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(54) **HOLD-OPEN MECHANISM USABLE WITH A FLEXIBLE-WALLED POUCH**

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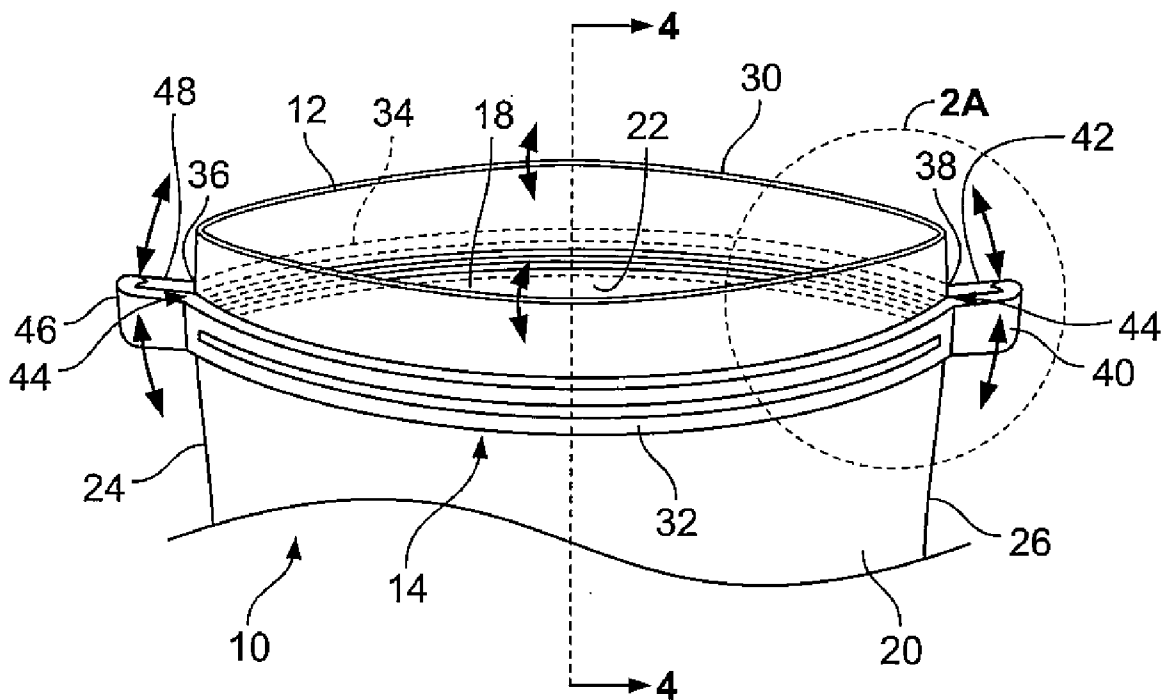
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(57) **ABSTRACT**

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A pouch having a flexible wall panel at least partially defining a mouth into an interior includes a hold-open mechanism for the mouth. A locking mechanism automatically locks the hold-open mechanism in an open position.

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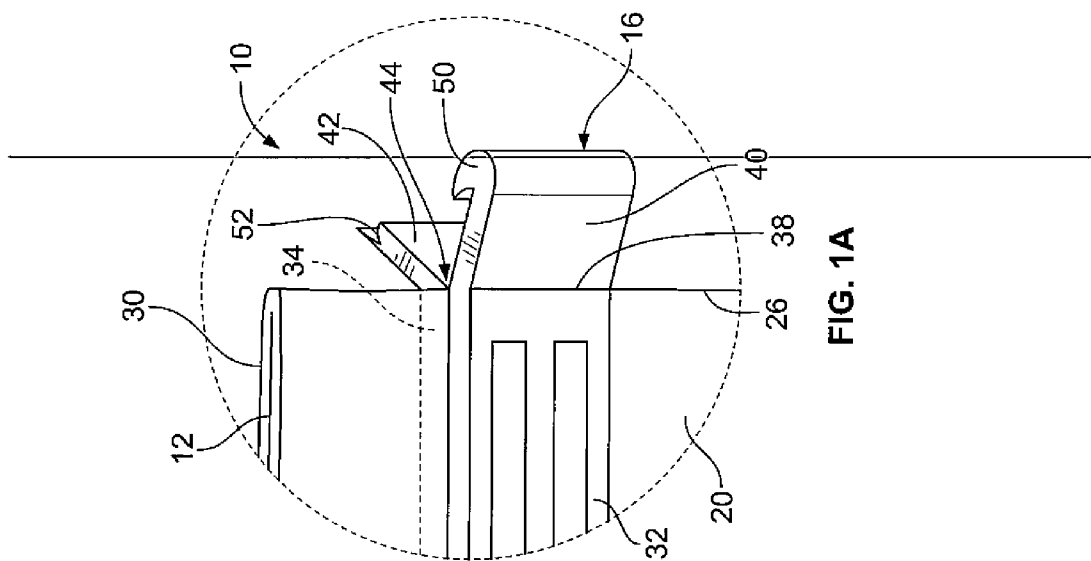


