

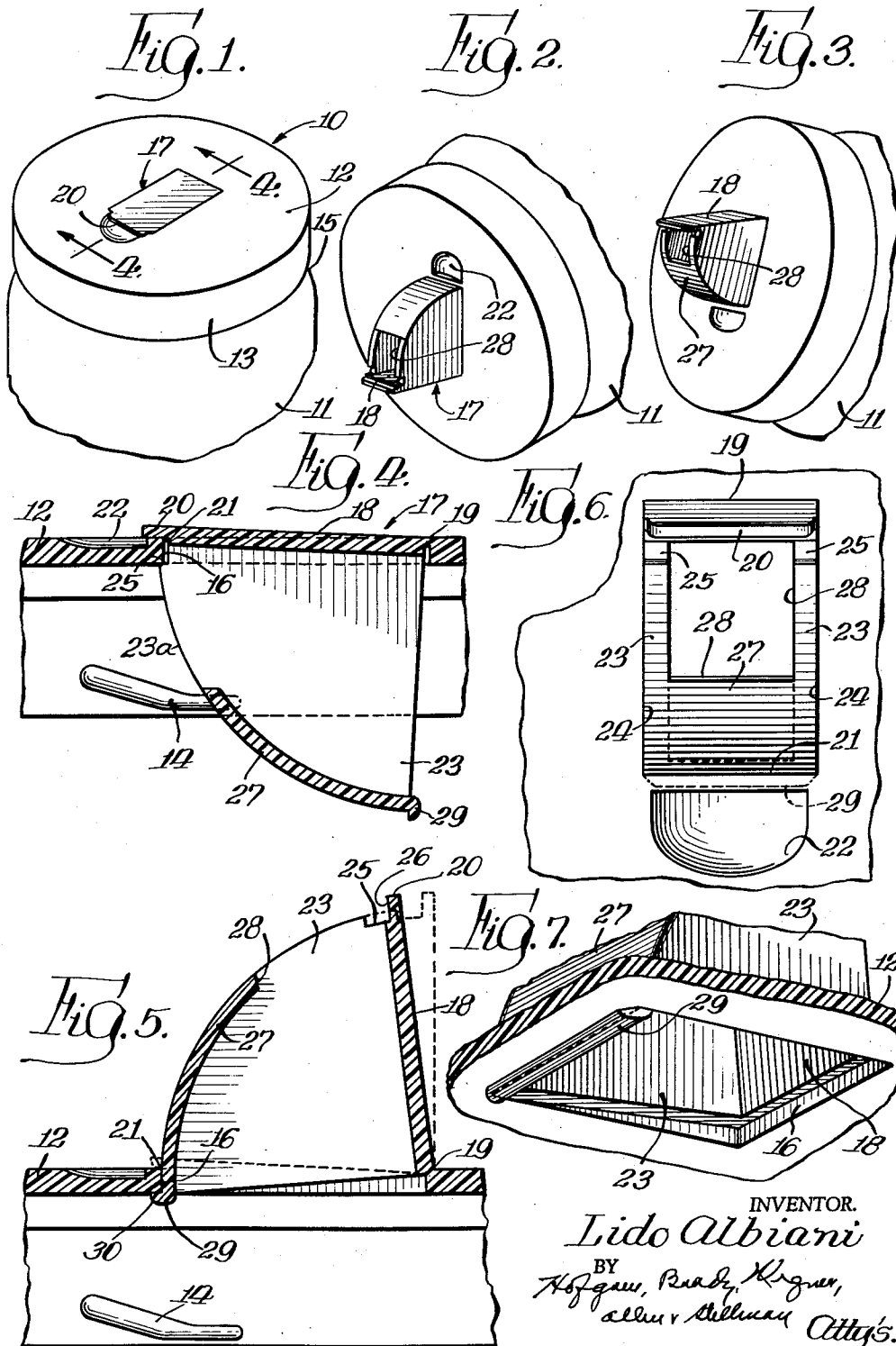
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DISPENSING CLOSURE

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DISPENSING CLOSURE

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This invention relates to a dispensing closure of the type adapted to dispense discrete quantities of material from a storage receptacle.

The principal object of the invention is to provide a new and improved dispensing closure having a simple and economical construction.

Another object of the invention is to provide such a dispensing closure having new and improved closure member means formed continuously with a wall member.

Still another object is to provide such a dispensing closure having new and improved guide element means for retaining the closure member releasably alternatively in the opened and closed positions and functioning to guide the material to be dispensed during the dispensing operation.

Yet another object is to provide such a dispensing closure having new and improved means for limiting the movement of the closure member at the extremes of its desired movement.

