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S. E. MILLER

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WAISTBAND WITH FRICTIONAL MEANS

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FIG. 1

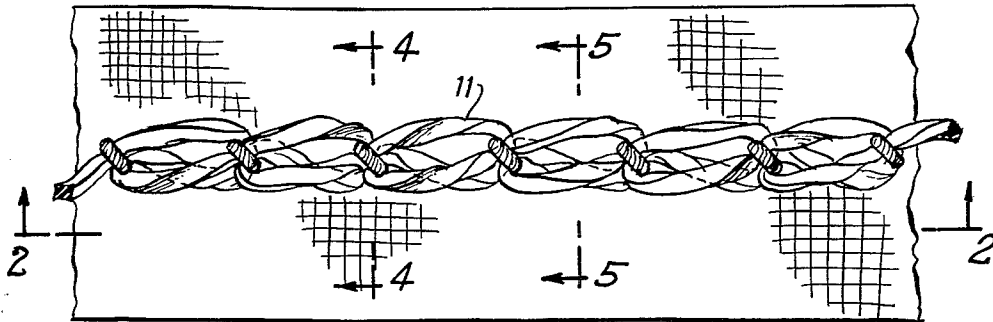


FIG. 2

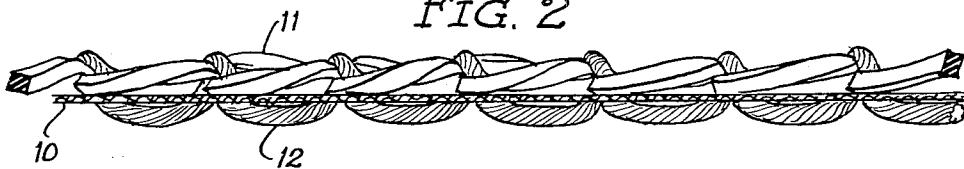


FIG. 3

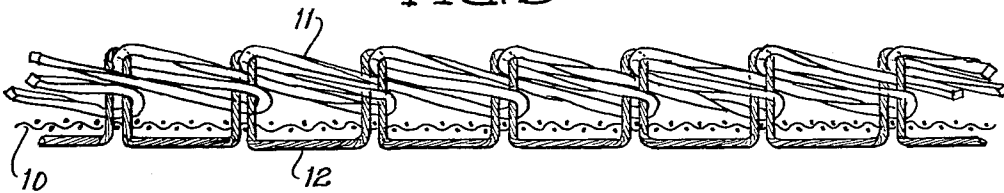


FIG. 4

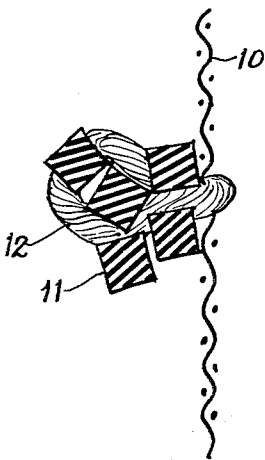
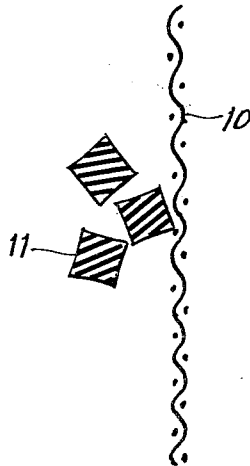


FIG. 5



INVENTOR
Samuel E. Miller
BY
Leonard Stroy
Att'y

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WAISTBAND WITH FRICTIONAL MEANS

Samuel E. Miller, Skokie, Ill., assignor to Textile Sales Company, Chicago, Ill., a corporation of Illinois

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5 Claims. (Cl. 2—236)

This invention relates to improvements in waistbands for articles of wearing apparel as, for example, men's trousers and ladies' skirts and pantaloons. In particular, it has reference to a frictional element on the inside of the waistband having as its main purpose the retention of the tail portion of a shirt blouse, or the like where the same is tucked into the nether, overlapping garment.

The principal object of the invention is to provide, on the interior surface of a waistband of the general character mentioned, one or more, preferably continuous ridges comprising comparatively resilient, frictional thread, such as raw rubber formed into generally overlapping loops or convolutions disposed entirely on the interior face of the waistband to present to the shirt, or blouse, a somewhat narrow or restricted area of contact of highly frictional character.