FIG. 1A

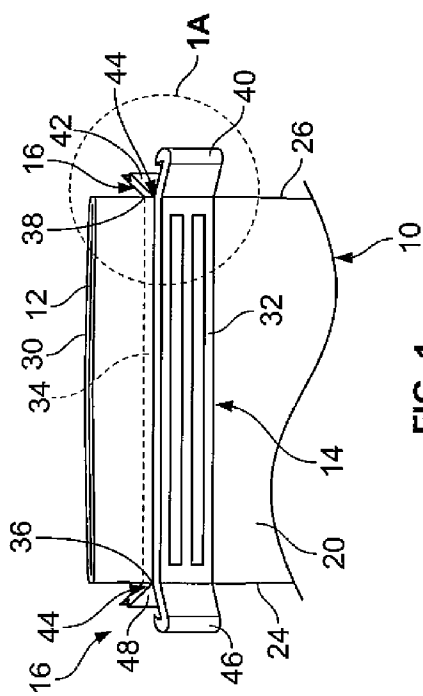


FIG. 1

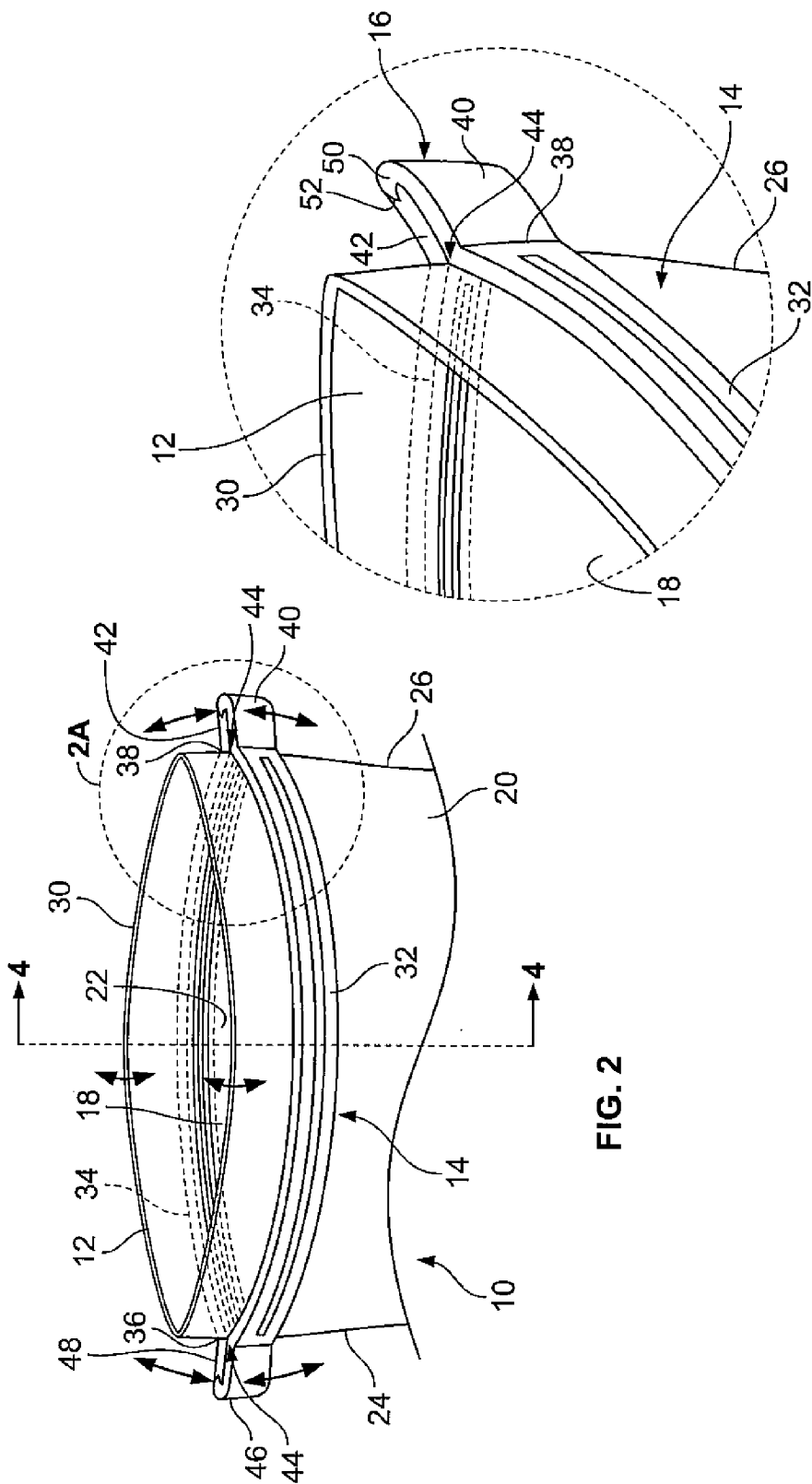


FIG. 2A

FIG. 2

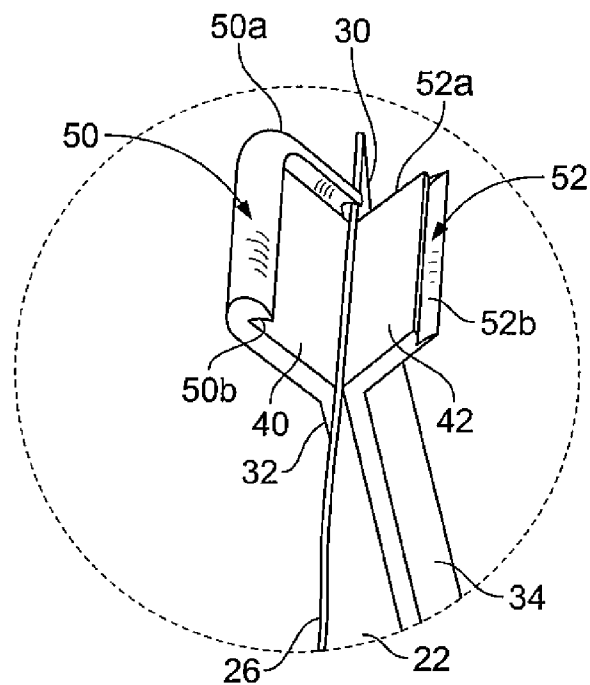


FIG. 3

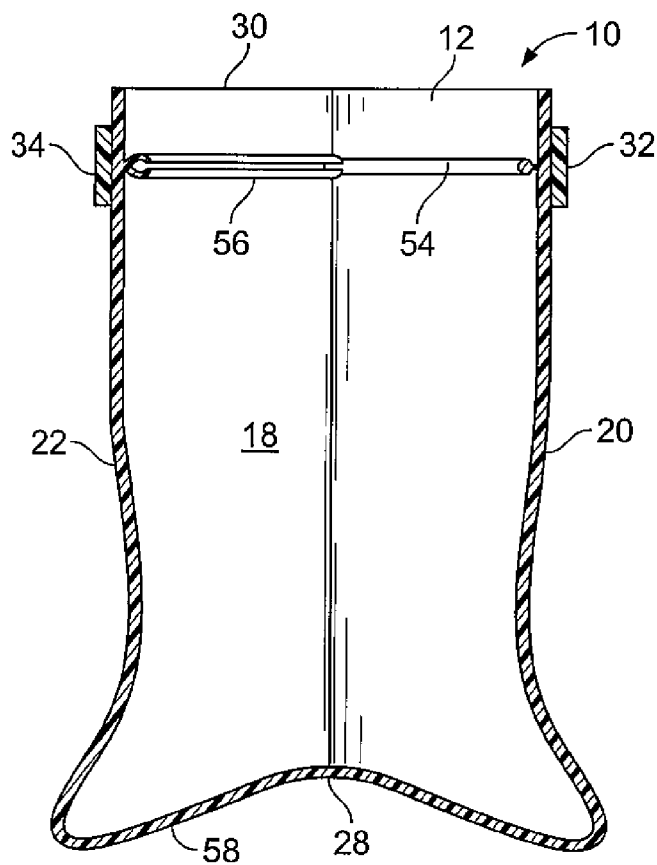


FIG. 4

**HOLD-OPEN MECHANISM USABLE WITH A FLEXIBLE-WALLED POUCH**

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] Not applicable

REFERENCE REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable

SEQUENTIAL LISTING

[0003] Not applicable

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention

[0005] The present invention relates generally to pouches useful for storage of items therein.

[0006] 2. Description of the Background of the Invention

[0007] A pouch, such as a bag having flexible walls defining a mouth and an interior cavity, is useful for storing items therein. Generally, an item may be inserted and removed from the interior cavity through the mouth. However, if the pouch has flexible walls, the mouth often must be maintained in an open position by user with one hand, for example, while inserting the item using the other hand. This can sometimes be cumbersome or inconvenient and, therefore, it is desirable to have a pouch with a mechanism for holding the mouth in an open position that will free up both hands of a user for performing other tasks.

[0008] One design developed to alleviate this situation includes a strip of a semi-rigid bendable material disposed on each opposite side of a rim of a plastic bag. Respective opposite ends of the strips are hingedly connected to each other so that the strips