ONE-PIECE MULTIORIFICE CLOSURE

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There is another embodiment for a one-piece closure for a dispensing container. The closure has a base and a lid. The base is adapted to be attached to the dispensing container. The base has two or more orifices therein. The two or more orifices of the base each define a different shape. The base has one or more raised portions thereon. The lid is connected to the base via a detachable hinge. The lid has an orifice therein. The lid is rotatably attachable to the base when detached from the base. The orifice of the lid is coextensive and alignable with each of the two or more orifices of the base and the one or more raised portions of the base. The lid is in lockable position with the base when the orifice of the lid is in alignment with one of the raised portions of the base. The closure is in the form of a unitary, integral piece. There is another embodiment for a one-piece closure for a dispensing container.
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BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a closure for a dispensing container. The present invention further relates to a multiorifice closure and dispensing container capable of dispensing product in different cross-section or profile shapes. The present invention still further relates to a multiorifice closure and dispensing container that is molded in one-piece or integral form.

[0003] 2. Description of the Related Art

[0004] Dispensing containers are employed commercially to dispense products for a variety of consumer and industrial applications. Such dispensing containers typically have a head, a body or receptacle, and a closure.

[0005] Multiorifice dispensing containers are sometimes employed so that a product can be dispensed in a desired cross-section or profile shape. Conventional closures for multiorifice dispensing containers are typically made of two primary parts, a base and a lid. The lid is typically positioned on the base and is rotated or dialed to reveal an orifice of desired profile shape through which product is conveyed or squeezed.

[0006] A problem with conventional multiorifice dispensing containers is that separate manufacture of the base and the lid is required. This adds cost and manufacturing complexity.

[0007] It would be desirable to have a dispensing container and closure therefor wherein separate manufacturing of the base and lid for the closure is required. It would be desirable to have a dispensing container and closure therefor wherein the base and lid of the closure are manufactured in one piece.

SUMMARY OF THE INVENTION

[0008] According to the present invention, there is a one-piece closure for a dispensing container. The closure has a base and a lid. The base is adapted to be attached to the dispensing container. The base has two or more orifices therein and therethrough. The two or more orifices of the base each define a different shape. The base has one or more raised portions thereon. The lid is attached to the base via a detachable hinge. The lid has an orifice therein and therethrough. The lid is circular in shape and rotatably attachable to the base when detached from the base. The orifice of the lid is coextensive and alignable with each of the two or more orifices of the base and the one or more raised portions of the base. The lid is in locked position with the base when the orifice of the lid is in alignment with one of the raised portions of the base. The lid has a cover flap integrally connected therewith. The cover flap has a raised portion on the bottom surface thereof. The raised portion of the cover flap is coextensive and aligned with the orifice of the lid. The cover flap is openable and reclosable to cover the orifice in the lid. The closure is in the form of a unitary, integral piece.

DESCRIPTION OF THE FIGURES

[0010] FIG. 1 is an embodiment of a dispensing container according to the present invention, wherein the closure is in detached, two-piece form.

[0011] FIG. 2 is a cross-section of the closure of the container of FIG. 1 taken along line 2-2.

[0012] FIG. 3 is a fragmentary, perspective view of the closure of the container of FIG. 1 wherein the lid is positioned to reveal the circular orifice of the base.

[0013] FIG. 4 is a fragmentary, perspective view of the closure of the container of FIG. 1 wherein the lid is positioned to reveal the star-shaped orifice of the base.

[0014] FIG. 5 is a fragmentary, perspective view of the closure of the container of FIG. 1 wherein the lid is positioned to reveal the cross-shaped orifice of the base.

[0015] FIG. 6 is a fragmentary, perspective view of the closure of the container of FIG. 1 wherein the lid is positioned to reveal the slot-shaped orifice of the base.

[0016] FIG. 7 is a perspective view of the closure of the container of FIG. 1 wherein the closure is in open, one-piece form.

