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C. R. TAYLOR
DISPENSING DEVICE
Filed June 10, 1959

3,002,660

Fig. 1

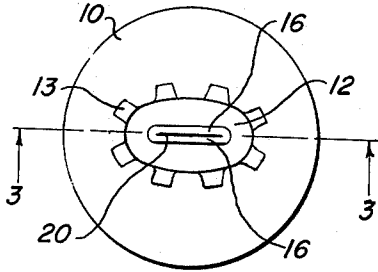


Fig. 2

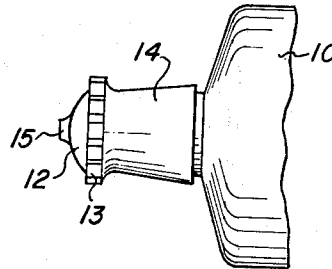


Fig. 3

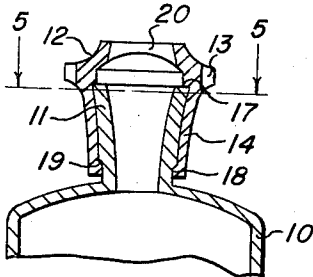


Fig. 4

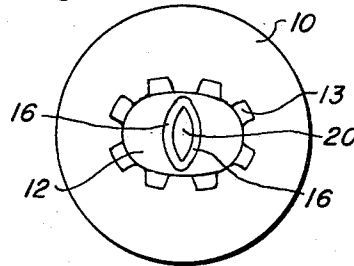


Fig. 5

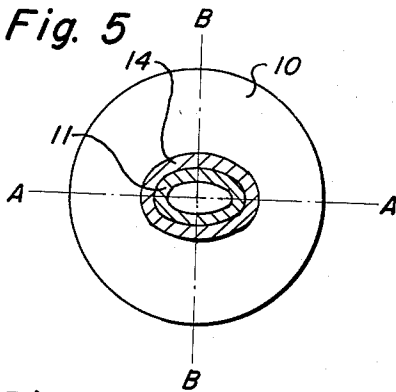


Fig. 7

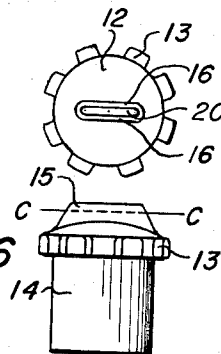


Fig. 6

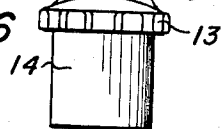
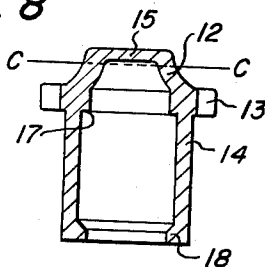


Fig. 8



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3,002,660

DISPENSING DEVICE

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2 Claims. (Cl. 222-490)

This invention relates generally to dispensers, and more specifically to an improved dispensing device having a co-operable container spout and cap in which the cap is adapted to be selectively movable between an open position for dispensing the contents of the container, and a closed position for preventing the contents of the container from escaping therefrom.

Dispensing devices for dispensing various liquids, or viscous solutions such as glue, and comminuted materials such as sugar, salt, pepper and the like, are well known in the art. Most of the dispensing devices of the type having slitted resilient diaphragms or nipples rely upon the application of an external force such as squeezing the nipple between the fingers or pressing the nipple against a flat object to force the sides of the slit apart to dispense the contents therefrom. One of the disadvantages of this type of dispensing device is that the contents of the container often get onto the operator's fingers, and when the contents are liquids or viscous solutions, this can result in discomfiture and annoyance to the operator. Furthermore, in this type of device, the slit in the diaphragm is closed by the natural elasticity of the nipple which is often insufficient to tightly seal the slit. Furthermore, the nipple gradually loses its elasticity with time and use thereby increasing the difficulty of properly sealing the slit. Applicant's improved dispensing device is believed to obviate these and other disadvantages of prior known dispensing devices.

The primary object of this invention is to provide an improved dispensing device having a co-operable container spout and cap in which the cap is rotatably mounted on the open spout of the container and selectively movable on said spout between an open position for dispensing the contents of the container, and a closed position for preventing the contents of the container from escaping therefrom.

Another object of the invention is to provide an improved cap for a container which is inert to most materials or liquids which the container might hold.

A further object of this invention is to provide an improved cap for a dispensing device adapted to be selectively movable thereon between open and closed positions with a minimum of effort.

A still further object of the invention is the provision of an improved dispensing device that is of simple design and construction, thoroughly reliable and efficient in operation, and economical to manufacture.

Another object of the invention is to provide an improved dispensing device having outlet means that are progressively moved from a tightly closed position to a wide open position for adjustably controlling the size of the outlet means.

An additional object of this invention is to provide an improved dispensing device having a slitted flexible cap which does not rely on the natural elasticity of the cap to provide the sealing pressure for the slit.

Another object of the invention is the provision of an improved dispensing device having a co-operable non-cylindrical spout and slitted cap in which the spout stretches the cap and is adapted to forcibly selectively open and close the slit when the cap is manually turned on the spout.