will flex away from each other in a medial area between the hinges when the hinges are pushed toward each other. In a variation on this design, a pair of opposing lugs, one lug for each strip, extends rigidly from the ends of strips beyond one of the hinges. The lugs flair away from each other so that the strips will pivotally bow apart in the medial area along the rim of the bag when the lugs are squeezed together. The strips automatically return to a closed position if the user lets go of the strips because no locking mechanism is provided.

[0009] In another design, a lock top canister bag includes a bag of flexible material that has a pair of opposing flat stiffener strips stiffer than the bag material extending upwardly from an open end of the bag. The strips are joined together at each opposite end of the bag, and an elongate interlocking fastener mechanism is formed on an interior face of each strip for releasably closing the open end of the bag. A fold-down flap extends upwardly from the upper edge of each strip at each opposite end thereof and is connected to the opposing fold-down flap at the end. The open end of the bag is held open by urging the opposite ends of the strips toward each other. To lock the stiffener strips open, the user must bend the flaps downwardly at each opposite end after urging the ends of the strips together.

[0010] Yet another design includes a pair of stiffeners disposed on opposite bag walls, wherein an arm is pivotally connected to an end of each stiffener. Each arm pivots about the end between a folded position parallel with the stiffener and an unfolded position perpendicular with the stiffener. The

stiffeners are bowed open by squeezing the arms together in the unfolded position. A hook on one arm fastens to the other arm to maintain the stiffeners bowed open.

SUMMARY OF THE INVENTION

[0011] According to one aspect of the present invention, a pouch includes a flexible first wall panel and a flexible second wall panel that define an openable mouth therebetween. A first stiffener member is associated with the first wall panel disposed along the mouth, and a second stiffener member is associated with the second wall panel disposed along the mouth. The stiffener members have an open position that spaces at least a portion of the first wall panel from the second wall panel along the mouth and a closed position that closes the mouth. Further, a first tab is rigidly connected with the first stiffener member proximate an end of the first resilient member, a second tab is rigidly connected with the second stiffener member proximate an end thereof in opposing relation to the first tab, and a locking mechanism is associated with at least one of the first and second tabs. The first tab is spaced from the second tab to define a space therebetween in an actuation area spaced from the first resilient member in the closed position. The first tab and the second tab move together in the actuation area when the stiffener members move toward the open position, and the locking mechanism releasably secures the first tab and the second tab in the open position.

