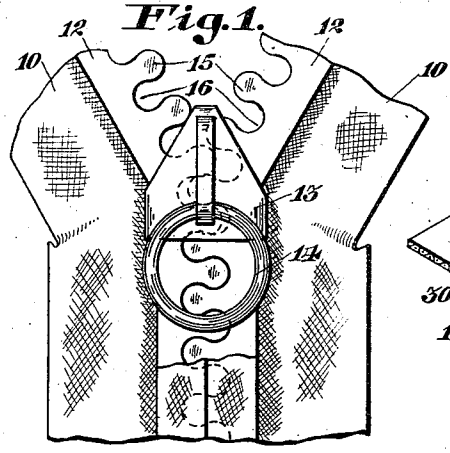
Dec. 29, 1936. H. E. SIPE 2,066,060

SEPARABLE INTERLOCKING FASTENER

Filed Sept. 1, 1933

Fig. 1.



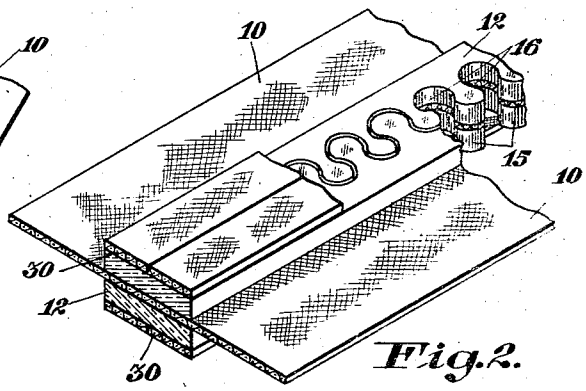


Fig. 2.

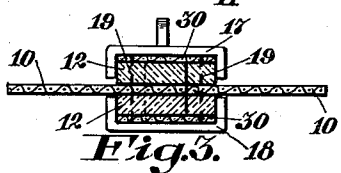


Fig. 3.

Fig. 4.

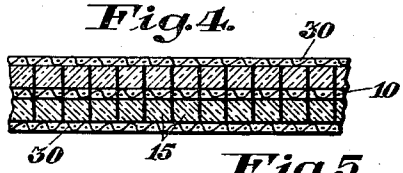


Fig. 5.

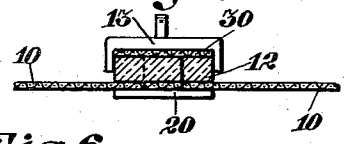


Fig. 6.

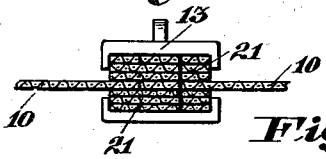
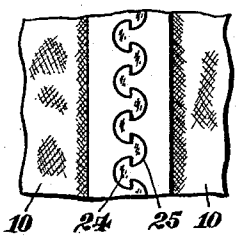


Fig. 10.



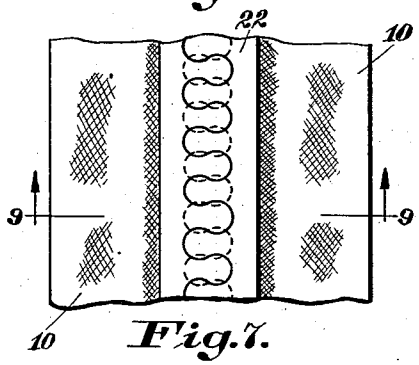


Fig. 7.

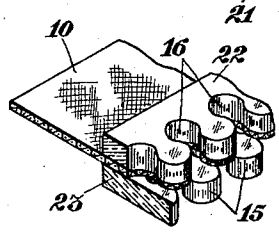


Fig. 8.

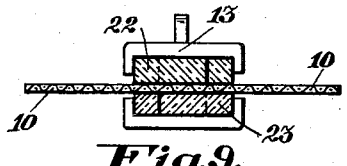


Fig. 9.