Another object is to provide frictional means in accordance with the foregoing which may be incorporated with the waistband by conventional, production type, sewing machines in an economical and reliable manner.

A further object is to provide frictional means of the character aforesaid which, although disposed on only one face of the fabric of the waistband, is non-ravelling so that if, during wear or cleaning, a portion of the loops is injured or broken, the remainder thereof will continue unaffected in its function.

An additional object resides in providing frictional means as aforesaid which utilizes so-called cut rubber, either natural or synthetic, which will present, as active portions thereof, a plurality of comparatively sharp corners, thereby to enhance the gripping action thereof.

The invention does not comprehend an elastic waistband per se, that is one which is longitudinally extensible but the principles of the invention may be incorporated with a waistband of that general class. Neither does the invention comprehend the incorporation of the frictional elements of the invention by weaving in a manner such that the rubber is included as warp threads woven into a ground, or woof, of conventional textile yarns or vice versa, whereby bights of rubber are caused to protrude from the base fabric. Nor does the invention comprehend the inclusion of the frictional means as stitches or loops of rubber penetrating a base fabric.

Other objects and advantages of the invention will become apparent from the ensuing description which, taken with the accompanying drawing, discloses a preferred embodiment of the invention.

In this drawing:

FIG. 1 shows, in somewhat magnified form, a plan view of the frictional means of the invention incorporated with a strip of material forming the inner waistband of an article of wearing apparel;

FIG. 2 is a cross section of FIG. 1 taken on the lines 2—2;

FIG. 3 is a somewhat diagrammatic showing to indicate somewhat more explicitly the nature of the stitches employed for the illustrated embodiment;

FIG. 4 is a cross section taken substantially on the line 4—4 of FIG. 1 to show the relationship of an anchoring stitch with the rubber thread; and

FIG. 5 is a cross section taken on the line 5—5 of FIG. 1 showing another transverse aspect of the rubber thread.

Broadly regarded, the invention comprehends the combination with a strip of waistband material of a superficial line, or parallel lines, of loops formed from a thread

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comprising comparatively resilient, frictional material such as natural rubber (latex) or synthetic rubber such as neoprene applied to the interior surface of the waistband, as worn, in overlapping convolutions.

5 In order to present a plurality of discrete protuberances to the adjacent garment, e.g. a shirt or blouse, for optimum gripping action, it is preferred to utilize so-called cut rubber which is obtainable commercially as a continuous length on a bobbin or spool, and which is rectangular in cross-section, e.g. square. Other polygonal cross-sectional configurations are suitable so long as there is desirably presented a plurality of relatively sharp corners. In practice I prefer to use a square cross-section since the same is readily available commercially. Obviously as the number of sides of the polygon is increased the included angle of the corners is increased and the gripping action is proportionately decreased. Rubber having a continuously curved periphery may be used but the desired frictional function is reduced. I exclude those rubber yarns which consist of a circular rubber core covered with a textile yarn, whether helically wound, knitted, braided, netted, or otherwise applied, since it has been found that, in general, the coefficient of friction of the raw rubber and the presentation of a multiplicity of sharp corners is appreciably in excess of the gripping action of the just-mentioned composite threads of rubber and ordinary textile fibers.

Where, in the description and claims, I employ the word "rubber" I intend to encompass both natural and synthetic rubber, as well as other materials of a rubber-like character, which possess substantial resiliency, i.e. rebound, together with a friction surface, and yet which are sufficiently flexible to allow the ready formation thereof into the desired overlapping convolutions. For details of physical properties of such natural and synthetic rubber stocks capable of use in carrying out the invention, reference is made to Handbook of Chemistry and Physics, Chemical Rubber Publishing Co., Cleveland, Ohio, 41st ed., pp. 1552—4.

For most purposes a single ridge longitudinally continuous of the waistband provides a very acceptable result for most applications but I do not exclude the employment of a plurality of ridges.

Waistband material for wearing apparel in general consists of a woven fabric cut into strips from a bolt of raw material which has been cut on the bias. The waistband material also generally includes two or more super-imposed layers of strips of fabric of a number and character dictated by the style and end use of the garment, assembled by any conventional stitching method and supplied to the garment maker in rolls, although the invention may be embodied in a single layer of such base fabric. It is to be understood that the waistband material, per se, forms no part of the invention; and it may be stated, also, that such material is not noticeably stretchable in the direction of its length. The frictional means of the invention may be incorporated with the waistband material at the same time as the several layers thereof are sewn together, or such means may be incorporated thereafter at the pleasure of the manufacturer.