[0012] According to another aspect of the present invention, a pouch includes an openable mouth defined by at least one flexible pouch wall, means for stiffening the flexible pouch wall proximate the mouth, and means for automatically snap-lockably maintaining the means for stiffening in a position that maintains the mouth in an open position.

[0013] According to a further aspect of the present invention, a hold-open mechanism for a mouth of a flexible pouch having a locked-open position and a closed position includes a first resilient strip disposed opposite a second resilient strip. The resilient strips extend between a first end and a second end, and the first resilient strip is hingedly connected with the second resilient strip at the second end. A first tab rigidly projects from the first resilient strip proximate the first end, and a second tab rigidly projects from the second resilient strip opposite the first tab. A snap-type locking mechanism is associated with at least one of the first tab and the second tab. In the closed position, the first resilient strip is substantially parallel with the second resilient strip and the first tab is at least partly spaced from the second tab. In the locked-open position, the first resilient strip diverges away from the second resilient strip at a medial point between the first end and the second end and the first tab is releasably locked with the second tab by the snap-type locking mechanism.

[0014] Other aspects and advantages of the present invention will become apparent upon consideration of the following detailed description in which the same reference numbers are used in all embodiments for similar structures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a diagrammatic isometric view of a pouch having a hold-open mechanism shown in a closed position according to one embodiment of the present invention;

[0016] FIG. 1A is an enlarged detailed partial view of a locking mechanism shown in FIG. 1;

[0017] FIG. 2 is a diagrammatic isometric view of the pouch in FIG. 1 shown in an open position;

[0018] FIG. 2A is an enlarged detailed partial view similar to FIG. 1A showing the locking mechanism in a locked position;

[0019] FIG. 3 is an enlarged detailed partial view generally similar to FIG. 1A but from an opposite angle showing a bottom edge of a locking mechanism according to another embodiment; and

[0020] FIG. 4 is a diagrammatic cross-sectional view along the lines 4-4 of FIG. 2.

#### DETAILED DESCRIPTION

[0021] Turning now to the drawings, a pouch 10 having an openable mouth 12 defined at least partly by a flexible side wall includes a hold-open mechanism 14 for holding the mouth open. The hold-open mechanism 14 includes at least one stiffener disposed along the flexible side wall near the mouth and a locking mechanism 16 that automatically locks the stiffener in an open position that maintains the mouth in an open position for inserting and removing items from an interior cavity 18 of the pouch. The stiffener may also have a closed position that tends to maintain the mouth 12 in a closed position. The pouch may include a gusseted bottom end opposite the mouth.

[0022] According to one embodiment, shown in FIGS. 1-3, the pouch 10 includes a first wall panel 20 and a second wall panel 22 connected along peripheral side edges 24, 26 and bottom edges 28 and defining the mouth 12 along a top edge 30. Preferably the wall panels 20, 22 are made of a flexible material, such as a polymer plastic, paper, foil, although only one wall panel may be flexible. A first stiffener 32 is disposed along the first wall panel 20 adjacent the mouth 12, and a second stiffener 34 is disposed along the second wall panel 22 adjacent the mouth opposite the first stiffener member. The stiffeners 32, 34 are preferably straight strips of resilient material, such as polymer plastic or metal, that is stiffer than the wall panels 20, 22 yet resiliently flexible so that each stiffener is bendable and tends toward an unbended relaxed position. In one embodiment, the stiffeners 32, 34 and the wall panels 20, 22 are made of material compatible for heat sealing together. For example, the stiffeners 32, 34 and the wall panels 20, 22 may all be made of polypropylene or polyethylene to facilitate thermal bonding of the stiffeners to the wall panels. In FIG. 1, each stiffener 32, 34 is in the shape of a narrow strip that extends between opposite left and right edges 24, 26 of the pouch 10 at the mouth 12 thereby completely circumscribing the mouth, although in other embodiments, the stiffeners may extend only part way around mouth or only be disposed near one of the left or right edges of the pouch. For example, if only one wall panel 20 or 22 is flexible, only one stiffener 32 or 34 may be disposed thereon. The stiffeners 30, 32 in one embodiment are hingedly held together at each opposite end 36, 38 by, for example, the respective edge 24, 26 of the pouch or by being directly connected together, such as with a living hinge.

