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FOREIGN PATENTS

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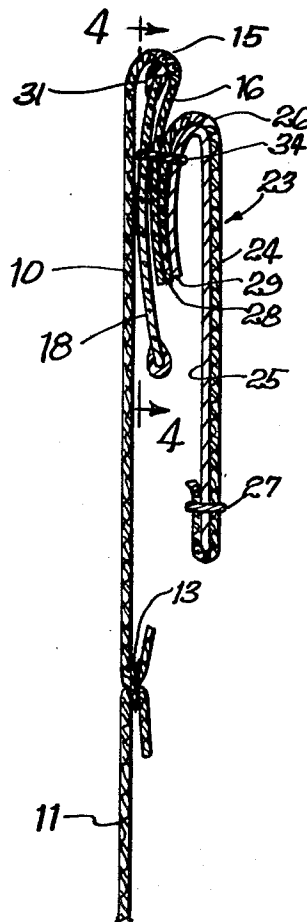
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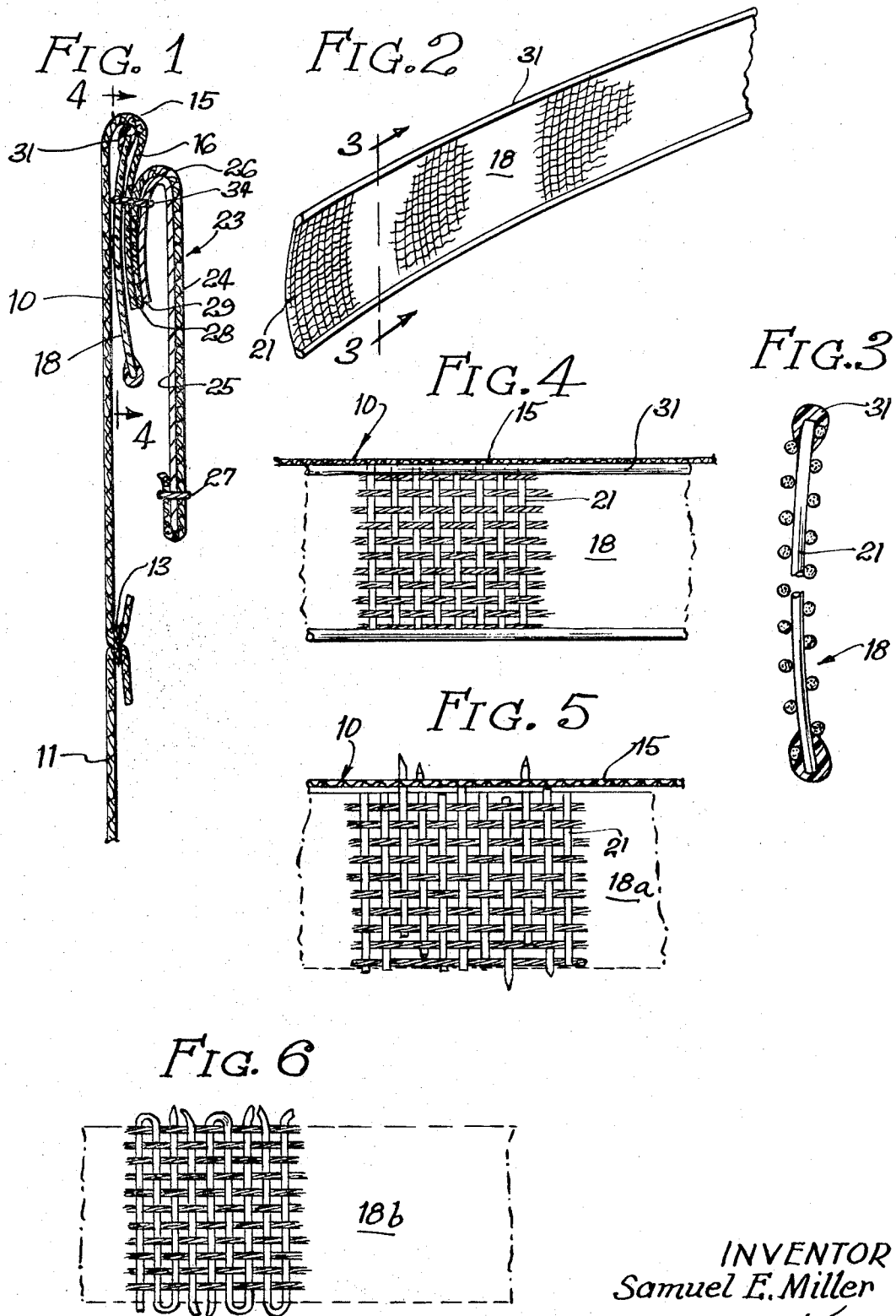
[54] WAISTBAND CONSTRUCTION 2 Claims, 6 Drawing Figs.

