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S. AUSNIT ET AL

3,054,434

BAG CLOSURE

Filed May 2, 1960

FIG. 1

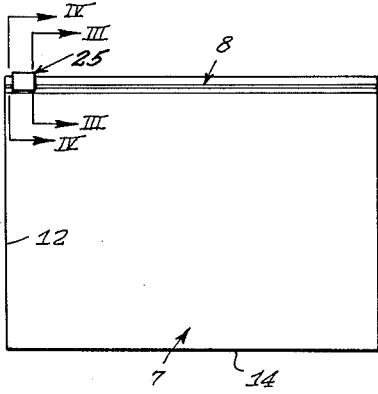


FIG. 2

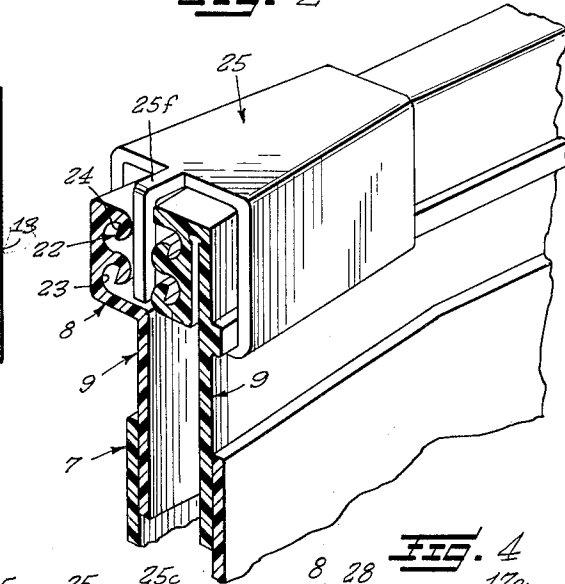


FIG. 3

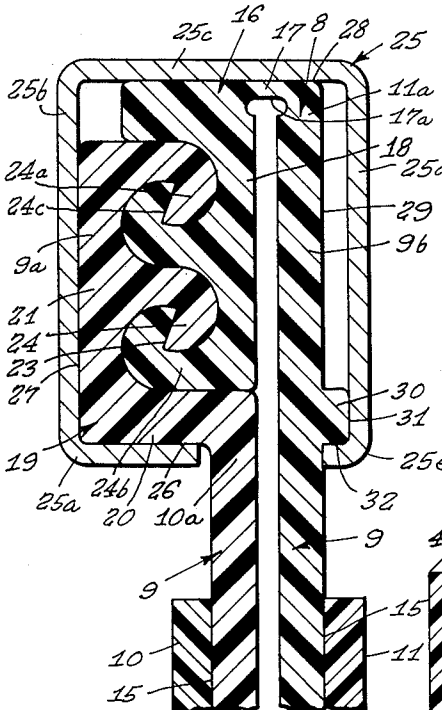


FIG. 4

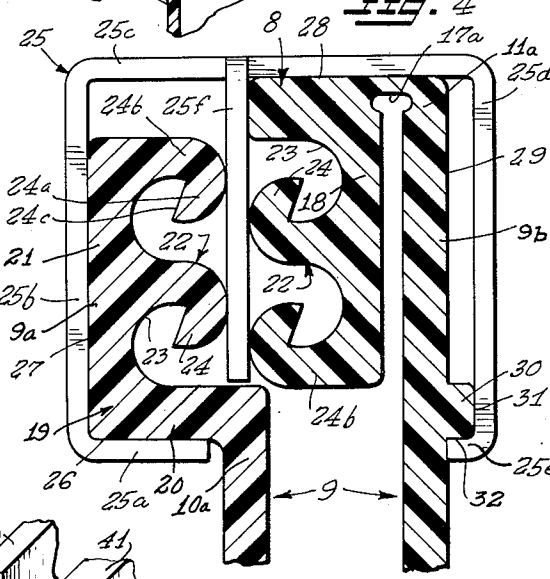
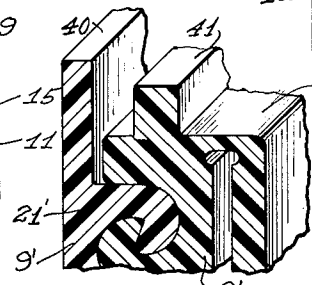


