

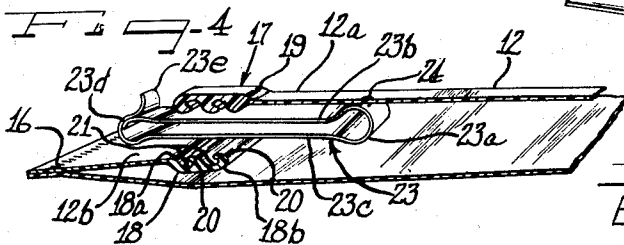
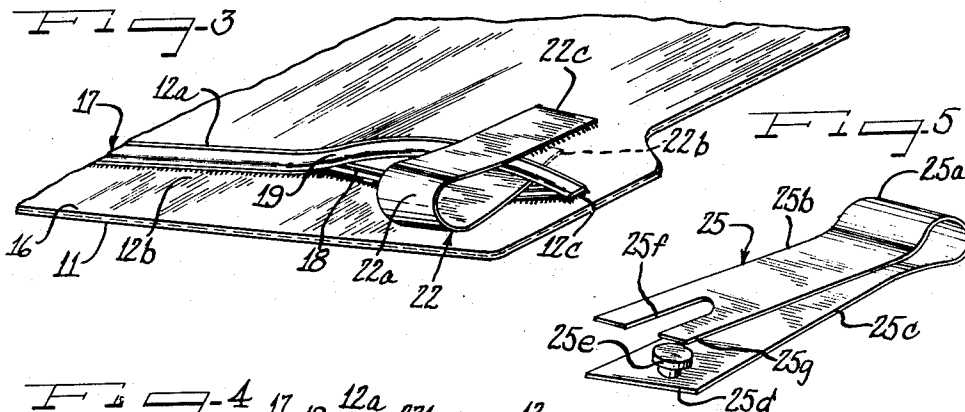
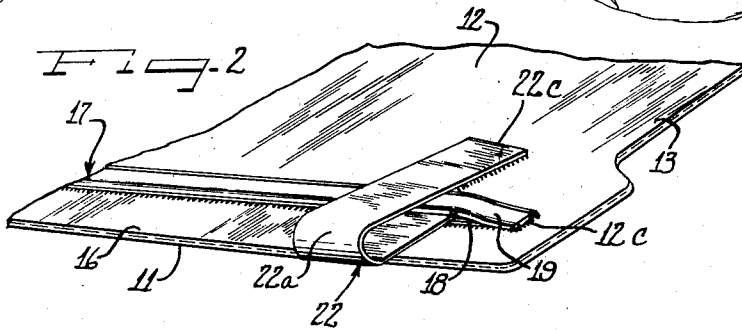
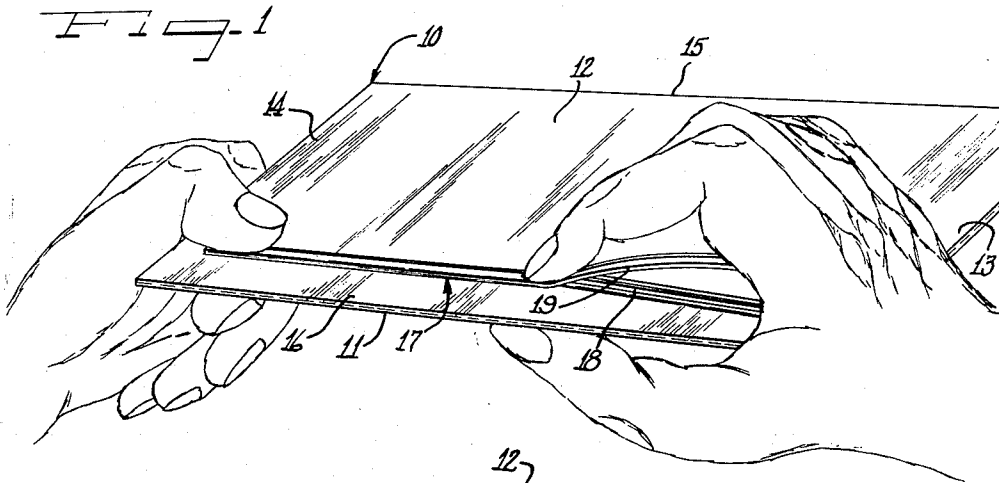
Aug. 19, 1958

E. F. SVEC ET AL

2,848,031

SLIDERLESS FASTENER FOR POUCH

Filed Nov. 20, 1953



Inventors
Emil F. Svec
Karel Jan Staller

Hill, Sherman, Meroni, Gross & Simpson Attys

1

2,848,031

SLIDERLESS FASTENER FOR POUCH

Emil F. Svec, New York, N. Y., and Karel Jan Staller, Fairborn, Ohio, assignors to Flexigrip, Inc., New York, N. Y., a corporation of New York

Application November 20, 1953, Serial No. 393,262

3 Claims. (Cl. 150—3)

The invention relates to a sliderless fastener closure for a pouch or the like container, and more particularly, to a sliderless fastener adapted to provide a substantially air-tight seal, but readily opened when desired.