Still another object is to provide such a dispensing closure having new and improved means for facilitating the manipulation of the closure member from the closed position.

Yet another object is to provide such a dispensing closure having new and improved means for releasably securing the closure member in the closed position.

Other features and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing, wherein:

FIG. 1 is an isometric view of a dispensing closure embodying the invention, mounted on a portion of a container;

FIG. 2 is an isometric view thereof with the closure means in an opened position;

FIG. 3 is an isometric view thereof with the closure means in an opened position and arranged for a modified manner of dispensing therewith;

FIG. 4 is an enlarged section taken approximately along the line 4—4 of FIG. 1;

FIG. 5 is a view similar to that of FIG. 4 but with the closure means in the opened position, the position of the means during formation thereof being shown in dotted lines;

FIG. 6 is a fragmentary plan view of the dispensing closure with the closure means in the opened position; and

FIG. 7 is a fragmentary isometric view of the dispensing closure with the closure means in the opened position, as viewed from the underside thereof.

In the exemplary embodiment of the invention as disclosed in the drawing, a dispensing closure generally designated 10 is removably secured to a suitable container 11 adapted to hold material to be dispensed. The material to be dispensed may be particulate or fluid, dispensing closure 10 being arranged to retain the material within container 11 when desired and, alternatively, provide an improved dispensing thereof from the container when desired.

More specifically, closure 10 comprises a wall member 12 having a depending flange 13 provided with suitable lugs 14 for engaging co-operating means on the container (not shown) to secure the wall member across an open end 15 of the container 11.

The wall member 12 is provided, in its mid-portion, with an opening 16 herein of rectangular cross section.

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A tubular closure means 17 is integrally associated with wall member 12 to define a pouring spout. The closure means comprises a closure member 18 formed continuously with wall member 12 at a hinge portion 19. The closure member is plate-like and generally complementary to opening 16. The end portion 20 of the closure member opposite hinge portion 19 is spaced from hinge portion 19 a distance greater than the spacing of the opposite edge 21 of opening 16 from hinge portion 19, whereby end portion 20 overlies edge 21 when the closure member is in the closed position as seen in FIG. 4. Thus, closing movement of the closure is automatically limited to the desired closed position. To facilitate manipulation of the closure member to move it from the closed position of FIG. 4 to the open position of FIG. 5, a fingernail-receiving recess 22 is provided in the upper surface of wall member 12 adjacent edge portion 21 and extending to under end 20 of the closure member when the closure member is in the closed position.

Closure means 17 further includes a pair of guide elements 23 extending from closure member 18 to a circular outer edge 23a concentric of hinge portion 19 and having a radius substantially equal to the spacing of edge 21 of the opening 16 from hinge portion 19. More specifically, as best seen in FIGS. 4 and 5, guide elements 23 comprise 90° wall segments. The guide elements preferably are spaced sufficiently apart to engage frictionally the lateral edges 24 of the opening 16. Thus, the guide elements serve to retain the closure means releasably alternatively in the closed position of FIG. 4 and the open position of FIG. 5. To provide an additional retention of the closure means in the closed position of FIG. 4, the guide elements are provided with a notch 25 adjacent end portion 20 of the closure member for releasably receiving the edge 21 of the wall member 12 when the closure member is in the closed position. As best seen in FIG. 5, end portion 20 of the closure member may be undercut at 26 whereby the closure member is disposed in a more nearly flush arrangement relative to the wall member 12 when in the closed position.

Closure means 17 further includes a wall element 27 extending between the guide elements 23 and spaced from the closure member 18 to define with the guide elements and closure member 18 an opening 28. Wall member 27 is segmentally cylindrical concentrically of hinge portion 19 and has an outer diameter substantially equal to the spacing of edge 21 from hinge portion 19, whereby the wall element 27 is juxtaposed to edge 21 of wall member 12 when the closure means is in the open position of FIG. 5. Thus, material passed through opening 16 is constrained to flow through the tubular closure means 17 outwardly through opening 28 thereof, whereby the closure means 17 functions as a control spout. The wall element 27 is enlarged at its inner end 29 to define a stop element extending substantially between the guide elements 23 to abut the inner surface 30 of wall member 12 at edge 21. Thus, the outward pivotal movement of closure means 17 is limited to the fully opened position of FIG. 5 by stop element 29. Each of the guide elements 23 and wall element 27 slides against the adjacent edge of the opening 16 when the closure means is pivoted; thus, the outer surfaces of the guide and wall elements are wiped clean during such movement. This is a highly desirable feature where the material being dispensed is a liquid such as syrup.