[0017] FIG. 8 is a partial cutaway view of the closure of the container of FIG. 1.

[0018] FIG. 9 is a partial cutaway view of the closure of the container of FIG. 1.

[0019] FIG. 10 is a perspective view of another embodiment of a dispensing container according to the present invention.

[0020] FIG. 11 is a perspective view of the dispensing container of FIG. 10 wherein the cover flap is opened to reveal the orifice.

[0021] FIG. 12 is a perspective view of the closure of the container of FIG. 10 wherein the closure is in one-piece form.

DETAILED DESCRIPTION OF THE INVENTION

[0022] An embodiment of a one-piece closure is shown in FIG. 7 and is generally reference by the numeral 10. FIG. 7 depicts the closure in unitary, integral form in one piece or as a single piece in the form that it is manufactured. Closure 10 has a base 12 and a lid 14.

[0023] Closure 10 is adapted to be connected to a body or receptacle, such as a tube 16, as shown in FIG. 1, to form a dispensing container, which is generally referenced by the numeral 18. Tube 16 may contain a product (not shown).

[0024] Base 12 has orifices 20, 22, 24, and 26 therein and therethrough. Orifices 20, 22, 24, and 26 are distributed
circumferentially around base 12. Orifice 20 takes a conventional circular shape. Orifice 22 takes a star-like shape. Orifice 24 takes a cross-like shape. Orifice 26 takes a slot-like shape. The orifices of various shapes are shown in FIG. 7 in the context of closure 10 and in FIGS. 3 to 6, 8, and 9 in the context of dispensing container 18. Product (not shown) can be squeezed through an orifice to take the indicated shape. Base 12 defines raised portions 28, 30, 32, and 34 between orifices 20, 22, 24, and 26. Raised portions 28, 30, 32, and 34 are distributed circumferentially around base 12.

Lid 14 is connected to base 12 via a detachable hinge 36. Detachable hinge 36 is preferably adapted such that lid 14 can be detached from base 12 by hand/finger manipulation. Lid 14 has an orifice 38 therein and through at the bottom of an indentation 44 in lid 14. Lid 14 is circular in shape. Lid 14 is rotatably detachable to base 12 via post 40 when detached (after detachment) from base 12. Post 40 is inserted into orifice 42 in base 12. After attachment of lid 14 to base 12, orifice 38 of lid 14 is coextensive with and aligns with each of orifices 20, 22, 24, and 26 and raised portions 28, 30, 32, and 34. When orifice 38 of lid 14 is aligned with any of raised portions 28, 30, 32, and 34, lid 14 is in a “locked” position, i.e., a degree of resistance must be overcome to rotate lid 14 to another position. This degree of resistance can be overcome by normal hand/finger manipulation.

Lid 14 has a circumferential plug seal 46 extending from bottom surface 48 of lid 14 toward the periphery thereof outside of orifice 38 of lid 14. Plug seal 46 enters a circumferential indentation 50 extending into base 12 toward the periphery thereof when lid 14 is attached to base 12.

Closure 10 optionally has a peel seal foil liner 52 as shown in FIG. 8. Dispensing container 18 also optionally has a liner 54 made of an oxygen barrier material, such as nylon, also shown in FIG. 8.

Closure 10 is a screw-type closure, although other attachment means, such as a snap bead, are possible. Dispensing container 18 has a neck 56, which defines external threads 58. Dispensing container 18 also has internal threads 60, which intermate with external threads 58.

FIG. 9 shows a lug 62, which resists clockwise rotation when base 12 is screwed onto tube 16. Lug 62 also enhances removal (lowers removal torque) of base 12 during counterclockwise rotation.

Another embodiment of a one-piece closure is shown in FIG. 12 and is generally reference by the numeral 80. FIG. 12 depicts the closure in unitary, integral form in one piece or as a single piece in the form that it is manufactured. Closure 80 has a base 82 and a lid 84.

