June 9, 1931. G. W. BLAIR 1,809,667

FASTENER WITH LATERAL CLEARANCE

Filed July 26, 1926

Fig. 1.

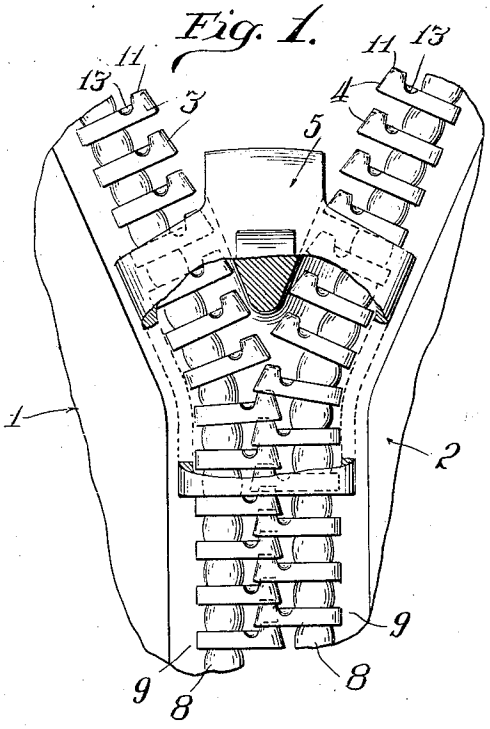


Fig. 2.

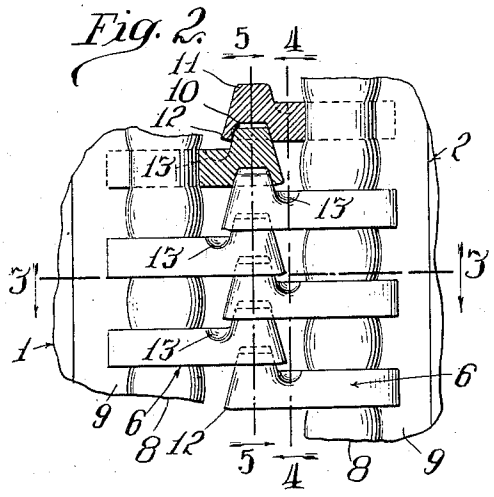


Fig. 3.

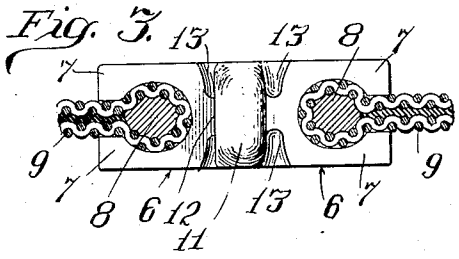


Fig. 4.

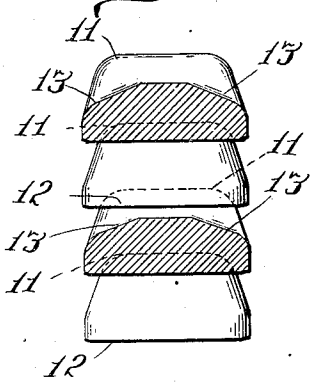


Fig. 5.

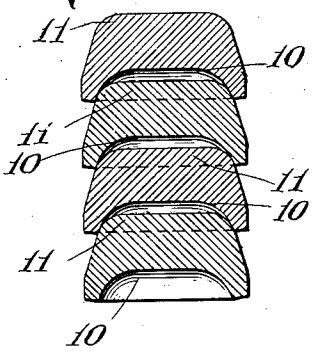
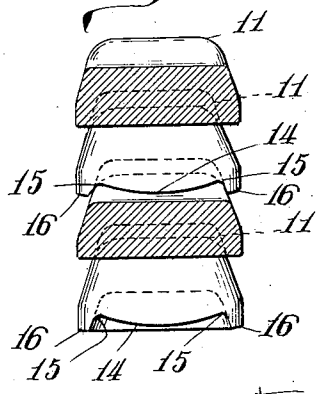


Fig. 6.



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UNITED STATES PATENT OFFICE

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FASTENER WITH LATERAL CLEARANCE

Application filed July 26, 1926. Serial No. 124,854.

My invention relates to fastening devices wherein opposed series of fastener elements are interlocked and released by movement of a cam member or slider therealong, and has reference more particularly to the forming of the elements with lateral clearance to prevent binding or cramping when the interlocked fastener is bent or doubled over.

A type of slider operated fastening device which is commonly used comprises opposed series of like fastener elements of elongated plate like form which are clamped in spaced relation on the enlarged edges of tapes or stringers and have their outer or free ends formed with a recess at one side and a corresponding projection at the other side, so that when the elements of one series are inserted between the elements of the other series, the projection and recess of each element engage respectively in a recess and over a projection of two adjoining elements of the other series to interlock the two series of elements. With the elements constructed and arranged in this manner however, the transverse edge at the free end of each element, beyond the recess, extends across the flat face of an opposed element just behind the projection of the latter element and when the interlocked fastener is bent or doubled over sharply, the lateral extremity of said edge at the inner side of the bend engages against the adjacent lateral edge of said adjoining element and causes a cramping or binding action between the elements. This imposes a severe strain on the stringer or tape on which the elements are mounted, and tends to force the elements sidewise out of proper engaging position and also prevents the desired freedom or flexibility of the interlocked fastener. To avoid this binding or cramping action and afford greater freedom in flexing or bending, I have notched or otherwise cut away the fastener elements at each side to afford clearance where the cramping or binding would otherwise occur, and the adjoining interlocked elements are thus free to tilt laterally with respect to one another without the cramping or prying action which has been experienced heretofore in fastener devices of this character.

