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2,823,721

SLIDERLESS FASTENER CLOSURE

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Fig. 1

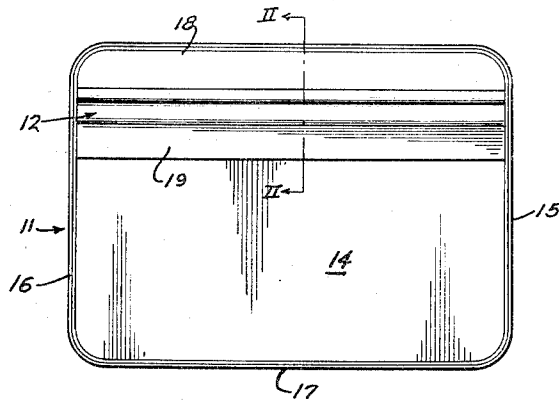


Fig. 2

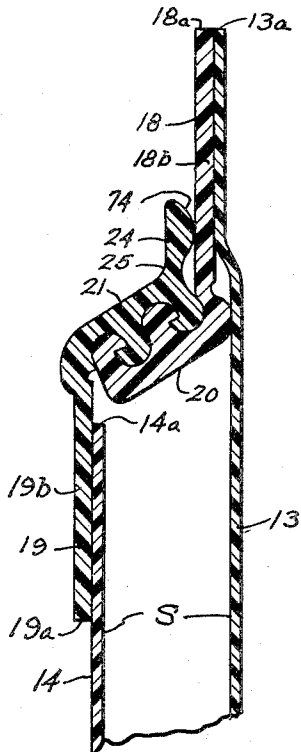
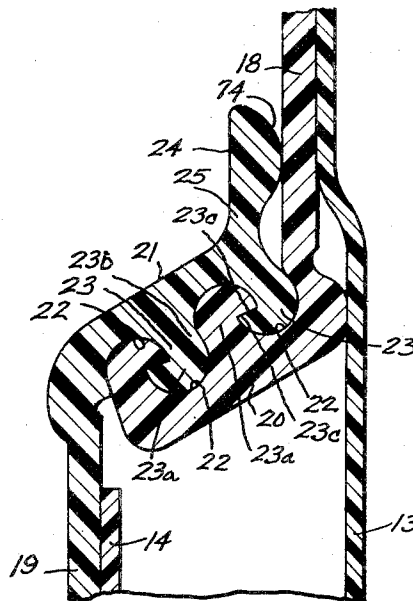


Fig. 3



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1

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SLIDERLESS FASTENER CLOSURE

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3 Claims. (Cl. 150—3)

The present invention relates to a pouch or similar container having a sliderless fastener closure, and more particularly, to a pouch having a fastener or closure arrangement adapted to provide an air-tight seal.

The primary object of this invention is to provide an improved pouch with a sliderless fastener or closure, and an improved sliderless fastener or closure therefor.

Another object is to provide an improved sliderless form of fastener for pouch-like containers, in which the fastener is provided with integral means extending substantially the entire length of the fastener which allow a container closed by the fastener to be opened quickly and easily and in which the risk of accidental opening is reduced to a minimum.

Still another object of this invention is the provision of an improved fastener comprising two flat overlapping closure strips having offset enlarged marginal reinforcements, wherein the reinforcements have confronting faces, each of the faces containing at least one ridge and at least one groove aligned with and adapted for resilient locking engagement with the grooves and ridges on the other reinforcement and vice versa, and wherein one of the reinforcements has means formed integrally therewith extending longitudinally the entire length thereof for separating the reinforcements to provide an opening into a container closed by the fastener.

One of the main features of this invention is to provide a pouch-like container with an improved form of fastener, in which a pouch, or the like is formed of front and back sheet-like walls having mated edges united together to define a container and in which the free upper edges of the walls are spaced from each other to define an opening. The opening, in turn, is provided with the instant improved fastener which allows the pouch to be hermetically sealed on the one hand, and easily opened on the other. This improved fastener comprises two overlapping closure strips secured to the free upper edges of the front and back walls of the pouch and extending the length thereof. The free marginal edges of the overlapping closure strips are enlarged or thickened to form offset reinforcement portions, which due to the overlapping relationship of the closure strips, have confronting faces. One or more longitudinally extending grooves and ridges are formed on each of the confronting faces of the reinforcements such that the ridges on one reinforcement are aligned with and adapted for resilient hermetically sealed locking engagement with the grooves on the other reinforcement, and vice versa. One of the reinforcements is provided with an integral flange extending longitudinally along the entire length of the reinforcement and into sealing resilient contact with the other closure strip. Such flange provides efficient means by which the reinforcement or marginal edges of the closure strips may be easily separated to provide an opening into the pouch.