FIG. 5



Inventors
 Steven Ausnit
 Otto Karl Kraus

By

Hill, Sherman, Meroni, Gross & Simpson

Attys

1

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BAG CLOSURE

Steven Ausnit and Otto Karl Kraus, New York, N.Y.;
said Kraus assignor to said Ausnit
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The present invention relates generally to an article such as a pouch or similar container having a new and improved resilient type fastener structure particularly adapted to minimize accidental separation of the engaged portions of the fastener structure when subject to load forces.

A primary object of this invention is to provide an improved resilient type fastener structure for a pouch. Another important object of this invention is to provide an improved resilient type fastener structure and slider combination that can be opened at the top rather than at the side of a bag or pouch.

A further object of the present invention is to provide a resilient type fastener structure which is capable of being opened by means of a stamped low cost type of slider.

Yet another object of the present invention is to provide a new and improved resilient type fastener structure on a bag or pouch along one of its edges which fastener structure will not readily become opened from overload- ing while the bag or pouch is being used.

According to the general features of the present invention, the bag or pouch is provided with an improved resilient type fastener. The pouch includes a pouch front wall and a pouch rear wall and front and rear fastener strips are carried thereon respectively. The rear fastener strip is provided with a spacer flap attached at the top of a web portion from which depends a thickened rear marginal flap portion in confronting relationship to a front marginal flap portion. Mating ribs and grooves are provided on the confronting marginal flap portions extending lengthwise of the pouch and enabling the marginal flap portions to be squeezed together to close the pouch. A slider may be used for this purpose.

The rear fastener strip includes the spacer flap disposed in angular relation to the web portion and to the marginal flap portion thereby affording the pouch with means to resist separation of engaged rib and groove areas of the fastener structure.

Still another feature of the present invention relates to an improved low cost type of pouch which may be economically manufactured and is adapted for use with a low cost type of slider enveloped over the top edge of the pouch for opening and closing fastener structure disposed along the top edge of the pouch.

Other objects and features of the present invention will more fully become apparent in view of the following detailed description taken in conjunction with the accompanying drawings illustrating a single embodiment and in which:

FIGURE 1 is a side elevation of a bag or pouch;

FIGURE 2 is an enlarged fragmentary cross-sectional view illustrating the coaction of the slider with the fastener structure;

FIGURE 3 is an enlarged fragmentary cross-sectional view taken substantially on the line III—III looking in the direction indicated by the arrows, as shown in FIGURE 1;

FIGURE 4 is an enlarged fragmentary cross-sectional view taken substantially on the line IV—IV looking in the direction indicated by the arrows as shown in FIGURE 1; and

FIGURE 5 is an enlarged fragmentary cross-sectional view of a modified form of a sliderless type of a bag or pouch.

2

As shown on the drawings:

In accordance with the instant invention a bag or pouch, or similar container, shown generally at 7 in FIGURE 1, is provided with a resilient type fastener structure shown generally at 8. The fastener structure 8 includes a pair of closure or fastener strips indicated generally at 9, 9 which may be integral with the pouch 7 or attached to the pouch as illustrated. A front fastener strip 19 and a rear fastener strip 16 have marginal flap portions 21 and 18 respectively which confront one another. The fastener strips are herein referred to generally by the numerals 9, 9 and when specific reference is made to the rear and front strips the numerals 16 and 19 are used.

