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(54) **PRODUCTION OF STRIP LACE FABRIC.**

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Description

The present invention relates to production of strip lace fabric having at least one scalloped edge having free hanging purl loops, example of such strip lace fabrics are lace edgings or galloons.

The conventional way of producing strip lace fabric is to knit a sheet composed of a plurality of such strips joined to one another directly or via intermediate waste bands. The sheet is then subjected to finishing processes, such as dyeing, before the individual strips of lace fabric are separated from one another. Up till recently separation of strip lace having deep scallops has been achieved by a cutting operation which produces a scalloped edge having purls which are not free hanging and so the aesthetic appearance is poor. In our GB—A—1 567 608 we provide a method of producing deep scalloped edges having free hanging purls in which separation is achieved using a dissolving yarn. Although this method successfully produces a high quality deep scalloped edge having free hanging purls, the process includes using a dissolving step which contributes to the overall cost of producing the strip lace fabric. A general aim of the present invention is to produce strip lace fabric having at least one scalloped edge having free hanging purls which is knitted in sheet form and can be separated easily by a ripping action, thereby obviating the need to use dissolving, cutting or draw thread techniques for separation.

According to the present invention there is provided a method of producing strip lace fabric comprising knitting a sheet of fabric composed of individual strips of lace joined edge to edge characterised in that the adjacent strips are joined by at least one wale of frangible yarn, and that knitting of the sheet includes

(a) laying-in a purl forming thread along at least one edge of each strip so as to produce at least one scalloped edge having purls projecting therefrom,

(b) each purl having a terminal end laid-in across one wale of frangible yarn,

(c) the purl forming thread during the formation of each purl forming course being laid-in across at least two wales adjacent said scalloped edge so that the underlaps of said wales tightly grip the purl forming thread,

(d) laying-in a reinforcing thread across selected ones of said at least two wales,

(e) said at least two wales, said purl forming thread and said reinforcing thread being joined together to form a composite edge formation which is resistant to elongation,

(f) and that subsequent to knitting of the sheet of fabric, the individual strips of lace are separated from one another by ripping.

Accordingly it is possible with the present invention to produce, on a Raschel type warp knitting machine, strip lace fabric having free hanging purls which are stabilised against excessive elongation or distortion and thereby provides a high quality strip lace fabric having free hanging purls.

The or each edge may be knitted using two or more neighbouring wales knitted from yarn of relatively low denier and laying-in in said wales the purl forming thread and a reinforcing thread both being of a relatively high denier.

Preferably the reinforcing thread is laid-in across at least two neighbouring wales one of said wales defines the edge of the fabric. The purl forming thread may be laid-in along either or both of said wales. The reinforcing thread may be laid-in on selected courses in the same or opposite direction to the purl forming thread. The reinforcing thread may be floated across several courses to cause course-wise contraction of said two or more wales and may be floated across the base of a purl so as to provide resistance against the purl lifting out of the plane of the fabric.

Alternatively, the reinforcing thread may be knitted so as to define one of said wales and the purl forming thread may be laid-in across the wales in order to form said coursewise contraction of said wales.

Various aspects of the present invention are hereinafter described with reference to the accompanying drawings, in which:

Figure 1 is a schematic stitch diagram showing a portion of strip lace fabric in a sheet;

Figures 2 and 3 are more detailed diagrams of these and are designated as II and III respectively in Figure 1;

Figures 4 and 5 are similar respective diagrams as Figures 2 and 3 showing the strip lace during separation by ripping;

Figures 6 to 11 are schematic diagrams showing alternative stitch structures for the edge of strip lace fabric according to the present invention;

Figures 12, 14 and 15 are schematic illustrations of apparatus for separating lace strips by ripping;

Figure 13 is a schematic illustration of a lace sheet having lace strips having one purl edge.

The fabric 10 illustrated in Figures 1 to 5 is basically knit in a similar means to that described in our U.K. Patent 1 567 608 wherein the front edge portion 9 and part of the body portion 8 of a band 11 of strip lace fabric is shown connected to the rear edge 16 of an adjacent strip 11 via a band 50 of waste material. Each strip 11 is composed of a plurality of wales straight pillars 12 (the majority of which located between the front edge and back edge of the strip lace have been omitted for the sake of clarity) which form the body of the strip lace fabric and a plurality of traversing wales 14 which overlap some of the straight pillars and project beyond them to form the scalloped front edge 9 of the band 11. In Figure 1 the rear edge 16 is shown as a straight edge having purls 16*a* but it is envisaged that the rear edge may also be scalloped and have free hanging purls if desired.

A purl forming thread 18 is laid-in across wales 14*a*, 14*b* and projects beyond the edge defining wale 14*a* on every sixth course by one needle spacing to define a purl 20. If desired the purl

forming thread could be laid across more than one needle spacing to produce a longer purl. In between each purl 20 the purl forming thread 18 is laid-in across both wales 14*a*, 14*b* on the course immediately after the course containing a purl 20, then laid-in on wale 14*a* only and then laid-in across both wales 14*a*, 14*b* on the course immediately before the course containing a purl 20.

A reinforcing thread 22 is laid-in across both wales 14*a*, 14*b* on every course except that immediately before, after and including the course containing a purl. As seen in Figures 1 to 5 the thread 22 is floated across these courses to form a float 25 which lies above the purl forming yarn at the base of the purl 20. The purl forming thread 18 at the base of each purl therefore extends between loops 14*c* of wale 14*a* and the float 25 and this has the effect of restraining movement of the purl above and below the plane of the fabric.

The thread 22 is laid-in under tension so that it has a contracting effect on the wales 14*a*, 14*b* to form a tight accordian effect which serves to trap the purl forming thread 18 by drawing wales 14*a*, 14*b* together in a coursewise direction.

Accordingly, a composite edge formation is produced which is a tightly bound composite of threads made up of wales 14*a*, 14*b* and the purl forming thread 18 and reinforcing thread 22. This formation is resistive to elongation and so in the rieN-030066596 1p 8512E-02EL-07192.01.0001-Vpping process, ripping forces are limited to that edge. This edge formation is connected to the patterned fabric by a separate thread (not shown).

A wale 30 formed from a frangible thread 31 is knitted adjacent to wale 14*a* and serves to form a connection between the front edge of the band 11 of strip lace fabric and the band 50 of waste material. The opposite edge of the band 50 of waste material is connected by a frangible thread 33 to the rear edge 16 of the next band 11 of strip lace fabric.

The frangible thread 31 is knitted in with wale 14*a* at locations 35 whereat the wales are traversed so that the band 11 and band 32 are connected together only at these locations and at positions where the purl is laid into wale 30.

In order to facilitate a clean breakage of the frangible thread 31, a reinforcing thread 40 is laid-in on every course over several wales (preferably all the wales making up the waste band) and including the wale 30 to give the waste material dimensional stability. Additionally the reinforcing thread 40 is laid into loops 42 on both courses each side of each course whereat the frangible thread is connected to the front edge of band 11. This has the effect of securely tying the frangible thread into the waste band 32 and restricting breaking forces to the underlaps 45 located between adjacent loops 42. This ensures a clean break of the frangible thread 31 and ensures that the tails of the broken underlaps 45 are removed with the band 32.