Turning now to the drawing, I have shown, by way of example, a base fabric, e.g. a piece of waistband material 10, as previously described, but which, for simplicity and clarity of exposition, is illustrated as a single thickness.

Lengthwise of the material there is provided a row of loops or convolutions 11 of rubber thread of the type previously mentioned, e.g. polychloroprene (neoprene) of square cross-section, which is looped in a manner to provide an appreciable ridge upon and outstanding from, the face of the base fabric. This result is desirably obtained by the use of a sewing machine which will form convoluted loops in substantially overlapped relation, the rub-

ber being fed from a source of supply, e.g. a cone-shaped package and the simultaneous anchoring of such rubber loop formations to the base fabric by stitches 12 of conventional thread, e.g. cotton or nylon.

As noted heretofore, it is not necessary that the base fabric be extendable longitudinally and, therefore, the anchoring stitches 12 need not themselves be elastic. By choice of length of stitch, cross-sectional size of rubber and appropriate overlapping of the loops thereof, a sensible ridge may be formed having the desired function.

One mode of achieving the desired construction is to utilize a sewing machine capable of forming a double lock stitch, as shown diametrically in FIG. 3. This figure is not to be regarded as a true representation of the physical nature of the convolutions but is included simply to assist in understanding the embodiment of FIGS. 1 and 2. Various other loop formations may be availed of except that the double lock stitch is readily run on machines presently available, and has the important advantage of being non-ravelling.

In passing the base fabric through the sewing machine it is necessary that the tension of the rubber fed be so regulated that the same is not drawn into loops passing through the base fabric, for otherwise the bulk of the rubber available for the outstanding ridge is reduced, or else it will be necessary to use additional rubber to obtain the same result, with consequent increase in manufacturing expense. Moreover, utilization of some of the rubber as loops passing through the base fabric results in such manipulation thereof by the anchoring stitches as to involve the hazard of cutting or otherwise injuring the rubber. Stated otherwise, the anchoring stitches, where looped to engage the rubber, pass through the base fabric. Again the tension of the locking, or anchoring, stitches may be easily regulated to obtain this result.

Reverting to FIG. 1, it will be observed that the loops of rubber are convoluted and superimposed, and that the square corners thereof are oriented in a more or less random fashion. The net effect is that the rubber yarn is presented to the adjacent garment as a plurality of discrete, sharp-cornered protuberances with greatly enhanced frictional effect. The basically high coefficient of friction of the rubber and its inherent resiliency supplements the engagement.

Even though FIG. 1 shows the anchoring loops exemplificatively as a single thread the same may, obviously, be in multiple.

One of the important characteristics of the invention is that the ridge of rubber loops is of comparatively small area and not constrictive in a longitudinal direction. Accordingly, the flesh of the wearer is not subjected to pressure as is the case with elastic waistbands presently available which frequently result in wheals. In this connection

I have found that the shirt, blouse, or other garment which is tucked into the lower garment may be satisfactorily prevented from sliding or working upwardly by the use of the invention provided, of course, that the waistband is properly fitted to the wearer. However, even in those cases where the waistband is a poor fit and is then gathered, for example, by a male drawing his belt more tightly, the beneficial effect of the invention may still be obtained in considerable measure. Stated otherwise, I do not rely upon constriction in a circumferential direction to obtain an adequate degree of frictional retention.

While I have shown a particular embodiment of my invention, it will be understood, of course, that I do not wish to be limited thereto since many modifications may be made and I, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

I claim:

1. A waistband for incorporation with an article of apparel to provide implemented frictional engagement of the article with another article of apparel worn in overlapping relation therewith comprising a flat-lying base fabric having an outstanding ridge consisting of unstressed convolutions of non-circular rubber thread twisted on its longitudinal axis arranged in overlapping relation disposed entirely on that face of the base fabric to be positioned adjacent the other article of apparel, and a non-elastic thread formed into bights passing through the base fabric and about the overlapping convolutions to anchor the same to the base fabric.

2. The combination in accordance with claim 1 wherein the convolutions and bights are constituted by lock stitching.

3. The combination in accordance with claim 1 wherein the rubber thread is of polygonal cross section.

4. The combination in accordance with claim 1 wherein said rubber thread is of quadrilateral cross section.

5. The combination in accordance with claim 1 in which the rubber thread is synthetic.

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