Feb. 18, 1936. S. QUISLING 2,030,895

METHOD OF MAKING SLIDE FASTENERS

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Fig. 1.

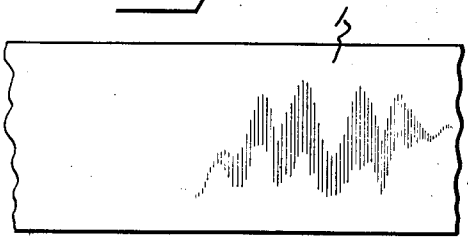


Fig. 2.

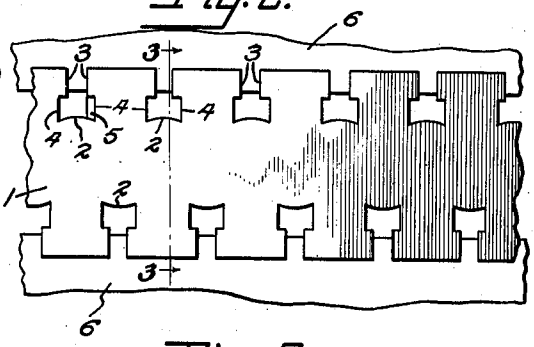


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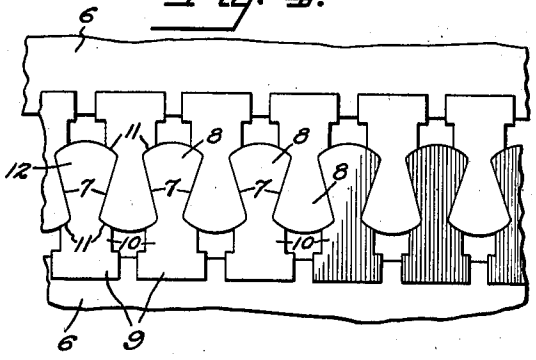


Fig. 3.



Fig. 5.

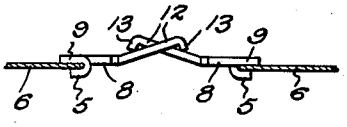


Fig. 6.

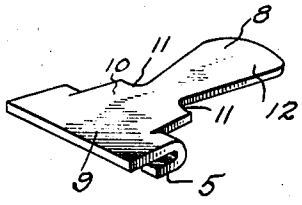
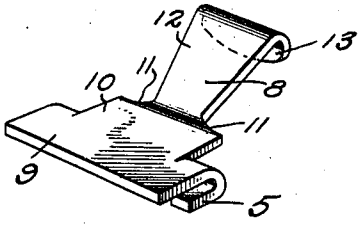


Fig. 7.



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Fig. 8.

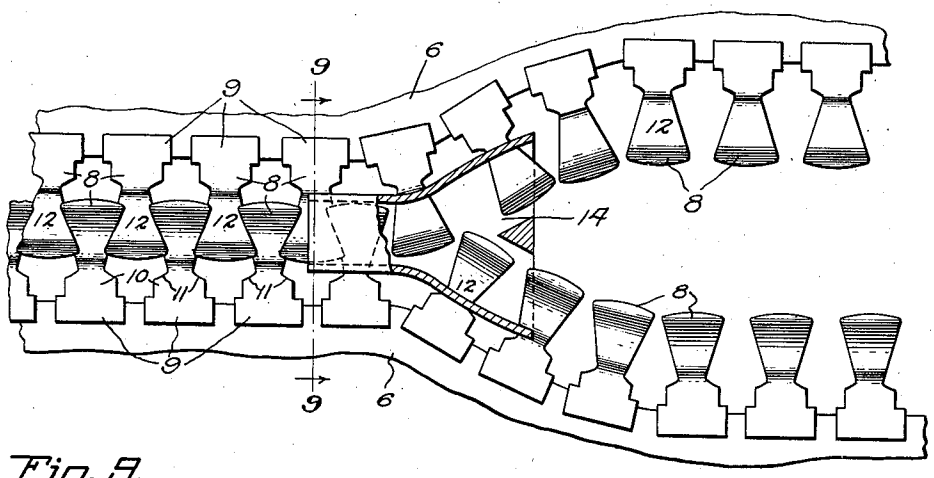


Fig. 9.