In order to facilitate breakage of the frangible thread 31 at locations 35 it is preferred to knit wale 14*a* from a yarn of larger denier than the remaining wales 14 so as to provide a large difference in breaking strain between the frangible thread 31 and the thread of wale 14*a*. For instance if a polyamide yarn of 20 denier is used for the frangible yarn the wale 14*a* is knitted from a polyamide yarn of say 70 denier. The thread from which wale 14*a* is knitted may be a multifilament yarn but it is preferred to use a monofilament yarn singly or in multiples since the rigid profile of the mono-filament yarn assists in the breaking of the frangible yarn.

Breakage of the frangible yarn 31 is shown in Figures 4 and 5. In Figure 4 loop 31*a* of the frangible yarn is knitted with wale 14*a* immediately prior to a traverse taking place. On pulling of waste band 50 to the left relative to band 11 loop 31*a* pulls against underlaps 14*e*, 14*f* and is consequently broken. The reinforcing thread 40 tends to secure the frangible yarn to the waste band 50 so that after breakage the free ends 31*b* are secured to the waste band and are removed therewith. Underlap 14*e* is secured against unroving by reinforcing thread 22. In Figure 5 underlaps 31*d*, 31*e* of the frangible yarn are secured to loop 14*h* in wale 14*a*. On pulling of the waste band 50 to the left relative to band 11 loop 14*h* is elongated and underlaps 31*d*, 31*e* are stressed and consequently broken. The free ends 31*f* are secured to the waste band 50 and are removed therewith. On contraction of wales 14*a*, 14*b* to form the composite reinforced edge, free loop 14*h* is trapped and discouraged from unroving.

For the purposes of this specification a frangible yarn is a yarn which has a breaking strain less than the yarns used for knitting the strips of lace or is a yarn which after exposing the sheet to a specific treatment, such as heat setting, develops a breaking strain less than the yarns used for knitting the strips of lace fabric.

The rear edge 16 of the band 11 has a reinforced edge similar to the front edge in order to provide stabilisation of the purls 16*a* in a similar manner to purls 20. Accordingly the rear edge 16 shown in Figure 1 includes a reinforcing thread 22*a* laid-in in a similar manner to thread 22. By way of illustration, the frangible yarn is conveniently a polyamide monofilament, the reinforcing thread 22 and stabilising thread 40 are each a 2×78 denier polyamide yarn and the purl forming thread 18 is a 4×78 denier polyamide yarn.

Other examples of a stabilised purl edge construction for a strip lace fabric are described below with reference to Figures 6 to 11.

In Figure 6, both the reinforcing thread 22 and purl forming thread 18 are laid-in across both wales 14*a*, 14*b* on every course. The mode of laying in the reinforcing thread 22 and purl forming thread 18 is such that the laying-in motions are in opposition so that loops 22*a*, 18*a* are opposed to one another.

In Figure 7 the reinforcing thread 22 and purl forming thread are laid-in across both wales 14*a*, 14*b* on every course, the laying-in motions being in unison so that the threads 18, 22 are laid-in in

the same manner on every course except the purl forming course whereat the purl forming thread 18 is laid-in across an additional wale.

In Figure 8 the purl forming thread 18 is laid-in across both wales 14*a*, 14*b* in a similar manner to that shown in Figures 6 and 7 but the reinforcing thread 22 is only laid-in across wales 14*a*, 14*b* of course immediately before and after the purl forming course, the thread 22 being floated across the intervening courses. The type of construction enables a heavier denier thread 22 to be used than in the previous examples.

In Figure 9 the purl forming thread 18 is again laid-in across both wales 14*a*, 14*b* in a similar manner to that shown in Figures 6 and 7. The reinforcing thread 22 is laid-in on wale 14*a* only and the laying-in motion of threads 18 and 22 are in opposition so that loops 18*a* and 22*a* are opposed to one another about common underlaps 14*k*.

A similar construction is shown in Figure 10 wherein the reinforcing thread 22 is laid-in across both wales 14*a*, 14*b* on every course whereas the purl forming thread is laid-in on course 14*b* only except for the purl forming courses.

The purl forming thread 18 and reinforcing thread 22 are again laid-in in opposition so as to provide loops 18*a*, 22*a* opposed about common underlaps 14*m* of wale 14*b*.

In the above example of a stabilised edge it will be appreciated that the denier of both the reinforcing thread and purl forming thread are several times greater than the denier of the ground thread from which wales 14*a* and 14*b* are knitted. Accordingly the main bulk of the reinforced edge is made up by the threads 18 and 22 which are tied together by the wales 14*a*, 14*b*. The loops in each wale are knitted so as to be relatively small so that the underlaps tightly grip the thread 18, 22 passing thereunder. On the purl forming course, the thread 18 on each side of the purl passes under two underlaps 14*n* which grip the thread to resist movement during pulling on the purl. The gripping effect is increased when the reinforcing thread is also passed under the same underlaps.

When, as illustrated in some of the above examples, the threads 18 and 22 are also laid-in in opposition and a pulling force on the purl is sufficient to overcome the grip produced by the underlaps the resultant movement attempts to cause the opposed loops 18*a*, 22*a* to move toward one another. However since the construction is already in a compressed or tightened state such movement of the thread 18 is resisted.

In Figure 11 another embodiment is shown which does not include a reinforcing thread 22. In Figure 11 the purl forming thread 18 is laid-in across both wales 14*a*, 14*b* to form a stabilised edge. If desired wale 14*a*, and/or wale 14*b* may be knitted from a heavy denier yarn to provide bulk to the edge and also to supplement the gripping effect on the purl forming thread. Of the embodiments illustrated, those having both the purl forming thread 18 and a reinforcing thread 22 laid across two wales are preferred since it is possible to achieve a better consistency of purls since the reinforcing thread 22 causes a course-wise contraction of wales 14*a*, 14*b* towards one another so as to provide a consistent distance along wales 14*a*, 14*b*.

This is particularly advantageous during traversing movements for forming the scallops where changes in tension could otherwise cause variation in the purl length. Additionally, the consistency of the length of purls is assisted by the stabilised nature of waste band 32. Since the purl forming thread 18 and reinforced thread undergo independent laying motions the respective threads are controlled by different bars in the knitting machine. Accordingly it is possible by adjusting the weights of each bar to independently vary the tensions in each thread 18, 22 so as to influence the degree of course-wise contraction of wales 14*a*, 14*b* and vary the length of purls 20.

Further, in other cases, with the purl base held by two needles, the reinforcing thread is held over one needle while a nip yarn which connects the purl loops to the pattern also pinches the two base pillars to hold the purl loops in place.

Alternatively, the purl base may pass over two needles and be held only by the pillar close to the pattern. The reinforcing thread may be held on one needle and a nip yarn used to pinch the two base pillars to hold the purl loops in place.

It will be appreciated from the described embodiments that the present invention provides a method of producing strip lace having at least one scalloped edge having free hanging purls which have a composite edge formation running along the contours of the edge and which enables adjacent strips to be joined together by a frangible yarn so that adjacent strips can be separated by ripping to leave free hanging purls depending from a scalloped edge.

Reference is now made to Figures 12—15 which schematically show apparatus for separating strip lace by ripping.

The apparatus 120 illustrated in Figures 12 and 14 are intended for separating strip lace having only one purl edge for example of the type illustrated in Figure 13. In Figure 13 the lace strip 100 has a scalloped front purl edge 101 connected to a strip of waste material 102 which is joined to the plain rear edge 103 of the adjacent lace strip 100. In using the apparatus of Figure 12 adjacent lace strips 100 and adjoining waste strip 102 are separated from one another. Subsequently, the waste strip 102 is separated from the adjoined lace strip by a conventional separating technique such as cutting.

