This invention relates to a web and/or to garments of woven or knitted textile material comprised of natural and/or synthetic fibers with a cellulose base. More particularly this invention relates to a web and/or a garment of such sort wherein a portion or portions thereof has been rendered crease-resistant by chemical finishing. In the textile art, the term "crease resistance" denotes a characteristic of a fabric of being "self-ironing" in the sense that the fabric is non-retainive of (i.e., recoverable from) creases inadvertently formed in the fabric so that, by virtue of such characteristics those inadvertent creases rapidly disappear. The property of "crease resistance," i.e., crease recoverability, is thus entirely different from the fabric property of "stiffness," such as results from the application of starch, which inhibits the formation in the first instance of inadvertent creases but renders the fabric incapable of recovering from such creases if they are once formed.

It is well-known that, when textile materials are finished to increase their crease-resistance (i.e., self-ironing quality), the finishing step reduces the resistance of the material to wear and tear in proportion to the degree by which the crease-resistance is enhanced. Accordingly, when shirts, blouses and similar garments are made wholly from such finished material, the garment has a shortened life caused by premature wearing through of the edges of the collar and cuffs. The collar and cuffs, however, happen to be the very parts of the garment which least need high crease-resistance because those parts are usually stiffened after manufacture of the garment (by the addition to such parts of starch or the like) so as to have a decreased susceptibility to inadvertent creasing to begin with.

One solution to the described problem is to manufacture the cuffs, collar and the like of a given garment out of a web of textile material which is unfinished or is less finished for crease-resistant purposes than the web used for the rest of the garment. By so doing, the cuff and collar material has better resistance to wear than the main forming the major portion of the garment. It is, however, an inconvenience in the ready made clothing industry to have to use two webs of material simultaneously for the manufacture of a single garment. When, moreover, the garment is made of colored or multicolored material, the incorporation of two webs in a single garment is ordinarily impractical because of difficulty in obtaining an exact color match between the two webs.

It is, accordingly, an object of this invention to provide a web of textile material which obviates the above-described problem in a simple manner.

Another object of this invention is to provide a garments in which is crease-resistant in the portions thereof most susceptible to creasing and is wear resistant in the portions thereof which are most susceptible to wear.

These and other objects are realized according to the invention by providing along one or both edges of a web of textile material a strip bordering the main portion of the web, said strip or strips occupying 25% at most of the total web width. Each of such one or two strips has a higher resistance to wear than said main portion which, in turn, has a higher resistance to creasing than said strip or strips. According to the invention in one of its aspects, such a web may be made up into a garment of which the parts most susceptible to wear but least susceptible to creasing (e.g., the collar and cuff edges) are formed of the web portion of higher wear resistance, and the part or parts of the garment least susceptible to wear but most susceptible to creasing (e.g., the front and back) are formed of the web portion of higher crease resistance.

For a better understanding of the invention, reference is made to the following description of a specific embodiment thereof, and to the accompanying drawings wherein:

FIG. 1 is a plan view of a section of a web of textile material embodying the invention; and
FIG. 2 is a view of a garment in accordance with the invention.

Referring now to FIG. 1, the reference numeral 10 designates a web of textile material comprised of a continuous interweaving of fibers which have a cellulose base. Such fibers may be either natural (e.g., cotton) or synthetic (e.g., rayon).

The web 10 is uniform throughout in its fiber composition. Insofar, however, as the web is finished for crease-resistance purposes, the web is divided into a more crease-resistant main portion 11 and a more wear-resistant auxiliary portion 12. In the shown web, the portion 12 is in turn subdivided into a left-hand strip 13 (of which the demarcation from main portion 11 is indicated by a dotted line 14) and a right-hand strip 15 (of which the demarcation from portion 11 is indicated by dotted line 16). The strips 13 and 15 are shown as occupying about 25% of the total width of the web 10. In practice, however, the strips may occupy a lesser percentage of the total web width. Also, one of the described strips may be omitted from the web.

