ABSTRACT

A closure system for a flexible package is provided, comprising a rigid male fitment and a rigid female fitment. The male fitment comprises an elongated rib-like structure attached to a flat mounting plate. The male mounting plate is adhered to an outer facing surface of the front wall at or near the top end of the package. The female fitment comprises an elongated C-shaped structure tangentially attached to a flat female mounting plate. The female mounting plate is adhered to an outer facing surface of the rear wall a sufficient distance from the top edge to allow a portion of the package carrying the male fitment to be folded over in the direction of the female fitment until the male fitment engages the female fitment.
RIGID SNAP FITMENT FOR A FLEXIBLE PACKAGE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention
[0002] This invention relates to a reusable package. More particularly, this invention relates to a rigid snap closure for a flexible reusable package.
[0003] 2. Description of the Related Art
[0004] Reusable or recyclable features are desirable in packaging to maintain the freshness of the product. Some packages utilize ties or stickers which close the package but do not reseal completely. The present invention is designed to address the problems described above.

BRIEF SUMMARY OF THE INVENTION

[0005] The present invention is a closure system for a flexible packaging. The flexible package has a front wall connected to a rear wall, typically by opposing side walls, a top portion and a bottom. The top portion, that is, the upper part of the package away from the bottom, may include a sealed top end formed from both the front wall and rear wall. The top end of the package terminates in a top edge. The closure system comprises a rigid male fitment and a rigid female fitment.
[0006] The male fitment comprises an elongated rib-like structure attached to a flat mounting plate. The rib-like structure may be cylindrical or any suitable shape that cooperates with the female fitment to provide a good seal. The male mounting plate is adhered to an outer facing surface of the front wall at or near the top end of the package.
[0007] The female fitment comprises an elongated C-shaped structure having a gap and defining an elongated channel configured to receive and engage the rib-like structure of the male fitment. The C-shaped structure is tangentially attached to a flat female mounting plate located opposite the gap. The female mounting plate may be adhered to an outer facing surface of the rear wall a sufficient distance from the top edge to allow a portion of the package carrying the male fitment to be folded over in the direction of the female fitment until the male fitment engages the female fitment. The lengths of the male and female mounting plates may be substantially the same as or slightly shorter than the width of the package.
[0008] In another aspect of the disclosure, a reusable container comprising a flexible package and a closure system is described. The flexible package comprises a front wall connected to a rear wall by sides and has a sealed top end terminating in a top edge. The closure system comprises a first fitment and a second fitment.
[0009] The first fitment comprises a first snap-fit structure attached to a first mounting plate. The first mounting plate is attached to an outer facing surface of the front wall proximate the sealed top end.
[0010] The second fitment comprises a second snap-fit structure configured to form a releasable snap fit with the first snap-fit structure. The second snap-fit structure is attached to a second mounting plate. The second mounting plate is attached to an outer facing surface of the rear wall sufficiently distant from the top edge to allow a portion of the package carrying the first fitment to be folded over twice until the first snap-fit structure forms a snap fit with the second snap-fit structure.

[0011] In a refinement of the container, the first mounting plate has a height and the second mounting plate is spaced from the top edge a distance at least twice the height of the first mounting plate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a perspective view of a snap fitment system according to the disclosure.
[0013] FIGS. 2 to 5 illustrate the snap fitment system of the disclosure.
[0014] FIG. 2 is a perspective view of a flexible package including the snap fitment system of FIG. 1.
[0015] FIG. 3 is a perspective view of the flexible package of FIG. 2 after the top of the package has been folded over once.
[0016] FIG. 4 is a perspective view of the flexible package of FIG. 3 after the top of the package has been folded a second time.
[0017] FIG. 5 is a perspective view of the flexible package of FIG. 4 after the snap fitments have been joined together to seal the package.

DETAILED DESCRIPTION OF THE INVENTION

[0018] While the present invention may be embodied in many forms, there is shown in the drawings and will herein be described in detail one or more embodiments with the understanding that this disclosure is to be considered an exemplification of the principles of the invention and is not intended to limit the invention to the illustrated embodiments. In this description the terms “front wall” and “rear wall” are used. These terms are used in a relative sense, meaning they refer to substantially opposing walls, and are not to be construed as being limited to any specific package wall.

