Aug. 2, 1955 P. E. ROEHRICH 2,714,475

DISPENSING CONTAINER FOR FLUIDS

Filed Oct. 29, 1951

Fig. 2

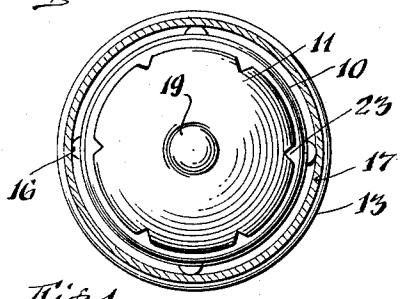


Fig. 1

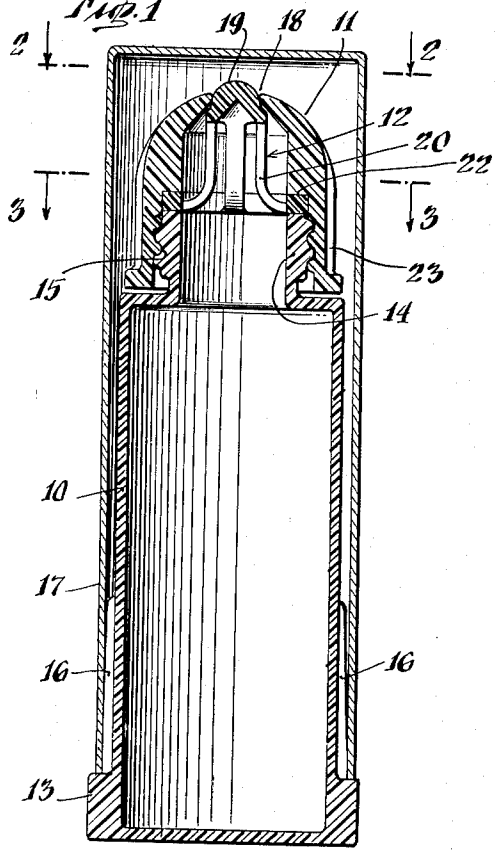


Fig. 3

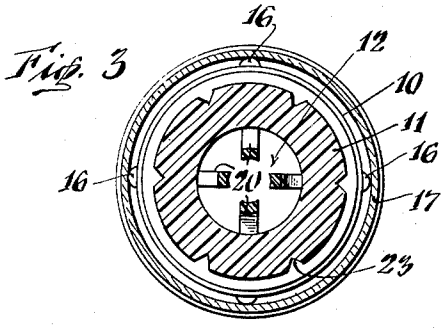


Fig. 4

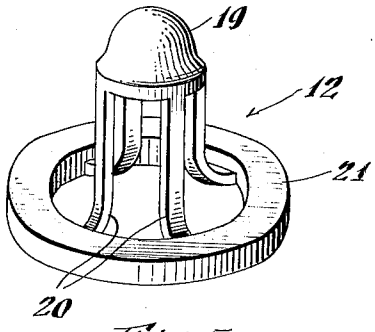
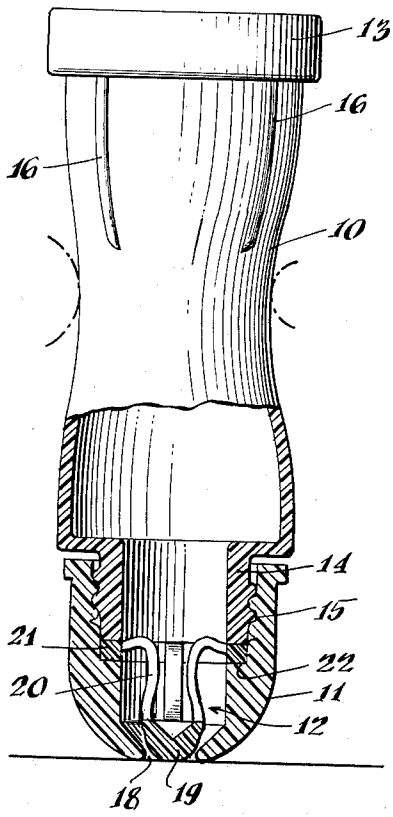


Fig. 5



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United States Patent Office 2,714,475 Patented Aug. 2, 1955

2,714,475

DISPENSING CONTAINER FOR FLUIDS

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Application October 29, 1951, Serial No. 253,649

2 Claims. (Cl. 222—501)

This invention pertains to an improved dispensing container for fluids.