Other objects, features and advantages of the present invention will be readily apparent from the following de-

2

tailed description of a preferred embodiment thereof taken in conjunction with the accompanying sheets of drawings, wherein like parts are labeled with like number, and in which;

Figure 1 is a front elevational view of a pouch or similar container having the novel sliderless fastener of the instant invention mounted thereon;

Figure 2 is an enlarged cross sectional view of the pouch of Figure 1 taken substantially along line II—II of Figure 1;

Figure 3 is a further enlarged detail of Fig. 2.

In accordance with the instant invention a pouch, or similar container, shown generally at 11 in Figure 1, is provided with a sliderless fastener closure shown generally at 12.

The pouch 11 includes a resilient sheet-like back wall 13 and a resilient sheet-like front wall 14 substantially co-extensive therewith and secured to the back wall along the side edges, as at 15 and 16 and the bottom edge 17. Preferably the back and front walls 13 and 14 are made of sheets of thermoplastic synthetic resin materials such as polyvinyl chloride, polyvinylidene chloride, halogenated polyethylenes, polyvinyl acetate, and polyethylene, and copolymers, heteropolymers and mixtures thereof. Such materials are substantially impervious to air and moisture, and may be prepared in suitable thin resilient sheets which are translucent, and substantially transparent, so as to be suitable for use in the instant pouch 11. The front and back walls 13 and 14 may be suitably heat-sealed, sewed or glued together, or both, along their marginal edges 15, 16 and 17, so as to define a suitable air-tight and moisture proof container portion for the pouch 11.

The back wall 13 may extend upwardly a short distance beyond the front wall 14, as shown best in Figure 2. The top 13a of the back wall 13 is substantially parallel to but spaced upwardly from the top 14a of the front wall 14, along the free or unsecured edge portions of such walls 13 and 14, so as to define what amounts to an elongated slot-like opening that is substantially coplanar with the front wall 14, and which is adapted to be closed by the instant closure or fastener arrangement 12.

The fastener or closure arrangement 12 comprises a pair of overlapping strips 18 and 19. The closure strips 18 and 19 are coextensive with the top portions 13a and 14a of the back and front walls 13 and 14 and span the opening described therebetween. The top edge 18a of the closure strip 18 is sealingly engaged to the top portion 13a of the back wall 13, while the edge portion 19a of the closure strip 19 is sealingly engaged and preferably integral with the front wall 14, including the upper edge 14a. This sealing of the closure or fastener 12 to the pouch 11 is preferably effected by heat sealing, gluing or the like. The end portions of the closure strips 18 and 19, likewise, are sealed to the edges 15 and 16 of the pouch 11 so as to provide a complete seal for the elongated slot-like opening defined by the front and back walls 13 and 14, as described.

Each of the strips 18 and 19 can be, and preferably is conveniently fabricated by extrusion through a suitable die followed by severing the extruded strips to appropriate lengths. Suitable materials for manufacturing the strips 18 and 19 include the thermoplastic and thermosetting organic synthetic resins referred to above in describing the pouch 11.

Of particular importance for this use are the vinyl type resins such as polyvinyl chloride, polyvinyl acetate, polyvinyl chloride, polyvinyl acetate copolymers, and similar vinyl resins and polyethylenes and rubber, either natural or synthetic. Rubber, however, is not a preferred starting material, since, in the case of rubber, it is more

difficult to control the degree of rigidity for interlocking engagement between the strips 18 and 19. However, by proper compounding and vulcanizing of rubber, the degree of rigidity can be controlled to make the rubber acceptable for the purposes of the instant invention.

The closure strips 18 and 19 include an elongated, thin web portion 18b and 19b and offset, thickened marginal reinforcement portions 20 and 21, respectively. The strips 18 and 19 and the reinforced marginal portions 20 and 21 extend substantially the full distance between the pouch side edges 15 and 16 (Figure 1), and the extremities of the marginal reinforcements 20 and 21 are crimped together so as to merge into the end portions of the closure strip 12 at the edges 15 and 16.

