Nov. 18, 1969 P. P. A. BURNETT 3,479,244

LINKED FABRIC AND METHOD FOR MAKING SAME

Filed Oct. 19, 1965

FIG. 1

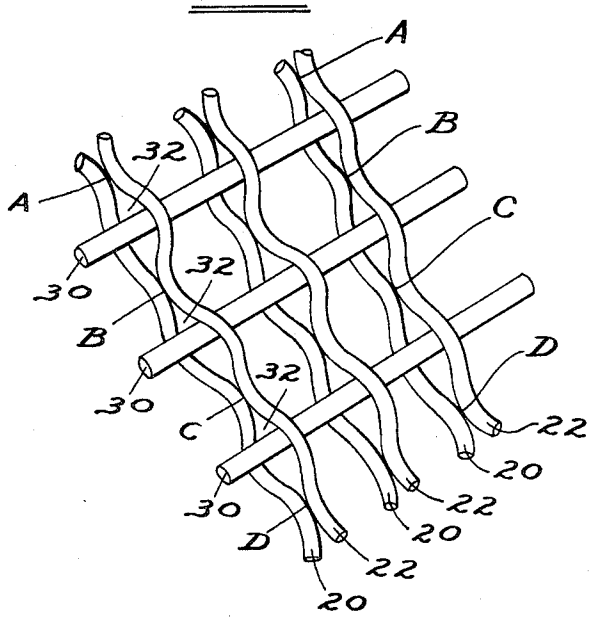
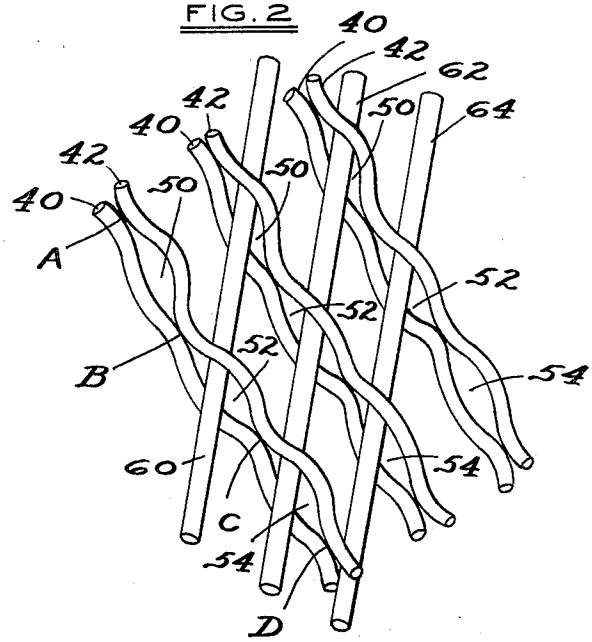


FIG. 2



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United States Patent Office 3,479,244 Patented Nov. 18, 1969

3,479,244

LINKED FABRIC AND METHOD FOR MAKING SAME

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Filed Oct. 19, 1965, Ser. No. 497,797
Int. Cl. D04h 3/05, 3/12
U.S. Cl. 161—58 5 Claims

ABSTRACT OF THE DISCLOSURE

A linked unwoven fabric and process for making the same which comprises a plurality of parallel strands crossed by a second set of strands and overlaid by a third set of strands parallel to the first strands wherein the first and third set of strands are arranged in pairs and joined at junction points between the second set of strands to form a plurality of relatively large loops which entrap the cross strands, thus forming a fabric material without weaving.

This invention relates to a linked fabric and more particularly to that type of fabric which is not woven but which is created by adhering certain strands together. With the advent of synthetic fibers which are of the extruded type made from numerous synthetic materials and plastics, it is known to create a fabric material without weaving by adhering crossing strands of warp and woof filaments either by adhesive or by other means of creating adhesion.

It is an object of the present invention to provide an improvement in fabrics of this nature to create a more comfortable feel and a looser construction than can be accomplished in previous fabrics.

It is a further object of the invention to provide a fabric of this improved type without increasing the cost of the fabric and to create a fabric which permits considerable flexibility in design due to the inherent nature of the construction.

It is a further object to provide a fabric which has a better stretch characteristic particularly when there is a bias force.

Briefly, the invention consists of a fabric which has pairs of strands running in parallel direction in general overlying each other with cross strands positioned between the double strands of each pair. The double strands are then adhered to each other between the cross strands so that the cross strands are trapped in spaced loops along the fabric in a direction transverse to the double strands.

Other objects and features of the invention relating to details of construction and operation will be apparent in the following description and claims.

Drawings accompany the disclosure and the various views thereof may be briefly described as:

FIGURE 1, a perspective view of a segment of a fabric showing the general construction.

FIGURE 2, a modification showing the manner in which the cross strands may be anchored to create a different design and effect.

Referring to the drawings, the fabric shown in FIGURE 1 may be formed of a number of different types of yarns or filaments either of the monofilament or multifilament or staple fiber type in the form of extruded filaments or spun yarn. The invention is particularly adapted to that type of filament which is responsive to heat sealing or sealing by adhesive but most any type of filament or yarn which can be adhered to itself can be utilized.