At the present time, pouches or the like containers are employed for a variety of different purposes, including use as containers for tobacco or the like particulate material which should be kept in a substantially air-tight and moisture-proof container, in order to preserve the quality of the tobacco. An obvious disadvantages of many fasteners, including the ordinarily used metallic slide fasteners, is that such fasteners are not adapted to provide an air-tight seal, or a substantially air-tight seal. In addition, such fasteners tend to become clogged as a result of collection of particulate material in between the closely spaced metallic projections or teeth. In fact, all slide fasteners employing a slider for effecting opening and closing of such fasteners leave something to be desired in this respect, since the slider ordinarily fits very snugly in the slide fasteners and even a small amount of dirt, dust or the like particulate material may interfere very substantially with the normal reciprocal movement of the slider.

Heretofore, however, the slide fasteners employed in tobacco pouches or the like containers were almost invariably a slider-operated metallic slide fastener, or at least slider-operated slide fasteners of one type or another, since such fasteners appear to be the only type which could be handily opened and closed and which provided sufficient strength when closed.

The instant invention, however, relates to a new sliderless fastener arrangement that is particularly adapted for use as a closure for a pouch or the like container. A pouch embodying the instant invention is provided with a unique type of resilient fastener arrangement, suitably equipped with the necessary means for opening the fastener and for closing the same merely by the use of manual squeezing and pulling forces, even though such a fastener is substantially air-tight when closed and is capable of resisting very great pulling forces applied in the manner ordinarily involved in regular use of the pouch. In particular, our invention provides a resilient tab or strip suitably positioned between the cooperating marginal portions of closure strips, which may otherwise be closed throughout the length of the marginal portions in order to obtain a substantially air-tight closed fastener. The presence of the narrow resilient strip does not subtract appreciably from the overall air-tightness of the fastener, but it does permit a very simple and easy way of initiating the opening of the closure, for example, by pulling slightly on this strip or by sliding the fingernail underneath the marginal closure portion at the location of such strip.

It is, therefore, an important object of our invention to provide an improved sliderless fastener and an improved pouch with a sliderless fastener closure therein.

It is another object of the invention to provide an

2

improved sliderless fastener having a simplified easily assembled and mounted means for facilitating initial opening of the closure.

A further object of the invention is to provide an improved sliderless fastener comprising flexible wall members having thickened marginal portions provided with longitudinally extending grooves and ridges, the grooves of one marginal portion being complementarily contoured with respect to the ridges of the other marginal portion so as to receive said ridges in interlocking substantially full surface contact when the fastener is closed by pressing said marginal portions together, and a thin flexible strip secured at one end to one of said wall members and extending between said marginal portions with its other end freely projecting therebeyond, the freely projecting end serving as a grasping tab to initiate opening of said fastener.

Other objects, features and advantages of the invention will become apparent to those skilled in the art from a consideration of the following disclosure and the attached sheet of drawings, which form a part thereof.

On the drawings:

Figure 1 is a view in perspective of a pouch containing a sliderless fastener closure embodying the instant invention;

Figure 2 is an enlarged fragmentary perspective view of the pouch of Figure 1 showing the positioning of the resilient strip or tab member when the fastener is closed;

Figure 3 is an enlarged fragmentary perspective view of the pouch of Figures 1 and 2 showing the resilient strip or tab member in position after opening of the fastener has been initiated;

Figure 4 is a fragmentary sectional elevational view of another embodiment of the instant invention, wherein the strip or tab member is different from that shown in Figures 2 and 3; but the thickened marginal portions of the fastener per se are the same as those previously shown; and

Figure 5 is an enlarged detail view in perspective of still a different resilient strip or tab structure.