As noted in the drawings, the closure strips 18 and 19 are provided to overlap so that the faces of the reinforcements 20 and 21 are in overlapping confronting relationship. The confronting faces of the reinforcements have a plurality of longitudinally extending grooves 22 and ridges 23 formed integrally therewith such that the grooves 22 on the reinforcement 20 and the ridges 23 on the reinforcement 21, and vice versa, are in aligned relationship so as to be adapted for resilient hermetically sealed locking engagement with one another.

This hermetically sealed resilient locking engagement is accomplished by forming the reinforcement 20 and reinforcement 21 so as to have substantially identical cross sectional configurations. As may be noted, the reinforcements 20 and 21 present allochirally mateable grooves 22 and ridges 23, on the contiguous confronting faces thereof. The grooves 22 and ridges 23 are arranged substantially normal to, or at right angles to, the planes of the reinforcement portions 20 and 21 of the closure strips 18 and 19. The grooves 22 in one of the reinforcements correspond in shape to the ridges 23 in the other of the reinforcements, and vice versa. Of course, one or more ridges may be employed in each reinforcement, with an equal number of grooves arranged substantially as shown in the drawings.

The head portion 23a of each ridge 23 (Fig. 3) is enlarged and the neck portion 23b is constricted, so as to form an adjacent complementary groove 22 with restricted opening thereinto and an enlarged bottom portion, as shown. In this manner, a groove 22 in one of the reinforcements 20 or 21 corresponds in shape to the ridge 23 in the other reinforcement, and vice versa. Also, the head portion 23a of each of the ridges 23 has an undercut engaging surface 23c providing a portion overhanging the adjacent groove 22 adapted to engage a similar undercut surface 23c of an opposite ridge 23. In this fashion, a ridge 23 on the reinforcement 20 of the closure strip 18 will be in opposed contact with a corresponding undercut, engaging surface 23c of another ridge 23 on the reinforcement 21 of the closure strip 19 when a ridge 23 on one reinforcement is engaged in a groove 22 on the other reinforcement.

The undercut surfaces 23c may be inclined or may be in a plane substantially parallel with the plane of the reinforcement, and substantially aligned therewith.

A flange 24 is formed integrally with the reinforcement 21 of the closure strip 19. The integral flange 24 extends longitudinally along the entire length of the reinforcement 21. The flange 24 extends upwardly away from the reinforcement 21 and is adapted to lie in close relation to the closure strip 18. The junction between the flange 24 and the reinforcement 21, such as at 25, is provided to have a thickness less than the thickness of the flange 24. This reduced thickness of the junction 25 permits limited flexing movement of the flange 24 while the reinforcements 20 and 21, and their respective grooves and ridges, are in a locking engagement without causing the reinforcements 20 and 21 to become

disengaged. This feature is advantageous in preventing accidental opening of the pouch 11. For example, when the pouch 11 is introduced into or removed from a pocket it is not unlikely that the flange 24 might accidentally engage a part of the garment. If the flange 24 were rigid and not capable of limited flexing, such engagement could possibly cause the closure member 12 to open. Because of the thinner junction 25 which permits limited flexing of the flange 24 such accidental disengagement of the reinforcements 20 and 21 is not possible. When however, one chooses to open the pouch it is a simple matter to grasp the flange 24 substantially anywhere along the length thereof and by pulling the flange 24 away from the closure strip 18 the reinforcement 21 becomes disengaged from the reinforcement 20. When the reinforcements 20 and 21 are thus disengaged an opening is provided into the container or pouch 11.

In the preferred embodiment shown herein the overlapping marginal reinforcement portions 20 and 21 are disposed in an angular relationship and thus hold the front and back walls 14 and 13, respectively spaced apart by a distance S. The flange 24 is formed integrally with the reinforcement 21 on the closure strip 19 and projects upwardly therefrom to provide a generally rounded edge portion 74 thereon which contacts or abuts the surface of the closure strip 18 adjacent and above the reinforcement 20.

There are a number of distinct advantages in forming the flanges used in opening the instant sliderless fastener integral with one of the reinforced marginal portions along substantially the entire length thereof. One such advantage, as noted previously, is that the closure strips may be separated by grasping the flange anywhere along the length thereof.

A more important advantage, however, is in the economy of producing the instant closure strips. Opening flaps or flanges which have been provided on similar closure strips employed heretofore have always comprised separate pieces which are affixed to the closure strip subsequent to the extrusion thereof.

