

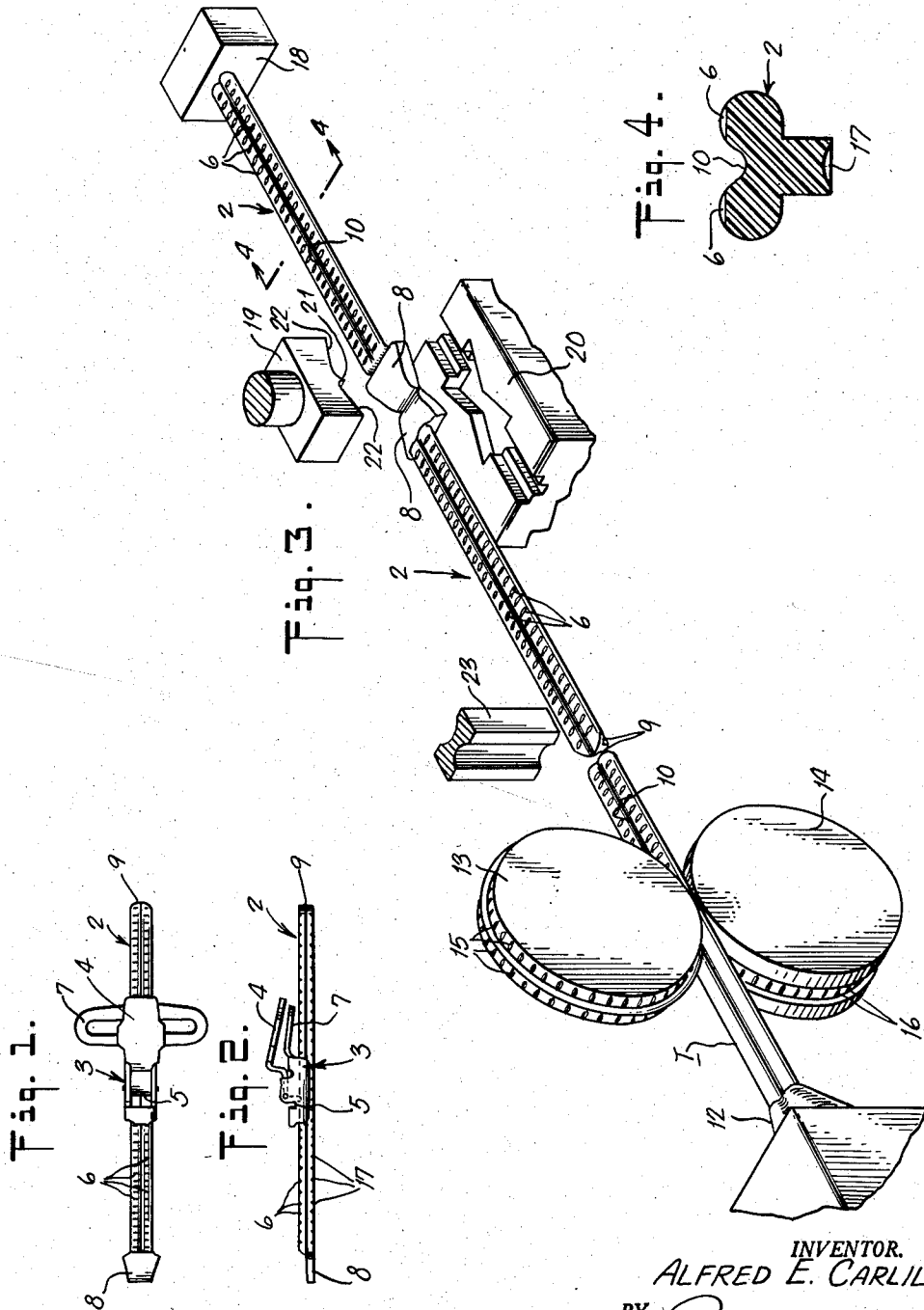
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METHOD OF MAKING ADJUSTABLE FASTENER TRACK

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1

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METHOD OF MAKING ADJUSTABLE FASTENER TRACK

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This invention relates to an improved method of making an adjustable fastener comprising a flexible track having a slide member arranged thereon for movement therealong and which is adapted to be locked selectively in various adjustable positions along the track.

It is one of the objects of the present invention to produce a flexible track for adjustable fasteners made of a plastic material having a stop portion integrally arranged therewith for limiting the movement of the slider therealong.

It is another object of the invention to produce an improved track for adjustable fasteners which is simple and inexpensive in its construction and, at the same time, efficient and effective in its use.