[0023] A pair of opposing tabs 40, 42, one tab projecting outwardly from each stiffener 32, 34, is disposed near an end 38 of the stiffeners. The tabs 40, 42 may be useful for locking the stiffeners 32, 34 in the open position and/or may be useful for urging the stiffeners from the closed position to the open position. Each tab 40, 42 is rigidly connected with the respective stiffener 32, 34 and includes at least a portion that is spaced from the opposing tab so that the tabs may be urged toward each other in an actuation area that is preferably spaced from the ends of the stiffeners, such as by pivoting or

translation. In one embodiment, the tabs 40, 42 diverge apart from each other in order to define a rigid fulcrum region 44 with the stiffeners 32, 34 about which the tabs and the stiffeners may rigidly pivot, whereby when the stiffeners are adjacent each other, the tabs are at least partly spaced apart in the actuation area, and when the tabs are adjacent each other in the actuation area, the stiffeners are at least partly spaced apart along the mouth. The tabs 40, 42, may be oriented at an angle from the stiffeners at any angle sufficient to define a fulcrum about which the tabs may rigidly pivot. For example, either or both of the tabs 40, 42 may angle away from the respective stiffener 32, 34 by a non-zero angle, such as approximately 15°, 30°, 45°, 60°, 75°, 90°, or any other angle greater than 0° sufficient to form a rigid fulcrum. In one embodiment, the hold-open mechanism 14 includes only one pair of the tabs 40, 42, and in another embodiment, a second pair of opposing tabs 46, 48, similar to the first pair of tabs, is disposed at the opposite end 36 of the stiffeners 32, 34 for use in a similar manner.

[0024] In the closed position, as best seen in FIGS. 1 and 1A, the stiffeners 32, 34 are preferably in a straight and parallel relaxed state, thereby helping hold the mouth 12 of the pouch 10 in a closed position, and each pair of opposing tabs 40, 42 and 46, 48 is spread apart. In the open position, as best seen in FIGS. 2 and 2A, a medial portion of each stiffener 32, 34 between the opposite ends 36, 38 thereof is resiliently flexed or bowed outwardly away from the opposite stiffener, thereby holding the wall panels 20, 22 along the mouth 12 of the pouch 10 in a spaced-apart, open position, and each pair of opposing tabs 40, 42, and 46, 48 pivots together. In the open position, the stiffeners 32, 34 are preferably in a stressed state that urges the stiffeners back toward the closed position.

[0025] In one method of using the pouch, the stiffeners 32, 34 are urged toward the open position by pulling the medial sections apart, thereby causing each pair of tabs 40, 42 and 46, 48 to pivot about the respective fulcrum regions 44 at the respective ends 36, 38 of the stiffeners. In another method of using the pouch, if the tabs 40, 42 are of sufficient size, each opposing pair of tabs 40, 42 and 46, 48 may be pressed together, such as by squeezing or pinching between a user's fingers, thereby forcing the medial portions of the stiffeners to bow outwardly apart from each other by pivoting about the fulcrum areas.

[0026] The locking mechanism 16 carried by the tabs 40, 42 and 46, 48 engages when the tabs come together in the open position, thereby holding the tabs together and retaining the stiffeners 32, 34 in the open position. In one embodiment, the locking mechanism 16 includes a releasable resilient snap-type lock that automatically interlocks without requiring an additional movement or locking step by a user. One possible snap-type lock, shown in detail in FIGS. 1A and 2A, includes a hook 50 disposed on a distal end of one tab 40 and a groove 52 defined in a distal end of the opposite tab 42. The hook 50 resiliently snaps into and is releasably locked with the groove 52 when the tabs 40, 42 pivot fully together around the fulcrum region 44. The snap-type locking mechanism may be released when a sufficient amount of force is used to overcome the resilient interlocking between the hook 50 and the groove 52, such as by pressing the medial portions of the stiffeners 32, 34 together, although in another embodiment, the locking mechanism 16 may not be releasable. FIG. 1A shows the snap-type lock in an unlocked position, and FIG. 2A shows the snap-type lock in a locked position. Of course, other types of snap-type locking mechanisms or other auto-