It is an object of this invention to provide a dispensing type of container of improved, simplified design which is substantially leak-proof and which can be readily and conveniently used for dispensing fluids, including viscous types of fluids such as hand lotion.

Another object is the provision of an improved container of the above type which can be readily filled and refilled when desired.

A further object is the provision of a dispensing container having an improved dispensing valve of simplified, unitary construction with a self-contained spring for normally holding the valve in closed position but which does not obstruct the flow of the fluid to be dispensed when the valve is opened.

For a full understanding of the invention reference should be had to the drawing in which—

Fig. 1 is a longitudinal sectional view through a container embodying my invention having an outer shell or hood applied thereto;

Figs. 2 and 3 are cross sectional views in the direction of the arrows on the lines 2—2 and 3—3 respectively of Fig. 1;

Fig. 4 is a perspective view of my improved unitary valve structure; and

Fig. 5 is a partially sectional and partially elevational view of the dispensing container with the shell removed showing the container in inverted position and with the dispensing valve open when a fluid is being dispensed therefrom.

My improved dispensing container comprises a body member **10** having a cap **11**, provided with a dispensing aperture, secured over one end thereof with a unitary dispensing valve assembly **12** associated with the cap for controlling the dispensing aperture.

The body member **10** is preferably (but not necessarily) made of a resilient material so that the body can be compressed or partially compressed if desired as shown in Fig. 5. The material of course should be of a character which can withstand the action of the fluid contained therein or at least should be coated on the interior surface thereof with a protective coating to withstand the action of the fluid. I have found that a plastic of the polyethylene type serves very satisfactorily for the body member.

The body member is hollow, as shown, so as to provide a chamber or reservoir for the fluid to be contained therein and preferably has an enlarged base **13** to increase the stability thereof. The upper end of the body member preferably has a restricted neck **14** which is externally threaded as shown at **15** so that the internally threaded cap **11** may be removably secured thereto. The lower portion of the body member is preferably provided with a plurality of tapered ribs **16** extending upwardly from the base and these serve to frictionally engage the open end of a tubular shell **17** and thereby removably hold it in place. The use of the shell is optional and if used it

serves as an ornamental or protective casing for the container. The body member, as heretofore described, may be molded in one piece from a suitable resilient plastic such as polyethylene. The shell **17** may be made from a material presenting an attractive appearance such as polished metal.

The cap **11** is preferably made of a relatively rigid material such as metal, Bakelite, or the like. It is of a size to fit over and embrace the neck **14** of the body member and is provided with internal threads which engage with the threads on the neck. A dispensing aperture **18** is formed at the central portion of the cap as shown.

Disposed inside the cap when it is assembled with the body member is the unitary valve assembly **12** which has a valve body **19** in the form of a small stud-like member which projects outwardly through the aperture **18** and normally seats around the edges of the aperture but may be depressed or pressed inwardly so as to open the aperture and permit a fluid to flow outwardly therethrough. The valve body is supported on a plurality of spring arms **20** which are integrally connected to the valve body at their upper ends and to a ring-shaped base **21** at their lower ends. The valve assembly may be molded in one piece from a relatively yielding resilient material which should be able to withstand the action of the fluid disposed in the dispensing container. For this purpose a suitable plastic, such as a polyethylene plastic has been found to be very satisfactory.

The ring-shaped base **21** is of a diameter to rest on the top of the neck **14** of the body portion and the cap **11** is formed with a shoulder **22** which engages the upper surface of the ring. When the cap is tightened the ring-shaped base **21** serves as a gasket or seal to prevent leakage of the fluid contents of the container.

