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Selvaggi

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[54] **SLIDE FASTENER**

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[52] **U.S. Cl.** .....**24/205 R,** 139/384 B, 24/205.16

[51] **Int. Cl.** **A44b 19/04**

[58] **Field of Search**.....24/205.16, 205, 205.16 C, 24/205.1; 139/384 B

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[57] **ABSTRACT**

A slide fastener for attachment in a non-linear course, without puckering, in which the tapes are capable of planar, multiform, elongation by virtue of being formed of loosely-woven, bias-woven strips of slick, wiry filaments, the interstices in the weave decreasing or enlarging in response to arcuate planar deflection of the slide fastener.

8 Claims, 4 Drawing Figures

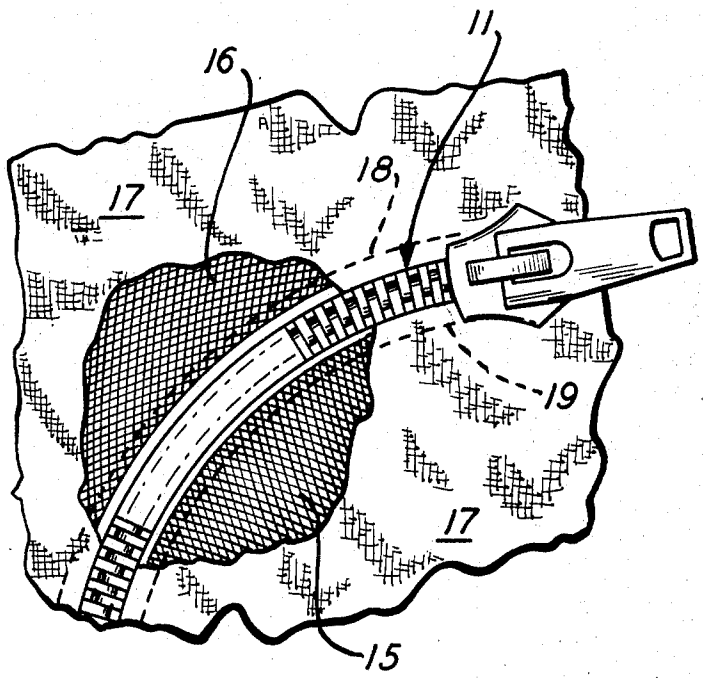


FIG. 1

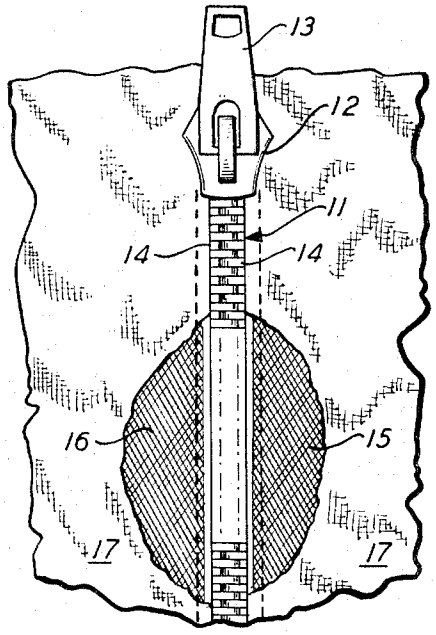


FIG. 2

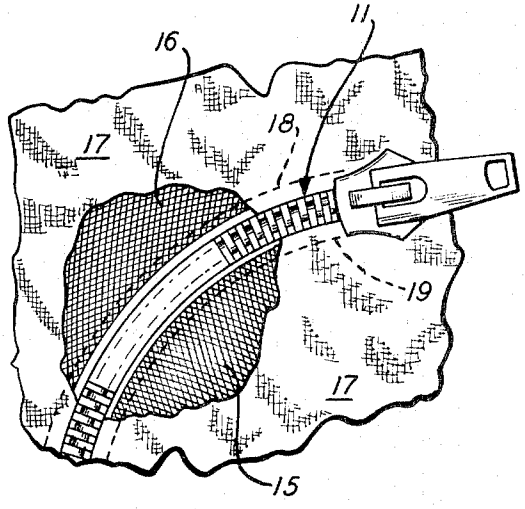


FIG. 3

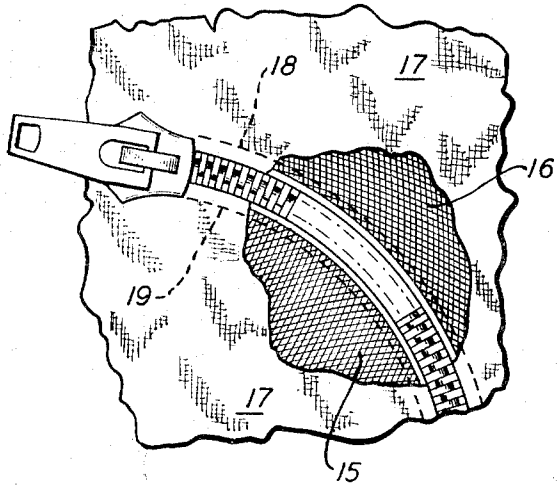
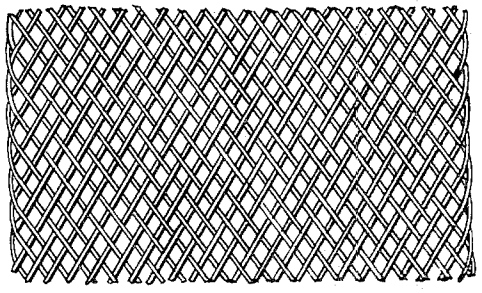


FIG. 4



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SLIDE FASTENER

BACKGROUND OF INVENTION

1. Field of Invention

This invention relates generally to slide fasteners, and particularly to slide fasteners that will not pucker fabrics and other materials to which they may be attached, when they pursue a non-linear course.