The apparatus 120 includes a pair of freely rotating nip rollers 121 between which the sheet 107 of lace strips are passed. Located above and below the plane 126 passing through the nip between the nip rollers 121 are a pair of freely rotatable rollers 127, 128 respectively. Alternate lace and adjoining waste strips are fed over roller 127 and 128 respectively so as to create a ripping zone 130. The separated lace and waste strips are

then fed through a drive assembly 132 which grips the fabric to draw the sheet 107 through the nip rollers 121 and over rollers 127, 128. The drive assembly 132 includes a pair of driven rollers 135 which have friction surfaces for frictionally gripping the fabric. A roller 136 is provided which rests on rollers 135 so as to be supported thereby, the fabric being wrapped about roller 136. The separated lace and waste strips are then fed to a pair of driven nip rollers 140 which draw the fabric from drive assembly 132 to discharge it from the apparatus.

Ideally the ripping zone 130 is located on or near to plane 126 so as to provide approximately the same angular direction of pull on the alternate strips with respect to plane 126, i.e. so that angles α and β are approximately equal.

If desired, in order to provide adjustment of the position of the ripping zone 130 above or below plane 126 the separated groups of lace and waste strips may be drawn by separate drive assembly 135, as illustrated in Figure 14. Each drive assembly 132 is independently controlled so that the rate of draw of each may be varied. Accordingly the ripping zone 130 may be moved toward one or other of rollers 127, 128 by making one of the drive assemblies 132 draw lace fabric over either roller 127, 128 at a faster rate than the other.

In Figure 15 a modified apparatus 150 is shown which is capable of separating lace strips having two purl edges with waste strips located between adjacent lace strips, such as that for example illustrated in Figure 1. In apparatus 150, parts similar to apparatus 120 have been designated by similar reference numerals.

In apparatus 150 there are two ripping zones, a first ripping zone 130 whereat lace strips and waste strips adjoined to one edge of a lace strip are separated in a similar manner to separation described with reference to Figures 12 and 14.

After passing drive assembly 132, or assemblies 132 the separated lace and waste strips are subjected to a second ripping action whereat the waste strips are directed over a roller 127' and the lace strips 100 are directed over a roller 128' and fed to independently driven secondary drive assemblies 132' which are of the same construction as drive assemblies 132. The separated waste strips and lace strips are then drawn from drive assemblies 135' by nip rollers 40 to be discharged from the apparatus.

Claims

1. A method of producing strip lace fabric comprising knitting a sheet of fabric (10) composed of individual strips (11) of lace joined edge to edge characterised in that the adjacent strips are joined by at least one wale of frangible yarn (31), and that knitting of the sheet includes

(a) laying-in a purl forming thread (18) along at least one edge of each strip so as to produce at least one scalloped edge having purls (20) projecting therefrom,

(b) each purl having a terminal end laid-in across one wale (30) of frangible yarn,

(c) the purl forming thread during the formation of each purl forming course being laid-in across at least two wales (14*a*, 14*b*) adjacent said scalloped edge so that the underlaps of said wales tightly grip the purl forming thread,

(d) laying-in a reinforcing thread (22) across selected ones of said at least two wales,

(e) said at least two wales, said purl forming thread and said reinforcing thread being joined together to form a composite edge formation which is resistant to elongation,

(f) and that subsequent to knitting of the sheet of fabric, the individual strips of lace are separated from one another by ripping.

2. A method according to Claim 1 wherein during knitting of said at least two wales between the purl forming courses, the purl forming thread is laid-in across selected ones of said wales.

3. A method according to Claim 1 wherein during knitting of said at least two wales between the purl forming courses, the purl forming thread is laid-in across selected ones of said wales and the reinforcing thread is laid-in across all of said wales and selected ones of said courses.

4. A method according to Claim 3 wherein the laying-in motion of the purl forming thread and the reinforcing thread for each course is performed in unison.

5. A method according to Claim 3 wherein the laying-in motion of the purl forming thread and the reinforcing thread for each course is performed in opposition.

6. A method according to Claim 5 wherein for at least one course between the purl forming courses, the purl forming thread and reinforcing thread are laid-in in opposition on the same wale.

7. A method according to Claim 1 wherein the frangible yarn is knitted adjacent a waste band (50) which is resistive to elongation by means of a reinforcing thread (40) laid-in across selected pillar stitches of the wale of frangible yarn and across several adjacent wales of the waste band so that, after separation, broken ends of the frangible yarn remain tied in with the waste band.

8. Strip lace including at least one scalloped edge having free hanging purls, characterised in that a purl forming thread (18) defining each purl (20) projecting from a stabilised edge formation running along said scalloped edge, said scalloped edge being composed of at least two wales (14*a*, 14*b*) of pillar stitches, the purl forming thread and a reinforcing thread (22), said purl forming and reinforcing threads being inlayed over said pillar stitches.

9. Strip lace according to Claim 8 wherein the stabilised edge formation includes at least one heavy denier thread inlayed over every course of at least one of said wales (14*a*, 14*b*).

10. Strip lace according to Claim 9 wherein said heavy denier thread is provided in the form of the purl forming thread.

11. Strip lace according to Claim 8 wherein two heavy denier threads are provided, one being the

purl forming thread and the other being the reinforcing thread.

12. Strip lace according to Claim 8 wherein the reinforcing thread is floated across the base of each purl.

Revendications

1. Procédé de production de tissu de passements en bandes comprenant le tricotage d'une nappe de tissu composé par des bandes individuelles de passements reliées bord à bord, caractérisé en ce que les bandes adjacentes sont reliées par au moins une colonne longitudinale de fil de faible résistance, et en ce que le tricotage de la nappe comprend:

(a) l'insertion d'un fil de formation de boucles de bord le long d'au moins un bord de chaque bande de manière à produire au moins un bord festonné comportant des boucles de bord en faisant saillie,

(b) chaque boucle de bord comprenant une extrémité terminale insérée au travers d'une colonne longitudinale de fil de faible résistance,

(c) le fil de formation de boucles de bord, pendant la formation de chaque rangée horizontale de formation de boucles de bord étant inséré au travers d'au moins deux colonnes longitudinales adjacentes audit bord festonné de manière que les fils jetés par dessous lesdites colonnes longitudinales serrent étroitement le fil de formation de boucles de bord,

(d) l'insertion d'un fil de renfort au travers de certaines desdites deux colonnes longitudinales au moins qui ont été choisies,

(e) lesdites deux colonnes longitudinales au moins, ledit fil de formation de boucles de bord et ledit fil de renfort étant reliés les uns aux autres de façon à former un bord composite résistant à l'allongement,

(f) et en ce qu'après le tricotage de la nappe de tissu, les bandes de passements individuelles sont séparées les unes des autres par arrachement.

2. Procédé selon la revendication 1, caractérisé en ce que pendant le tricotage de l'une au moins desdites deux colonnes longitudinales entre les rangées horizontales de formation de boucles de bord, le fil de formation de boucles de bord est inséré au travers de certaines desdites colonnes longitudinales qui sont choisies.

3. Procédé selon la revendication 1, caractérisé en ce que pendant le tricotage de l'une au moins desdites deux colonnes longitudinales entre les rangées horizontales de formation de boucles de bord, le fil de formation de boucles de bord est inséré au travers de certaines desdites colonnes longitudinales choisies et le fil de renfort est inséré au travers de toutes lesdites colonnes longitudinales et de certaines desdites rangées horizontales qui sont choisies.

