an applicator extending from the body communicating with the interior thereof below the disc.

25 5. A combined stopper and applicator device having a head of a phenol condensation product, a flexible disc held in hermetically bonded relation thereon by such product and an applicator extending from the body communicating with the interior thereof below the disc, said disc having a depending flange surrounding the body and constricted below the upper portion of said body.

30 6. A combined stopper and applicator device having a body provided with a stopper member to enter the mouth of a bottle, a relatively large gripping portion extending from the stopper and formed of a similar condensation product, said portion having a relatively large flexible diaphragm hermetically secured thereto by the product, and an applicator connected to the stopper and communicating with the space between the disc and gripping portion.

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