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161/86
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UNITED STATES PATENTS
1,844,249 2/1932 Halls 161/86
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ABSTRACT: A waistband for wearing apparel, e.g. trousers, which includes a woven strip to preclude rolling over of the outer edge portion of the waistband. In order to perform its function the strip has a degree of inherent rigidity but is flexible in the sense that its presence does not discommode the wearer. These characteristics are obtained by using a comparatively stiff thread in the weft, usually a monofilament of nylon or the equivalent. Since the strip is usually slit from wider goods the edges are rough or erose. Furthermore, since the weft threads are short and comparatively rigid the warp threads are inadequate to anchor them, so that they are free to slide and thereby present this rough or erose edge configuration which can puncture and/or abrade the adjacent shell fabric. The disclosure relates to an edge construction for the strip to avoid this undesirable behavior.





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WAISTBAND CONSTRUCTION

BACKGROUND OF THE INVENTION

In my U.S. Pat. No. 3,155,986, granted Nov. 10, 1964, there is disclosed a waistband construction wherein one component of the assembly is a woven strip which is comparatively rigid but resilient in the narrow or weft direction and is utilized to preclude rolling over of the edge of the garment at which the waistband is located. The strip has transverse curvature which, combined with the resilient weft, exerts a force on the shell fabric in a direction toward the wearer. Thus embonpoint which tends to cause rollover of the garment, e.g. trousers, is resisted. In order to exert the desired force and yet possess the yieldability to adapt to the movements of the wearer with consequent freedom from discomfort the strip, in a preferred form, comprises a woven fabric having a monofilament in the weft and a cotton thread in the warp. With this construction the initially flat strip may be molded under heat into the curved transverse cross section. The blank strip may be obtained by slitting a broad fabric or by weaving on a narrow loom. In the case where the strips are cut from board fabric, whether by cold shearing or by the use of a hot knife, the edges of the fabric are rough. In the case of hot cutting a strip containing nylon or other thermoplastic in the weft the edges become even more erose and brittle. Although the initial broad fabric may be treated to bond the warp and weft, the bonding material may become degraded during laundering and drycleaning. Accordingly, the weft threads being short, smooth and wiry, may work out at the edges to a greater or lesser degree. In any case the rough edges, from whatever cause, can abrade and puncture the shell fabric overlying the one edge of the strip, with obviously undesirable results. In the case of strip woven on a narrow loom the return bights of the weft, i.e. the selvage, tend to break, with the same undesirable protrusion of points which may penetrate the shell fabric and abrade the same. Obviously, abrasion and puncture of the cloth overlying the strip present serious problems of discomfort and premature wear of the garment. Heretofore, an attempt has been made to solve the problem to which the present invention is directed by covering the offending edge of the strip by an edge binding. Not only is this an expensive expedient but adds undesirable bulk.