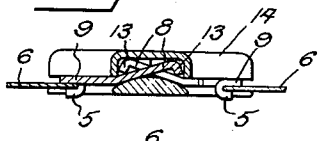
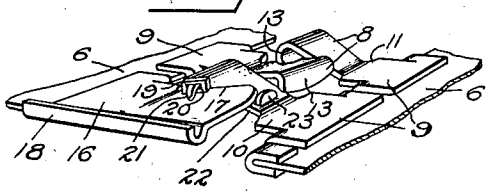


Fig. 11.



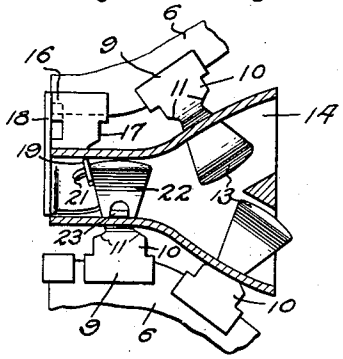
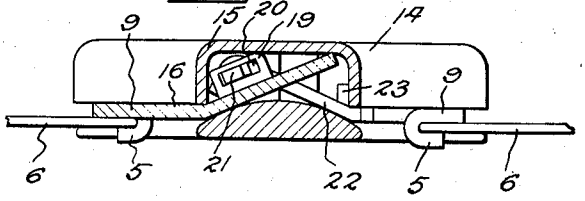


Fig. 10.

Fig. 12.



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Patented Feb. 18, 1936 2,030,895

UNITED STATES PATENT OFFICE

2,030,895

METHOD OF MAKING SLIDE FASTENERS

Sverre Quisling, Madison, Wis., assignor to Hookless Fastener Company, Meadville, Pa., a corporation of Pennsylvania

Application November 21, 1933, Serial No. 699,012

5 Claims. (Cl. 153—1)

This invention relates to fasteners, and more particularly to that form of fastener composed of opposing rows of elements adapted to be locked or unlocked by the movement of a slide.

An object of this invention is to provide an improved method of making fasteners which will materially reduce the number of manufacturing operations, and thereby greatly reduce the manufacturing cost of this type fastener.

Another object of this invention is to provide an improved method which will entirely eliminate the necessity of equally spacing the fastening elements upon a tape after they are formed, by stamping the fastening elements from a single sheet of material, which is secured to the tape before the fastening elements are stamped out.

Another object of the invention is the provision of fastener elements so designed that two rows of the elements may be formed simultaneously, and by so doing, eliminate practically all waste material.

The invention also provides improved means whereby one row of fastener elements may be entirely released from the opposite row of elements, so that when the fastener is used as a closure for garments or the like, the meeting edges of the garments may be separated down their full length, and the garment may be removed in the ordinary manner without the necessity of removing over the head of the wearer.

Another object of the invention is the provision of a construction in which such materials as celluloid, may readily be used.

With these and other objects in view, the invention resides in the method of making and the arrangements of parts herein shown and described. It is, of course, understood that changes may be made from the precise construction herein shown and described without departing from the scope of what is claimed.

In the drawings:—

Figure 1 is a plan view of a blank from which the fastener elements are stamped.

Figure 2 shows the blank after the first stamping has taken place and the sides have been secured to tapes.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 shows the blank after the final stamping has been made.

Figure 5 is a transverse section showing two of the fastener elements after they have been bent into their proper shape.

Figure 6 is a perspective view of a fastener element as it is stamped from the blank.

Figure 7 is a perspective view of a fastener element after it has been bent into shape.

Figure 8 is a plan view of a fastener with a slide in place and ready for use.

Figure 9 is a section on the line 9—9 of Figure 8.

Figure 10 is a plan view with the slide in section showing the means for separating the ends of the fastener.

Figure 11 is a perspective of these end elements.

Figure 12 is an enlarged transverse section showing the manner in which the end elements hook together.

This invention in its present embodiment contemplates the formation of the fastener elements from a flat strip of substantially rigid material shown in Figure 1, and indicated by the numeral 1. The first stamping operation in the formation of the fastener elements makes a curved cut 2 two cuts extending from the cut 2 to the outer edge of the material; as at 3 and two other cuts 4 parallel to those at 3 and extending from 2 for a length substantially half of that of 3. Tabs 5 are formed by the cuts 3 and 4, which when bent under, as is shown in Figure 3, supply means whereby the strip 1 is secured to tapes 6. Securing the strip 1 to the tapes 6 constitutes the second operation in the manufacture of the fastener.