As shown on the drawing:

In Figures 1, 2 and 3, reference numeral 10 indicates generally a pouch embodying the present invention, including a resilient sheet-like back wall 11, a resilient sheet-like front wall 12 substantially coextensive therewith and secured to the back wall along the side edges, at 13 and 14 and along the bottom and top edges, at 15 and 16. Preferably, the walls 11 and 12 are made of sheets of thermoplastic flexible synthetic resin materials such as polyvinyl chloride, polyvinylidene chloride, halogenated polyethylenes, polyvinylacetate and polyethylene, and copolymers, heteropolymers and/or mixtures thereof. Such materials are substantially impervious to air and moisture and may be prepared in suitably thin resilient sheets which are translucent, and substantially transparent, so as to be suitable for use in the instant pouch 10. The front and back walls 11 and 12 may be suitably heat sealed, or sewed together, or both, along their marginal edges at 13, 14, 15 and 16 so as to define a suitably air-tight and moisture-proof container portion for the pouch 10.

Near the top or forward portion of the front wall 12 there is an elongated slot-like opening which is filled by the sliderless fastener closure assembly 17 of the instant invention. In general, the closure 17 comprises two flat flexible strips 18 and 19 having overlapping edge portions extending from opposite sides of the opening to close the same. Actually, the front wall 12 as free parallel edge portions 12a and 12b (Figure 3) which define the slot-like opening, the edge portion 12a being referred to as the outer edge portion and the edge portion 12b being

3

referred to as the inner free edge portion. A first flat closure strip 19 engaging the outer free edge portion (and affixed thereto by a suitable heat seal or by sewing) extends across the opening toward the inner free edge portion 12b; and a second flat closure strip 18 engaging the inner free edge portion 12b (and secured thereto in like manner) extends toward the outer free edge portion 12a to overlap in substantially parallel relationship the first closure strip 19. The two flexible sheet-like strips 18 and 19 thus extend generally in opposite directions and have overlapping portions, which are longitudinally and detachably fastened together. Using the preferred securing means, viz., heat sealing, the strips 18 and 19 are each integral with a wall portion. The strips 18 and 19 are also thickened marginal portions for the so called edges 12b and 12a, respectively, of the wall 12.

As best shown in Figure 4, the fastener or closure assembly 17 of the present invention, includes a pair of identical interengaging strips 18 and 19. Each of the strips 18 and 19 can be conveniently fabricated by extrusion through a suitable die followed by severing the extruded strip to appropriate lengths.

Suitable materials for manufacturing the strips 18 and 19 include preferably thermoplastic flexible synthetic resin materials such as polyvinyl chloride, polyvinylidene chloride, halogenated polyethylenes, polyvinyl acetate and polyethylene, and copolymers, heteropolymers and/or mixtures thereof. A preferred material is polyethylene. Rubber, either natural or synthetic, 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 strips 18 and 19 which may be used in the practice of the invention include the closure strips such as those described and claimed in United States Patent No. 2,558,367, issued to Borge Madsen on June 26, 1951. The strip 18 includes a substantially flat thin web portion 18a and an offset longitudinal marginal portion 18b substantially thicker than the thickness of the web 18a. Formed in the reinforced marginal portion 18b is at least one ridge 20 and at least one groove 21 (and preferably an alternate series of a plurality of solid rib-like projections or ridges 20, 20 and channels or grooves 21, 21) extending in substantially parallel relationship the full length of the strip 18. As shown herein, the strip 18 and the reinforced marginal portion 18b thereof extend substantially the full distance between the pouch sides 13 and 14 (Figure 1) and the extremities of the reinforced marginal portion 18b are flattened (and preferably heat sealed) so as to merge into the front wall 12, for example, at 12c (Figure 2) near the edge 13.

It will be seen that the strip 19 is substantially identical in cross section to the strip 18, and the strip 19 is affixed to the outer edge 12a of the front wall 12 to extend outwardly therefrom so as to present an integral reinforced marginal portion 19, the strips 18 and 19 thereby presenting allochirally mateable grooves and ridges, on the contiguous faces thereof. The grooves 21, 21 and the ridges 20, 20 are arranged substantially normal to or at right angles to the planes of the strips 18 and 19, or the planes of the flat unreinforced portions of the strips 18 and 19, such as the portion 18a of the strip 18. The grooves in one of the reinforced edges or strips correspond in shape, profile or cross section to the ridges in the other of the reinforced marginal portions, and vice versa. Of course, more than two ridges and grooves may be employed in each of the reinforced marginal portions, but two is the preferred number.

As is best shown in Figure 4, each ridge 20 has an enlarged head portion and a narrowed or restricted neck portion, so as to form an adjacent complementary groove with a restricted opening thereinto and an enlarged bot-

4

tom portion, as shown. In this manner, the groove 21 in the strip 18 corresponds in shape to the ridge in the other strip 19, and vice versa. Interlocking substantially full surface contact between the respective ridges and grooves may be obtained when the fastener is closed simply by manually pressing the marginal portions 18 and 19 together, as indicated in Figure 1. Thus far the structure described for the pouch 10 and fastener 17 is the same in Figures 1, 2, 3 and 4, and the same reference numerals are used to indicate the same elements in each of these figures.