With the foregoing and other objects in view, this invention comprises certain novel constructions, combina-

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tions, and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

FIG. 1 is a top plan view of a preferred embodiment of the dispensing device of this invention with the cap thereof in a "closed" position;

FIG. 2 is a segmental right side elevation view of the dispensing device;

FIG. 3 is a segmental section view taken substantially on line 3-3 of FIG. 1 and looking in the direction of the arrows;

FIG. 4 is a view similar to FIG. 1 with the cap thereof rotated through an angle of about 90 degrees into the "open" position;

FIG. 5 is a section view substantially taken on line 5-5 of FIG. 3 and looking in the direction of the arrows;

FIG. 6 is a front side elevation view of the cap of the dispensing device as it is formed from a mold without a slit therethrough, and a dotted line C-C is indicated substantially along which the operator cuts the cap to form a slit;

FIG. 7 is a top plan view of the cap of FIG. 6 after the top has been cut off along the dotted line; and

FIG. 8 is a vertical central section view of the cap of FIG. 6.

As shown in the drawing, a preferred embodiment of the dispensing device of this invention is disclosed comprising a cylindrical container 10 constructed from any suitable rigid material such as metal, glass or a hard plastic. The container 10 has an integrally formed spout 11 which as seen in FIG. 3 flares outwardly and has a substantially oval-shaped cross section as best seen in FIG. 5. The outer dimension of spout 11 taken along its major axis A-A is greater than the outer dimension of spout 11 taken along its minor axis B-B for a purpose to be explained hereinafter. A substantially cylindrical cap 12 as best seen in FIGS. 6 and 7 is rotatably mounted on spout 11, as best seen in FIG. 3 and is constructed or molded of a flexible material such as Teflon or any other suitable plastic which is inert to most materials held by container 10, and further has a low coefficient of friction with respect to spout 11 so that it may be readily turned thereon. To facilitate turning or rotating cap 12 on spout 11, cap 12 is provided with peripheral radially extending and angularly spaced apart ridges 13 adjacent one end of its cylindrical skirt 14 as seen in FIG. 6 by which cap 12 may be manually gripped by the operator. Although ridges 13 are adjacent one end, they may be disposed anywhere along skirt 14. The top of cap 12 is molded as shown in FIGS. 6 and 8 with a closed projection 15 so that when it is initially mounted on a container spout 11 it forms a complete seal. When the operator desires to use the contents of container 11, cap 12 is rotated until projection 15 is in register with axis A-A, and then projection 15 is cut off substantially along the dotted line shown in FIGS. 6 and 8 to form a pair of tightly closed lips 16 as seen in FIG. 1. In the normal position of cap 12 as seen in FIG. 8, lips 16 are spaced slightly apart to form a slit 20. The operator can then turn cap 12 on spout 11 in either direction to progressively open lips 16 until cap 12 is turned through 90° into its maximum open position as seen in FIG. 4. The skirt 14 is adapted to be slid over spout 11 and is sufficiently tight thereon to prevent the contents of container 10 from leaking between skirt 14 and spout 11 while still permitting easy turning of cap 12 on spout 11. The skirt 14 further has an annular shoulder 17 co-operating with the top of spout 11 to provide a stop so that cap 12 cannot be urged down-

wardly any further as seen in FIG. 3. This stop prevents the top of spout 11 from interfering with the opening and closing of lips 16. Skirt 14 is further provided at its lower end with an annular rib 18 adapted to snap over an annular shoulder 19 formed by spout 11 for releasably securing cap 12 to spout 11.

In the operation of this invention, cap 12 as it is initially molded as seen in FIG. 6 is slid over spout 11 until the top of spout 11 engages shoulder 17 and rib 18 snaps over shoulder 19 releasably securing cap 12 to container 10 in an operative position. The operator may then grasp cap 12 by ridges 13 and turn cap 12 on spout 11 into the closed position as seen in FIGS. 1 and 3 and then cut off a portion of projection 15 substantially along the dotted line seen in FIGS. 6 and 8 to form the slit 20. In this position, the larger dimension of spout 11 stretches cap 12 along axis A—A causing lips 16 formed by projection 15 which are in register therewith to be pulled together forcibly closing slit 20 and preventing the contents of container 10 from escaping therefrom. Should the operator desire to release the contents of container 10, he merely has to turn cap 12 on spout 11 approximately 90° from the closed position into the open position as seen in FIG. 4. In this position, the larger dimension of spout 11 stretches cap 12 along axis A—A causing lips 16 which are transverse thereto to be forcibly pulled apart in position to release the contents of container 10 when it is inverted. The cap 12 is in its maximum open position in FIG. 4, and by varying the amount cap 12 is turned from the closed position, the operator is able to adjustably vary the size of the slit opening 20 between the closed and wide open positions thereby functioning as a valve to selectively control the rate of speed at which the contents of container 10 are dispelled.

While I have described the preferred embodiment of the invention and illustrated the same on the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same, and I, therefore, reserve the right to make such altera-

tions or changes as shall fairly fall within the scope of the appended claims.

I claim:

1. In a dispensing device, the combination comprising: a container having a substantially rigid spout connected at one end to said container and its opposite end free, said spout having an elliptical cross-section at its opposite end which has a major axis and a minor axis and its outer dimension along its major axis is greater than its outer dimension along its minor axis, said spout further having an annular shoulder adjacent its one end; a substantially cup-shaped flexible cap having a substantially cylindrical flexible skirt tightly encircling said spout and rotatably mounted thereon, said skirt having an inner annular rib at one end engageable with said annular shoulder for holding said cap on said spout, and the opposite end of said skirt merges into a cover having a slit therethrough, said cover having an inner annular abutment adapted to engage said opposite end of said spout to prevent further depression of said cap on said spout, said cover further defining a cavity in connection with said slit and disposed above a plane including said annular shoulder and said opposite end of said spout; and manually operable means formed by said cap to facilitate rotation of said cap on said spout between a first position in which said slit is closed and a second position in which said slit is opened.

2. The invention according to claim 1 wherein said spout flares outwardly from its one end to its opposite end.

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