matically engaging locking mechanisms may be used in addition or alternatively for holding the stiffeners 32, 34 in the open position. In another embodiment, for example shown in FIG. 3, the hook 50 includes a generally horizontal portion 50a along a top edge of the tab 40 that curves into a generally vertical portion 50b along the distal end of the tab 40, and the groove 52 includes a horizontal portion 52a and a vertical portion 52b along the respective edges of the tab 42 that are complementary to and interlock with the respective horizontal and vertical hook portions in order to provide additional interlocking resistance in a shortened space. If a pair of opposing tabs is disposed at each opposite end 36, 38 of the stiffeners 32, 34, a locking mechanism 16, such as the releasable snap-type locking mechanism, may be disposed on each pair of tabs in order to provide a more secure locking mechanism 16 for the hold-open mechanism.

[0027] In one embodiment, seen most clearly in FIG. 4, a fastener assembly is disposed along the mouth 12 for resealably sealing the mouth. The fastener assembly may include opposing elongate interlocking profiles, such as complementary rib and groove profiles 54, 56, extending across opposing interior surfaces of the wall panels 20, 22 adjacent the mouth 12. Of course, other closure mechanisms may be used, such as those shown in Pawloski U.S. Pat. No. 7,410,298, Sprehe U.S. Pat. No. 6,954,969, Turvey et al. U.S. Pat. No. 6,899,460, Bauman et al. U.S. Pat. No. 6,562,165, Porchia et al. U.S. Pat. No. 5,836,056, McCree et al. U.S. Pat. No. 5,809,621, Dais et al. U.S. Pat. No. 5,307,552, Porchia et al, U.S. Pat. No. 5,141,577, and Gundlach et al. U.S. Pat. No. 5,138,750 by way of example. In the illustrated embodiment, each interlocking profile 54, 56 is vertically aligned with the respective stiffener 32 or 34 on the exterior side of the respective pouch wall 20 or 22, although in another embodiment, the interlocking profiles 54, 56 may be offset upwardly or downwardly from either or both of the stiffeners.

[0028] Further, the pouch 10 may include a gusseted bottom wall 58 extending between opposite wall panels 20, 22 along the bottom edge 28 in order to allow the bottom of the pouch to expand when filled, which may provide a larger volume to the pouch and/or help the pouch stand in an upright position like a canister and/or provide a wider interior cavity when the mouth is in the open position.

INDUSTRIAL APPLICABILITY

[0029] A hold-open mechanism according to the present invention may be useful for holding the mouth of a flexible pouch in an open position, thereby freeing up a user's hands for performing other operations.

[0030] Numerous modifications to the present invention will be apparent to those skilled in the art in view of the foregoing description. Accordingly, this description is to be construed as illustrative only and is presented for the purpose of enabling those skilled in the art to make and use the invention and to teach the best mode of carrying out same. The exclusive right to all modifications within the scope of the impending claims is expressly reserved.

We claim:

1. A pouch, comprising:

a flexible first wall panel and a flexible second wall panel that define an openable mouth therebetween;

a first stiffener member associated with the first wall panel disposed along the mouth, and a second stiffener member associated with the second wall panel disposed along the mouth, wherein the stiffener members have an open

position that spaces at least a portion of the first wall panel from the second wall panel along the mouth and a closed position that closes the mouth;

a first tab rigidly connected with the first stiffener member proximate an end of the first resilient member, and a second tab rigidly connected with the second stiffener member proximate an end thereof in opposing relation to the first tab; and

a locking mechanism associated with at least one of the first and second tabs;

wherein the first tab is spaced from the second tab to define a space therebetween in an actuation area spaced from the first resilient member in the closed position, wherein the first tab and the second tab move together in the actuation area when the stiffener members move toward the open position, and wherein the locking mechanism releasably secures the first tab and the second tab in the open position.