As will be appreciated, the interlocked fastener strips 18 and 19 have very great resistance to being separated by forces applied in opposite directions in the plane of these strips 18 and 19. In order to separate the strips 18 and 19, it is necessary to apply forces normal to the planes of the strips. Such forces may be applied by a slider member (not shown) which is capable of applying the necessary closing as well as opening forces normal to the plane of the strips 18 and 19; but, as was previously indicated, the use of such a slider has certain disadvantages in a device of this kind. The hands may be used to apply the necessary (normal) closing pressure to close the instant fastener 17, as indicated in Figure 1, merely by pinching the outer strip 19 down against the inner strip 18 backed up by the rear pouch wall 11 and sliding the hand outwardly toward the edge 13 to progressively close the fastener. In order to open the fastener, however, it is necessary to apply opposed forces perpendicular to the plane of the strips 18 and 19, and this could ordinarily be done, in the absence of the loop 22 of the instant invention, only by attempting to pry the strips 18 and 19 apart using the fingernail or some sharp instrument, which tends to injure the relatively delicate ridge and groove structures of these strips 18 and 19.

In the instant invention, however, it has been found that a thin resilient strip 22 may be permanently positioned between the closure strips 18 and 19, so as to provide a point at which opening of the fastener 17 may be initiated, without interfering appreciably with the overall effectiveness of the instant closure 17. In other words, the particularly advantageous property of the instant closure 17, which is the substantially air-tight character thereof, is not appreciably impaired by the presence of the instant strip 22. It is, of course, true that a certain small amount of air leakage may take place in the region of the strip or tab 22, because this strip 22 serves to prevent tight interlocking locally thereof. As shown in Figures 2 and 3, the strip 22 (which is a narrow thin resilient flexible strip preferably made of the same type of material used in the pouch and/or the closure elements 18 and 19) is secured to one of the sheets or walls, such as the wall 12 and extends between the reinforced marginal edge portions 18 and 19 to provide a manually graspable tab 22a serving as means to initiate opening of the fastener 17. Preferably, the strip 22 is secured at one end (indicated at 22b) to the inside of the wall member 12 and extends between the marginal portions or strips 18 and 19 with the tab portion 22a freely projecting therebeyond, the actual extremity 22c of the projecting end 22a may be suitably secured to the outside of the wall 12, for example by heat sealing, or by sewing. The ends 22b and 22c thus are adhered by one of such means to opposite sides of the wall 12. The projecting strip portion 22a extends between the reinforced marginal edge portions 18 and 19 to prevent tight interlocking between the grooves and ridges immediately adjacent the tab portion 22a and thereby to facilitate separation of the interlocked edge portions of the fastener 17. Separation may be accomplished simply by initially pulling on the tab portion 22a so as to apply a perpendicular force to the outer strip member 19 (or alternatively by slipping the fingernail down behind the tab portion 22a); and once the closure 17 has been opened slightly, such as is shown in Figure 3, the fingernail may be slipped into this opening and slid across the full width

of the pouch 10 so as to complete the opening of the closure assembly 17. Closing thereof is accomplished as indicated merely by pressing the marginal strips 18 and 19 together and sliding the fingers back across the full length of the closure member 17 including the tab 22a. This results in a very secure closing of the closure 17 even in the region of the tab 22a (although there is usually slight air leakage in this location). The unusual feature of this closure assembly here described resides in the fact that the "substantially" air impermeable character of the entire closure 17 is not appreciably affected by the very slight leakage which results from the presence of the tab 22, but the tab 22 is fully capable of carrying out its function of initiating the opening of the closure 17, when such is desired.

As shown in Figures 2 and 3, the strip 22 is secured at its ends 22b and 22c to the inside and outside of the wall 12, respectively, so as to provide a loop of the strip 22 enclosing the marginal portion 19. An arrangement whereby a loop encloses the marginal portion 18, instead, can be obtained merely by reversing the parts here shown, but this is less preferable because the natural location for the tab portion in this arrangement would be inside the pouch instead of outside as here shown. Also, it will be appreciated that both of the strip ends 22c and 22b could be held together and secured to the inside of the front wall 12 so that only the tab portion 22a extends through the closure strips 18 and 19.