In general, the fabric consists of a plurality of pairs of strands **20** and **22** which are arranged in parallel relation spaced from each other in any desired spacing. The

bottom strands **20** can be disposed in parallel spaced relation and then overlayed by transverse strands **30** also spaced from each other at any desired distance. Then the top strands **22** can be disposed to overlie the bottom strands **20** in parallel relationship and in generally the same plane. The double strands are then adhered at the points A, B, C and D and so forth to form junctions at those points and to leave relatively large loops **32** in which the cross strands **30** are locked. Thus, without the necessity for the usual weaving shuttle arrangement, the fabric is created.

It is possible that in utilizing filament strands which are flexibly extruded that they may be adhered together prior to complete setting without the use of any additional heat or adhesive material. It is also possible to use heat sealing, dielectric sealing, ultrasonic means for adhesion which is known today in connection with plastic materials.

Adhesives of various kinds could also be used at the juncture points including elastomeric or foamed adhesives. It is, of course, possible to vary the feel and characteristics of the yarn by altering the diameters of the double strands and the cross strands to create any number of different combinations as is characteristic in the manufacture of fabric generally. The loose relationship between the cross strands **30** lying in the loops of the double strands gives the fabric a generally flexible and loose feel which is possible in connection with fabrics which are created by positive bending of the strands as they cross each other.

In FIGURE 2, a modified structure is shown to illustrate the versatility of the construction. In this case, the double strands **40, 42** are joined as previously indicated at points A, B, C, D and so forth to create loops **50, 52** and **54**. The cross strands **60, 62, 64**, however, are angled relative to the double strands so that strand **60**, for example, passes through loop **52** of the first double strand and loop **50** of the second one. Similarly, strand **62** passes through loop **54** of the first double strand and loop **52** of the second and loop **50** of the third and so on. This creates a different appearing fabric and can be utilized to create fabric designs in connection with a herring bone design and the like. Otherwise, the construction of the fabric shown in FIGURE 2 is the same as in connection with FIGURE 1.

I claim:

1. A linked fabric for use as clothing or the like comprising one set of a plurality of pairs of first and second filamentary strands generally parallel with each other and separated from each other by predetermined spacing in a direction transverse to said pairs, the first and second strands of each said pair adhering to each other only at points spaced lengthwise thereof and forming a loop between each adjacent pair of adherence points, and a plurality of filamentary cross strands generally parallel with each other and separated from each other in the lengthwise direction of said pairs, said cross strands running transversely of said pairs and through said loop thereof with each said cross strand being loosely trapped by a series of said loops spaced from each other lengthwise of that cross strand, all of said first strands lying on one side of said cross strands, and all of said second strands lying on the other side of said cross strands.

2. A linked unwoven fabric for use as clothing and the like comprising:

(a) a first set of flexible filamentary strands generally parallel with each other and spaced from each other a predetermined distance,

(b) a group of second flexible filamentary strands overlying said first strands at an angle thereto, all of said second strands being on one side of said first strands, and

(c) a plurality of third flexible filamentary strands each individually and respectively overlying and parallel to one of said first strands, all overlying said second strands and disposed on the said one side of said first strands, said first and third strands being joined together only in the spaces between said second strands and remaining free of said second strands so that each second strand is loosely entrapped at spaced intervals along its length in loops formed by the junctions between said first and third strands,

the first and third sets of overlying parallel strands being the only such strands in the fabric.

3. A linked unwoven fabric for use as clothing and the like comprising:

(a) a first set of flexible filamentary strands generally parallel with each other and spaced from each other a predetermined distance,

(b) a group of second flexible filamentary strands overlying said first strands at an angle thereto, said second strands being in spaced relation to each other and in general parallel disposition, all of said second strands being on one side of said first strands, and

(c) a plurality of third flexible filamentary strands each individually and respectively overlying and parallel to one of said first strands, all overlying said second strands and disposed on the said one side of said first strands, said first and third strands being joined together in the spaces between said second strands so that each second strand is loosely entrapped at spaced intervals along its length in loops formed by the junctions between said first and third strands.

the first and third sets of overlying parallel strands being the only such strands in the fabric.

4. A linked unwoven fabric for use as clothing or the like comprising:

(a) a first set of flexible filamentary strands generally parallel with each other and spaced from each other a predetermined distance,

(b) a group of second flexible filamentary strands overlying said first strands at an angle thereto, all of said second strands being on one side of said first strands, and

(c) a plurality of third flexible filamentary strands each individually and respectively overlying and parallel to one of said first strands, all overlying said second strands and disposed on the said one side of said

first strands, said first and third strands being joined together only in the spaces between said second strands and remaining free of said second strands so that each second strand is loosely entrapped at spaced intervals along its length in loops formed by the junctions between said first and third strands.

the longitudinal extent of the junction of the first and third strands being substantially less than the spacing between the second strands to leave relatively large loops around the second strands.

the first and third sets of overlying parallel strands being the only such strands in the fabric.

5. The process of making a linked fabric for use as clothing or the like without weaving which comprises:

(a) disposing a plurality of first flexible strands in parallel spaced relation,

(b) disposing a plurality of second flexible strands crosswise of said first strands in spaced parallel relation wherein all of said second strands are on one side of said first strands.

(c) disposing a plurality of spaced third flexible strands each respectively in individual parallel overlying relation to said first strands and all overlying said second strands and on the said one side of said first strands, and

(d) joining said overlying third strands to said first strands between said second strands wherein each of said second strands is loosely entrapped in loops formed by said joining.

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U.S. Cl. X.R.

156—181, 306; 161—148, 150