SUMMARY OF THE INVENTION

The present invention relates to improvements in the waistband disclosed in my said patent. Specifically, the stiffening strip of the character described therein has at least one, and preferably both edges of the strip provided with a bead acting as a buffer between the rough edge and the fabric to which the strip is adjacent. Further, the bead serves to lock the weft threads against transverse shifting. Although it is ordinarily not necessary to provide the bead on both edges, it is preferred to do so in order that the manufacturer of the garment need not observe "left" or "right" when sewing the strip into the waistband assembly, having in mind that the bead is quite small in its transverse extent and therefore tends to be visually merged into the strip per se. It must be mentioned that a bead which is unnecessarily bulky may be perceptible when the garment is worn and, for that reason, objectionable. Further by restricting the size of the bead to the greatest possible extent consistent with its function, feeding of the strip to the sewing machine is facilitated.

DESCRIPTION OF THE DRAWINGS

In the drawing:

FIG. 1 is an enlarged section taken transversely of the waistband showing the relationship of the several fabric layers comprising a typical waistband assembly incorporating the principles of the invention;

FIG. 2 is a perspective view of a section of the stiffening strip including the beaded edges;

FIG. 3 is a somewhat enlarged cross section taken on the line 3-3 of FIG. 2;

FIG. 4 is a view taken on the line 4-4 of FIG. 1;

FIG. 5 is a view similar to FIG. 4 but showing the behavior of the weft of the stiffening strip in the absence of the beaded edge, in the case of a strip cut from wider goods; and

FIG. 6 is a view similar to FIG. 5 except that the strip has been woven on a narrow loom.

DESCRIPTION OF THE PREFERRED EMBODIMENT

By way of example, the invention will be described with reference to the waistband of a pair of trousers, although it will be evident that the same is adaptable to other garments such as skirts, girdles and brassieres having an edge portion, not in the form of a waistband in the usual sense, which is designed to resist rollover.

The waistband 10, sometimes termed the shell fabric of the waistband, since it is essentially a matching continuation of the shell 11 of the garment, is joined to the shell by stitching 13. In conventional trousers the waistband 10 is about 1 inches in width, and is folded over to define a bight 15 and an inner depending flap 16. Within the fold defined by the waistband 10 an flap 16 there is disposed a stiffening strip 18, best seen in FIG. 2, and preferably of the construction disclosed in my said patent. It will be noted that the strip is resilient and concave inwardly of the garment in order to perform its function of precluding rollover. In order to possess the resiliency required by this function, the transverse threads 21 constituting the weft are preferably a monofilament, e.g. nylon, capable of being woven and then molded under heat to the curved transverse cross section. Nylon is preferred as it will maintain the molded shape notwithstanding laundering and dry cleaning operations, and is not adversely affected by imparting a so-called "permanent press" condition to the garment.

In the ordinary case the waistband assembly includes a curtain 23 comprising a pocketing type of material 24 and scrim or canvas 25, both folded over at the top 26 and sewn together at the bottom, as at 27. The flaps 28 and 29 abut the flap 16 and are sewn jointly with this flap and the strip 18 by stitches 34.

For clarity in the drawing the several components of the waistband assembly and their spacing are intentionally exaggerated.

Turning to FIG. 4 it will be noted that the weft threads 21 are relatively short, say on the order of 1 inch and, further, that they are resilient, i.e. do not readily assume the wavy form which a conventional, nonsynthetic thread will assume when woven. Accordingly, the weft threads 21 are not adequately locked into the warp threads, e.g. cotton, and may therefore be easily dislodged. FIG. 5 illustrates a strip 18a exhibiting this condition wherein some weft threads are shown dislodged. To avert such dislodgement the fabric, in the broad form in which it is initially woven, is treated to bond the warp and weft at their intersections. However, it has been found that the bonding substance is degraded during laundering and drycleaning. In the case where the strip is slit from wide goods, for example, by scoring or shearing, the edges of the strip are rough and therefore abrasive. This roughness not only causes abrasion of the adjacent fabric, i.e. the shell fabric, but discomfort and annoyance. In the case of the strip 18b (FIG. 6), woven on a narrow loom, similar roughness can develop in that the return bights of the weft at the selvages may break due to the bending on a small radius of a relatively stiff monofilament yarn.