4. Procédé selon la revendication 3, caractérisé en ce que le mouvement d'insertion du fil de formation de boucles de bord et du fil de renfort est réalisée à l'unisson pour chaque rangée horizontale.

5. Procédé selon la revendication 3, caractérisé en ce que le mouvement d'insertion du fil de formation de boucles de bord et du fil de renfort est réalisée en opposition pour chaque rangée horizontale.

6. Procédé selon la revendication 5, caractérisé en ce que, pour au moins une rangée horizontale entre rangées horizontales de formation de boucles de bord, le fil de formation de boucles de bord et le fil de renfort sont insérés en opposition sur la même colonne longitudinale.

7. Procédé selon la revendication 1, caractérisé en ce que le fil de faible résistance (50) est tricoté contre une bande perdue (50) qui résiste à l'allongement grâce à un fil de renfort (40) inséré au travers de points choisis de la colonne longitudinale de fil de faible résistance et au travers de plusieurs colonnes longitudinales adjacentes de la bande perdue de manière qu'après séparation, les extrémités rompues du fil de faible résistance restent attachées à la bande perdue.

8. Passement en bande comprenant au moins un bord festonné avec des boucles de bord pendant librement, caractérisé en ce qu'un fil de formation de boucles de bord (18) définissant chaque boucle de bord (20) faisant saillie d'une formation de bord stabilisée courant le long dudit bord festonné, ledit bord festonné étant composé d'au moins deux colonnes longitudinales (14*a*, 14*b*) de points de colonne, le fil de formation de boucles de bord et un fil de renfort (22), lesdits fil de formation de boucles de bord et de renfort sont insérés au-dessus desdits points de colonnes.

9. Passement en bande selon la revendication 8, caractérisé en ce que la formation de bord stabilisé comprend au moins un fil de titre plus important inséré au-dessus de chaque rangée horizontale de l'une au moins desdites colonnes longitudinales (14*a*, 14*b*).

10. Passement en bande selon la revendication 9, caractérisé en ce que ledit fil de titre important est prévu sous la forme d'un fil de formation de boucles de bord.

11. Passement en bande selon la revendication 8, caractérisé en ce que l'on prévoit deux fils de titre important, l'un étant le fil de formation de boucles de bord et l'autre étant le fil de renfort.

12. Passement en bande selon la revendication 8, caractérisé en ce que le fil de renfort est lancé au travers de la base de chaque boucle de bord.

Patentansprüche

1. Verfahren zur Herstellung von streifenförmiger Spitzenware, bei dem eine Warenbahn (10), die aus einzelnen, an ihren Rändern miteinander verbundenen Spitzenstreifen (11) besteht, gewirkt wird, dadurch gekennzeichnet, daß die benachbarten Streifen durch wenigstens durch ein Maschenstäbchen aus zerreißbarem Garn (31) verbunden sind und daß das Wirken der Bahn umfaßt,

a) daß ein picot-bildender Faden (18) längs wenigstens eines Randes jedes Streifens so eingelegt wird, daß wenigstens ein gebogter Rand mit davon vorstehenden Picots (20) erzeugt wird,

b) daß jeder Picot mit einem freien Ende in ein Maschenstäbchen (30) aus zerreißbarem Garn eingelegt wird,

c) daß der picot-bildende Faden während der Bildung einer jeden picot-bildenden Maschenreihe in wenigstens zwei dem gebogten Rand benachbarte Maschenstäbchen (14a, 14b) eingelegt wird, so daß die Unterlegungen dieser Maschenstäbchen den picot-bildenden Faden festhalten,

d) daß ein Verstärkungsfaden (22) in ausgewählte Maschenstäbchen der erwähnten wenigstens zwei Maschenstäbchen eingelegt wird,

e) daß die erwähnten wenigstens zwei Maschenstäbchen, der picot-bildende Faden und der Verstärkungsfaden so miteinander verbunden werden, daß sie eine zusammengesetzte Randzone bilden, die gegen Dehnung widerstandsfähig ist,

f) daß im Anschluß an das Wirken der Warenbahn die einzelnen Spitzenstreifen durch Reißen voneinander getrennt werden.

2. Verfahren nach Anspruch 1, bei dem während des Wirkens der wenigstens zwei Maschenstäbchen zwischen den picot-bildenden Maschenreihen der picot-bildende Faden in wenigstens ein Maschenstäbchen der erwähnten Maschenstäbchen eingelegt wird.

3. Verfahren nach Anspruch 1, bei dem während des Wirkens der wenigstens zwei Maschenstäbchen zwischen den picot-bildenden Maschenreihen der picot-bildende Faden in ausgewählte Maschenstäbchen der erwähnten Maschenstäbchen eingelegt wird und der Verstärkungsfaden in alle erwähnten Maschenstäbchen und ausgewählte Maschenreihen der erwähnten Maschenreihen eingelegt wird.

4. Verfahren nach Anspruch 3, bei dem die Einlegebewegung des picot-bildenden Fadens und des Verstärkungsfadens für jede Maschenreihe gleichlegig erfolgt.

5. Verfahren nach Anspruch 3, bei dem die Einlegebewegung des picot-bildenden Fadens und des Verstärkungsfadens in jeder Maschenreihe gleichlegig erfolgt.

6. Verfahren nach Anspruch 5, bei dem für wenigstens eine Maschenreihe zwischen den picot-bildenden Maschenreihen der picot-bildende Faden und der Verstärkungsfaden gegenlagig in das Maschenstäbchen eingelegt werden.

7. Verfahren nach Anspruch 1, bei dem das zerreißbare Garn im Anschluß an ein Abfallbald (50) gewirkt wird, das mit Hilfe eines verstärkungsfadens (40) gegen Dehnung widerstandsfähig ist, der in ausgewählte Fransenmaschen des Maschenstäbchens aus zerreißbarem Garn und in mehrere benachbarte Maschenstäbchen des Abfallbandes so eingelegt wird, daß nach der Trennung die gebrochenen Enden des zerreißbaren Garnes in dem Abfallband festgehalten werden.

8. Streifenförmige Spitze, die wenigstens einen gebogten Rand mit frei hängenden Picots aufweist, dadurch gekennzeichnet, daß ein picotbildender Faden (18) jeden Picot (20) definiert, der von einer stabilisierten Randzone vorsteht, die längs des gebogten Randes verläuft, wobei der gebogte Rand zusammengesetzt ist aus wenigstens zwei Maschenstäbchen (14a, 14b) von Fransenmaschen, den picot-bildenden Faden und einem Verstärkungsfaden (20), wobei der picotbildende und der Verstärkungsfaden in die Fransenmaschen eingelegt sind.

9. Streifenförmige Spitze gemäß Anspruch 8, bei der die stabilisierte Randzone wenigstens einen Faden mit höherem Denier-Wert aufweist, der in jede Maschenreihe von wenigstens einer dieser Maschenstäbchen (14a, 14b) eingelegt ist.

10. Streifenförmige Spitze gemäß Anspruch 9, bei der der Faden mit höherem Dernier-Wert in der Form des picot-bildenden Fadens vorgesehen ist.

11. Streifenförmige Spitze gemäß Anspruch 8, bei der zwei Fäden mit höherem Dernier-Wert vorgesehen sind, von denen der eine der picotbildende Faden und der andere der Verstärkungsfaden ist.

12. Streifenförmige Spitze gemäß Anspruch 8, bei der der Verstärkungsfaden über die Basis eines jeden Picots flottierend aufliegt.