The pouch 7 includes a resilient sheet-like pouch front wall 10 and a resilient sheet-like pouch rear wall 11 substantially coextensive therewith and the fastener strips 9, 9 comprise part of the front and rear walls 10 and 11. The pouch rear wall 11 is secured to the pouch front wall 10 along side edges, as at 12 and 13 and the bottom edge 14. The pouch front and rear walls all can be one piece with the piece being bent at the edge 14 if desired. Preferably the pouch front and back or rear walls 10 and 11 are made of sheets of thermoplastic synthetic 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 can be translucent, and substantially transparent, so as to be suitable for use in the instant pouch 7. The pouch front and back walls 10 and 11 may be suitably heat sealed, sewed or glued together, or both, along their marginal edges 12, 13 and 14, so as to comprise the pouch 7. The pouch front and back walls or the walls to which the strips 9, 9 are attached may also be made from other suitable materials such as cardboard, if desired.

The fastener strips 9, 9 of the fastener structure 8 are sealed or suitably attached as indicated at 15 to the pouch front and rear walls 10 and 11. The rear fastener strip 19 of the fastener structure 8 includes the rear marginal portion 18 which may be termed to be reverse bent. The rear fastener strip 16 has a spacer flap 17 disposed in angular relation to a rear web portion 9b and the rear marginal portion 18. The spacer flap or lateral portion 17 extends laterally of and is integral with the rear web portion 9b and the marginal portion 18, being formed of one piece therewith, and is positioned above the longitudinal centerline of the marginal portions 18 and 21 when engaged.

The front marginal portion 21 is integral with a web portion 10a and is thickened and outwardly offset to form a downwardly facing shoulder 26.

Rib and groove structure indicated generally at 22 is disposed between the fastener strips 16 and 19 for closing the top of the pouch to provide an air-tight seal.

The fastener strips 19 and 16 are coextensive in length with the front and back pouch walls 10 and 11 and span the opening at the top of the pouch. In this respect it will be noted that the back top portion 11a of the rear web portion 9b extends above the top of the front web portion 10a a distance equivalent to the vertical dimension of the front marginal portion 21.

Each of the strips 16 and 19 can be conveniently fabricated simultaneously with the formation of the associated pouch back and front walls 11 and 10. Suitable materials for manufacturing the strips 9, 9 are thermoplastic and thermosetting organic synthetic resins referred to above in describing the pouch 7.

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 9, 9. 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 spacer flap 17 is relatively thin in cross-section as compared to the rear web portion 9b and the rear marginal flap portion 18 so as to make the bent marginal flap portion flexible at its juncture with the rear web portion 9b. In order to further render the relatively thin spacer flap 17 even more flexible, the spacer flap 17 has an enlarged notched area 17a along its underneath surface.

As noted in the drawings, the closure strips 16 and 19 are disposed to overlap so that the faces thereof are in confronting relationship. The confronting faces of the marginal portions 18 and 21 have a plurality of longitudinally extending grooves 23 and ribs or ridges 24 formed integrally therewith such that the grooves 23 on the marginal flap portion 18 and the ribs 24 on the marginal flap portion 21 are in aligned relationship so as to be adapted for locking engagement with one another.

This locking engagement is attained by forming the flap portions 18 and 21 including the ribs and grooves 23 and 24 of substantially similar cross-sectional shape. As may be noted, the flap portions 18 and 21 present allochirally mateable grooves 23 and ribs 24, on the contiguous confronting faces thereof. The grooves 23 and ribs 24 are arranged substantially normal to, or at right angles to, the planes of the flap portions 18 and 21. The grooves 23 in one of the flap portions correspond in shape to the ribs 24 in the other of the flap portions, and vice versa. Of course, one or more ridges may be employed in each arrangement, with an equal number of grooves arranged substantially as shown in the drawings.

The head portion 24a of each rib 24 is enlarged and the neck portion 24b is constricted, so as to fit into an adjacent complementary groove 23 having a restricted opening and an enlarged bottom portion, as shown. Also, the head portion 24a of each of the ribs 24 has an undercut engaging surface 24c providing a portion overhanging the adjacent groove 23 adapted to engage a similar undercut surface 24c of an opposite ridge 24. In this way, a rib 24 on the flap portion 18 will be in opposed contact with a corresponding undercut, engaging surface 24c of another rib 24 on the other flap portion 21 when a rib 24 on one flap portion is engaged in a groove 23 on the other flap portion or strip.