In the illustrated embodiment, dispensing closure 10 comprises an integral plastic molding wherein the closure member 18 is molded continuously at hinge portion 19 with wall member 12. Similarly, guide elements 23 are molded integrally with closure member 18 and the wall element 27 is integral with the guide elements. The posi-

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tion in which the closure means 17 is arranged during the molding operation is shown in dotted lines in FIG. 5. Upon completion of the formation of the dispensing closure, the closure means 17 is urged inwardly through opening 16 until stop element 29 is received inwardly of the wall member 12. Thus, the closure means 17 remains under a slight bias at all times tending to urge the closure means to the open position of FIG. 5. However, the frictional engagement of the guide elements with the edges 24 of the wall member opening 16 is preferably sufficient to overcome this bias and retain the closure means in a desired position, and the reception of edge 21 in notch 25 substantially positively retains the closure means releasably in the closed position against this bias.

As best seen in FIGS. 2 and 3, the dispensing of the material from container 11 may be effected alternatively with closure member 18 lowermost, as in FIG. 2, or uppermost, as in FIG. 3. It has been found that the arrangement of FIG. 3 is more satisfactory for the dispensing of liquids from container 11 as the wall element 27 may be wiped off against the upper edge (not shown) of the receptacle into which the material is being dispensed. Upon completion of the dispensing operation, the closure means is merely pivotally urged to the closed position of FIGS. 1 and 4. Reopening of the closure means is effected simply by the insertion of the user's fingernail under the end portion 20 of the closure member, as discussed above, permitting the ready manipulation of the closure means about hinge portion 19 to the open position of FIG. 5.

While I have shown and described one embodiment of the invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A dispensing closure comprising: a wall member having an opening therethrough; a generally tubular closure member for selectively closing said opening, said closure member including a flat outer wall having an attaching end and a distal end, a pair of spaced side walls extending from opposite sides of said outer wall, each side wall defining a 90° circular sector having an outer arcuate edge concentric of the attaching end of the closure wall, a segmentally cylindrical inner wall extending between said arcuate edges of the side walls and having a first end spaced from the distal end of the closure wall to define therebetween a restricted pouring opening and an opposite end disposed approximately 90° from said distal end of the closure wall to define between said opposite end and the attaching end of said outer wall a large admittance opening for delivery of material to be dispensed to within the tubular closure; and a hinge connecting said attaching portion of the outer wall to the wall member at one end of the wall member opening and yieldingly positioning the tubular closure member with the closure wall extending outwardly for the wall member to space the pouring opening outwardly from the wall member opening with its transverse extent generally parallel thereto, and dispose the admittance opening generally coincident with the wall member opening.

2. A dispensing closure comprising: a wall member having an opening therethrough; a generally tubular closure member for selectively closing said opening, said closure

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member including a flat outer wall having an attaching end and a distal end, a pair of spaced side walls extending from opposite sides of said outer wall, each side wall defining an outer edge spaced from the closure wall, an inner wall extending between said edges of the side walls and having a first end spaced adjacent the distal end of the closure wall to define therebetween a pouring opening and an opposite end to define with the attaching end of said outer wall an admittance opening for delivery of material to be dispensed to within the tubular closure; and a hinge connecting said attaching portion of the outer wall to the wall member at one end of the wall member opening and yieldingly positioning the tubular closure member with the closure wall extending outwardly from the wall member to space the pouring opening outwardly from the wall member opening with its transverse extent generally parallel thereto, and dispose the admittance opening generally coincident with the wall member opening.

3. The dispensing closure of claim 2 wherein the hinge comprises an integral connection of the wall member and outer wall of the tubular closure member.

4. The dispensing closure of claim 2 wherein said side walls are provided with a notch adjacent said outer wall releasably receiving the adjacent portion of the wall member defining said opening therethrough, for releasably latching the closure member against the bias of the hinge with the outer wall closing said wall member opening.

5. The dispensing closure of claim 2 wherein the wall member is provided with a recess spaced adjacent the end of the wall member opening opposite said one end thereof, and the distal end of the outer wall of the closure member overlies the recess when the closure member is arranged with the outer wall extending across the wall member opening to permit insertion of a portion of the user's finger into the recess and under said distal end.

6. A dispensing closure comprising: a wall member having an opening therethrough; and a generally tubular closure member having an inlet at an inner end and an outlet at the opposite outer end and formed continuously with said wall member at a hinge portion adjacent the inlet, said hinge portion biasing the closure member to an open position wherein the closure member extends outwardly from the wall member to space the outlet substantially from the wall member and permit passage of a material to be dispensed continuously through said inlet and outlet, said closure member being movable against the biasing of said hinge portion to a closed position wherein the closure member extends fully across the opening with both the inlet and the outlet inwardly of the wall member to preclude passage of the material through said opening.

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