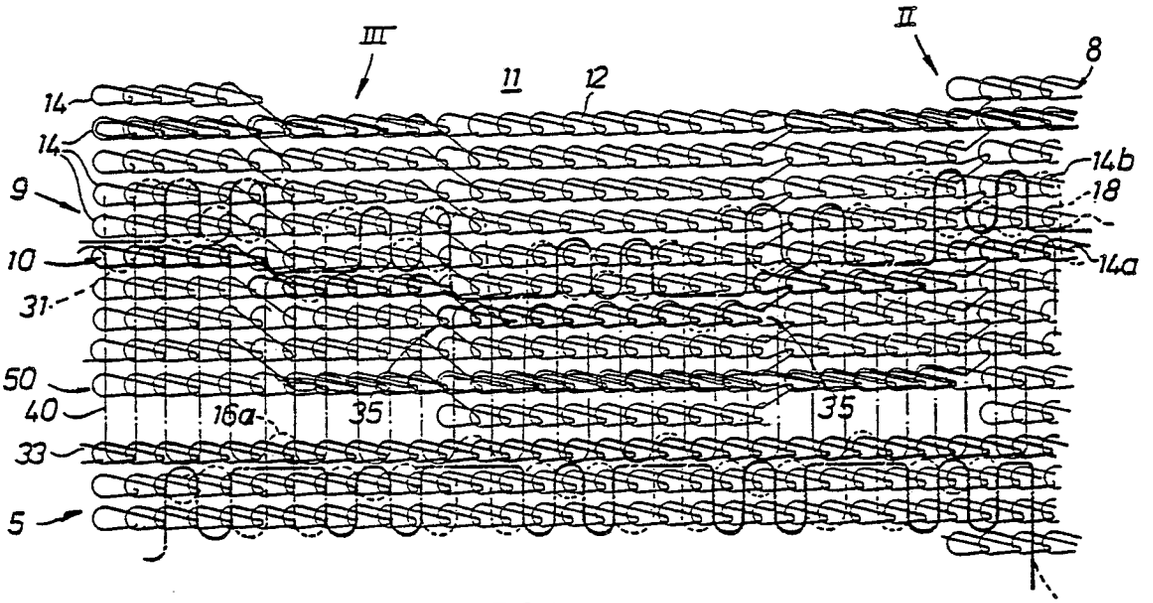

FIG.1

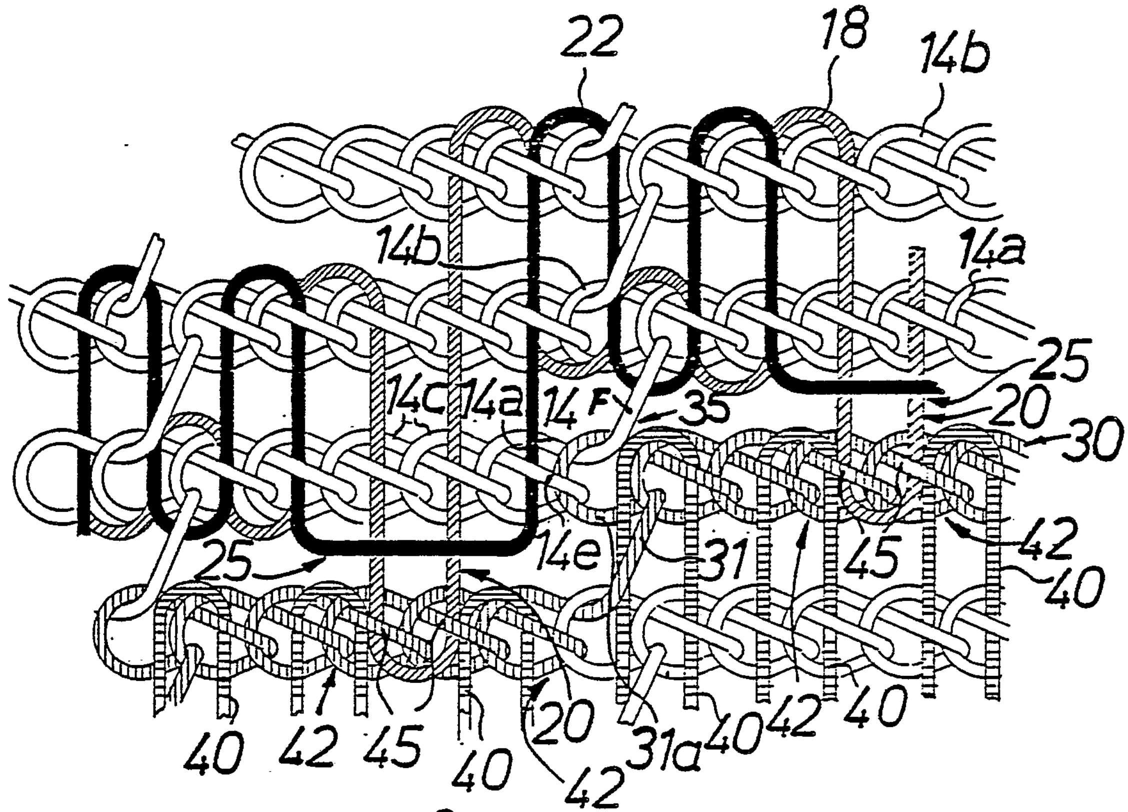
22
18
14b
14b
14a
25
14c
14a
14
F
35
20
30
25
14e
31
45
42
40
40
42
45
40
20
42
31a
40
42
40

