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VISCOUS FLUID DISPENSER

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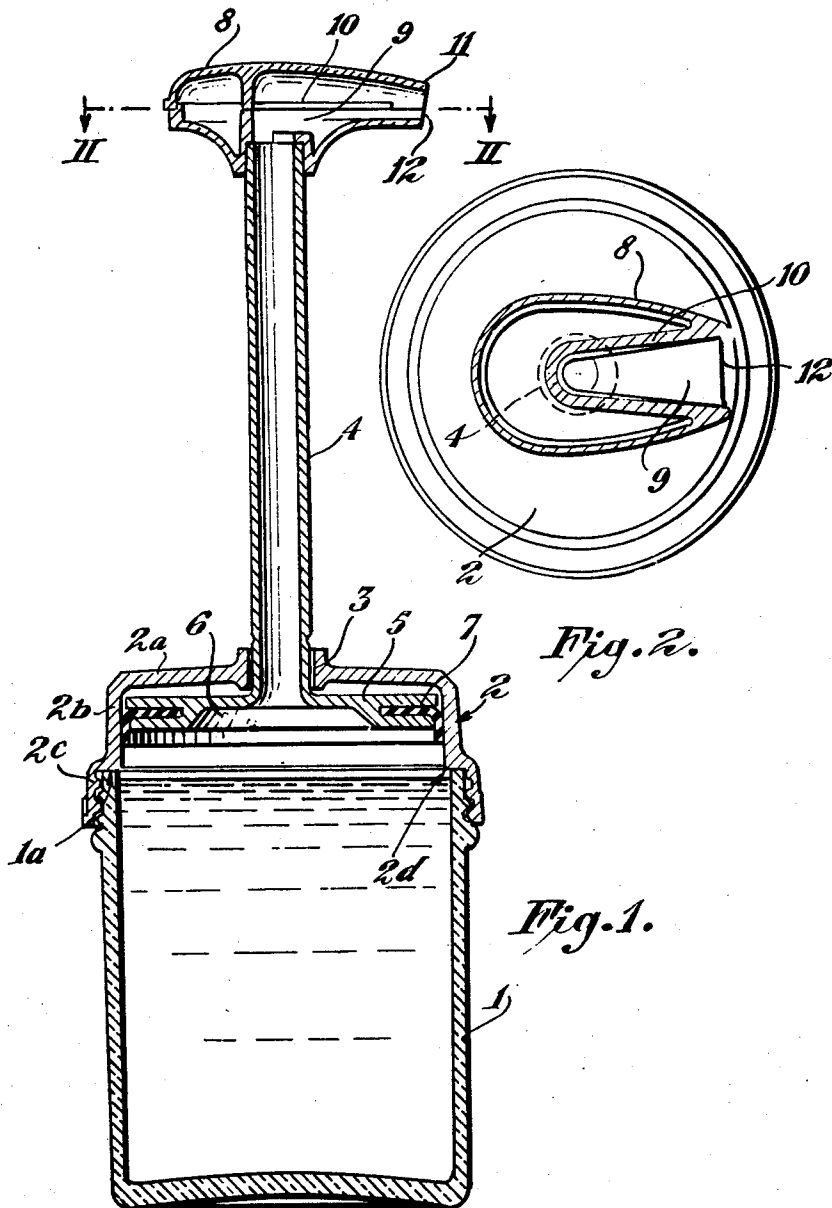


Fig. 2.

Fig. 1.

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VISCOUS FLUID DISPENSER

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1 Claim. (Cl. 222—320)

This invention relates to dispensers for use with toilet preparations and more particularly to dispensers containing creams or other viscous liquids or pastes of the type in which a cylindrical container is provided with a removable cover through which is mounted a hollow plunger rod having a discharge orifice outside the container and carrying a plunger inside the container adapted to be pressed on the contents and force the same up the bore of the plunger rod to the discharge orifice.

The object of this invention is to provide a dispenser of the aforesaid type which is simple to operate with ready control over the quantity and manner of discharge of the contents.

In a preferred construction according to this invention a nozzle is fitted on the top of the plunger rod to communicate with the bore in the latter, said nozzle having an outwardly flared lateral discharge passage. The discharge passage preferably turns through substantially a right angle between its inlet and its outlet.

Preferably the discharge passage outlet is larger in cross-sectional area than the bore of the plunger rod.

The nozzle may be so shaped and disposed as to provide a convenient knob for depressing the plunger rod when operating the dispenser and the plunger preferably has a washer incorporated therearound to provide a fluid tight fit between said plunger and the walls of the container.

A characterizing feature is that the cover on the container is formed and fitted so that it provides a housing for the plunger when the latter is in its uppermost position. The cross-sectional dimensions of this housing are preferably slightly less than those of the container so that when the plunger is retracted in the housing the washer thereon is compressed flat between the periphery of the plunger and the wall of the housing.

A preferred embodiment of the invention will now be described with reference to the accompanying drawing in which:

Figure 1 is a sectional elevation of a dispenser having a filled container; and

Figure 2 is a section taken on the line II—II of Figure 1.