[0019] Turning to the drawings, FIG. 1 is a perspective view of a snap fitment system 10 according to the disclosure. The system 10 comprises a male fitment 12 and a female fitment 14. It should be understood that the terms “male” and “female” as used herein are arbitrary, and that these terms do not indicate or otherwise imply the actual shapes of the fitments. Rather, the terms are used merely to indicate that the male and female fitments 12, 14 can form a snap fit when joined together. Also, whereas in the following embodiment the male fitment 12 comprises an elongated rib-like structure and the female fitment 14 comprises an elongated C-shaped structure that defines a channel, the configurations could be reversed. Finally, it should be appreciated that the male and female fitments 12, 14 may be any two shapes that form a snap fit when joined together.

[0020] Referring again to FIG. 1, in the illustrated embodiment the male fitment 12 comprises an elongated rib-like structure 16, preferably one that is cylindrical and has a circular cross section, attached to a flat mounting plate 18. As explained below, the male mounting plate 18 is adhered to an outer facing surface of the flexible package 20 by adhesive, hot melt or any other suitable means. The male mounting plate 18 has a vertical height (H) and a length, where the length dimension corresponds to the package width.

[0021] The female fitment 14 comprises an elongated C-shaped structure 22 having substantially parallel edges 23 defining a gap or opening 24. The C-shaped structure also defines an elongated groove or channel 26 configured to receive and engage the rib-like structure 16. The C-shaped structure 22 is tangentially attached to a flat mounting plate 28...
located opposite the gap 24. The mounting plate 28 can be adhered to an outer facing surface of the flexible package 20 by adhesive, hot melt or any other suitable means. Preferably the C-shaped structure 22 is made of a resilient plastic material that can flex and return to its original shape. The female mounting plate 28 has a vertical height and a length. The lengths of the male and female mounting plates 18, 26 preferably are substantially the same as the width (W) of the package 20.

[0022] FIG. 2 is a perspective view of a container 11 comprising a flexible package 20 and the snap fitment system 10 of FIG. 1. The flexible package 20 comprises a front wall or panel 32 and a rear wall or panel 34 connected by opposing side walls 36, a top portion 38 and a bottom (not shown in the figures). The package 20 may hold any suitable contents, including without limitation coffee, cookies, crackers and other snack foods. The top portion 38 includes a top end 40 where the front wall 32 and rear wall 34 come together to form a seal. The top end 40 may be formed by crimping and heat sealing the front and rear walls 32, 34. The top end 40 termin- inates in a top edge 42.

[0023] The top (upper) portions 38 of the front and rear walls 32, 34 may be pulled apart or otherwise separated to break the seal and create an opening to access the contents of the package 20. After opening, it may be desired to reseal the package 20 in accordance with this disclosure.

[0024] Still referring to FIG. 2, the male fitment 12 and the female fitment 14 are adhered to the outer facing surfaces 33, 35 respectively of the front and rear panels 32, 34. For example, in the illustrated embodiment, the male fitment 12 is adhered to the outer facing surface 33 of the front wall 32 and the female fitment 14 is adhered to the outer facing surface 35 of the rear wall 34. Alternatively, the male fitment 12 may be adhered to the rear wall 34 and the female fitment may be adhered to the front wall 32.

[0025] In the illustrated embodiment, the interlocking structures of the male and female fitments 12, 14 face outward, away from the package 20, so the flexible package 20 must be folded over to be closed. For example, in the illustrated embodiment, the mounting plate 18 of the male fitment 12 is adhered to the front wall 32 so that the rib-like structure 16 faces outward, away from the package 20. Likewise, the mounting plate 28 of the female fitment 14 is adhered to the rear wall 34 so that the gap 24 defined by the C-shaped structure 22 faces outward, away from the package 20.