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UNITED STATES PATENT OFFICE

2,066,060

SEPARABLE INTERLOCKING FASTENER

Harry E. Sipe, New York, N. Y., assignor to Hookless Fastener Company, a corporation of Pennsylvania

Application September 1, 1933, Serial No. 687,796

9 Claims. (Cl. 24—205)

My invention relates to separable interlocking fasteners and particularly to fasteners of the type described in my prior Patent No. 1,719,856.

The objects of the present invention are to provide an improved form of fastener which will be easy and cheap to manufacture; to provide means for preventing separation of the cooperating parts of the fastener in a transverse direction; and to provide improved means for mounting a fastener of this type in an article to be fastened.

Other objects and advantages of the invention will appear during the following specification.

In the accompanying drawing I have shown a preferred embodiment and several modifications which my invention may assume in practice. In this drawing:

Fig. 1 is a plan view of a fastener embodying my invention;

Fig. 2 is a detailed view with parts broken away so as to show more clearly the construction;

Fig. 3 is a cross-section on line 3—3 of Fig. 1;

Fig. 4 is a longitudinal central section;

Figs. 5 and 6 are cross-sections illustrating modifications;

Fig. 7 is a plan view and Fig. 8 is a detailed perspective view and Fig. 9 is a cross-section on line 9—9 of Fig. 7 showing a still further modification; and

Fig. 10 shows a variation in the shape of the interlocking parts.

The completed fastener as it appears in Fig. 1, comprises a pair of mounting strips or tapes 10 which are integrally joined at the lower end 11; and a pair of strips 12 of rubber or other suitable flexible material, secured to the adjacent edges of the mounting tapes. A slider 13 is mounted to slide along the flexible strips 12 and may be conveniently actuated by a pull tab 14. Preferably there are two such strips 12 on opposite sides of the fabric mounting strips, but a single interlocking member strip may be sufficient.

The interlocking members are formed integral with the strips 12 and comprise gear tooth-like projections 15 with correspondingly shaped recesses 16 between them. Such recesses and projections are formed by cutting through a single strip of rubber of sufficient width to form the interlocking member strips and through the attached mounting strips 10. The cut does not extend to the lower end of the fastener so that there is no need for special connecting means at this end. The slider as illustrated in the cross-sections, comprises a pair of flanged wings 17, 18 connected by a wedge portion which serves to spread the interlocking strips when the slider is moved toward the lower end of the fastener as shown in Fig. 1 and the side flanges serve to pull the strips together when the slider is moved in the opposite direction. Since the heads of the projections 15 are wider than the base portions, the heads will interlock with one another when the strips are engaged in parallel relation, and separation can be effected only by a progressive action from the upper end.

The shape of the projections and recesses serves to prevent the fastener from separating on a lateral pull. However, when the fastener is flexed or when there is a tendency for one side to be strained transversely relative to the other, it is necessary to provide additional means for counteracting this tendency. In Figs. 1 to 5 transverse separation is prevented by fabric cover strips 30 which are secured to the interlocking member strips preferably on both sides, although if they are secured only on one side it may be sufficient in some instances. These strips overlap the recesses and thus when the fastener is interlocked they will overlap the projections on the opposing series. The cover strips can be made of such width that they will come neatly together and present a smooth appearance.

The interlocking member strips 12 are preferably secured to the mounting tapes 10 by cementing, vulcanizing or otherwise sticking them in place. They may, however, be secured by rows of stitching 19 as illustrated in Fig. 3. One advantage of the construction shown in Fig. 5 is that one side of the fastener is perfectly smooth and the flat wing 20 on the lower side of the slider needs no flanges.

In the modification shown in Fig. 6, the interlocking member strips comprise merely several plies of fabric 21, which are secured together in any suitable way, such as cementing, gluing or sewing. These fabric strips are somewhat more rigid and will permit the slider to ride more easily over the strips. Instead of plies of fabric, any suitable material such as leather may be used. It will be understood that the operation of the fastener will be the same as in Fig. 1, since the interlocking projection can be formed by cutting through the several plies of fabric or other material.