2. Prior Art

Vast developments in slide fasteners have been achieved throughout the many years when they have come into wide general use. One development, however, has for the most part eluded the industry: a slide fastener which may be attached to fabric to pursue a non-linear or arcuate path without its tapes puckering, or causing the material to which it is attached to pucker. When a slide fastener thus is attached to a fabric in an arcuate course, the tapes to which the cooperating interlocking members are attached will pucker the fabric because the tapes are not capable of planar multiform elongation. This causes a puckering of the fabric or other material to which the slide fastener is attached, and produces in garments as well as on other objects, a rumpled appearance which detracts from the commercial appeal of the garments and their esthetic appeal.

SUMMARY OF INVENTION

DEFINITION: "planar, multiform elongation" in fabrics as used herein is the capacity of tapes to shorten at one edge and to lengthen at the other edge (therefore "multiforms elongation") and yet to lie in the same plane (hence "planar"), without puckering. The plane need not be a flat plane. This quality is a characteristic of bias-weave, wiry, slick-filament fabrics known in the trade as horsehair, imitation horsehair (viscose rayon monofilament). Churchill's Dictionary of Textiles, ed. 1967, edited by Isabel B. Wingate. These fabrics are usually woven of one or a pair of filaments, which are braided together in a flat helical or bias-weave pattern. By their slick wiry quality, they are capable of sliding over each other. The weave is open, whereby the tapes have large interstices. As the tapes are deflected flatly on an arcuate course, the interstices on the concave side of the course will decrease in size and the tape edge will shorten, while on the convex opposite tape, the interstices will grow larger and the tape edge will lengthen.

It has been found that a slide fastener can be devised which may be attached to a garment along an arcuate course without causing puckering. This is to be accomplished by the use of a material, which when utilized as a mounting for the interlocking members of the slide fastener is capable of planar, multiform elongation. Such a tape is available, being known as horsehair or imitation horsehair. When formed into bias-woven, loosely woven tapes, the material being rather stiff, rather large interstices are formed between adjacent filaments. Thus, when such tape is deflected to the right or to the left, the interstices on the side of the deflection become smaller, and the edge of the tape is shorter than the opposite side edge of the other tape which becomes longer. In this manner, the tapes of the slide fastener made of this material are able to pursue a non-linear, or arcuate course without puckering by reason of the quality of planar, multiform elongation.

DRAWINGS

These objects and advantages, as well as other objects and advantages are attained by the device shown in the drawings in

FIG. 1 is a top plan view of a slide fastener attached to a fabric, and directed on a linear course, with parts of the fabric exploded away to show uniform interstices of both tapes;

FIG. 2 is a top plan view of a slide fastener attached to fabric on an arcuate course to the right, with part of the fabric exploded away to show the interstices of the tape contracted on the concave side, and expanded on the convex side;

FIG. 3 is a top plan view showing a slide fastener attached to a fabric along an arcuate course to the left, in which the interstices of the tape are reduced in size on the concave side and expanded in size on the convex side of the tapes;

FIG. 4 is a top plan view of a tape of wiry filaments, bias and loosely interwoven.

PREFERRED EMBODIMENT

Referring now to the drawings in detail, there is provided a slide fastener **11** having a slider **12** and a pull tab **13** for adjusting the slide. The slide fastener is provided with cooperative interlocking members **14** attached to the pair of tapes **15, 16** in staggered relationship. The tapes **15, 16** are made of horsehair, imitation horsehair; viscose rayon monofilaments or other stiff wiry material, bias-woven in a flat helical pattern, and loosely woven with large interstices, and capable of multiform, planar elongation. The plane of the tapes need not be a flat plane but may be contoured, as is the case when a slide fastener is attached to a garment fitted to bodily contours.

In FIG. **2**, the slide fastener **11** is attached to a fabric **17** along an arcuate course to the right, wherein the tape **16** being on the convex side of the arcuate course has its interstices expanded. The tape **15**, being on the concave side of the arcuate course has its interstices contracted, thereby providing the tape edge **18** with an increased longitudinal dimension, and the tape edge **19** on the other tape **15** with a decreased longitudinal dimension. By reason of the capability of the tape, to dimensionally alter its edge's lengths while lying in the same plane, it provides a pucker-free slide fastener, capable of pursuing an arcuate course. The tape is capable of planar, multiform elongation.

I claim:

1. A slide fastener comprising:

a. a pair of coplanar tapes,

b. interlocking opposite fastener elements attached to the tapes,

c. a slide on the fastener elements for uniting and separating the fastener elements,

d. the tapes formed of wiry, stiff-like, slick bias-woven filaments, capable of planar, multiform elongation and the filaments are interwoven loosely with intersticial spaces between the filaments thereby forming an open mesh,

e. the interlocking elements following a planar, arcuate course when the tapes are deflected.

2. A slide fastener according to claim **1** in which the filaments are interwoven loosely in groups of at least two.

3. A slide fastener according to claim 1 in which the filaments are interwoven loosely in groups of at least one filament each, with intersticial spaces between the filaments.

4. A slide fastener according to claim 1 in which the filaments are horsehair.

5. A slide fastener according to claim 1 in which the filaments are imitation horsehair.

6. A slide fastener according to claim 1 in which the filaments are viscose rayon monofilaments.

7. A slide fastener according to claim 1 in which the tapes are deflectable from a linear course to an arcuate course for attachment and maintain their coplanar relationship.

8. A slide fastener according to claim 1 in which the tapes are deflectable and attached an arcuate course, with the spaces between the filaments of the one tape diminished, and of the other tape enlarged and maintain their coplanar relationship.

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