The undercut surfaces 24c may be inclined or may be in a plane substantially parallel with the plane of the flap portion, and substantially aligned therewith.

In order to provide a slider-type of pouch of the type where the slider may be manufactured at low cost as a stamping, it has been found that a most desirable way of attaining this end is by mounting a slider at the top of the pouch, as indicated at 25 in FIGURE 1. Due to the flexibility of the fastener structure 8, a slider type of bag or pouch 7 which opens along its top edge may now be economically manufactured. This type of pouch will not readily become accidentally opened by over loading in view of the flexibility of the fastener structure. The slider may be formed of any suitable material such as steel or brass.

In order to mount the slider at the top edge of the pouch, the slider is preferably formed of a cross-sectional configuration which approximates the configuration of the fastener at the top edge of the pouch. As will be noted in FIGURE 3, the top end of the fastener 8 includes a downwardly facing front wall shoulder or surface 26, the front marginal flap portion 21 has an outwardly facing surface 27, the spacer flap 17 includes an upwardly facing surface 28, the rear web portion 9b

includes an outwardly facing surface 29, and the rear web portion 9b is further provided with a rib 30 which extends the full length of the fastener structure 8. This rib 30 also includes an outwardly facing surface 31 and a downwardly facing rear wall shoulder or surface 32 which is disposed generally in a plane with the shoulder 26, and these shoulders 26 and 32 are adapted to coact with the slider 25 in a manner hereinafter described in order to secure the slider in assembly with the fastener 8.

The slider 25 includes a series of portions or flanges all of which are disposed in angular relation with respect to one another and which are indicated at 25a, 25b, 25c, 25d, and 25e. The general shape of the slider 25 is of a U and the free ends of the U are angled towards one another which free ends constitute the slider flanges 25a and 25e. The flanges 25a and 25b converge with respect to the flanges 25d and 25e, as shown in FIGURES 2 and 3. The slider flanges 25a and 25e are adapted for engagement with the underside of the shoulders 26 and 32 so that when the slider 25 is in assembly with the fastener 8 on the pouch 7, the coaction between the flanges 25a and 25e with the shoulders 26 and 32 serve to sustain the slider on the fastener or pouch.

When the slider 25 is in assembly with the fastener or pouch, the slider flanges 25b and 25c are bottomed against the fastener or pouch surfaces 27 and 28 while the slider flange 25d is spaced from the fastener or pouch surface 29 by virtue of the rib 30.

Means is provided on the slider in the form of a slider partition 25f for separating the ribs and grooves when they are engaged together and the pouch is closed. This slider partition 25f is disposed between and spaced from the side flanges or walls 25b and 25d of the slider and the slider partition 25f is carried on the slider by virtue of its juncture and attachment with the slider wall or flange 25c. The partition 25f comprises a turned extension which is dependent from an edge of the flange 25c at the enlarged end of the slider.

In order to close the pouch after the slider 25 has been assembled on the fastener or pouch, the slider may be moved longitudinally in such a way that the flanges or side walls of the slider engage with the fastener or pouch surfaces 27 and 31 and effect a pincer type action due to the convergence of the slider flanges 25b and 25d so that force is transmitted to the webs and to the ribs and grooves to cause the ribs and grooves to become engaged together in locked assembly. To open the pouch, the partition divider 25f is thin enough or may be provided with beveled edges for separating the engaged ribs and grooves as the slider 25 is moved in an opposite direction.

In FIGURE 5 is shown a modified type of pouch 7'. In this case, the pouch 7' is identical to the pouch 7 except that this is a sliderless type of pouch. The pouch 7' includes a pair of strips 9', 9' which are identical to the strips 9, 9 as shown in the first form of the invention except that no shoulders are required to assist in holding the slider onto the strips as was the case in the illustrated form shown in FIGURES 1-4. In this case, each of the strips is shown provided with a vertical flange which flanges are indicated at 40 and 41, respectively. The flange 41 may be omitted, if desired, since one flange will function satisfactorily although with two flanges, the bag may be opened with greater ease. In order to facilitate identification of the flanges as means to assist in the separation of the strips 9', 9' when they are engaged together, the flanges may be colored differently than the strips themselves. Excellent results may be obtained where the strips 9', 9' are of a clear color while one or both of the flanges 40, 41 are of a red color.

