

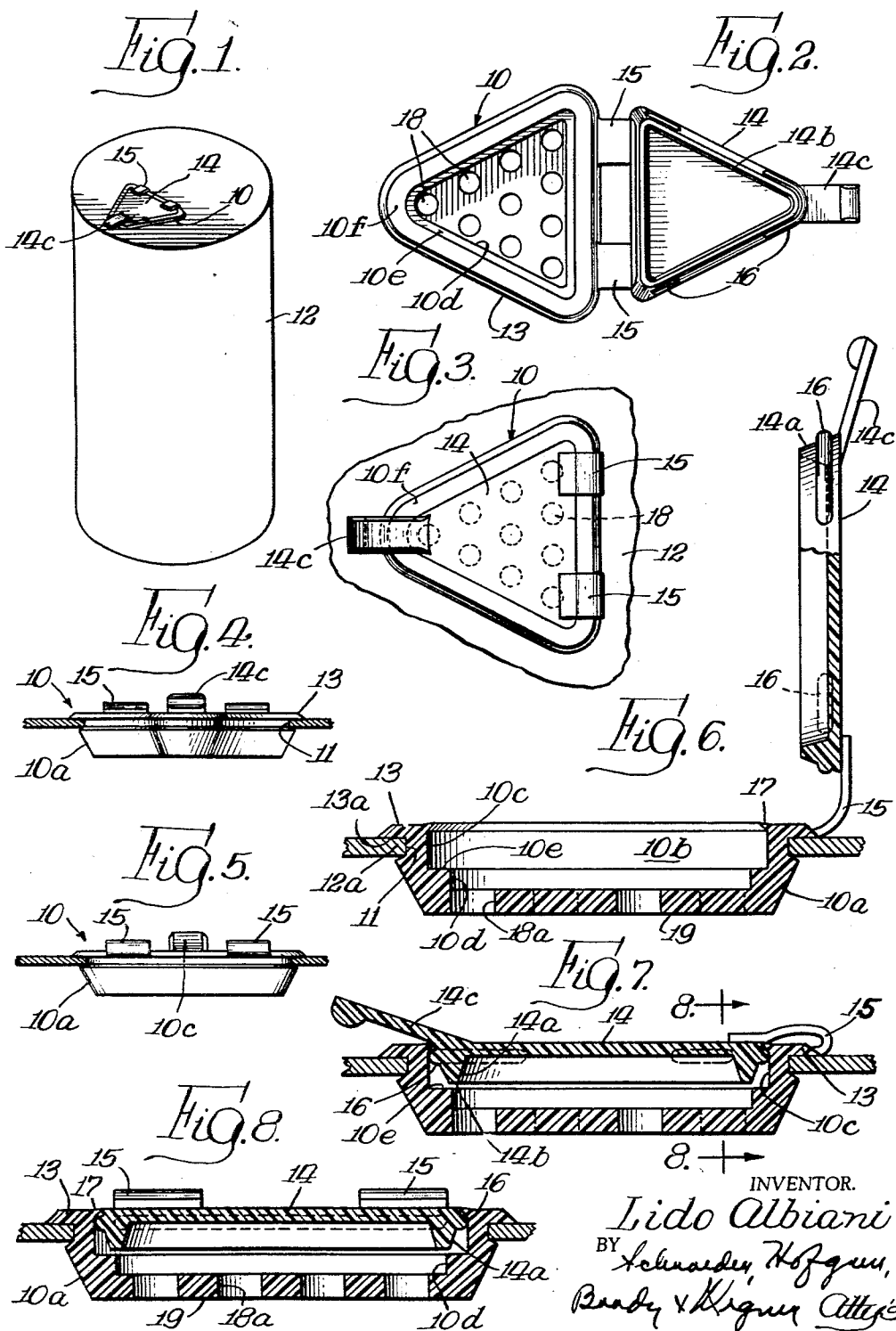
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DISPENSING CLOSURE

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DISPENSING CLOSURE

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8 Claims. (Cl. 222—480)

This invention relates to a dispensing closure, and in particular to a closure for use in dispensing particulate material from a container.

The invention herein disclosed and claimed constitutes an improvement over the dispensing closure of my co-pending application, Serial No. 557,739, filed January 6, 1956, now Patent No. 2,826,343.

The principal object of this invention is to provide a new and improved dispensing closure.

Another object is to provide such a dispensing closure having a body insertable through the wall of a container, with an outer end extending just slightly outwardly of the container wall and a lid associated with the body to be flush with the outer end thereof in the closed position.

A further object is to provide such a dispensing closure wherein the outer end forms a continuous flange having a continuous engagement with the container and a lid is associated with the body to have continuous engagement with the outer end when the lid is in the closed position, thereby to permit sealed closing of the container opening.