It is a further object of this invention to provide a new and novel method of manufacturing flexible track for adjustable fasteners made of a plastic material.

Various other objects and advantages of this invention will be more apparent in the course of the following specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, articles produced by my method and apparatus for carrying it out.

In these drawings:

Fig. 1 is a plan view of an adjustable fastener track made in accordance with the present invention having a slider incorporated therewith,

Fig. 2 is a side elevational view of the track and slider as shown in Fig. 1,

Fig. 3 is a perspective view, partly in section, of one form of apparatus for making the fastener track in accordance with my invention, and

Fig. 4 is an enlarged section taken on line 4—4 of Fig. 3.

Adjustable fasteners are well known and are now in common use. As shown in Figs. 1 and 2 of the drawings, such a fastener consists generally of a flexible track 2 having a slider 3 arranged thereon for longitudinal movement therealong. There is pivotally attached to the slider a pull or manipulating member 4 having a locking cam or prong portion 5 carried thereby which co-operates with spaced-apart transverse notches or corrugations 6 arranged along the upper surface of the track 2. There is also carried by the slider 3, a loop portion 7 to which one part of a garment or article is adapted to be attached. The track may be made of any suitable flexible material but is preferably made of a plastic material, such as nylon. The type of fastener to which the present invention relates is shown in the patent to Noel Statham, No. 2,437,765 issued March 16, 1948.

In accordance with the present invention, one end of the track 2 is flattened and deformed so as to provide a substantially enlarged arrowhead portion 8 which acts as a stop for limiting the movement of the slider 3 along the track in one direction. The opposite end of the track is preferably rounded, as at 9, so as to aid in threading

2

the slider onto the track in a well known manner. There is also provided preferably a longitudinally extending central groove or well 10 which extends throughout the length of the track.

Attention now is directed to Fig. 2 of the drawings wherein there is shown one form of apparatus for practicing my improved method for forming lengths of fastener track. At the extreme left-hand side of this figure, there is shown a suitable extrusion die 12 which forms and extrudes the track so as to provide a continuous strip or length of track T substantially T-shaped in cross section. If desired, the track may be molded instead of extruded.

After the track is extruded, it passes between a pair of opposed rolls 13 and 14. The upper roll 13 has a series of spaced-apart ribs 15 arranged around the periphery thereof which form the notches or indentations 6 at equal spaced-apart intervals along the upper surface of the track to either side of the well or central groove 10. Also, there is arranged around the periphery of the lower roll 14, a series of spaced-apart ribs 16 which form similar indentations or notches 17 along the lower surface of the track. That is to say, the two rolls 13 and 14 co-operate with one another to form a series of indentations or notches along both the upper and lower surfaces of the track as it passes therebetween.

The continuous length of track is then moved along until the end thereof abuts a stop 18 arranged in its path, as shown at the extreme right-hand side of Fig. 2. This stop is preferably adjustable so that it can be adjusted for the desired length of track to be cut from the continuous length.

Forwardly of this stop 18 there is arranged above the path of the continuous strip, a heated combination punch and cut-off knife 19 and below the strip, there is arranged preferably an unheated die 20 with which the punch and cut-off die 19 co-operates in a manner and for a purpose to be presently described. A knife portion 21 is arranged centrally of the punch and is adapted to cut a length of track from the continuous length. The punch portions 22 to either side of the knife portion 21 are constructed and arranged so as to flatten and deform the end portions of two successive track lengths simultaneously in co-operation with the die 19 whereby an arrowhead stop portion 8 is formed on adjacent ends of two successive fastener lengths as they are being cut from the length of continuous track.

At a point between the rolls 13 and 14 and the combination punch and cut-off knife 19, there is arranged preferably an adjustable cut-off knife 23 for cutting the fastener lengths from the strip and to provide the rounded ends 9 on the ends of the fastener lengths cut from the continuous length of track.

In practicing the method in accordance with my invention with the apparatus shown, both the stop 18 and the cut-off knife 23 are first adjusted the proper distance from the combination punch and knife 19 for the desired fastener track lengths to be cut from the continuous length. The extruding machine (not shown) is set into operation and as the strip is extruded by the die 12, it passes between the rolls 13 and 14 which form the transversely extending indentations or notches 6 and 17 along the upper and lower surfaces, respectively, of the strip. When the end of the strip contacts the stop 18, the combination punch and knife 19 is moved into engagement with the strip applying heat and pressure thereto in combination with the opposed die 20 so as to form two adjacent arrowhead portions 8 on two successive track lengths and to simultaneously cut the strip therebetween.