Fig. 2

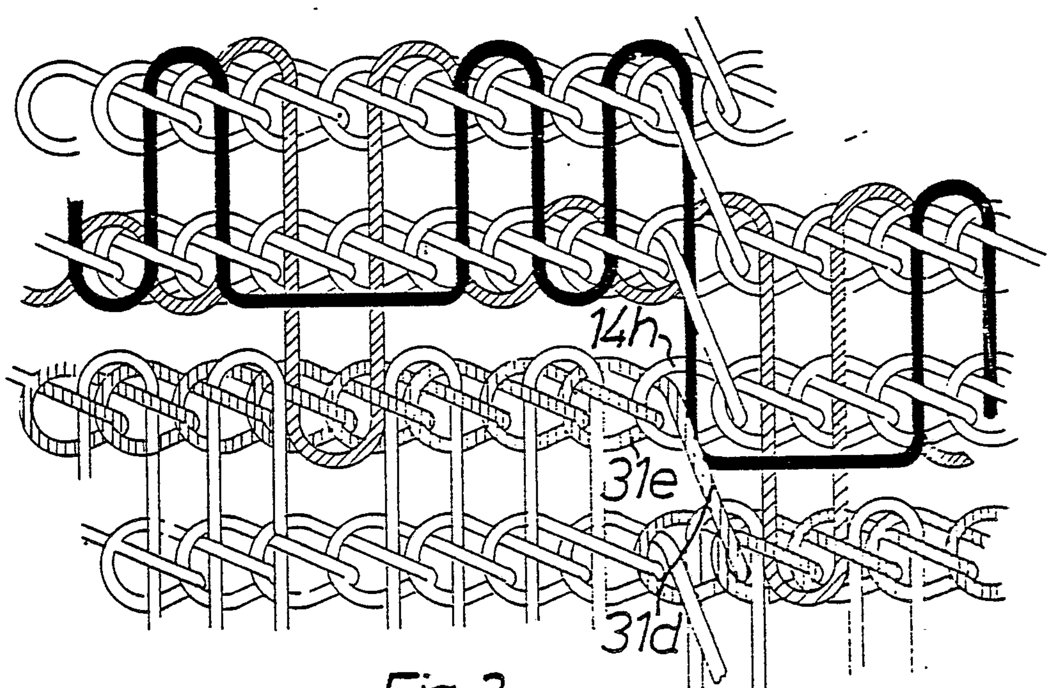
14h
31e
31d

Fig. 3

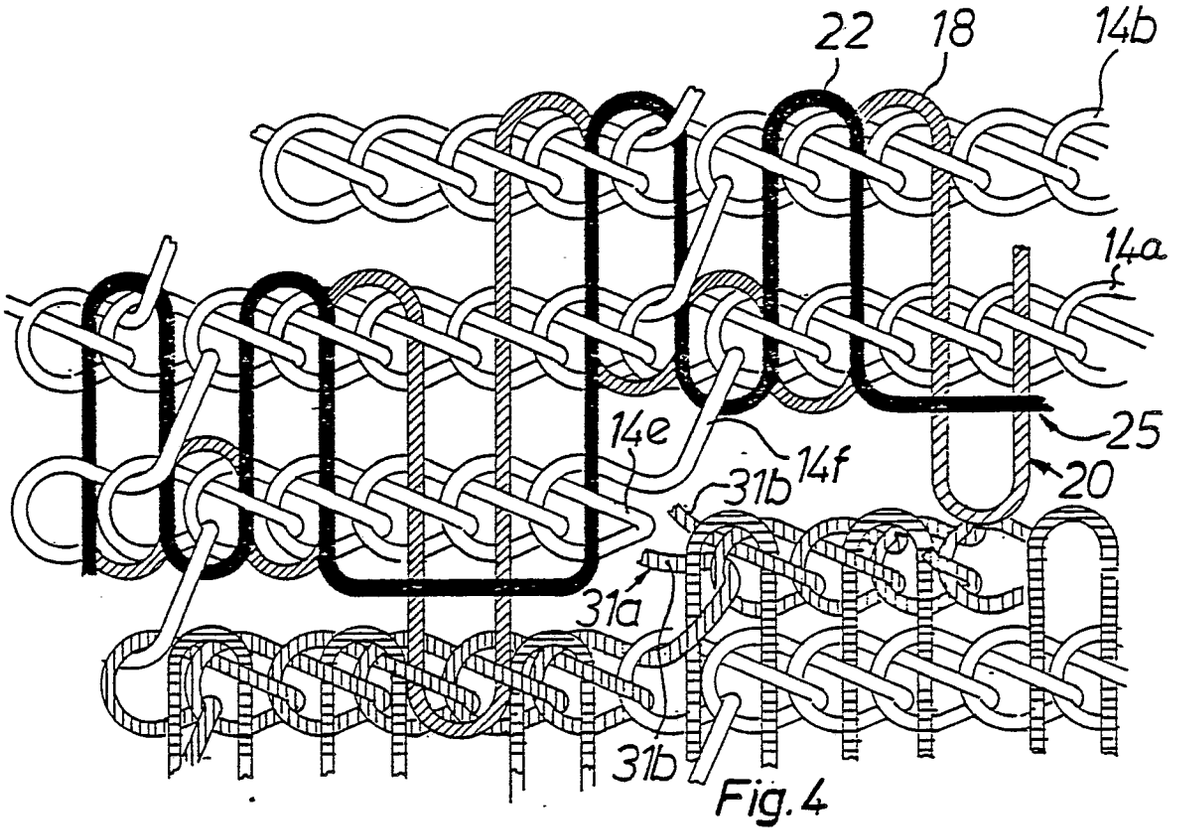
22
18
14b
14a
25
20
14e
14f
31b
31a
31b

Fig. 4

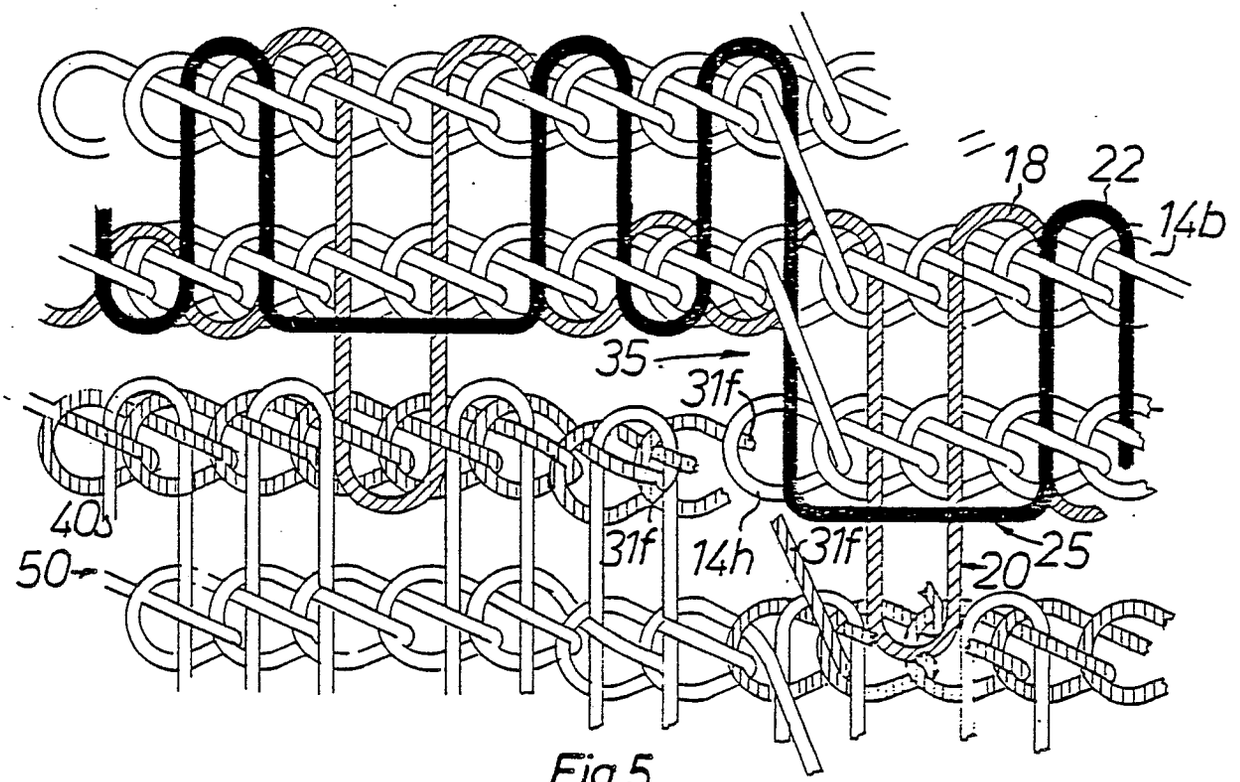
18
22
14b
35
31f
40
50
31f
14h
31f
25
20