Still another object of the invention is to provide such a dispensing closure having new and improved means for retaining the lid in the closed position.

A yet further object is to provide such a dispensing closure having a polyangular shape providing an improved spout action during the dispensing of the material from the container.

Yet another object is to provide such a polyangular dispensing closure having a new and improved distributed opening structure for improved pouring action and effecting a substantially complete return of all particulate material tending to collect on the closure subsequent to a dispensing operation.

A yet further object is to provide such a dispensing closure with new and improved means for connecting the lid to the body, said means being arranged for automatic alignment of the lid with the body in a closing operation.

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

Fig. 1 is an isometric view of a dispensing closure embodying the invention, installed on a container;

Fig. 2 is an enlarged top plan view of the closure of Fig. 1 with the lid thereof swung 180 degrees from the closed position;

Fig. 3 is a top plan view similar to that of Fig. 2 but with the lid in the closed position and with the closure shown installed on a portion of the container;

Fig. 4 is a front elevational view thereof;

Fig. 5 is a rear elevational view thereof;

Fig. 6 is a more greatly enlarged vertical section thereof with the lid in the normal open position;

Fig. 7 is a vertical section similar to that of Fig. 6 but with the lid in the closed position; and

Fig. 8 is a section taken approximately along the line 8—8 of Fig. 7.

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In the exemplary embodiment of the invention disclosed in the drawings, a dispensing closure is shown to comprise a body member 10 arranged to extend through an opening 11 provided in a container 12 adapted to hold a quantity of material to be dispensed, such as salt. The body member is generally flat or wafer-like and is provided with an outer end 13 which extends just slightly outwardly of the surface of that portion of the wall of container 12 defining the periphery of opening 11. Associated with body member 10 is a lid member 14 alternatively receiveable within the body member to effect a closure thereof, and extendable outwardly of the body member to permit a dispensing operating therethrough. In the instant invention, the lid member is arranged to be flush across the outer end 13 when it is in the closed position and improved means are provided for hingedly connecting the lid member to the body member to permit this disposition and to maintain the lid member in an out of the way position during a dispensing operation. In the illustrated embodiment this connecting means comprises a pair of hinges 15 which additionally serve as a means for aligning the lid with the body member during a closing operation. Hinges 15 preferably extend from outer end 13 thereby allowing the outer end to have a continuous peripheral engagement with the body member around opening 11.

Coacting means are provided on the lid and body member to retain the lid removably flush across the outer end of the body member in the closed position. A more detailed description thereof will be made herefollowing, it being sufficient for a general understanding of the invention at this point to note that these means include rib elements 16 on the lid member and bead means 17 on the body member. The instant invention further comprehends the provision of a body member having an internal polyangular cross-section providing an improved spout action during the dispensing of the particulate material. Further, a novel distribution of foramina 18 in a transverse inner wall 19 extending across the body member aids in this improved spout action and provides an improved action in returning any particulate material which may have remained temporarily on the body member subsequent to a dispensing operation.

A general description of the illustrated embodiment of the invention having been presented above, a more specific description of the elements thereof is made herefollowing. As best seen in Figs. 2 to 6, body member 10 comprises a member having a laterally outwardly enlarged outer end 13 provided with a peripheral, outwardly opening groove 13a arranged to receive the inner peripheral edge 12a of the container wall portion defining opening 11. To assist in the installation of the body member, the laterally outer surface 10a of the inner end of the body member may be beveled inwardly to spring the container wall slightly during insertion and allow it to snap into the groove 13a. As best seen in Fig. 2, outer end 13 extends continuously to have an unbroken sealing engagement with the container wall, thereby precluding the passage of undesirable materials, such as water vapor, into the container, and precluding undesirable leaking of particulate material from the container outwardly.

Extending through the body member, from end to end thereof, is a stepped passage or bore 10b having an outer portion 10c, a relatively narrower inner portion 10d, and a transversely extending, peripheral shoulder 10e therebetween. It is preferred that passage outer portion 10c have a polyangular cross section, herein disclosed as triangular. Bead means 17 extends marginally around the outer end of passage outer portion 10c, and wall 19 extends transversely across the inner end of inner passage portion 10d. Foramina 18 are generally uniformly dis-

tributed throughout wall 19, with a number thereof closely juxtaposed to the wall of the body member defining inner passage portion 10d. One foramen 18a, at the apex 10f of the body member, is arranged to have its laterally outward portion coincident with the inner wall of body inner portion 10d (as best seen in Fig. 6). Thus arranged, the body member serves as a means for conducting the particulate material from container 12 during a dispensing operation. The foraminous wall 19 serves as a means for controlling the flow to provide an improved spout-like action wherein the flow is directed generally over the apex 10f.