In accordance with the present invention at least that selvage of the strip 18, which is uppermost when incorporated in the waistband, is provided with a protective bead 31 which, in the finished waistband, presents a smooth edge over which the fold 15 is made. Although the weft threads may be adequately locked by providing the bead 31 on only one edge, i.e. the edge which is uppermost in the finished garment, it is preferred to provide the bead on both edges in order that the assembly of the strip 18 with the waist band can be made without the annoyance of having to differentiate between left- or right-hand feeding of the strip to the sewing machine. The bead or beads 31 are preferably applied to the strip im-

mediately following molding thereof into the transverse curve. It will be noted from FIG. 3 that the bead 31 not only forms a finished edge preventing the needlelike ends of the weft threads from penetrating or abrading the adjacent shell fabric but prevents displacement of those threads. Furthermore, the material of the bead flows into the interstices of the strip 18 to unit the bead, warp and weft into an integrated whole, at least one of the warp threads being embedded in the bead. In this way separation of the bead is reliably prevented. Further it will be noted that the bead, at its thickest part, is of substantially the same thickness as the base fabric per se. In this way the flexibility of the strip is essentially unimpaired and the bead is incapable of adding bulk to the finished waistband.

It will be understood that the principles of the invention are applicable to the case of a flat stiffening strip which exhibits the same roughness at the edge.

Application of the bead or beads 31 can be accomplished by extruding a suitable plastic composition e.g. a polymer, onto the moving strip, e.g. during its transit through the molding machine, the composition being in a sufficiently flowable condition, whereafter the bead or beads are cured. It will be understood that the resultant bead will desirably possess a resiliency substantially the same as the fabric of the strip per se to avoid boardiness in the completed waistband.

A suitable polymer is a plastisol composed of a polyvinyl chloride-polyvinyl acetate copolymer resin where the vinyl acetate portion is approximately 5 percent, together with a plasticizer. The composition will yield 95 percent of its ultimate tensile strength up to 400° F. and will be found satisfactory in the presence of present-day drycleaning solvents and laundering materials. Pressing temperatures range from 230° F. to 330° F. So-called permanent press temperatures range from 310° F. to 325° F.

Where, herein, I refer to an inwardly folded shell waistband, e.g. shown as a single layer in the drawing, it will be understood that the same may comprise more than one layer over a part or the whole thereof, and that the abrasion mentioned can affect deleteriously such layers as comprise the fold 15.

I claim:

1. A waistband assembly for an article of wearing apparel comprising an inwardly folded shell waistband and a strip of woven textile material positioned inwardly of the shell waistband to stiffen the latter and preclude rollover thereof, the strip comprising resilient, comparatively stiff monofilaments in the transverse direction, one edge of the strip being positioned within the fold of the shell waistband, and adjacent the bight thereof, said edge having a bead of plastic material adherent to the strip, said material being taken from the class consisting of polyvinyl chloride, polyvinyl acetate and polyamides together with a plasticizer, said bead, when cured, encapsulating and gripping the ends of the monofilaments and at least one warp thread adjacent said edge and filling the interstices between the warp and weft coextensive with the bead to bond the warp and weft, further precluding displacement of the monofilaments, said bead being not substantially greater in thickness than the strip, said bead providing a buffer zone between the ends of the monofilaments and the adjacent shell waistband fabric, said material being thermoplastic and, when cured, proof against degradation at the temperatures encountered in conventional drycleaning and laundering operations and the substances employed in said operation.

2. The combination in accordance with claim 1 in which the strip is curved transversely with the concave side facing inwardly of the article.

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