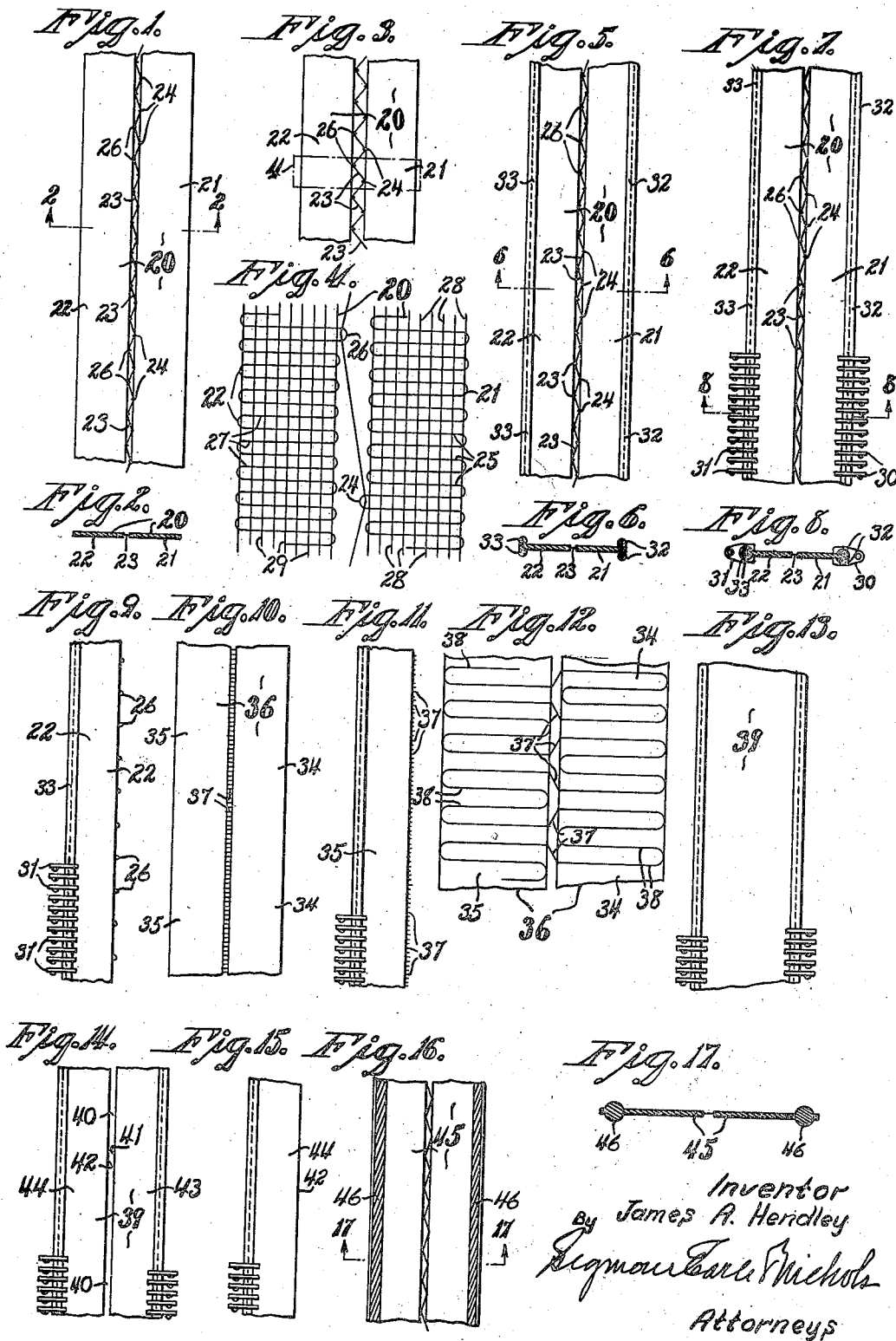


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TAPE CONSTRUCTION

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TAPE CONSTRUCTION

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This invention relates to improvements in tape constructions for the mounting of fastener-elements.

Heretofore, in the manufacture of woven tapes designed for the mounting thereon of slide-fasteners, each tape of what will ultimately be a pair of tapes on which the pairs of slide-fastener elements are mounted, has been manufactured as an individual tape, and under this circumstance, the two pieces of tape that are to form a pair, each with slide-fasteners mounted thereon, may— and usually do—occur as pieces of tape woven at widely-different times from textile strands which, while they are intended to have the same qualities, including color appearance, actually frequently differ in substantial degree.

