United States Patent [19]

Ebata

[11] **3,793,719**

[45] **Feb. 26, 1974**

[54] **METHOD FOR PRODUCING TUGGED ZIP FASTENERS**

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Mar. 10, 1971 Japan 46/12954

[52] **U.S. Cl.** **29/408**

[51] **Int. Cl.** **B23p 11/00**

[58] **Field of Search.** 29/408, 207.5 R, 207.5 D, 409

[56] **References Cited**

UNITED STATES PATENTS

3,588,991 6/1971 Maisenbacher 29/408

3,656,223 4/1972 Maisenbacher 29/408

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Attorney, Agent, or Firm—Robert E. Burns; Emmanuel J. Lobato

[57] **ABSTRACT**

A method is disclosed for producing zip fasteners having applied thereon tags indicating information relative to zip fastener products. Continuous production of these zip fasteners is made possible by feeding a train of tags in a direction at right angles to the direction of movement of a zip fastener chain.

4 Claims, 10 Drawing Figures

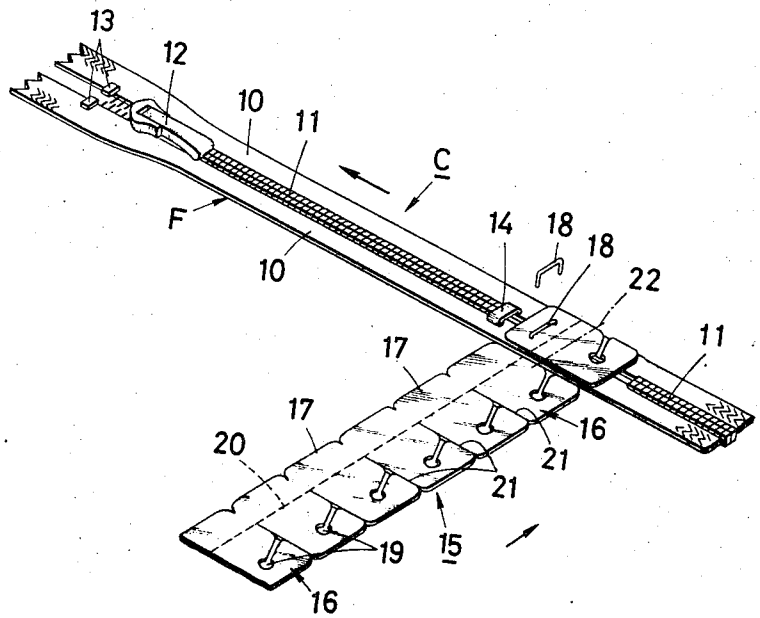


FIG. 1

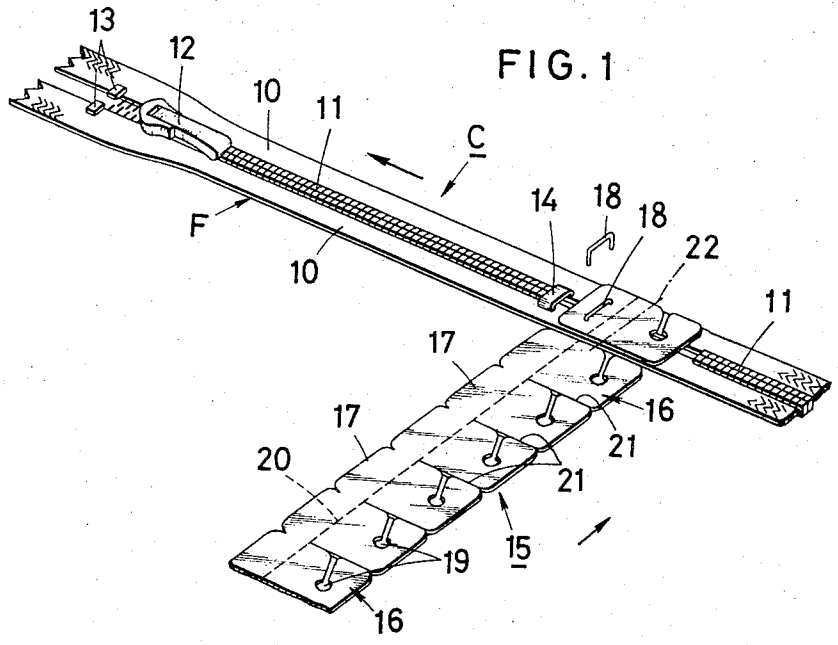


FIG. 2

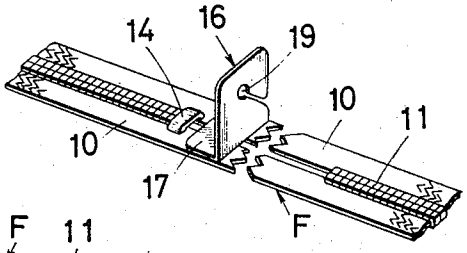


FIG. 6

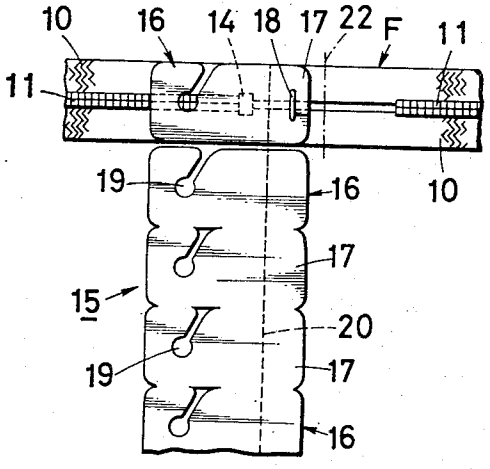


FIG. 3

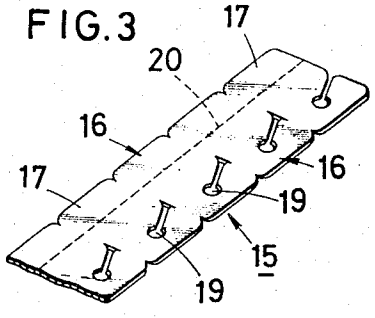


FIG. 4

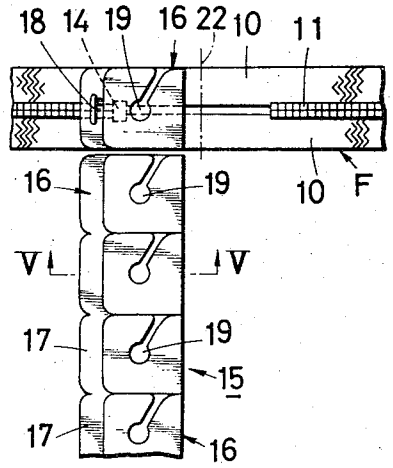


FIG. 5

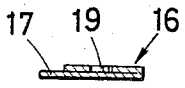


FIG. 7

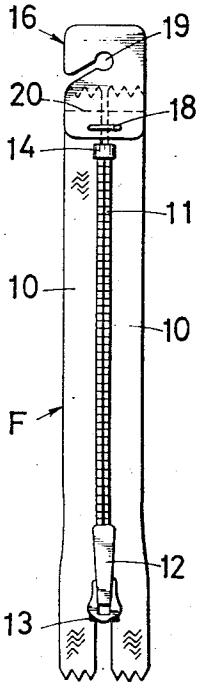


FIG. 8

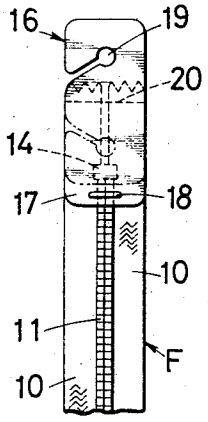


FIG. 9

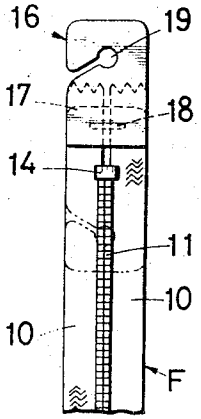
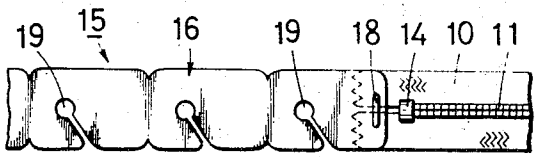