[0026] In FIG. 2 the male fitment 12 is adhered to the front wall 32 along the heat sealed top end 40 and the female fitment 14 is adhered to the rear wall 34 near the heat sealed top end 40 but at a distance (D) below the top end 40. The female fitment 14 should be located a sufficient distance from the top edge 42 to allow portion of the package 20 carrying the male fitment 12, typically the heat sealed top end 40, to be folded over in the direction of the female fitment 14 until the male fitment 12 engages the female fitment 14. This distance (D) may be a little more than twice the height (H) of the male mounting plate 18.

[0027] In FIG. 2 the package 20, the top end 40 is folded over twice until the male fitment 12 can engage and form a snap fit with the female fitment 14. Fitting the male fitment 12 to the female fitment 14 may cause an audible click, which can assure the consumer that a good seal has been achieved.

[0028] FIG. 3 is a perspective view of the flexible package of FIG. 2 after the top end 40 has been folded in the direction of the female fitment 14 until the top end 40 lays flat against the rear wall 34. The rib-like structure 16 of the male fitment 12 now faces rearward. The C-shaped structure 22 remains facing substantially rearward.

[0029] FIG. 4 is a perspective view of the flexible package of FIG. 3 after the top end 40 has been folded over a second time. The rib-like structure 16 is aligned with and faces the gap 24 in the C-shaped structure 22.

[0030] FIG. 5 is a perspective view of the flexible package of FIG. 4 after the snap fitments have been joined together to seal the package 20. The rib-like structure 16 has been snapped into the C-shaped structure 22 by a user to engage the C-shaped structure 22 and seal the package 20. Notably, the rib-like structure 16 and the C-shaped structure 22 are in direct engagement; there is no additional packaging material between the rib-like structure 16 and C-shaped structure 22. More importantly, the male and female fitments 12, 14 hold the front and rear walls 32, 34 of the top portion 38 of the package 20 in close sealing engagement with each other, thereby providing an almost airtight seal.

[0032] In another aspect of the invention a method of making a reclosable flexible package is disclosed. The method allows the rigid fitments to be added to the package after the package 20 is formed, filled, and even after the package is sealed. The method may comprise the following steps:

[0033] Providing a flexible package 20 having a front wall 32 and a rear wall 34 connected by opposing side walls 36, a top portion 38 and a bottom, the top portion 38 including a top end 40 formed from both the front wall 32 and rear wall 34,

[0034] Providing a male fitment 12 comprising an elongated rib-like structure 16 attached to a flat mounting plate 18, and adhering the mounting plate 18 to an outer facing surface 33 of the front wall 32 at the top end 40;

[0035] Providing a female fitment 14 comprising an elongated C-shaped structure 22 having a gap 24 and defining an elongated channel 26 configured to receive and engage the rib-like structure 16, the C-shaped structure 22 tangentially attached to a flat mounting plate 28 located opposite the gap 24, and adhering the mounting plate 28 to an outer facing surface 35 of the rear wall 34 at a sufficient distance (D) from the top end 40 to allow portion of the flexible package 20 carrying the male fitment 12 to be folded over in the direction of the female fitment 14 until the male fitment 12 engages the female fitment 14.

[0036] As noted above, the method may include the step of heat sealing the top ends 40 of the front and rear walls 32, 34 either before or after adhering the rigid fitments 12, 14 to the front and rear walls 32, 34.

[0037] It is understood that the embodiments of the invention described above are only particular examples which serve to illustrate the principles of the invention. Modifications and alternative embodiments of the invention are contemplated which do not depart from the scope of the invention as defined by the foregoing teachings and appended claims. It is intended that the claims cover all such modifications and alternative embodiments that fall within their scope.

1. A closure system for a flexible package having a front wall connected to a rear wall, the closure system comprising a male fitment comprising an elongated rib-like structure attached to a flat mounting plate, the mounting plate adhered to an outer facing surface of the front wall; and a female fitment comprising an elongated C-shaped structure having a gap and defining an elongated channel configured to receive and engage the rib-like structure, the C-shaped structure tangentially attached to a flat
mounting plate located opposite the gap, the mounting plate adhered to an outer facing surface of the rear wall.

2. The closure system of claim 1 wherein:
   the flexible package has a width;
   the male mounting plate has a length;
   the female mounting plate has a length; and
   the lengths of the male and female mounting plates, are substantially the same as the width of the package.