In Figures 4 and 5, the use of a loop which is in the form of a small leaf spring, in place of the strip 22, is demonstrated. Referring to Figure 4, a narrow small leaf spring made of suitably resilient material such as a resilient metal strip, is designated generally by the reference numeral 23. The leaf spring 23 is also in the form of a loop wherein the loop end 23a is suitably secured to the inside of the front wall 12 as by sewing at 24 and the legs 23b and 23c of the flattened loop 23 extend between, across and beyond the marginal portions 18 and 19 to define a manually graspable clip means 23d outside of the pouch 10 for selectively separating and holding together the legs 23b and 23c to facilitate opening of the fastener. The clip 23d is readily undone merely by lifting up the resilient end 23e so as to let the leg 23b snap forward, thereby moving the marginal portion 19 away from the marginal portion 18 in the vicinity of the loop 23. This sufficiently opens the fastener means 17 to permit the insertion of the finger or at least the fingernail between the strips 18 and 19 and the opening of the remainder of the closure assembly 17.

In Figure 5, another leaf spring 25 is shown with a looped or bottom portion 25a which may be suitably fastened to the inside of the pouch wall 12 in the same manner that the loop portion 23a of the spring 23 is fastened. The legs 25b and 25c of the spring 25 extend upwardly from the curved or loop portion 25a and are resiliently urged apart. Suitable manually graspable means at 25d are used to selectively clamp and release the resiliently urged spring legs 25b and 25c. As here shown, a button 25e on the leg 25c may be slid in and out of the slot 25f on the leg 25b (either by the use of slight movement of the button 25e or by the use of a slot 25f which is wide enough to pass the button 25e but has an arm portion, for example, at 25g which may be moved over underneath the overhanging portion of the button 25e for clamping purposes).

The resilient "self-operating" devices such as the leaf springs 23 and 25 have the particular advantage that they may be used to quickly effect a substantial opening in the closure 17; but the thin flexible strip 22 has the advantage that more complete sealing may be effected at the closure 17 when there is only a single thin layer of flexible material between the marginal portions 18 and 19.

Another advantage of the instant invention resides in the fact that elements may be used in this device which

can be assembled entirely by the use of heat sealing means so as to substantially integrate the entire device in a very uncomplicated and effective manner, providing an effective seal at substantially all points of contact. This is possible using the flexible resilient plastic strip 22 which may be heat sealed to the wall 12; and as previously explained, the walls 11 and 12, as well as the strips 18 and 19 may all be secured together for operative functioning by the use of heat seals.

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 sliderless fastener comprising a thing flexible walled pouch having thickened flexible marginal portions defining the opening into said pouch, said marginal portions having parallel grooves and ridges, the grooves having restricted openings therinto and the ridges having enlarged heads substantially conforming to the bottoms of said grooves and restricted neck portions conforming to said restricted openings, the ridges of one marginal portion being detachably engageable with the grooves of the other marginal portion upon said marginal portions being pressed together, and a thin narrow flexible strip in the form of a loop with an end of the loop attached to the inside of a wall of said pouch with the legs of the loop extending between, across and beyond said marginal portions, one of said legs being adapted to provide a grasping tab to facilitate opening the fastener responsive to laterally outward pressure applied to said tab.

2. A sliderless fastener comprising a thin flexible walled pouch having thickened flexible marginal portions defining the opening into said pouch, said marginal portions having parallel grooves and ridges, the grooves having restricted openings therinto and the ridges having enlarged heads substantially conforming to the bottoms of said grooves and restricted neck portions conforming to said restricted openings, the ridges of one marginal portion being detachably engageable with the grooves of the other marginal portion upon said marginal portions being pressed together, and a thin narrow strip in the form of a flattened loop attached to the inside of a wall of said pouch with the legs of the loop extending between, across and beyond said marginal portions to define a manually graspable means for selectively separating and holding together said legs and adapted to facilitate opening the fastener responsive to laterally outward pressure applied to said loop.

3. A sliderless fastener comprising a thing flexible walled pouch having thickened flexible marginal portions defining the opening into said pouch, said marginal portions having parallel grooves and ridges, the grooves having restricted openings therinto and the ridges having enlarged heads substantially conforming to the bottoms of said grooves and restricted neck portions conforming to said restricted openings, the ridges of one marginal portion being detachably engageable with the grooves of the other marginal portion upon said marginal portions being pressed together, and a thin narrow strip in the form of a flattened loop attached to the inside of a wall of said pouch with the legs of the loop being resiliently urged apart and extending between, across and beyond said marginal portions to define a manually graspable means for selectively separating and holding together said legs and adapted to facilitate opening the fastener responsive to laterally outward pressure applied to said loop.

References Cited in the file of this patent

UNITED STATES PATENTS

1,942,246	Johaneson	Jan. 2, 1934
2,144,755	Freedman	Jan. 24, 1939
2,666,466	Sharat	Jan. 19, 1954
2,772,712	Post	Dec. 4, 1956