

May 5, 1953

O. D. PHILIPS
COMBINED SLIDE FASTENER

2,637,086

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2 SHEETS—SHEET 1

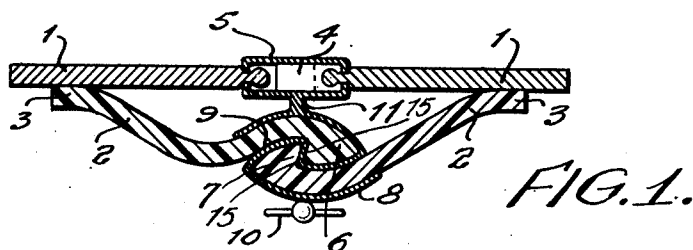
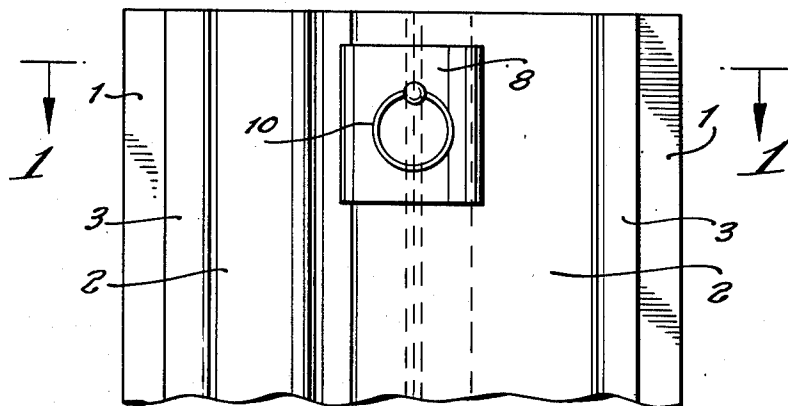
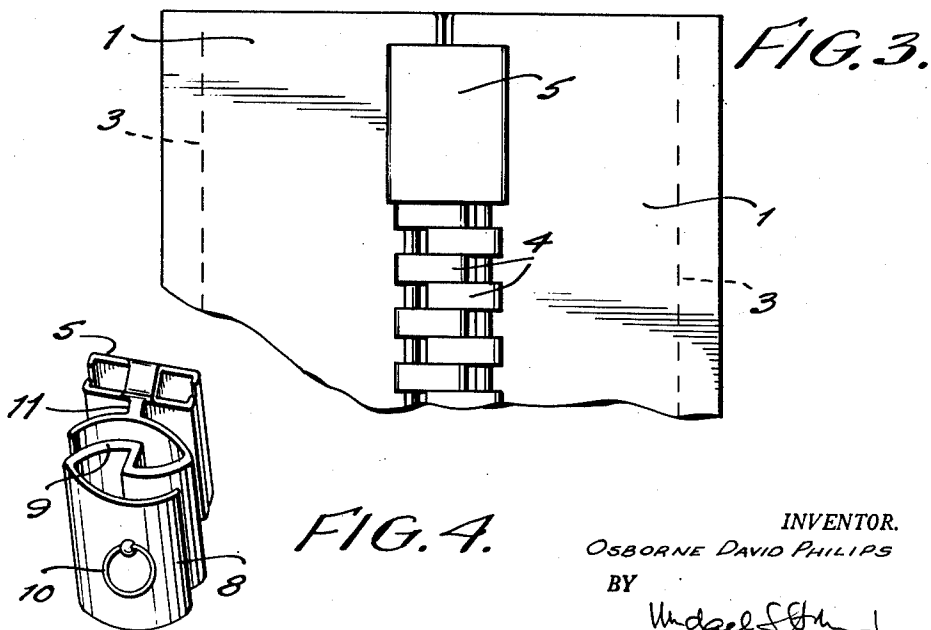


FIG. 2.



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2 SHEETS—SHEET 2

FIG. 5.

