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COATED FLEXIBLE FABRIC

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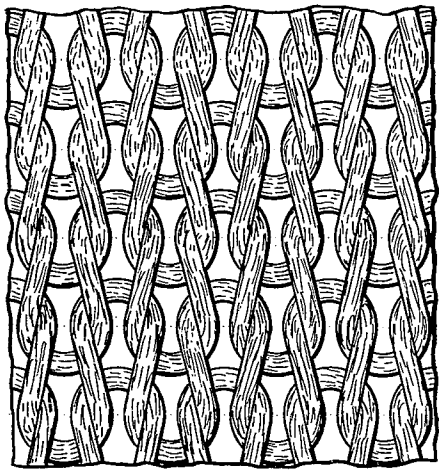


FIG. 1



FIG. 2

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COATED FLEXIBLE FABRIC

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2 Claims. (Cl. 28—80)

This invention relates to a highly tear-resistant fabric for use as a base or as a backing for coating with a plastic material.

More especially, this invention has as an object the provision of a knitted fabric for use as a backing material or base for plastic coating formed of rayon multi-filament yarn in substantially an untwisted state on a circular-knitting machine.

Generally, plastic coated fabrics have as a base woven textile fabrics with or without bonding agents to prevent relative movement of the yarn strands over each other. Interwoven backing fabric no matter how previously treated prior to plastic coating will tear because of its firm and inelastic nature, particularly when fitted over sharp, or angular forms. The tearing is, apparently, the result of the failure of the yarns in the woven fabric to their lack or inability for movement, and then realignment in the direction of stress; the tearing tension being applied upon but a few yarn strands rather than upon a plurality simultaneously.

Fabric that has been knitted has been found to be a decided improvement as a backing material advantageously offering resilience in any direction of stretch. The looped structure of knitted fabrics manufactured on circular-knit machines provides for substantial stretch by straightening of the loops and inherent stretch and realignment of masses of the interlooped yarn strands forming a resilient mat of significant depth and irregular surface for the applicaiton of a plastic material by any of the several methods now practiced by the coating industry.

Rayon circular-knit fabric is advantageously desirable for coating with plastic material since, in addition to the knit structure, it is formed of continuously spun filaments of even diameter throughout their lengths providing for a uniform yarn surface on which to impregnate, spray or cast an imperforate plastic coating. The openings between the loops, and the substantially parallel filaments forming the yarn, provide a myriad of anchoring positions for the plastic material. Further, various designs in the circular-knit fabric can be effected by ready alteration of the knitting machine. Also, rayon knit fabric as a backing material is one of the most economical at present available.

This invention advantageously provides for a backing material for use in plastic coating that has exceptional tear-resistant qualities, and that will give a final coated fabric of unusual strength, light weight, resilience, and highly retentive of the plastic applied material.

These and other features will be explained hereinafter.

The accompanying drawing, by Figures 1 and 2, shows

in enlarged scale a coated fabric of circular-knit construction made of rayon yarn.

Textile fabrics are coated with plastic materials to simulate various kinds of leathers and water proofed materials for various uses as coverings of furniture, purses, travelling bags and cases, storage receptacles, linings, shower curtains, etc. In nearly all instances a specific requirement of such a plastic fabric is tear resistance. A plain, circularly knit fabric made from viscose rayon filamentary yarn having no twist or very slight twist provides a base which when coated with a plastic is tear resistant to a great degree. As shown in the drawing the fabric backing material is of loop construction, and the filaments in the yarn being in substantially continuous parallel relation, without substantial twist, and themselves smooth.

If tension on cloth of this construction is applied even in a limited area, the loops of the various consecutive rayon yarn strands spread this pulling force to adjacent loops, all tending to straighten in their resistance, and over an area substantially greater than that limited to which pressure is applied. This ability of circular-knit fabric renders it of particular importance as a backing or a mat material for plastic coatings of all kinds. Generally, irrespective of closeness of knit a circularly knit fabric will provide a more tear resistant backing material than other methods of knitting; a knit fabric of almost any design being superior to woven materials.

Circularly knit rayon yarn fabric may be treated with plasticizing agents for better adherence of certain coatings, or such a fabric may be used without an initial treatment of a plasticizer. This, of course, depends on the type of coating applied. The circularly knit fabric, however, is advantageous for the exceptional mentioned qualities for generally all kinds of imperforate coatings.

Further, it has been found that if an oleaginous finishing lubricant is omitted during the processing of the viscose rayon fabric, then the adherence of plastic coatings, for instance of plastic vinyl chloride, to the fabric is improved. Where an oil or a wax finish has been applied during the manufacture and processing of the fabric then such an oil or wax is desirably removed prior to plastic coating.

I claim:

1. A flexible sheet material comprising; a base layer of viscose rayon plain circular knit fabric; and an imperforate layer of vinyl plastic material.

2. A flexible sheet material comprising; a base layer of fabric free of oleaginous finishing compounds and being a viscose rayon plain circular knit fabric; and an imperforate layer of vinyl plastic material.

References Cited in the file of this patent

UNITED STATES PATENTS

1,238,607	Weil	Aug. 28, 1917
1,856,322	Erlanger et al.	May 3, 1932
1,884,560	Cameron et al.	Oct. 25, 1932
2,004,656	Fonville	June 11, 1935
2,022,410	Dreyfus	Nov. 26, 1935
2,123,675	Hartmann et al.	July 12, 1938
2,178,759	Keller	Nov. 7, 1939
2,414,424	Stevens	Jan. 14, 1947
2,521,055	Foster	Sept. 5, 1950
2,619,705	Foster	Dec. 2, 1952