The difference between the more crease-resistant portion 11 and the more wear-resistant portion 12 resides in the finishing thereof. As represented by the light stippling of the main portion 11, that portion has been fully finished by chemicals which impart to the fibers of portion 11 a crease-resistant characteristic. Chemicals suitable for this purpose are well-known to the art, exemplary ones of such chemicals being described on pages 905-906 of vol. 17 of the Encyclopedia of Chemical Technology (published 1954 by Interscience). Because of such finishing, the main portion 11 of the web is highly crease-resistant but is not particularly wear-resistant.

Two working examples of methods for manufacturing the described webs are set out below. Both examples relate to a 100% American worsted cotton. Warp: 51 threads/cm. Ne 32; weft: 25 threads/cm. Ne 28. Width: 90 cm., having a 10 cm. strip with a更强 resistance to wear along one selvedge.

Example A

The fabric was saturated with an aqueous solution containing 5 percent by weight of dimethylethylene urea and 2 percent by weight of MgCl₂ 6 eq. as a catalyst. The use of urea compound of such sort and of a catalyst of such sort to impart a crease-resistant finish is set out on the aforementioned pages 905-906 of vol. 13 of the Encyclopedia of Chemical Technology. After that, the fabric was guided through a pressing...
device provided with rollers, one of the said rollers being provided with a rubber sleeve of a breadth corresponding to that of the strip and of a hardness less than that of the pressing roller. The pressing was effected at such a roller pressure that the selvedge strip and the rest of the fabric showed a liquid content of 50% and 90% respectively, so that 25 and 45 g., respectively of dimethylolethylene urea kg. fabric was left.

The fabric was dried and condensed at a temperature of 160° C. during 3 minutes. The solution used also contained plasticizers, feel improving agents, pigments, buffers, etc. as required.

After treatment, the fabric had the following properties:

<table>
<thead>
<tr>
<th>Strip</th>
<th>Remaining fabric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength according to ASTM D1000-67(T), kg.</td>
<td>17.0</td>
</tr>
<tr>
<td>Resistance to creasing according to ASTM D1577-G7, degrees..............</td>
<td>2,280</td>
</tr>
<tr>
<td>Resistance to abrasion: Accelerator in comparison with untreated, percent.</td>
<td>74</td>
</tr>
</tbody>
</table>

Example B

The fabric was saturated with an aqueous solution of formaldehyde, containing 7.5 percent by weight of formaldehyde, as also 18 percent by weight of hydrochloric acid (calculated as pure HCl). In this connection, the use of formaldehyde and of an acidic catalyst for imparting crease resistance is also set out in the said pages 905-906 of the Encyclopaedia of Chemical Technology.

The fabric was evenly pressed until a liquid content of 75% had been reached.

An aqueous sodium nitro containing 25 percent by weight of NaOH was applied to the strip, in which a greater resistance to wear was required, by means of a smooth roller, the lower side of which ran through the sodium lye, and the number of revolutions of which was adjusted in such a way that 160 g. of sodium lye was applied per kg. of cloth, so that 1/4 of the hydrochloric acid present in the strip was neutralized.

It was found that the fabric had the following properties:

<table>
<thead>
<tr>
<th>Strip</th>
<th>Remaining fabric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength according to ASTM D1000-67(T), kg.</td>
<td>31.6</td>
</tr>
<tr>
<td>Resistance to creasing in wet condition according to ASTM D1577-G7, degrees..............</td>
<td>294</td>
</tr>
<tr>
<td>Resistance to abrasion: Accelerator in comparison with untreated, percent.</td>
<td>96</td>
</tr>
</tbody>
</table>

While in the foregoing working examples, the fabric was impregnated with crease-resistant impregnating agents of specified chemical compositions, it is to be understood, that the treatment of the fabric by the agent need not necessarily be one of impregnation, and that the agent is not necessarily limited in chemical composition to the compositions specified in said examples.