Fig. 5

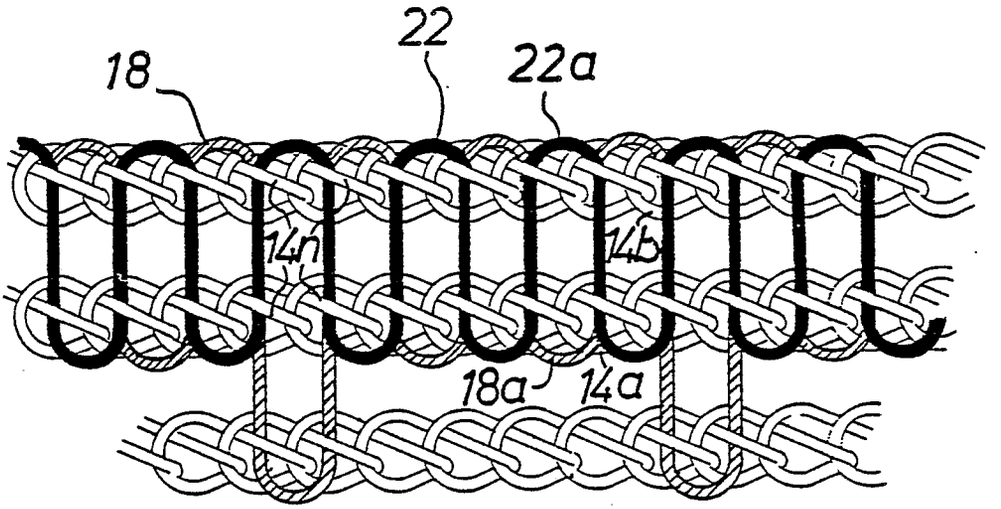

Fig.6

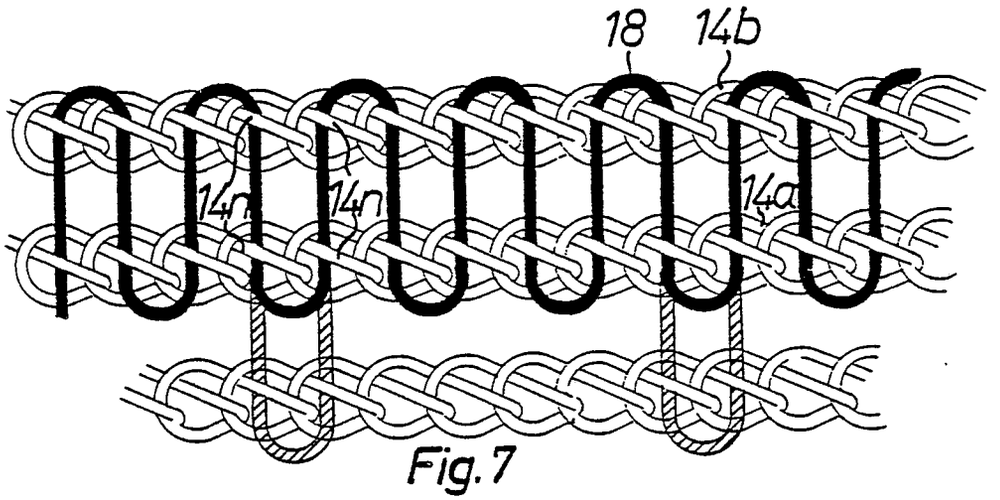

Fig.7

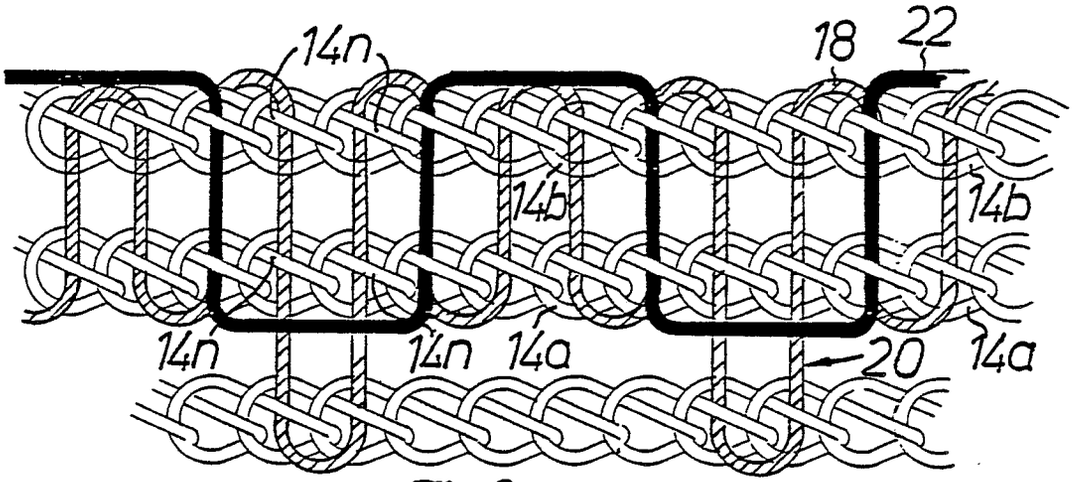
14n
18
22
14b
14b
14n
14n
14a
20
14a

Fig.8

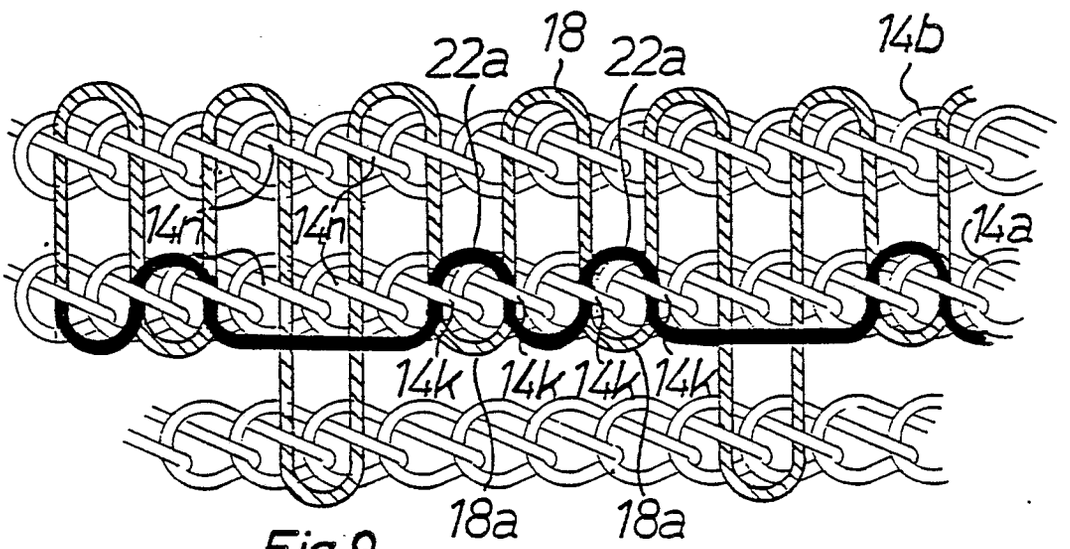
22a
18
22a
14b
14n
14n
14a
14k
14k
14k
14k
18a
18a