FIG. 10



A METHOD FOR PRODUCING TUGGED ZIP FASTENERS

This invention relates to a method for producing a zip fastener having provided thereon a tag or label and has particular reference to a method for applying a series or train of tags one at a time successively onto a chain of zip fasteners.

Heretofore, zip fasteners are known which are provided with a tag indicating thereon the types, sizes, prices, instructions and so on to facilitate the identification of different product fasteners.

However, no practical methods have hitherto been proposed for applying such tags continuously where desired onto a continuous zip fastener chain. A typical example of a prior-art method is as illustrated in FIG. **10** to align a series of tags in end-to-end superposed relation to an individually separated zip fastener, staple or otherwise secure them one after another to a bottom end of the fastener, and thereafter cut the thus secured piece of tag off from the rest of tags. While it is possible with such conventional method to feed a train of tags continuously with respect to zip fasteners of individual product length, these zip fasteners must of necessity be fed one by one by hand. Therefore, the rate of producing tagged fasteners has been considerably limited. Furthermore, such a conventional method has the disadvantage that the tags are often placed out of position on the zip fasteners, resulting in unattractive appearance of the finished products.

It is therefore an object of the present invention to provide a novel method for producing tagged zip fasteners at an increased rate of speed as compared to the prior art techniques.

It is another object of the invention to provide a method which will eliminate the above-noted difficulties of the prior-art method and which permits of the attachment of tags with sufficient positional stability, viz. in correct position on a continuous chain of zip fasteners.

It is a further object of the invention to provide a method which makes it possible to apply tags onto a zip fastener chain in a cycle of operation continuous with the finishing of a zip fastener product.

These and other objects and features of the present invention will appear apparent from the detailed description which follows with reference to the accompanying drawings in which like reference symbols refer to like parts and in which:

FIG. **1** is a perspective view illustrating one embodiment of the invention for applying a train of tags successively onto a chain of zip fasteners;

FIG. **2** is a perspective view illustrating a piece of tag folded halfway up when the fastener chain is cut to a product length;

FIG. **3** is a perspective view of a train of tags employed in accordance with the invention;

FIG. **4** is a plan view illustrating another method embodying the invention;

FIG. **5** is a cross-sectional view of the tag taken along the line V—V of FIG. **4**;

FIG. **6** is a plan view illustration still another method embodying the invention;

FIG. **7** is a plan view of a product zip fastener provided thereon with a tag according to the method of FIG. **1**;

FIG. **8** is a plan view of another product zip fastener provided thereon with a tag according to the method of FIG. **4**;

FIG. **9** is a plan view of still another product zip fastener provided thereon with a tag according to the method of FIG. **6**; and

FIG. **10** is a plan view illustrating a conventional practice for applying tags onto individually separated zip fasteners.

According to the invention there is provided a method for producing tagged zip fasteners which essentially comprises aligning a train of tags in parallel with the plane of a chain of zip fasteners, each of said tags having a fold line along which it is foldable, feeding said train of tags in a direction at right angles to the direction of movement of said fastener chain until said tags are brought one at a time successively into a predetermined position on said fastener chain, attaching an end of said tag onto said fastener chain with the fold line of said tag lying adjacent to a cutting line of said fastener chain along which said chain is cut to a product length, cutting said fastener chain along said cutting line, and separating the thus attached tag from its train.