The web portion 12 has a higher resistance to wear than the portion 11 by virtue of having less of a concentration therein of the chemicals used to produce the high-creates resistance of portion 11. This lowered concentration results in such chemicals in portion 12 (indicated by the absence of stippling thereon) is produced in the course of the crease-resistance finishing of web 10 by say, a heavier pressing out of the finishing chemicals from strips 13, 15, by using diluted or no finishing chemicals for such strips, or by utilizing chemical agents well known in the art to reduce or neutralize the effect in or on the strips of the finishing chemicals.

The web 10 may either be of uniform color or be multicolored. The showing of FIG. 1 of portion 11 as being stippled and portion 12 as being in portion 10, indicative of a difference in color between the two portions (although such difference in color may, in instances, be deliberately provided for design purposes) but, instead, is indicative only of the fact that the portion 11 has been more fully finished than has portion 12 with chemicals imparting a crease-resistance characteristic to the fibers of web 10.

The web 10 may be utilized for the making of a garment in such manner that the collar and cuffs of the garment are at least partially formed of the web portion 12 while the remaining parts of the garment are formed of the main portion 11. The resulting garment is satisfactorily crease-resistant in its major portion wherein it tends most to creases (e.g., the front and back) while simultaneously having substantial resistance to wear in marginal portions which are most exposed to wear (e.g., the edges of the collar and cuffs). In this manner, the life of the garment may be doubled.

The shirt 20, as shown in FIG. 2, is one such garment. In that shirt, the right arm 21 is made from a textile web like that of FIG. 1, except that the more resistant portion 12 of the web is comprised of only a single strip. The cuff 23 of arm 21 is formed from portion 12, whereas the sleeve 22 of arm 21 is formed from the more crease-resistant main portion 11 of the web. The left arm (not shown) of shirt 20 is fashioned like arm 21 from a piece of the same web. Another piece of the same web is appropriately cut to provide the shirt collar 25 from the more wear-resistant portion 12 of the web and the main body 26 of the shirt from the more crease-resistant web portion 11.

It is to be understood that the collar and cuffs of shirt 20 need not be entirely fashioned out of the web portion which has a higher resistance to wear. Instead, that web portion may be used only for, say, the cuff and collar edges where the wear on the collar and cuffs is greatest.

The described method of manufacture of a garment such as shirt 20 is advantageous to the ready-made clothing industry in that such method provides a garment which has good crease-resistance at the portions thereof most susceptible to creasing and good wear resistance at the portions thereof most susceptible to wearing and which, at the same time, is made from a single web of textile material by suitable laying out on the web of the patterns for the separate parts of the garment. Moreover, by so manufacturing a garment, the portions thereof which are of a color which match in color from part to part is eliminated because all parts of the garment are cut from the same web of material.

The above described embodiments being exemplary only, it is to be understood that additions thereto, modifications thereof and omissions therefrom may be made without departing from the spirit of the invention, and that the invention comprehends embodiments differing in form and/or detail from those specifically disclosed. For example, a textile web according to the invention may be utilized in the manufacture of garments other than shirts. Accordingly, the invention is not to be considered as limited except as is constant with the recitals of the following claims.

What is claimed is:

1. A web of textile material formed of a continuous inter-weaving from side to side of homogeneously constituted fibers having a cellulose base, said web having a main portion and at least one strip disposed alongside said main portion to provide a continuous longitudinal border at one side of said web, said strip occupying 25% of most of the total width of said web, and each of said main portion and said strip of said web being pliably creasable, said main portion having a chemical finish imparting thereto crease recoverability, the property of
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5 non-retentiveness of creases inadvertently formed in said main portion, and said strip having a degree of said chemical finish which at the least is zero and at the most is lesser than that of said main portion so as to render said strip more wear-resistant than said main portion.

2. A web as in claim 1 in which there are two of said strips on either side of said main portion and each providing a continuous longitudinal border at a respective one of the two opposite sides of said web, said strips occupying 25% at most of the total width of said web.

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