As illustrated, the flange 40 comprises an integral extension of a web portion 21' and extends above an upwardly facing surface 28' on the other of the strips.

The flange 41 may be disposed anywhere along the transverse width of the top surface 28' and, as illustrated,

5

the flange 41 is disposed approximately in the middle of the surface 28'.

The strips 9' on the pouch 7' may be operated in the same way as the strips shown in connection with the first form of the invention in that the ribs and grooves may be engaged with one another in the same way. The pouches 7 and 7' differ from one another in that the pouch 7' has at least one flange 40, and preferably two flanges 40 and 41 to facilitate separation of the strips 9', 9' from one another when they are engaged together. The flanges 40 and 41 may be pulled apart to effect separation of the strips 9', 9'. As noted above one or both of the flanges 40, 41 are preferably colored a color different than the strips 9', 9' to facilitate identification of the flanges as means to assist in the separation of the strips.

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 flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged.

2. A flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged, the other of said marginal portions being above its associated web portion.

3. A flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged, the other of said marginal portions being above its associated web portion, with each of said marginal and web portions connected so that when forces are applied to the web portions in the direction in which they extend to tend to separate the lock the lock will be forced into a position relative to the webs by which the rib and groove elements offer greatest resistance to separation.

4. A flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, each having at least one groove element and each having at least one hook-shaped rib element extending therealong and forming a lock between the marginal portions when engaged, said groove and rib elements shaped to coactingly interlock with said hook-shaped rib elements pointing toward each other, one of the marginal portions being alongside its associated web

6

portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and its associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged, said one marginal portion having its hook-shaped rib element pointing in a direction opposing the direction of its associated web portion, so that when forces are applied to the web portions tending to separate the lock the lock will be forced into a position with the hook-shaped rib elements pulling against each other in the direction of greatest resistance to separation.

5. A flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged, and a separating flange on the marginal portion of at least one of said strips for separating the strips and the rib and groove elements and disengaging the lock.

6. A flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged, and a separating flange on the marginal portion of at least one of said strips for separating the strips and the rib and groove elements and disengaging the lock, said flange being colored differently than the strips to facilitate identification of the flange and assist in separation of the strips.

7. A container having a flexible closure comprising a pouch having front and back wall portions with upper edges to form a pouch opening, and a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion and joined thereto by a portion extending laterally between said one marginal portion and its associated web portion and being integral therewith formed of one piece with said one marginal portion and associated web portion, said lateral portion being above the longitudinal centerline of the marginal portions when engaged, said web portions of the strips respectively attached to the individual upper edges of the pouch wall portion at a location below the marginal portions so that a reopenable closure is provided for the pouch opening at the top of the pouch.

8. A flexible closure comprising a pair of flexible closure strips each having a web portion and a marginal portion integral therewith, the marginal portions having interlocking rib and groove elements extending therealong and forming a lock between the marginal portions when engaged, one of the marginal portions being alongside its associated web portion, and a spacer flap joining said one marginal portion to its associated web portion and extending laterally between said one marginal portion and its associated web portion and being integral therewith

3,054,434

7

formed of one piece with said one marginal portion and its associated web portion, said spacer flap being located above the longitudinal center line of the marginal portions when engaged.

2,637,085
2,674,289
2,780,261
2,789,609

References Cited in the file of this patent

5

UNITED STATES PATENTS

2,514,750 Dobbs et al. ----- July 11, 1950

741,870
1,168,794

8

Madsen ----- May 5, 1953
Silverman ----- Apr. 6, 1954
Svec ----- Feb. 5, 1957
Post ----- Apr. 23, 1957

FOREIGN PATENTS

France ----- Feb. 22, 1933
France ----- Dec. 16, 1958