Lid member 14 comprises a flat closure element having a peripheral configuration generally complementary to the polyangular configuration of passage outer portion 10a of the body member. A depending peripheral flange 14a extends completely around the margin of the lid member to be received within passage portion 10c when the lid is in the closed position of Fig. 7. The longitudinal extent of flange 14a may be such that the inner tip 14b thereof will be spaced slightly from shoulder 10e when the lid member is disposed flush across the outer end of the body member. Rib means 16, which may comprise discontinuous, separated elements as seen in Fig. 2, are spaced longitudinally inwardly from the outer surface of the lid member to be received in outer passage portion 10c below the bead 17 and to extend transversely outwardly of the bead means into contact with the body wall defining passage portion 10c. Thus, when the lid member is disposed in the closed position of Fig. 7, the rib elements coact with bead means 17 to lock releasably the lid in the closed position.

To limit the inward movement of the lid member through passage outer portion 10c, flange end 14b is disposed to abut shoulder 10e of the body member when the lid member is moved just slightly inwardly of the flush position. Thus, rib elements 16 coacting with bead means 17, and flange end 14b coacting with shoulder 10e mutually coact to permit a limited movement of the lid member longitudinally within passage portion 10c.

Hinge means 15 extends from outer end 13 of the body member to dispose the lid member in a position generally normal to the transverse extent of body member 10 when the lid is in the open position (as seen in Fig. 6). Thus, during a dispensing operation, the lid member is automatically maintained out of the path of flow of the material being dispensed. Preferably, hinge means 15 comprises two such hinges, which hinges are spaced substantially apart to provide improved alignment of the lid member with the passage outer portion 10c to permit a simple, substantially fool-proof closure operation. As best seen in Figs. 6 and 7, hinges 15 are secured to the outer surface of the lid member, precluding any interference with the flush positioning of the lid member relative to outer end 13, in the closed position thereof.

To assist in moving the lid member from the closed position, a tab 14c is extended from the outer surface of the lid member adjacent its apex to overlie apex 10f of the body member when the lid member is in the closed position. As the outer surface of the lid member is flush with outer end 13, the disposition of tab 14c may be parallel to the surface of container 10 as desired. To minimize the projection of the tab from this surface, only sufficient space may be allowed at the outer end of the tab, between the tab and the container surface, to allow the ready insertion of the fingers thereunder for manipulation of the lid member.

While the dispensing closure device of the present invention may be formed of any suitable material, because of the simple, integrated structure it may be formed advantageously by such mass production means as plastic moulding. It is preferred that the material have some resilient characteristics to provide the proper functioning of hinges 15 and to allow the snapping of the lid

member into the passage portion 10c past the bead means 17.

It is believed that the operation of the device is substantially self-evident from the above structural description. The closure is mounted on the container by inserting the inner end of the body member through a suitable opening 10 provided in the container wall, until the surrounding container wall portion snaps into place in groove 13a of the body member. Assuming lid member 14 to be disposed in the open position of Fig. 6 extending outwardly from the container wall, to close the device, the lid member is hingedly swung on hinges 15 until it is received in passage outer portion 10c, ribs 16 snapping past bead 17. The lid member is then releasably locked between bead 17 and shoulder 10e of the body member and extends completely across the passage to effect a sealing closure thereof.

To dispense particulate material from the container, lid member 14 is swung to the open position of Fig. 6 by manipulation of tab 14c. Container 12 is then disposed to effect the pouring of the material through foraminous wall 19, with apex 10f of the body member disposed generally downwardly during the dispensing operation. Upon completion of the dispensing operation, the container is returned to the upright position wherein the body member extends generally horizontally and any particulate material remaining on the body member tends to fall backwardly into the container through the foraminous wall. This return of particulate material is aided in the disposition of foramen 18a at the apex of the body member as the material would normally tend to collect at this point subsequent to the completion of a dispensing operation and thus, substantially all of the material not actually dispensed will be returned to the container. This maintains the dispensing closure relatively free of such material which would otherwise have a tendency to prevent proper closure thereof. The lid member may then be returned to the closed position of Fig. 7, thereby placing the container in a sealed, closed condition.

While I have shown and described one embodiment of my 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 for use with a container having a wall provided with an opening, said closure comprising a body member fixable in the wall opening and having an outer end and an inner end, means on the body member for securing it to said wall within said opening, said body member having a bore open at said outer end thereof, laterally projecting means on the body member protruding transversely into said bore at said outer end, a perforation-containing wall extending transversely of the bore at the inner end of said body member, and a lid for closing the open outer end of said bore arranged to be received within the bore at said outer end, hinge means connecting said lid to the body member and arranged to urge the lid outwardly from the body member to maintain the body member unobstructed when desired, and said lid further having an outer surface and means projecting outwardly from its periphery below its said outer surface for coaction with said laterally projecting means of the body member to limit releasably the outward urging of the lid by said hinge means and so as to locate said outer surface of the lid in essentially flush relation with the outer end surface of the body member when the lid is in bore closing position.