2. The pouch of claim 1, wherein the first tab automatically interlocks with the second tab in the actuation area.

3. The pouch of claim 2, wherein the locking mechanism comprises a snap-type lock.

4. The pouch of claim 3, wherein the locking mechanism comprises a hook disposed on the first tab that resiliently interlocks with a portion of the second tab.

5. The pouch of claim 4, wherein the hook includes a generally horizontal portion and a generally vertical portion disposed near an end of the first tab opposite the first stiffener.

6. The pouch of claim 5, wherein the locking mechanism further comprises a groove on the second tab that is complementary to and receives the hook.

7. The pouch of claim 1, wherein the first and second tabs protrude beyond a side edge of the pouch.

8. The pouch of claim 7, wherein each stiffener member is resilient and extends between a first end at the first side edge and a second end at an opposite side edge of the pouch.

9. The pouch of claim 8, further comprising a third tab rigidly connected with the first stiffener member at the second end thereof and a fourth tab rigidly connected with the second stiffener member at the second end thereof opposite the third tab, wherein the third tab is spaced from the fourth tab to define a space therebetween in a second actuation area spaced from the ends of the resilient members in the closed position, and wherein movement of the third tab and the fourth tab together in the second actuation area urges the stiffener members toward the open position.

10. The pouch of claim 9, wherein at least one of the third and fourth tabs includes a locking mechanism, and wherein the third tab releasably interlocks with the fourth tab in the open position.

11. The pouch of claim 1 further comprising a resealable fastener mechanism comprising a first elongate closure profile extending along the first wall panel across the mouth that resealably interlocks with a second elongate closure profile disposed on the second wall panel opposite the first elongate closure profile.

12. The pouch of claim 1, wherein the pouch walls define a gusset in a region opposite the mouth.

13. A pouch comprising:

an openable mouth defined by at least one flexible pouch wall;

means for stiffening the flexible pouch wall proximate the mouth; and

means for automatically snap-lockably maintaining the means for stiffening in a position that maintains the mouth in an open position.

**14.** The flexible pouch of claim **13**, wherein the means for stiffening comprises a first resilient strip disposed on a first pouch wall on one side of the mouth and a second resilient strip disposed on a second pouch wall on an opposite side of the mouth, and wherein each resilient strip extends substantially between a first edge of the mouth and a second edge of the mouth.

**15.** The flexible pouch of claim **14**, wherein the first edge of the mouth coincides generally with a first edge of the pouch and the second edge of the mouth coincides generally with the second edge of the mouth.

**16.** The pouch of claim **13**, wherein the means for automatically snap-lockably maintaining the means for stiffening comprises a first tab spaced from a second tab and a resilient latch defined by at least one of the tabs, wherein each tab is rigidly attached to the means for stiffening, and wherein the resilient latch maintains the first and second tabs together and maintains the mouth in an open position.

**17.** A hold-open mechanism for a mouth of a flexible pouch having a locked-open position and a closed position comprising:

a first resilient strip disposed opposite a second resilient strip, wherein the resilient strips extend between a first end and a second end and wherein the first resilient strip is hingedly connected with the second resilient strip at the second end;

a first tab rigidly projecting from the first resilient strip proximate the first end;

a second tab rigidly projecting from the second resilient strip opposite the first tab; and

a snap-type locking mechanism associated with at least one of the first tab and the second tab;

wherein, in the closed position, the first resilient strip is substantially parallel with the second resilient strip and the first tab is at least partly spaced from the second tab; and

wherein, in the locked-open position, the first resilient strip diverges away from the second resilient strip at a medial point between the first end and the second end and the first tab is releasably locked with the second tab by the snap-type locking mechanism.

**18.** The hold-open mechanism of claim **17**, wherein the first resilient strip is hingedly connected with the second resilient strip at the first end.

**19.** The hold-open mechanism of claim **17** further comprising a fulcrum region defined at the first end between the tabs and the resilient strips, wherein the resilient strips and the tabs pivot at the fulcrum region.

**20.** The hold-open mechanism of claim **17**, wherein the snap-type locking mechanism comprises a resilient hook disposed on a distal end of the first tab that resiliently clasps a receiving section of the second tab.

\* \* \* \* \*