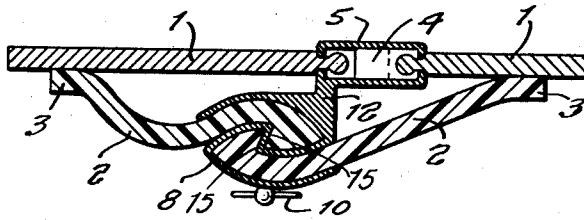


FIG. 6.

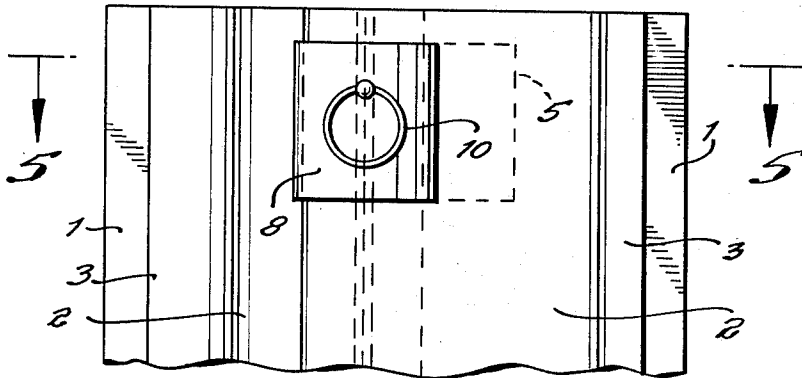


FIG. 7.

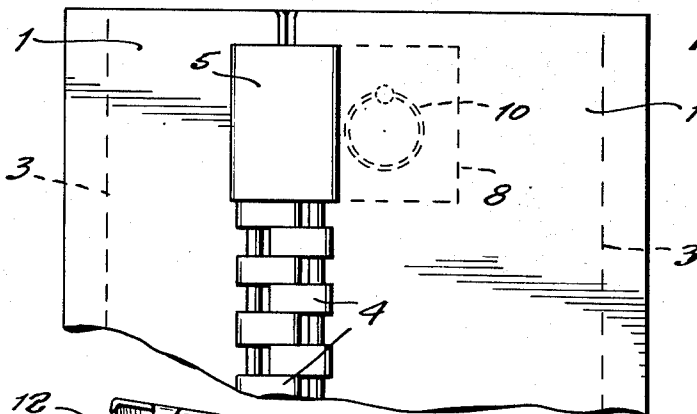
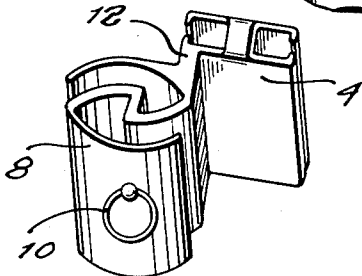


FIG. 8.

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2,637,086

COMBINED SLIDE FASTENER

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Application August 31, 1950, Serial No. 182,473

1 Claim. (Cl. 24—203)

1

My present invention relates to a fastening device comprising the combination of a conventional slide fastener and a plastic slide fastener.

It has been found in plastic slide fasteners that although the plastic slide fastener operates satisfactorily under some conditions, it is apt to give way under tension exerted laterally to the fastened edges of the plastic strips.

One object of my present invention is to combine a conventional slide fastener with a plastic slide fastener of the type mentioned above in order to avoid the unfastening of the plastic strips under lateral tension.

Another object of my present invention is to provide connected actuating elements for the respective slide fasteners so that the two may be operated simultaneously.

A further object of my present invention is to provide constructions in which the respective slide fasteners may be aligned with each other or may be located side by side.

With the above objects in view, my present invention mainly consists of a fastening device comprising, in combination, a pair of plastic strips; means for fastening together the adjacent edges of said plastic strips; a pair of cloth strips joined to said pair of plastic strips; and means for fastening together the adjacent edges of said cloth strips.