One object of this invention, therefore, is to provide tape-means which is designed and adapted to be separated along a longitudinal region into two tapes, after the pairs of fastener-elements are secured to the outside side-edges of the tape-means, the tape-means being woven as a unit, from textile strands of similar tensile strength and color and other characteristics, so that the final pairs of separate tapes or pieces of tape which carry pairs of fastener-elements and are mounted upon a garment, have substantially identical characteristics in all respects.

With the above and other objects in view, as will appear to those skilled in the art from the present disclosure, this invention includes all features in the said disclosure which are novel over the prior art.

In the description and claims, the various parts and steps are identified by specific terms for convenience, but they are intended to be as generic in their application as the prior art will permit.

In the accompanying drawing forming part of the present disclosure, in which certain ways of carrying out the invention are shown for illustrative purposes:

Fig. 1 is an elevational or face view of tape-means constructed in accordance with the present invention, in which the tape-means consists of two tapes or a pair of tapes temporarily connected together by connecting-means in the form of a central longitudinally-extending zigzag strand;

Fig. 2 is a transverse sectional view taken on line 2-2 of Fig. 1;

Fig. 3 is a view similar to Fig. 1 with the two tapes pulled apart while still connected by the zigzag strand;

Fig. 4 is a schematic enlarged face view of the area 4 of Fig. 3;

Fig. 5 is a view similar to Fig. 1 with cords illustrated as sewn along the opposite outside side-edges of the tape-means;

Fig. 6 is a transverse sectional view taken on line 6-6 of Fig. 5;

Fig. 7 is a view similar to Fig. 5 with the ad-

dition of slide-fastener elements secured along the cord-regions;

Fig. 8 is a transverse sectional view taken on line 8-8 of Fig. 7;

Fig. 9 is a view similar to Fig. 7 of one of the pair of tapes thereof, after the zigzag strand has been removed;

Fig. 10 is a view similar to Fig. 1 of a modified form of construction of tape-means or double tape;

Fig. 11 is a view similar to Fig. 10 of one of the pair of tapes of Fig. 10 after cords and slide-fasteners have been mounted on the tape-means, and the pair of tapes has then been cut apart;

Fig. 12 is a view similar to Fig. 10 schematically illustrating the weft strand or picks employed in weaving the pair of tapes of Fig. 10;

Fig. 13 is a view similar to Fig. 7 of another modified form of construction of tape-means with cords and slide-fastener elements secured along its opposite side-edges, the tape-means being designed and adapted to be separated into a pair of tapes;

Fig. 14 is a view similar to Fig. 13 after the tape-means of Fig. 13 has been longitudinally severed into two tapes;

Fig. 15 is a view similar to Fig. 14 of one of the tapes thereof, with the cords and slide-fasteners;

Fig. 16 is a view similar to Fig. 5 of a modified form of construction with twisted cord-means formed along the opposite outside side-edges during the weaving of the tape-means; and

Fig. 17 is a transverse sectional view on line 17-17 of Fig. 16.

Referring to the form of the invention illustrated in Figs. 1 to 9 inclusive, the tape-means or tape-construction or tape-unit or twin-tape 20 includes two tapes or a pair of tapes 21 and 22 which are concurrently woven and held in side-by-side relation by temporary connecting-means in the form of a longitudinal zigzag strand 23 which extends through certain of the weft loops 24 of the weft strands or picks 25 (Fig. 4) of the right-hand tape 21 and through certain of the weft loops 26 of the weft strands or picks 27 of the left-hand tape 22. The right-hand tape 21 is formed by warp strands 28 being interwoven with the weft strands 25, and the left-hand tape 22 is formed by warp strands 29 being interwoven with the weft strands 27. It will be seen that in the weaving of the pair of tapes 21 and 22 and the strand 23, all concurrently, the weft strands in each tape 21 and 22 alternately loop back and forth at the opposite side-edges of the tape, to thus form a selvage edge along each of the opposite side-edges of each tape.

If the tape-means or twin-tape construction 20 is to be dyed or subjected to any finishing operation, this is done while the tapes 21 and 22

of the tape-means 20 are still connected together, and where fastener-elements such, for example, as the slide-fastener elements 30 and 31 illustrated in Fig. 7 are to be employed, cords 32 and 33 are first secured along and adjacent the opposite outside side-edges of the tape-means, as illustrated in Figs. 5 and 6. One common way of securing such cords to tape is by sewing them on, as illustrated in Figs. 5 and 6. Next, the slide-fastener elements 30 and 31 are mounted upon the cord-containing regions of the tape-means 20, as shown in Figs. 7 and 8. Next, a long length of tape-unit such as shown in Figs. 7 and 8 is cut into suitable short lengths for slide-fastener units, and either before or after mounting the operating-member thereon, and zipping the pairs of slide-elements 30 and 31 together, the connecting-strand 23 is removed. When the connecting-strand 23 has been removed, each of the tapes 21 and 22 will have the appearance illustrated in Fig. 9.