The principal objects of my invention are to improve fastening devices of the type referred to above; to provide clearance for the ends of the elements and thereby avoid the cramping and prying action between adjoining interlocked elements which has been experienced heretofore when fasteners of this character were bent or doubled over; to eliminate the strain on the tape or stringer which has resulted heretofore from such cramping or prying action between the interlocked elements; to afford greater flexibility in a fastening device of this character; and in general, to secure the above mentioned result by a simple and easily made change in the form of the element.

On the drawings:

Fig. 1 is a fragmentary view of a fastening device embodying my improvements and showing the cam member or slider for interlocking and releasing same;

Fig. 2 is an enlarged side view of a plurality of interlocked elements showing my improvements;

Fig. 3 is a view taken on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view on the line 4—4 of Fig. 2;

Fig. 5 is a sectional view on the line 5—5 of Fig. 2; and

Fig. 6 is a view similar to Fig. 4, but showing a modified form.

Referring to the drawings, the reference numerals 1 and 2 indicate fragmentary portions of the parts which are to be connected, and 3 and 4 the fastener elements on the parts 1 and 2 respectively, which elements are adapted to be interlocked and released by operation of the cam member or slider 5 along the two series of elements.

The fastener elements 3 and 4 are alike, and each comprises an elongated member 6 of plate like form, which is mounted on the part 1 or 2 in any convenient manner, as for example, by forming the member 6 at one end with jaws 7—7 which are clamped on the enlarged or corded edge 8 of the tape 9 which is in turn secured to the part 1 or 2.

The free end of the member 6 which projects beyond the enlarged or corded edge 8, is formed at one side with a recess 10 and

at the other side with a projection 11, which latter in the form of fasteners now commonly used, is in the form of an elongated substantially straight ridge which extends from edge to edge of the member 6 substantially as shown in Fig. 5, so that when the row of interlocked fasteners is bent or doubled over, for example, toward the right in said Fig. 5, the side walls of the recess 10 slide along the corresponding side edges of the projection 11 of the adjoining element without interference.

However, in fasteners of this type as heretofore constructed, the end edge 12 of the fastener element beyond the recess 10 forming the outer end wall of the cup portion of the element extends across the upper face of the adjoining oppositely disposed element with which it is interlocked, said edge being positioned directly behind the projection 11 of the latter element, and in the lateral flexing or bending of the row of interlocked fasteners, a portion of the edge 12 comes into contact with the corresponding lateral edge of the adjoining fastener element so that the extent of lateral adjustment of the recess 10 over the projection is unnecessarily limited and a cramping or prying action takes place which imposes a severe strain upon the stringer or corded edge 8 and forces the interlocked ends of the elements sidewise or laterally toward the outer side of the bend. This cramping or prying action also prevents the degree of freedom of flexibility which is desired in fasteners of this character. To avoid this cramping or prying action, I have notched or cut away the lateral edges of the fastener elements as indicated at 13, immediately behind the projection 11 and below the position occupied by the edge 12 of the opposed interlocked fastener element, providing thus a neck portion opposite the end wall of the cup of such adjacent element so that when the row of fasteners is flexed or doubled over, ample clearance is provided for the lateral extremities of the edge 12 to permit said extremities to rock down below the upper face of the notched element, thereby avoiding the cramping or prying action and affording entire freedom of flexibility without the strain on the cord or stringer 8.

While I prefer to provide lateral clearance in the manner above indicated, such clearance may be afforded by rounding the extreme end edge of the element as shown at 14 in Fig. 6, the end wall being preferably notched adjacent each side of the element as indicated at 15 to allow for the curvature and to permit the side walls of the recess to be extended down as indicated at 16 to the normal position, so as to prevent side slipping or lateral disengagement when the interlocked fastener is bent or doubled over sharply.

While I have shown and described my invention in a preferred form, I am aware that various changes and modifications may be made without departing from the principles of my invention, the scope of which is to be determined by the appended claims.

I claim as my invention:

1. A fastening device of the type described, comprising in combination a plurality of fastener elements adapted to interlock in series with adjacent elements oppositely disposed, each of said elements being of elongated plate-like form having mounting means at one end and having at the other end a ridge extending thereacross from edge to edge of the element above one face and a correspondingly located recess in the other face, each of said elements being notched at each side opposite the end wall of the recess of the adjacent element for permitting free lateral flexing of the series of interlocked elements.

2. A fastening device comprising fastener elements arranged in two interlocking series each element being of elongated, plate-like form having mounting means at the outer end and having at the inner end a transversely elongated cup portion providing a transverse recess in one face and an elongated substantially straight ridge extending across the other face and terminating at the lateral edges of the element, each of said elements being notched at each lateral edge and at the outer side of the ridge for permitting free lateral flexing of the series of interlocked elements.

GEORGE W. BLAIR.