A preferred embodiment of my present invention consists of a fastening device comprising, in combination, a pair of elongated resilient plastic strips, each having an integral groove and projection extending along an edge thereof; means for fastening together the adjacent edges of the plastic strips by inserting the respective projections of each of the plastic strips into the respective grooves of the other of the plastic strips; a pair of elongated cloth strips; and slide fastener means for fastening together the adjacent edges of said cloth strips; each of said pair of cloth strips being joined respectively to one of the plastic strips along a longitudinal line adjacent to said adjacent edges of said strips, the total width of the cloth strips between said lines along which said plastic strips are joined thereto being substantially less than the total width of the plastic strips between said lines, whereby transverse tension on said strips is resisted only by said cloth strips; said means for fastening said plastic strips and said means for fastening said cloth strips each comprising an actuating element, and the said actuating elements being rigidly connected together, whereby the pairs of strips may be simultaneously fastened and unfastened.

2

The novel features which I consider as characteristic of my invention are set forth in particular in the appended claim. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a cross sectional view of the fastening device taken along the line 1—1 of Fig. 2;

Fig. 2 is an elevational view of the device as viewed from below Fig. 1;

Fig. 3 is an elevational view of the device as viewed from above Fig. 1;

Fig. 4 is a view of the actuating elements for the slide fasteners;

Fig. 5 is a sectional view of a different embodiment of the invention taken on line 5—5 of Fig. 6, looking in the direction of the arrows;

Fig. 6 is an elevational view of the fastening device as viewed from below Fig. 5;

Fig. 7 is an elevational view of the device as viewed from above Fig. 5; and

Fig. 8 is a view of the actuating elements for the slide fastening device shown in Fig. 5.

The slide fastener of my present invention comprises a pair of cloth strips 1, and a pair of plastic strips 2 which are joined together at 3 in any suitable manner. For example, the plastic strips may be sewn to the cloth strips or they may be joined thereto by heating and pressing the strips together. The present invention does not in any way relate to the manner in which the cloth and plastic strips are joined to each other.

The cloth strips include elements 4 of a conventional slide fastener which by means of actuating element 5 may be fastened and unfastened. The elements 4 are of the type that disengage upon the application of a wedging force acting to displace said elements laterally in the plane of the cloth strips.

The plastic strips 2 each include a terminal projection 6 and a groove 7 inwardly adjacent thereto, both of which are formed integrally with the said strips. Each projection 6 and adjacent groove 7 has a common face 15 which slopes outwardly and away from the free edge of the strip to provide an under cut face, such that when the edges are overlapped and pressed together into interlocking relationship, the projection of one edge extends into the groove of the other edge and the common undercut faces are in abutment. These plastic strips are preferably formed of a flexible, elastic material which may be either

3

thermoplastic or thermosetting, such as for example, polyvinyl chloride or polyethylene. Their construction is such that the projection 6 of each strip 2 is engaged within the groove 7 of the other plastic strip 2 so as to fasten the edges of the plastic strips together.

To fasten and unfasten the edges of the plastic strips 2 there is provided an actuating element 3 having two openings which are shaped so as to conform closely to the configuration of the grooves and projections of the plastic strips 2, as shown in Fig. 1. The actuating element 3 comprises between the openings thereof, which are adapted to engage the two strips, a wedge shaped element 9 having the thicker part of the wedge located at the top of the actuating element 2, as shown in Fig. 4. The length of this wedge shaped element 9 does not extend along the total length of the actuating element 8. The construction is such that when the actuating element is moved upwardly by means of the handle element 10 the edges of the strip which leave the bottom part of actuating element 8 will be joined together. As the actuating element 9 is moved downwardly the wedge shaped element 9 causes the plastic strips to become separated. The actuating element 5 fastens and unfastens the conventional fastening elements 4 in the manner of a conventional slide fastener.

The actuating elements 5 and 8 are rigidly connected together by element 11 which may be joined to the elements 5 and 8 by welding or any other known means. Also, the elements 5 and 8 may be made in one piece.

In applying the invention to any article, the plastic strips are preferably located on the outside and the cloth strips on the inside, and the construction shown in Fig. 1 is such that by means of handle 10 the actuating elements 5 and 8 may be moved up and down so as to simultaneously fasten and unfasten the edges of the cloth and plastic strips.