Fig.9

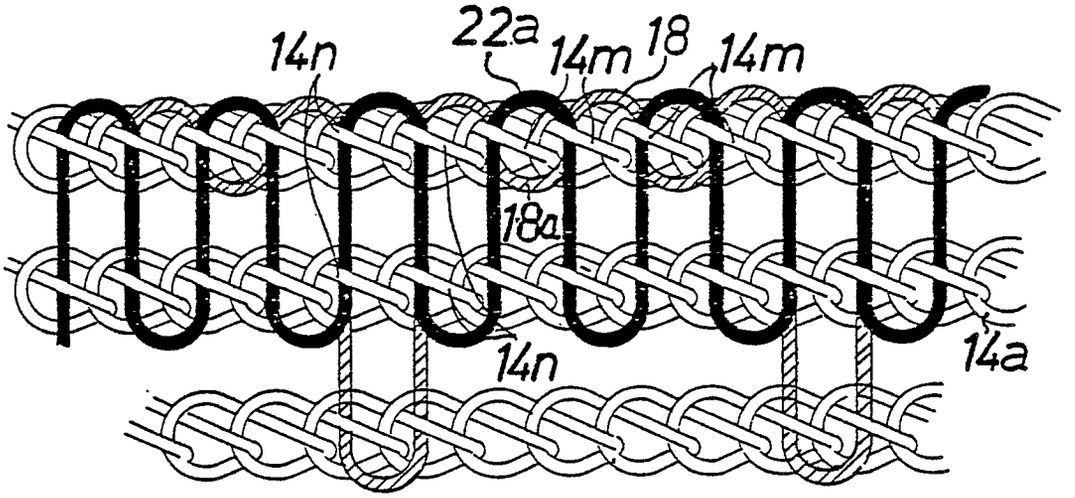

Fig. 10

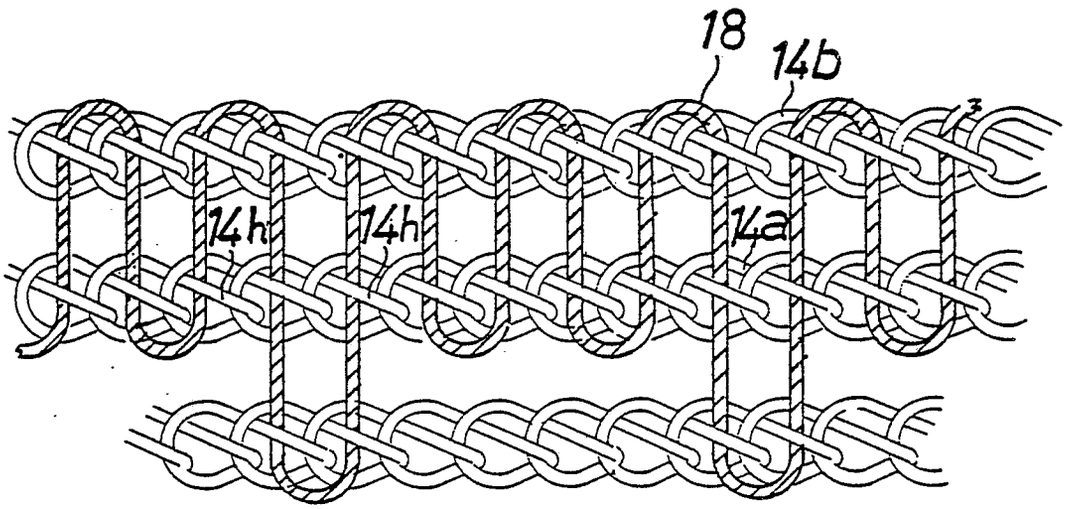

Fig. 11

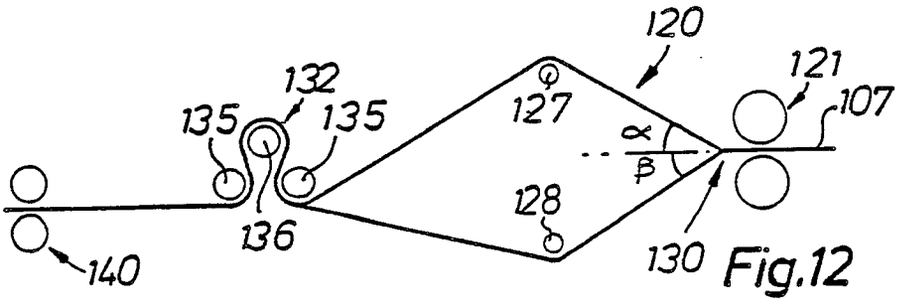

Fig.12

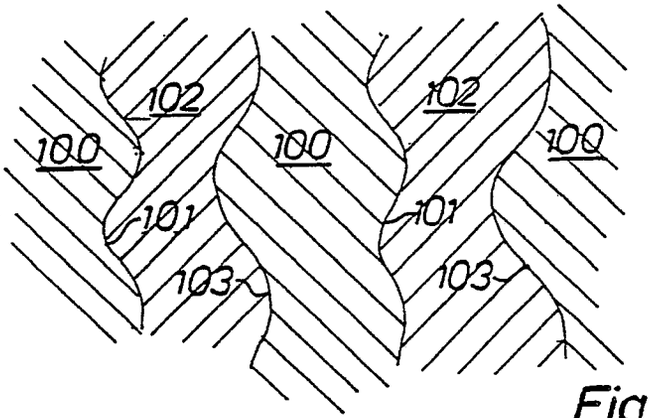

Fig.13

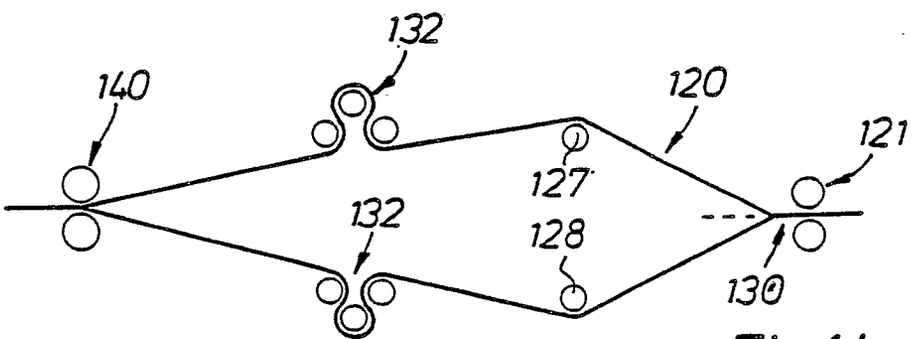

Fig.14

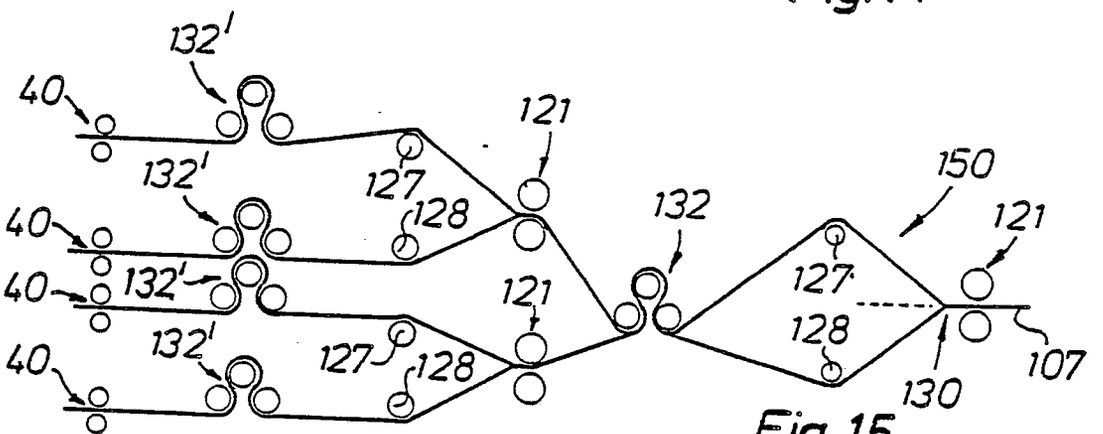

Fig.15