Referring now to the drawings and to FIG. **1** in particular, there is shown a chain of zip fasteners C moving in the direction of the arrow. The zip fastener F is of the usual construction comprised of two opposed stringer tapes **10** each carrying along one longitudinal edge thereof a row of interlocking elements **11**, a slider **12** movable along these elements for opening and closing the stringer tapes **10**, and end stops, viz. top end stop **13** and bottom end stop **14**.

The tags to be applied onto the above fastener chain according to the invention are interconnected serially in side by side relationship in the form of a tag train **15**. Each individual tag or piece of tag **16** in the train **15** has a width substantially equal to or slightly smaller than the width of the fastener F. The tag **16** has a stem portion **17** at one end for securing the same, as by a staple **18**, to the fastener chain and an opening or hook eye **19** at the opposite end for hanging an individual zip fastener F on a suitable support (not shown) for purposes of display. The tag **16** is further provided with a transverse recess or groove **20** as indicated by broken line, which groove defines a fold line along which the tag is allowed to be folded on itself lengthwise of the fastener F. In the embodiment shown in FIG. **1** the tag train **15** is provided with a plurality of transversely extending slits **21** which define separation lines between adjoining pieces of tags **16**.

The train of tags **16** is fed intermittently in a direction at right angles to the direction of movement of the fastener chain C, as indicated by the arrow in FIG. **1**, until a leading tag **16** is brought into superposed position on the chain C with its fold line lying adjacent to a cutting line **22** along which the chain is cut to an individual product length. In this position, a staple **18** is applied from above to the stem portion **17** of the tag **16** thereby securing the same to the portion of the chain C that is devoid of elements **11** as illustrated in FIG. **1**. The leading tag **16** is then separated from the rest of the tags in the train **15** followed by folding the tag **16** on itself halfway up as shown in FIG. **2** to expose to view the cutting line **22** so as to permit the chain C to be cut therealong.

The embodiment shown in FIG. **4** is characterized in that the tags **16** are completely folded when they are

supplied to the fastener chain C so that the chain can be cut simultaneously as the leading tug **16** is separated.

FIG. **6** illustrates a further embodiment of the invention wherein the position of the tags **16** relative to the fastener chain C is inverted as compared to the embodiment of FIG. **1**, so that the tag **16** attached to product zip fastener F assumes a folded position in use as shown in FIG. **9**.

FIG. **3** shows a train of tags **16** which are devoid of slits **21** and which may be employed according to the invention.

Having thus described the invention, it will be understood that various changes and modifications may be made in the specific methods herein above advanced, without departing from the scope of the appended claims.

What is claimed is:

1. A method for producing tagged zip fasteners which comprises providing a train of tags each having a fold line along which it is foldable, feeding said train of tags in a direction at right angles to the direction of movement of said fastener chain until said tags are borught one at a time successively into a predetermined position on said fastener chain, attaching an end of said tag onto said fastener chain with the fold line of said tag lying adjacent to a cutting line of said fastener chain along which said chain is to be cut to a product length, separating the thus attached tag from its train of tags, and cutting said fastener chain along said cutting line.

2. The method as defined in claim **1** wherein said train of tags are supplied in folded position so that the fastener chain can be cut simultaneously with the separation of said tags.

3. A method for producing tagged zip fasteners comprising: providing both a series of connected together tags and a continuous length of fastener chain composed of a series of zip fastener sections each having fastener elements having stop members at opposite ends thereof; intermittently feeding said length of fastener chain along a path of travel to successively and intermittently position each zip fastener section in a common working position; intermittently feeding said series of connected together tags transversely to the feeding direction of said length of fastener chain to successively and intermittently superposition individual tags over the end portions of individual zip fastener sections when the latter are in said common working position; attaching the superposed tags to their respective zip fastener sections to form a tagged zip fastener section; and separating both each attached tag from the remaining series of tags and each tagged zip fastener section from the remaining length of fastener chain to form individual tagged zip fastener sections.

4. A method according to claim **3**; wherein said separating step comprises breaking the attached tag from the remaining series of tags by folding the attached tag along a predetermined fold line and cutting the tagged zip fastener section from the remaining length of fastener chain.

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