The cut-off knife 23 is also brought into engagement with the strip simultaneously with the action of the com-

3

bination punch and knife 19, so as to sever the inner track length for the strip, thereby providing two track lengths with each having an arrowhead stop portion 8 arranged at one end thereof. The strip is then moved forwardly until the cut end of the strip again abuts the stop 18 and the above operations are repeated.

Thus, it will be seen that by the practice of my invention, two fastener lengths are formed at one time each being complete with a stop portion 8, and in readiness to receive a slider 3.

As a result of my invention, it will be seen that there is not only produced a new and novel plastic track for adjustable fasteners but also an improved method of manufacturing the same.

While I have shown and described an embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and description, and 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. The method of making flexible tracks for adjustable fasteners of the class described which comprises forming by extrusion a continuous strip of track substantially T-shape in cross section, cutting a piece from said strip of sufficient length for two fasteners, passing the cut strip into and through a heated combination punch and cut-off knife so as to simultaneously cut said strip centrally thereof and applying heat and pressure to either side of the central cutting point thereby deforming the two opposed ends of the resulting cut lengths whereby two fastener tracks are provided with each having an enlarged portion at one end thereof which acts as a stop when the fasteners are in use.

2. The method of making flexible tracks for adjustable fasteners of the class described which comprises forming by extrusion a continuous strip of track substantially T-shape in cross section, passing the strip between a pair of opposed rolls having a series of spaced-apart ribs around the peripheries thereof so as to form a series of spaced-apart notches along the top and bottom of the strip throughout the length thereof, cutting a piece from said strip of sufficient length for two fasteners, and simultaneously cutting said strip centrally thereof and applying heat and pressure to either side of the central cutting point thereby deforming the two opposed ends of the resulting cut lengths so as to provide two fastener tracks with each having an enlarged portion at one end thereof which acts as a stop when the fasteners are in use.

3. The method of making a flexible track for adjustable fasteners of the class described which comprises providing a continuous strip of track substantially T-shape in cross section made of a plastic material, passing the strip between a pair of opposed rolls having a series of spaced-apart ribs around the peripheries thereof so as to form a series of spaced-apart notches along the top and bottom of the strip throughout the length thereof, cutting a piece from said strip of the desired length for a fastener, and simultaneously applying heat and pressure to one end of said cut length thereby deforming the same so as to provide an enlarged portion at that end of

4

said cut length which acts as a stop when the fastener is in use.

4. The method of making a flexible track for adjustable fasteners of the class described which comprises forming by extrusion a continuous strip of track substantially T-shape in cross section, passing the strip between a pair of opposed rolls having a series of spaced-apart ribs around the peripheries thereof so as to form a series of spaced-apart notches along the top and bottom of the strip throughout the length thereof, cutting a piece from said length of the desired length for a fastener, and simultaneously applying heat and pressure to one end of said cut length thereby deforming the same so as to provide an enlarged portion at that end of said cut length which acts as a stop when the fastener is in use.

5. The method of making flexible tracks for adjustable fasteners of the class described including the steps of forming by extrusion a continuous strip of track substantially T-shape in cross section, passing the strip between a pair of opposed rolls with at least one roll having a series of spaced-apart ribs arranged around the periphery thereof so as to form a series of spaced-apart notches along the top surface of the strip, passing the strip in under a cutting knife so as to cut a length from said strip of sufficient length for two fasteners, and finally passing the strip into and through a heated combination punch and cutting die so as to simultaneously cut the length centrally thereof and apply heat and pressure to either side of the central cutting point thereby deforming the length whereby two fastener tracks are provided with each having an enlarged portion at one end thereof which acts as a stop when the fastener tracks are in use.

6. The method of making flexible tracks for adjustable fasteners of the class described including the steps of forming by extrusion a continuous strip of track substantially T-shape in cross section, passing the strip between a pair of opposed rolls with at least one roll having a series of spaced-apart ribs arranged around the periphery thereof so as to form a series of spaced-apart notches along the top surface of the strip, moving the end of the strips against a stop, cutting the strip at a predetermined measured distance from the stop so as to provide a length of strip of sufficient length for two fasteners, simultaneously cutting said piece centrally thereof and applying heat and pressure to the strip to either side of the central cutting point so as to deform the strip whereby two fastener tracks are provided with each having an enlarged portion at one end thereof which acts as a stop when the fasteners are in use and repeating the above steps for providing additional fastener tracks.

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