2. A dispensing closure according to claim 1 wherein said laterally projecting means of the body member comprises an inwardly directed bead about the peripheral edge of its bore at its outer open end and the means projecting outwardly from the periphery on the lid com-

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prise spaced ribs which engage beneath said bead to releasably retain the lid within said open end of the bore.

3. A dispensing closure for use with a container having a wall provided with an opening, said closure comprising a body member insertable through the wall opening and having an outer end and an inner end, means on the body member for sealingly securing it to said wall within said opening, said body member having a bore open at said outer end thereof, a continuous bead on the body member extending about and projecting transversely into said bore at said outer end, a perforation-containing wall extending transversely of the bore at the inner end of said body member, and a lid for closing the open outer end of said bore arranged to be received within the bore at said outer end, said lid having an outer surface, and strap-like hinge means joined to the body member and terminating in a portion overlying and joined to the top surface of the lid, said hinge means being arranged to urge the lid outwardly from the body member to maintain the bore of said body member at its outer end unobstructed when desired, said lid further having spaced rib means projecting outwardly from its periphery below its said outer surface for coaction with said continuous bead to releasably retain the lid within said bore.

4. A dispensing closure for use with a container having a wall provided with an opening, said closure comprising a body member insertable through the wall opening and having an outer end and an inner end, means on the body member for securing it to said wall within said opening, said body member having a polyangular bore open at said outer end thereof, a bead on the body member projecting transversely into said bore at said outer end, and a polyangular lid for closing the open outer end of said bore arranged to be received within the bore at said outer end, spaced hinge means connecting a side of said lid opposite an apex of its polyangular shape to the body member, said hinged means being arranged to urge the lid outwardly from the body member to maintain the body member unobstructed when desired, and said lid further having an outer surface and means projecting outwardly from its periphery below its said outer surface for coaction with said bead to limit releasably the outward urging of the lid by said hinge means and so as to locate said outer surface of the lid in essentially flush relation with the outer end of the body member when the lid is in bore closing position.

5. A dispensing closure for use with a container having a wall provided with an opening, said closure comprising a body member insertable through the wall opening and having an outer end and an inner end, means on the body member for sealingly securing it to said wall within said opening, said body member having a triangular bore open at said outer end thereof, bead means on the body member projecting transversely into said bore at said outer end, a perforation-containing wall extending transversely of the bore at the inner end of said body member, and a triangular shaped lid for closing the open outer end of said bore arranged to be received within the bore at said outer end, hinge means connecting a side of said lid opposite an apex of its triangular shape to the body member said hinge means being adapted

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to urge the lid outwardly from the body member to maintain the body member unobstructed when desired, and said lid further having an outer surface and means projecting outwardly from its periphery below its said outer surface for coaction with said bead means to releasably retain said lid within the bore and its outer surface in essentially flush relation with the outer end of the body member when the lid is in bore closing position, and spacer means about the periphery of said perforation-containing wall to limit the penetration of said lid into the bore when in said bore closing position.

6. A dispensing closure for use with a container having a wall provided with an opening comprising a polyangular tubular member having an open outer end and a perforation-containing wall extending transversely across the member at a distance from said open end, said tubular member having means for fixedly sealingly securing it within said opening in the said wall, a polyangular lid member associated with the tubular member to extend closely across the open end, means hingedly connecting a side of said lid opposite an apex of its polyangular shape to the body member, and means on said lid and tubular members which coact to retain releasably said lid member in a closed relation within the open end of the body member, said lid member further having handle means adjacent said mentioned apex for moving said lid out of closed position.

7. A dispensing closure for use with a container having a wall provided with an opening comprising a triangular tubular body having an open outer end and a perforation-containing wall extending transversely across the body at a distance from said open end, said tubular body having means for fixedly sealingly securing it within said opening in and to said wall, a triangular lid associated with the tubular body to extend closely across the open end thereof, a pair of spaced yieldable links integrally hingedly connecting a side of said lid opposite an apex of its triangular shape to a corresponding side of the body, and said lid and tubular body having portions thereof which coact to retain releasably said lid in a closed relation within the open end of the body, said lid further having handle means adjacent its said mentioned apex for moving said lid out of a closed position, and the apex of said triangular tubular body opposite the side thereof connected to the lid providing a spout by which the contents of a container provided with the closure may be dispensed.

8. A dispensing closure according to claim 7 wherein the perforation-containing wall includes a perforation located in operative relation near said mentioned apex of the tubular body for advantageous pouring action and to permit undischarged material to fall back into the container.

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