Closure 80 is adapted to be connected to a body or receptacle, such as a tube 86, as shown in FIG. 10, to form a dispensing container, which is generally referenced by the numeral 88. Tube 86 may contain a product (not shown).

Base 82 has orifices 90, 92, 94, and 96 therein and therethrough. Orifices 90, 92, 94, and 96 are distributed circumferentially around base 82. Orifice 90 takes a conventional circular shape. Orifice 92 takes a star-like shape. Orifice 94 takes a cross-like shape. Orifice 96 takes a slot-like shape. The orifices of various shapes are shown in FIG. 12. Product (not shown) can be squeezed through an orifice to take the indicated shape. Base 82 defines raised portions 98, 100, 102, and 104 between orifices 90, 92, 94, and 96. Raised portions 98, 100, 102, and 104 are distributed circumferentially around base 82.

Lid 84 is connected to base 82 via a detachable hinge 106. Detachable hinge 106 is preferably adapted such that lid 84 can be detached from base 82 by hand/finger manipulation. Lid 84 has an orifice 108 therein and therethrough. Lid 84 is circular in shape. Lid 84 is rotatably attachable to base 82 via a post 110 when detached (after detachment) from base 82 at hinge 106. Detachment at hinge 106 is necessary since lid 84 cannot rotate on base 12 otherwise. Post 110 is inserted into orifice 112 in base 82. After attachment of lid 84 to base 82, orifice 108 of lid 84 is coextensive with and aligns with each of orifices 90, 92, 94, and 96 and raised portions 98, 100, 102, and 104 depending on the positioning of lid 84. When orifice 108 of lid 84 is rotated and aligned with any of raised portions 98, 100, 102, and 104, lid 84 is in a “locked” position, i.e., a degree of resistance must be overcome to rotate lid 84 to another position. This degree of resistance can be overcome by normal hand/finger manipulation.

Lid 84 has a circumferential plug seal 116 extending from bottom surface 118 of lid 84 toward the periphery thereof outside of orifice 108 of lid 84. Plug seal 116 enters a circumferential indentation 120 extending into base 82 toward the periphery thereof when lid 84 is attached to base 82.

Closure 80 is a screw-type closure, although other attachment means, such as a snap bead(s), are possible.

Lid 84 has a cover flap 122 integrally and actuateably connected therewith as shown in FIG. 11. Cover flap 122 has a raised portion 124 on a bottom surface 126 thereof. Raised portion 124 is coextensive and aligned with orifice 108 of lid 84. Cover flap 122 is openable and reclosable to cover orifice 108 in lid 84 as shown in FIG. 10. Closure 80 is in the form of a unitary, integral piece.

The one-piece multiorifice closure of the present invention may be manufactured by any means known in the art, such as by injection molding compression molding or stamping with a plastic material. Injection molding is preferred.

The body or receptacle of the dispensing container may take any form or shape known in the art, such as a bottle or a tube. A preferred body or receptacle is a tube.

Plastic tube dispensing containers may be produced by any method known in the art, such as extrusion or laminating. In extrusion, plastic tubes are extruded continuously, then cut into discrete lengths to form tubular body walls for the inner and outer containers. Heads are then heat welded or adhered to the tube lengths to form dispensing containers. Closures are applied to the heads to form packages. The open ends of packages are typically filled with product to be dispensed and then sealed by heat or mechanical means. A preferred means of sealing may be carried out by overlapping the open ends and following with heat sealing. In laminating, sheets of plastic material are rolled into tubes and sealed along the sheet edges to form continuous tubes. The continuous tubes are cut into discrete tube
lengths and further processed in the same manner as described above for extruded dispensing containers. Heads may be manufactured according to any method known in the art such as injection molding, compression molding or stamping with a plastic material. Injection molding is preferred.