The connecting-strand 23 may be removed in any of various ways. It may be pulled out or cut out, or if made of cellulose acetate, for example, it may be removed by applying heat, or solvent liquid or vapor, which readily disintegrates a strand of such material. If it is to be pulled out, it can be advantageously made of a smooth-surface low-friction material such as silk or one of the artificial strands such as rayon, cellulose acetate or nylon.

In the form of the invention illustrated in Figs. 10 to 12 inclusive, the tapes 34 and 35 of the tape-means 36 are temporarily connected together by a plurality of weft- or pick-portions 37 which are formed by weaving a weft strand 38 (Fig. 12) with warps (not shown) in the manner schematically illustrated in Fig. 12, to thus not only form the temporary weft connecting-portions 37, but to also form each of the tapes 34 and 35 with selvage edges along its opposite side-edges. After cords and slide-fastener elements are mounted on the tape-construction 36 in any suitable manner such, for example, as illustrated in Fig. 7, the weft-strand temporary connecting-portions 37 are cut so as to produce two tapes similar to the tape 35 illustrated in Fig. 11.

In making the form of the invention illustrated in Figs. 13, 14 and 15, the tape-means 39 is woven in any usual way of material such, for example, as cellulose acetate and is provided with cords and slide-fastener elements along its opposite side-edges in a similar manner to that heretofore illustrated, and is then passed longitudinally of itself into contact with a hot knife or hot roller, or the knife or roller can be passed along the tape-means 39, to melt the portion of the woven cellulose acetate along the longitudinal region 40 to separate the tape-means 39 along this region and form selvage edges 41 and 42 respectively, on the tapes 43 and 44 which are thus formed from the tape-means 39, the selvages being formed as a result of the melting and sticking-together of the crossed warp and weft strands (not shown).

In the form of the invention illustrated in Figs. 16 and 17, the tape-means 45 is similar to the tape-means 20 of Fig. 1 except that during the weaving of the tape-means 45, the twisted cords 46 each consisting of a plurality of cord-strands, are formed by interweaving the cord-strands with the weft strands of the tape-construction 45.

While the various forms of tape-means have been illustrated in the drawing as having cords mounted along the opposite outside side-edges, 75

and as having pairs of slide-fasteners secured on the cords, obviously any type of pairs of fasteners could be secured to the tape-means before forming two separate tapes from it, regardless of whether or not cords were to be suitable or desirable to employ in connection with such other type of fasteners.

Preferably, all operations such, for example, as the sewing-on of cords and mounting of fasteners along the opposite side-edges of the tape-means, are performed prior to the separation of the tape-means into tapes. This not only provides a greater saving of time with consequent lower cost, than is the case where cords and fasteners are applied upon the individual separate tapes, but also permits of the originally-manufactured tape-means which is to be separated ultimately into two tapes, to be originally woven as a single unit so that the tensile strength, thickness, appearance, color, aging characteristics as to color shade, degree of stretch or shrinkage, etc., will be uniform in the two tapes which will ultimately form a pair of companion tapes in the final fastening-unit formed with the two tapes and which, in some instances, is mounted in a position upon a garment where differences in appearance of the two tapes is objectionable.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. A tape construction for fasteners, including: tape-means; two sets of fastener-elements; one set secured along and adjacent each of the opposite outside side-edges of said tape-means and designed and adapted to be engaged with the other set secured along the opposite outside side-edge; and said tape-means being designed and adapted to be separated along a longitudinal region into two tapes each having fastener-elements along one of its side-edges.

2. A tape construction for fasteners, including: tape-means; cord-means secured along and adjacent each of the opposite outside side-edges of said tape-means; two sets of fastener-elements; one set secured to and along each of said cord-means and designed and adapted to be engaged with the other set secured to and along the other cord-means along the opposite outside side-edge; and said tape-means being designed and adapted to be separated along a longitudinal region into two tapes each having cord-means and fastener-elements along one of its side-edges.

3. The method of making a pair of tapes each with a set of fastener-elements along one edge to be engaged with the other set of fastener-elements along one edge of the other tape, including: providing unitary tape-means designed and adapted to be separated along a longitudinal region into two tapes; securing a said set of fastener-elements along and adjacent each of the opposite outside side-edges of said tape-means; and separating said tape-means with said fastener-elements secured thereto, along a longitudinal region into said two tapes each with a said set of fastener-elements secured thereto.

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