In Figs. 7, 8 and 9, the upper and lower strips 22, 23 respectively, have projections and recesses of similar shape but they are staggered relative to one another. In this manner, separation of the parts is prevented and in all other respects the construction of the fastener is the same. In the process of manufacture, it will be necessary to cut

one of the strips before assembling on the mounting strip 10. In Fig. 10 the construction is the same except for the shape of the interlocking projections and recesses 24, 25 respectively. In this instance, however, they are flexed so as to present an abrupt shoulder making it more secure against transverse strain.

While I have in this application shown and described one embodiment and several modifications which my invention may assume in practice, this embodiment is merely for the purposes of illustration and description and it will be understood that other forms may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. A separable interlocking fastener of the class described comprising a pair of interlocking member strips of flexible material, said strips having projections integral therewith along their adjacent edges and recesses between the projections of the same size and shape as said projections, the projections on one strip being adapted to fit into the recesses on the opposite strip and interlock therewith to prevent lateral separation, and wherein means are included for preventing transverse separation of said projections and recesses.

2. The combination defined in claim 1 wherein the means for preventing transverse separation comprises cover strips secured to each interlocking member strip and extending over said projections so as to engage over the projections on the opposite series.

3. The combination defined in claim 1 wherein the means for preventing transverse separation comprises fabric tapes secured to the outer surfaces of said interlocking member strips and extending over the recesses so that said cover strips come together when the fastener is closed and engage over the projections.

4. The combination defined in claim 1 wherein the means for preventing transverse separation comprises strips of elastic fabric secured to the outer surfaces of the interlocking member strips and extending over a portion of the recesses so as to overlap the projections engaged in said recesses.

5. A separable interlocking fastener of the class described comprising a pair of fabric tapes, relatively thicker strips of flexible material disposed on one side of said tapes and along the meeting edges thereof, said thicker strips having projections integral therewith, recesses between said projections, said recesses being of the same size and shape as said projections, and the arrangement of the projections on said strips being staggered whereby the projections of one strip will interlock between the projections of the other strip, said fabric tape extending into overlapping relation with said projections.

6. A separable interlocking fastener of the class described comprising a pair of fabric tapes, means providing shouldered edges on each of said tapes comprising flexible strips disposed on opposite sides of said tape and along its meeting edge, said strips having projecting heads integral therewith adapted to intermesh and interlock with the projecting heads on the strips of the opposite tape, said tapes being symmetrically disposed with respect to said shouldered edges.

7. A separable interlocking fastener of the class described comprising a pair of fabric tapes disposed edge to edge, means providing a shoulder adjacent to each of the meeting edges of said tapes consisting of a plurality of fabric plies overlapping each other and overlapping the edge of the tape and attached firmly together, said overlapping plies having a slit therethrough of such form as to provide integral projecting heads, the heads on one side of the slit being staggered relative to the heads on the other side of the slit and adapted to intermesh and interlock therewith.

8. A separable interlocking fastener of the class described comprising a pair of tapes disposed in edge to edge relation, means providing a shoulder on each side of each tape adjacent to the meeting edges comprising flexible strips disposed in overlapping relation with said tape, each of said strips having projecting heads integral therewith with recesses between the heads, the heads on one strip being adapted to intermesh and interlock with the heads on the opposite strip, the two strips on opposite sides of each tape having their heads out of transverse alignment whereby transverse separation is prevented when the fastener is interlocked.

9. A separable interlocking fastener comprising an elongated piece of fabric having a slit through the longitudinal middle section terminating short of the end of said piece of fabric to divide the same into a pair of mounting strips, the edges of said mounting strips along said slit having projections and recesses of gear tooth-like outline and in staggered arrangement on the opposite strips so as to fit into each other, and interlocking heads of relatively thicker material than the mounting strips and having the same configuration as said gear tooth-like projections of the fabric strip superposed over said projections and attached thereto whereby the heads will interengage when said fabric strips are brought together.

HARRY E. SIPE.