[0040] Dispensing containers may be manufactured from any plastic material known in the art. Representative plastic materials include ethylene polymers, propylene polymers, polyesters, and polyamides. Useful ethylene polymers include low density polyethylene, medium density polyethylene, high density polyethylene and linear low density polyethylene. A useful propylene polymer is polypropylene. Useful polyesters include polyethylene terephthalate. Preferred plastic materials are low density polyethylene and polypropylene. Different parts of the package may be manufactured from the same or different materials. A preferred plastic material for tube body walls is low density polyethylene. Preferred plastic materials for heads and closures are high density polyethylene and polypropylene.

[0041] It should be understood that the foregoing description is only illustrative of the present invention. Various alternatives and modifications can be devised by those skilled in the art without departing from the invention. Accordingly, the present invention is intended to embrace all such alternatives, modifications and variances that fall within the scope of the appended claims.

What is claimed is:

1. A one-piece closure for a dispensing container, comprising:
   a base, the base being adapted to be attached to the dispensing container, the base having two or more orifices therein, the two or more orifices of the base each defining a different shape, the base having one or more raised portions thereon;
   a lid, the lid being attached to the base via a detachable hinge, the lid having an orifice therein, the lid being rotatably attachable to the base when detached from the base, the orifice of the lid being coextensive and alignable with each of the two or more orifices of the base and the one or more raised portions of the base, the lid being in lockable position with the base when the orifice of the lid is in alignment with one of the raised portions of the base, the closure being in the form of a unitary, integral piece.
2. The dispensing container of claim 1, wherein the base has four orifices therein.
3. The dispensing container of claim 2, wherein the four orifices are distributed circumferentially around the base.
4. The dispensing container of claim 3, wherein the base has four raised portions, and wherein the raised portions are distributed circumferentially around the base between the orifices.
5. The dispensing container of claim 1, wherein the lid is rotatably attachable to the base via a post extending from the center of the bottom surface of the lid.
6. The dispensing container of claim 1, wherein there is a single orifice in the lid.
7. The dispensing container of claim 4, wherein the lid is rotatably attachable to the base via a post extending from the center of the bottom surface of the lid.
8. The dispensing container of claim 7, wherein there is a single orifice in the lid.
9. The dispensing container of claim 1, wherein the orifice in the lid is situated at the bottom of an indentation in the lid.
10. The dispensing container of claim 1, wherein the lid has a circumferential plug seal extending from the bottom surface of the lid at the periphery thereof outside of the orifice of the lid, and wherein the plug seal enters a circumferential indentation extending into the base at the periphery thereof when the lid is attached to the base.
11. A one-piece closure for a dispensing container, comprising:
   a base, the base being adapted to be attached to the dispensing container, the base having two or more orifices therein, the two or more orifices of the base each defining a different shape, the base having one or more raised portions thereon;
   a lid, the lid being attached to the base via a detachable hinge, the lid having an orifice therein, the lid being rotatably attachable to the base when detached from the base, the orifice of the lid being coextensive and alignable with each of the two or more orifices of the base and the one or more raised portions of the base, the lid being in lockable position with the base when the orifice of the lid is in alignment with one of the raised portions of the base, the lid having an actuating cover flap integral therewith, the cover flap having a bottom surface, the cover flap having a raised portion on the bottom surface thereof, the raised portion of the cover flap being coextensive and alignable with the orifice of the lid, the cover flap being operable and repositionable to cover the orifice in the lid, the closure being in the form of a unitary, integral piece.
12. The dispensing container of claim 11, wherein the base has four orifices therein.
13. The dispensing container of claim 12, wherein the four orifices are distributed circumferentially around the base.
14. The dispensing container of claim 13, wherein the base has four raised portions, and wherein the raised portions are distributed circumferentially around the base between the orifices.
15. The dispensing container of claim 11, wherein the lid is rotatably attachable to the base via a post extending from the center of the bottom surface of the lid.
16. The dispensing container of claim 11, wherein there is a single orifice in the lid.
17. The dispensing container of claim 14, wherein the lid is rotatably attachable to the base via a post extending from the center of the bottom surface of the lid.
18. The dispensing container of claim 17, wherein there is a single orifice in the lid.

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