Referring to the drawing the dispenser comprises a cylindrical container 1 open at one end and formed of glass or plastic material and a unitary cup-shaped cover 2 for said open end releasably attached thereto by screw thread means or the like. The cover 2 is open at its lower end and has a wall 2^a at its other end. The side wall of the cover 2 is constituted by a portion 2^b of inside diameter less than the inside diameter of the container 1, and a portion 2^c of inside diameter greater than the inside diameter of the container 1, an uninterrupted annular shoulder 2^d intervening between the insides of the cover side wall portions 2^b and 2^c. When the cover 2 is in place as shown in Figure 1, the shoulder 2^d overlaps and engages the uninterrupted annular surface 1^a at the top of the container 1, an inner part of the shoulder 2^d extending inwardly of the inside of the container.

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The cover 2 is provided with a central boss 3 on its upper surface which boss has a central aperture in which a hollow plunger rod 4 is slidably mounted. The rod 4 is of such length as to extend sufficiently above the cover 2, when in its lowermost position, to leave sufficient clearance between the upper surface of the cover 2 and a discharge nozzle, hereinafter described, to accommodate the hand of a user.

A plunger 5, formed integrally with the rod 4, has a central aperture 6 wider than the bore of the rod. The plunger 5 may conveniently be made of metal, plastic or the like, and is formed with a peripheral slot for the reception of a flat or cup-shaped washer 7. The washer 7 is formed of a pliable material, e.g. natural or synthetic rubber or a plastic and is so constructed that, in operation, it bears evenly and firmly on the side walls of the container.

The nozzle 8 is fitted on top of the plunger rod 4 and it is formed with a discharge passage 9 communicating with the bore of the plunger rod 4 and lying substantially at right angles thereto. The nozzle 8 comprises two hollow moulded pieces of metal or plastic material so formed with an internal wall 10 that when the two pieces are secured together said wall 10 together with the upper and lower walls of the nozzle defines the discharge passage 9. The exterior surfaces of said pieces provide a knob of truncated pear shape with a slightly rounded top.

The discharge passage 9 is generally rectangular in vertical cross-section and tapers horizontally from its outlet to its inlet which is in communication with the bore of the plunger rod 4. The outlet, which has a greater cross-sectional area than the inlet i.e. the bore of the plunger rod, opens through the truncated end of the knob, which end is cut on a slat when seen in side elevation to provide the outlet with an upper lip 11 overhanging a lower lip 12.

It will be seen that the cover 2 provides a housing for the plunger when the latter is retracted or drawn into its uppermost position, and that the diameter of this housing is slightly less than the diameter of the container 1. Accordingly when the plunger is in the housing, the washer 7 is compressed flat between the periphery of the plunger and the wall of the housing.

There will now be described the operation of the dispenser when it has been charged, i.e. the container 1 is filled with a cream, and the plunger rod 4 is fully retracted. When a small amount of the cream is required a light pressure is applied by the user on the knob comprising the nozzle 8. This pressure moves the plunger rod 4 and plunger 5 down into the container 1 and causes the cream to be forced up the bore of the plunger rod 4 into the discharge passage 9 of the nozzle 8 from the outlet of which discharge passage 9 the cream is extruded, normally on to a hand of the user placed adjacent to the outlet. By shaping the discharge passage 9 in the manner hereinbefore described, the velocity of the cream preparation forced from the bore of the hollow plunger rod 4 into the discharge passage 9 is reduced therein, thereby ensuring that the preparation is discharged in an even and easily regulated flow.

When the container 1 has been emptied the plunger 5 is withdrawn into the housing provided by the cover 2 with the washer 7 pressed against the side of the plunger 5. The container 1 may then be replaced by a full container merely by unscrewing the cover together with the plunger and plunger rod, from the emptied container and screwing it on to a new filled container. As the washer is held compressed within the cover 2 at a diameter less than that of the container 1 when the plunger is depressed to discharge the contents from the filled container the washer 7 will enter the said container 1 without

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difficulty and then due to its resiliency it will spring out to bear against the walls of the container.

For package and transportation of a filled dispenser when this is in the position with the plunger in its uppermost position, a sealing disc may be provided between the container 1 and the cover 2 to prevent accidental displacement of the plunger into the container. Alternatively a guard in the nature of a sleeve formed of a cardboard blank with a tongue and slot fastening device surrounding the plunger rod projecting from the cover of the container may be provided to serve the same purpose as the sealing disc.

What is claimed is:

A viscous fluid dispenser comprising a cylindrical container open at one end and at said one end presenting an uninterrupted annular surface; a removable unitary cup-shaped cover having one open end, an end wall and a side wall constituted by a first side wall portion of inside diameter less than the inside diameter of said container and a second side wall portion of inside diameter greater than the inside diameter of said container, an uninterrupted annular shoulder intervening between the insides of said cover side wall portions axially interme-

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diate the ends of said cover and overlapping and engaging said container annular surface, an inner part of said shoulder extending inwardly of the inside of said container where said shoulder engages said annular surface; a hollow plunger rod mounted to slide axially through said cover; a manually operable knob at the end of said plunger rod outside said container and having a discharge passage communicating with the interior of said plunger rod; a plunger mounted on said plunger rod within said container and having a diameter less than the inside diameter of said first cover side wall portion; and a resilient washer mounted on said plunger and turned over to form a skirt extending toward the container closed end and away from said cover end wall, said washer skirt being drawable into said cover first side wall portion upon movement of said plunger thereinto.

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