The third operation continues the cuts 2 outside the cuts 4 and joins the ends of oppositely disposed cuts 2 with a diagonal cut 7, which completely severs the fastener elements from one another. Because of the fact that the strips 1 are secured to the tapes 6, when the fastener elements are cut apart, they are already secured to the tape in properly spaced relation to one another.

The fastener elements 8 when completely formed have a base portion 9 secured to the tapes 6 by means of the bent down tabs 5, a neck 10 terminating in shoulders 11, a body 12 having outwardly diverging sides and a curved outer end. The body portion is bent upwardly near its juncture with the neck 10 and the outer end of the body is turned down as at 13. As the space between two fastener elements 8 is exactly the same configuration as a single fastener element, it is necessary to make some provision to prevent one element from dropping through this space. For this reason the elements are bent as above described, thereby shortening the length of the element. When the fastener elements are in interlocking positions, the turned down portion 13 of any one element rests upon the top of the body portion of the two opposite elements.

A slide 14 is used to bring the fastener elements into the proper position to interlock with one another or to separate. The top portion 15 of the slide is of an inverted U shape and the bottom is flat upon its lower face and curved upon its upper face, the curved face sliding in a trough formed by the undersides of the two interlocked fastener elements 8. The down turned flanges of the upper portion of the slide move along the fastener elements at or near the juncture of the neck of the element with the body portion. In this way the contact of the slide with the fastener is metal on metal, facilitating the movement of the slide and greatly increasing the life of the fastener.

In order to completely separate the two meeting edges of a closure having this type of fastener, members are employed having means allowing the two sides to be unhooked when the slide is pulled down to its lowest position.

At the lower end of one side of the fastener, a member 16 is secured to the tape in line with the fastener elements. The member 16 has its side 17 nearest the fastener elements, shaped to conform to the shape of one side of a fastener element 8. The other side of 16 has an upturned flange 18, which acts as a stop for the slide 14. The side 17 has formed thereon an upturned flange 19 containing an opening 20 in which a hook 21 carried by a fastener element 22 secured to the opposie side of the closure from the member 16, may engage. The element 22 has an upturned, stamped-out guide 23, which rides on the down turned flange of the top portion of the slide and insures proper engagement of the hook 21 with the opening 20 in the flange 19.

As a result of my invention it will be observed that a novel method of making fasteners has been devised which is exceedingly simple and cheap to carry out in commercial manufacture.

Having thus described the invention, what I claim is:—

1. The method of making slide fasteners of the class described which comprises forming support holding means along the two side edges of a flat strip of rigid material, attaching a flexible support to the support holding means on each side of the strip, and forming from said strip two separate series of spaced apart fastener members, one series being left attached to each strip.

2. The method of making stringers for slide fasteners of the class described which comprises forming at uniform intervals along one side edge of the strip a series of support gripping devices, attaching a flexible support to said gripping devices, and then cutting out fastener member blanks from said strip each including one of said support gripping devices, and forming said blank with means for interlocking with a cooperating fastener stringer.

3. The method of making stringers for slide fasteners of the class described which comprises cutting and bending the edge of a flat metal strip to form a series of support gripping devices uniformly spaced along the edge of the strip, attaching said support gripping devices to a support while connected in the strip, and then cutting said strip between said support gripping devices to form individual units and shaping said units to provide interlocking devices for cooperating with fastener members on a similar stringer.

4. A method of making slide fasteners of the class described which comprises forming support gripping devices at uniformly spaced intervals and in staggered relation along the two side edges of a flat strip of rigid material, attaching a flexible support to each series of said gripping devices while connected together in the strip, severing said strip to form two series of individual units each attached to one of said strips, and then shaping said units to provide interlocking means for cooperating with a similar stringer.

5. The method of making slide fasteners of the class described, which comprises forming two series of support gripping devices one on each side of a flat metal strip, inserting flexible supports in said gripping devices, and attaching the same thereto, cutting said metal strip between said gripping devices to form separate units attached to each stringer, and then shaping said units to form interlocking means for cooperation with interlocking means of similar fastener members.

SVERRE QUISLING.