The valve body **19** is of a size to completely seal the aperture **18** as shown in Fig. 1 and has a protruding portion which projects outwardly through the aperture so that it can be depressed either manually or by pressing it against a surface as shown in Fig. 5 so as to shift the valve body inwardly and open the aperture **18**. The spring arms **20** are of a length, so that when they are disposed in their normal position of rest, the valve body will be held in the closed position illustrated in Fig. 1. In this connection, the spring arms are formed so as to extend downwardly in a relatively straight direction for the greater portion of their length and then are flared outwardly in a curve or arc and integrally connected to the ring base **21**. The arms thus present a concave outer surface. Due to this construction, depression of the valve body **19** causes the spring arms to flex inwardly and towards each other (rather than outwardly) in the manner shown in Fig. 5, thereby providing ample clearance around the aperture **18** and in the passageway leading to the aperture. If the spring arms **20** flexed outwardly when the valve is opened, there would be a partial obstruction of this area.

So as to facilitate the removal and tightening of cap **11** the exterior surface thereof may be provided with longitudinal grooves or knurls **23** as shown.

In using my dispensing container the chamber or reservoir in the body thereof is first filled with the fluid which is dispensed therefrom. In this connection it has been found that the container serves very satisfactory as a dispensing container for hand lotion and similar cosmetic fluids, although it should be understood that it may be used for other purposes. The valve body **12** and cap **11** are then assembled with the container body as shown, and the cap is tightened sufficiently to cause the ring base **21** to seal the joint between the cap and container body. Under those circumstances, it will be found that the valve body **19** also seals the dispensing aperture **18**. If de-

sired, an outer protective and ornamental shell **17** may then be assembled with the container.

When it is desired to use the container, the shell is first removed (if one has been applied thereto). The container is then inverted and pressed against the surface to which the fluid is to be applied. Thus, if the container is used with hand lotion, it is pressed against the surface of the skin and may then be rubbed along the surface until the desired quantity of hand lotion, or other fluid, has been dispensed therefrom. Where the container body is made of a yielding resilient material such as a polyethyiene plastic, the container body may be compressed slightly in the manner shown in Fig. 5 to aid or accelerate dispensing of the fluid. This is particularly helpful where the fluid has partially congealed or where the outlet has become obstructed.

Due to the fact that the spring arms **20** of the valve body yield inwardly and towards each other when opened, as shown in Fig. 5, the passageway and aperture will not be obstructed, in any manner, by the spring arms. My improved dispensing container may be used as a comcercial package and presents an attractive, ornamental appearance and will preserve the contents against leakage in a very satisfactory manner. It may also be used as a purse or pocket dispenser for cosmetic fluids such as hand lotion or as a storage dispenser to be maintained at one fixed place.

It will thus be seen that I have provided an improved dispensing type of container of simplified design, which can be readily filled and refilled, which is substantially leak-proof and which can be used for dispensing fluids including viscous types of fluids such as hand lotion. The dispensing container also has an improved dispensing valve of simplified unitary construction having a self-contained spring for normally holding the valve in closed position but which does not obstruct the flow of the fluid to be dispensed when the valve is opened.

Modifications may, of course, be made in the illustrated and described embodiment of my invention without departing from the invention as set forth in the accompanying claims.

I claim:

1. A dispensing container for fluids comprising: a body member providing a fluid reservoir having an opening at one end; a cap removably secured over the open end of the body member, said cap being dome-shaped and projecting outwardly and having a dispensing aperture at its outer end; and a dispensing valve assembly of unitary construction and made of an inherently, yielding, resilient material for controlling the dispensing aperture disposed in the cap and having a ring-shaped base disposed between the open end of the body member and the cap and serving as a seal, a plurality of spring arms integrally connected to the inner periphery of the ring-shaped base and curving inwardly towards each other and thence longitudinally of the cap towards the aperture therein and a tapered stud-like valve body integrally connected to the outer ends of the spring arms and having a tip portion projecting outwardly through the aperture in the cap and a peripheral portion seating around the edges of the aperture, said spring arms being spaced from each other and from the inner surface of the cap so as to provide an unobstructed fluid passage from the reservoir to the dispensing aperture and serving to yieldingly support the valve body in seating engagement with the sides of the aperture so that it may be depressed by inward pressure applied to the tip portion of the valve body to open the aperture and said spring arms flexing inwardly towards the fluid reservoir in the body portion and towards each other so as to be stressed in compression when the valve body is depressed.

2. A dispensing container for fluids as set forth in claim 1 in which the body member is made of a yielding resilient material so that it may be compressed to expel fluids therefrom.

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