It will be noted from Fig. 1 that the total width of the plastic strips 2 between the longitudinal joining edges 3 is substantially greater than the total width of the cloth strips between the longitudinal joining edges 3. In this manner, any lateral tension on the strips will necessarily be resisted only by the conventional slide fastener of the cloth strips, and the lateral tension will not in any way effect the fastening of the plastic strips.

While conventional slide fasteners are generally satisfactory it is found that they are not weather tight or waterproof. Plastic slide fasteners, on the other hand, have been found to provide a much more satisfactory seal between the fastening strips because the adjoining edges thereof are continuous, but they are unable to withstand the lateral tension which conventional slide fasteners can withstand. Conventional slide fasteners are tension resistant. The term "tension resistant" is intended to mean that the individual fastening elements of the cloth strips are so constructed that they resist lateral tension on said strips. By the arrangement shown in Fig. 1, the advantages of both types of fasteners are obtained, and their advantages are eliminated.

Figs. 4 to 8 show another embodiment of the invention in which the fastened edges of the plastic strips 2 and cloth strips 1 are not aligned with each other, but instead are located side by side. This construction may be more satisfactory under certain circumstances where it would be undesirable to have the respective edges of

4

the cloth and plastic strips aligned with each other. The construction of the embodiments shown in Figs. 4 to 8 is identical with that of Figs. 1 and 4, except that the adjoining edges of the strips 2 are located to one side of the adjoining edges of the strips 1 and the actuating element 8 for the plastic slide fastener is joined to the actuating element 5 of the conventional slide fastener by an integral portion 12 which connects one corner of the actuating element 5 to the actuating element 8. Any other means for rigidly connecting elements 5 and 8 in the relationship shown in Fig. 5 would be suitable. It will be noted in Fig. 5 that the total width of the strips 2 between longitudinal joining lines 3 is substantially greater than the total width of the cloth strips between the joining lines 3.

It is evident that the embodiment of Figs. 5 to 8 also combine the advantages of plastic and conventional slide fasteners and eliminate their disadvantages in the same manner as the embodiment of Figs. 1 to 4.

Fig. 8 is a view of the slide fastener of the embodiment of Fig. 5, and Figs. 6 and 7 are elevation views of the slide fastener of Fig. 5 taken respectively from below and above Fig. 5.

It will be understood that each of the elements described above, or two or more together, may also find useful application in types of fastening devices different from those described above.

While I have illustrated and described the invention as embodied in an apparatus for fastening together the edges of joined plastic and cloth strips, I do not intend to be limited to the details shown, since various modifications and structural changes may be made without departing from the spirit of my invention.

Without further analysis, the foregoing will so fully reveal the gist of my invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of the prior art, fairly constitute the essential characteristics of the generic or specific aspects of this invention, and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalents of the following claim.

What I claim as new and desire to secure by Letters Patent is:

A composite strip fastening device comprising a pair of elongated flexible strips of organic plastic material, each having along one inner edge thereof a terminal projection and a groove inwardly thereof with a common undercut face therebetween sloping outwardly and away from said edge, said edges being adapted when overlapped to interlock when forces are applied to said edges pressing the same together, with the projection of one edge in the groove of the other edge and with the common undercut faces in abutment, a pair of elongated cloth strips joined to said plastic strips along lines near their adjacent outer edges, slide fastener elements along the inner edges of said cloth strips, said slide fastener elements being of the type that disengage upon the application of a wedging force acting to displace said elements laterally in the plane of said cloth strips, the total width of said cloth strips between said lines of jointure being substantially less than the width of said plastic strips between said same lines of jointure, whereby transverse tension on said strips is resisted only by said cloth strips, and a common ac-

2,637,086

5

tuating element having parts coacting with said fastener elements and having other parts coacting with said projection and groove edges to close and open both of said plastic and cloth strips simultaneously.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date	10
1,734,434	Hutchins	Nov. 5, 1929	

Number
1,887,741
2,325,332
2,353,858

5

6

Name	Date
Trotter	Nov. 15, 1932
Marinsky	July 27, 1943
Tedesco	July 18, 1944

OTHER REFERENCES

Abstract of Serial No. 581,016, issued to Charles E. Allerton, August 16, 1949.