3. The closure system of claim 1 wherein:
   the package has a sealed top end terminating in a top edge;
   the male mounting plate is adhered to an outer facing surface of the front wall at the sealed top end; and
   the female mounting plate is adhered to an outer facing surface of the rear wall a sufficient distance (D) from the top edge to allow a portion of the package carrying the male fitment to be folded over in the direction of the female fitment until the male fitment forms a snap fit with the female fitment.

4. The closure system of claim 1 wherein:
   the package has a sealed top end terminating in a top edge;
   the female mounting plate is adhered to an outer facing surface of the front wall at the sealed top end; and
   the male mounting plate is adhered to an outer facing surface of the rear wall a sufficient distance (D) from the top edge to allow a portion of the package carrying the female fitment to be folded over in the direction of the male fitment until the female fitment forms a snap fit with the male fitment.

5. A closure system for a flexible package, the flexible package having a front wall connected to a rear wall by opposing side walls, a top portion and a bottom, the top portion including a sealed top end formed from both the front wall and the rear wall and terminating in a top edge, the closure system comprising:
   a male fitment comprising an elongated rib-like structure attached to a flat mounting plate, the mounting plate adhered to an outer facing surface of the front wall at the top end; and
   a female fitment comprising an elongated C-shaped structure having a gap and defining an elongated channel configured to receive and engage the rib-like structure, the C-shaped structure tangentially attached to a flat mounting plate located opposite the gap, the mounting plate adhered to an outer facing surface of the rear wall a sufficient distance (D) from the top edge to allow a portion of the package carrying the male fitment to be folded over in the direction of the female fitment until the male fitment engages the female fitment.

6. A closure system of claim 5 wherein:
   the flexible package has a width;
   the male mounting plate has a length;
   the female mounting plate has a length; and
   the lengths of the male and female mounting plates, are substantially the same as the width of the package.

7. A closure system of claim 5 wherein:
   the male mounting plate has a height (H); and
   the distance (D) between the female fitment and the top edge of the package is at least twice the height (H) of the male fitment mounting plate.

8. A method of making a re closable flexible package, the method comprising the steps of:
   providing a flexible package having a front wall and a rear wall connected by opposing side walls, a top portion and a bottom, the top portion including a top end formed from both the front wall and rear wall;
   providing a male fitment comprising an elongated rib-like structure attached to a flat mounting plate, and adhering the mounting plate to an outer facing surface of the front wall at the top end; and
   providing a female fitment comprising an elongated C-shaped structure having a gap and defining an elongated channel configured to receive and engage the rib-like structure, the C-shaped structure tangentially attached to a flat mounting plate located opposite the gap, and adhering the mounting plate to an outer facing surface of the rear wall a sufficient distance (D) from the top end to allow a portion of the flexible package carrying the male fitment to be folded over in the direction of the female fitment until the male fitment engages the female fitment.

9. The method of claim 8 including the step of:
   heat sealing the top ends of the front and rear walls, before the male and female fitments, are adhered to the front and rear walls.

10. The method of claim 8 including the step of:
    heat sealing the top ends of the front and rear walls, after the male and female fitments, are adhered to the front and rear walls.

11. A re closable container comprising:
    a flexible package comprising a front wall connected to a rear wall by sides, the flexible package having a sealed top end terminating in a top edge; and
    a closure system comprising a first fitment and a second fitment; wherein
    the first fitment comprises a first snap-fit structure attached to a first mounting plate, the first mounting plate attached to an outer facing surface of the front wall proximate the sealed top end; and
    the second fitment comprises a second snap-fit structure configured to form a releasable snap fit with the first snap-fit structure, the second snap-fit structure attached to a second mounting plate, the second mounting plate attached to an outer facing surface of the rear wall sufficiently distant from the top edge to allow a portion of the package carrying the first fitment to be folded over twice until the first snap-fit structure forms a snap fit with the second snap-fit structure.

12. The container of claim 11 wherein:
    the first mounting plate has a height (H); and
    the second mounting plate is spaced from the top edge a distance at least twice the height (H) of the first mounting plate.

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