In this invention however, the flange grasped in opening the closure member is formed integral and simultaneously with the closure strip as the strip is being extruded. This not only eliminates an additional step in the manufacturing of the fastener, but also provides a stronger means for grasping the closure strips.

It will be apparent to those skilled in the art that we have now provided a new and improved sliderless form of fastener for pouch-like containers in which the fastener is provided with a novel means to facilitate the separation of the fastener elements to provide an opening into a pouch closed or sealed by the structure.

It will also be apparent that the novel means for opening the instant enclosure structures are such that it is substantially impossible to open the closures accidentally and only intentional force will open the pouch.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

We claim as our invention:

1. A pouch comprising front and back sheet-like walls having mated edges united together to define a container and having corresponding free upper edges spaced from each other to define an opening into said container on the front side thereof, a first closure strip secured to the free upper edge of said back wall to extend the length thereof and downwardly therefrom, a second closure strip secured to the upper free edge of said front wall to extend the length thereof and upwardly therefrom, said first closure strip having an offset integral thickened marginal reinforcement disposed angularly downwardly away from the back wall, and said second closure strip having an offset integral thickened marginal reinforcement disposed angularly upwardly toward said back wall

to overlap the marginal reinforcement on said first closure strip, said marginal reinforcements having on confronting overlapping faces longitudinally extending grooves and ridges, each groove in said reinforcements being aligned with a corresponding ridge in the other reinforcement and vice versa and adapted for resilient locking engagement therewith, and a flange integral with said marginal reinforcement on said second closure strip extending longitudinally along the entire length thereof and extending upwardly therefrom into contact with said first closure strip.

2. A pouch comprising front and back sheet-like walls having mated edges united together to define a container and having corresponding free upper edges of different height spaced from each other to define an opening into said container on the front side thereof, a first closure strip secured to the free upper edge of said back wall to extend the length thereof and downwardly therefrom, a second closure strip secured to the upper free edge of said front wall to extend the length thereof and upwardly therefrom, said first closure strip having an offset integral thickened marginal reinforcement disposed at an angle downwardly divergent from said back wall, said second closure strip having an offset integral thickened marginal reinforcement disposed divergently upwardly toward said back wall to overlap the marginal reinforcement on said first closure strip, said marginal reinforcements having on respective confronting overlapping faces longitudinally extending grooves and ridges, each groove in one of said reinforcements being aligned with a corresponding ridge in the other of said reinforcements and vice versa and adapted for resilient interlocking engagement therebetween, and a flange integral with said marginal reinforcement on said second closure strip extending longitudinally along the entire length thereof and extending upwardly therefrom into contact with said first closure strip along a line lying above both of said marginal reinforcements, said flange having a free upper edge extending away from said first closure strip to serve as a grasping means to facilitate the separation of said

ridges and their corresponding grooves to effect the opening of said closure strips when a laterally outward force is applied to said flange.

3. A pouch comprising front and back sheet-like walls having mated edges united together to define a container and having corresponding free upper edges of different height spaced from each other to define an opening into said container on the front side thereof, a first closure strip secured to the free upper edge of said back wall to extend the length thereof and downwardly therefrom, a second closure strip secured to the upper free edge of said front wall to extend the length thereof and upwardly therefrom, said first closure strip having an offset integral thickened marginal reinforcement disposed at an angle downwardly divergent from said back wall, said second closure strip having an offset integral thickened marginal reinforcement disposed divergently upwardly toward said back wall to overlap the marginal reinforcement on said first closure strip, said marginal reinforcements having on respective confronting overlapping faces longitudinally extending grooves and ridges, each groove in one of said reinforcements being aligned with a corresponding ridge in the other of said reinforcements and vice versa and adapted for resilient interlocking engagement therebetween, said closure strips being united at their ends to the corresponding mated edges of the front and back walls and the angularly disposed reinforcements elsewhere holding said walls spaced apart, and a flange integral with said marginal reinforcement on said second closure strip extending longitudinally along the entire length thereof and extending upwardly therefrom into contact with said first closure strip along a line lying above both of said marginal reinforcements, said flange having a free upper edge extending away from said first closure strip to serve as a grasping means to facilitate the separation of said ridges and their corresponding grooves to effect the opening of said closure strips when a laterally outward force is applied to said flange.

No references cited.