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(54) **Process and equipment for the production of textile manufactures with fancy effects, ans so realized manufactures.**

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Description

The invention relates to the production of textile manufactures characterized by fancy effects. The invention allows the achievement of manufactures with remarkable effect but any way with cheap production costs.

Manufactures are known characterized by particular fancy effects, achieved by the presence of concentration of a material consisting of fibers possibly also chromatically differentiated from the fabric structure; these manufactures are achieved by knitting machines, equipped with thick and relatively spaced needles (thick fineness or better low fineness), which are fed by relatively fine yarns to form the ground structure and by at least one flammé effect yarn, i.e. in which masses of fibers—such as the so called "flames"—are discontinuously concentrated, that in the spinning are combined with the fibers forming the yarn and thus assuring the yarn continuity; the effect yarn may be engaged by spaced needles instead of by the totality of the needles, with drawing and structure effects, that join to the effects obtained by the flames or other concentrations.

These knitted fabrics show certain characteristics of aesthetical effect, that on the other hand, as for the fibers concentration in the flammés effects, are limited by the requirements of the spinning, i.e. of the yarn preparation. In fact the amount and even more the size of the flames are limited both by the diameter of the yarn that must contain them, and by the size of the effects and in addition by the fact that the flames must be tied by the textile fibers necessary to form a yarn that must comply a continuity of count and strength; so that it is possible to form a yarn only with a low percentage of effects (in proportion also to their size), even when said yarn is thick. The possible coupling and twisting of one or more flammés yarns greatly amplifies the cost of the yarn destined to the knitting, and this system hides a certain amount of flames or anyhow of effects.

Moreover, the manufacturing of an effect yarn is by itself an expensive processing, both because of the requirement of using textile fibers suitable to tie the flames and generally the effects, and namely highly suitable for the spinning as for the fineness and the proportioned length and consequently not arising from textile by-products, and because of the difficulty of introducing into the compound destined to the spinning the flames or other effects generally prepared through separate processings, as well because of the very limited production that it is possible to achieve for a flammé yarn.

According to the invention of the present specification, instead of a yarn, a card sliver is used, that is thus able to contain many effects and, even more, effects with dimensions that it is impossible to obtain in a yarn.

Moreover the textile fibers mixed with the effects, when a card sliver is used, can be not homogeneous and can also arise from by-products, because the relevant impurities or clots, since the forming of a yarn is not requested, do not constitute an obstacle—as it is for the spinning—but on the contrary contribute to generate fancy effects. It must be pointed out also that in the construction of stitches (or fabrics) by flammés yarns, these logically find great difficulties in the sliding through the proper support rings and the thread tighteners as well as through the knitting needles, while, in the achieved article, effects and fibers, forming the card sliver fed to the knitting, are tied by a thread foreseen just for tying, and the needle does not find any difficulty.

This processing flanks but does not reproduce the textile manufactures obtained by the machines for hair fabrics.

Other processings of textile manufacturers are carried out by the so called machines for hair fabrics by feeding both at least a tying yarn and also an additional textile material (effect material) substantially continuous and uniform with the structure of a card sliver or of a tops of fibers treated generally by one only carding operation; this additional textile material is fed to the needles generally by feeding heads ("little cards") whose clothings are loaded by said textile material, for the feeding to the needles that while rising take up the material by tufts. The additional material consequently forms a fibers fleece that—more or less combed or brushed and with suitable finishings—form hairs able to imitate furs, or able to generate in the fabrics a more or less uniform effect of prominences formed by fibers that are partially projecting and re-entering, creating thus tufts of fibers bridge-like engaged.

Also these manufactures obtained by the machines for hair fabrics have limited characteristics of aesthetical effect as above mentioned, even considering the variations that can be aesthetically imposed to the artificial fleece or the differentiations in the prominences of effect fibers through a different selection of the control of the needles for picking-up the effect fibers and through devices that can be used to remove or to introduce again the fibers of the effect material into the fabric of the supporting structure. The machines for hair fabrics are today typically used with an equipment of cylinders and needles having the so called fine fineness (N · 10—18), with needles relatively thin and located in channels relatively numerous, on the length unit of the cylinder perimetrical development, so that a remarkable frequency of the drawings of the fibers of the material supplied by the little cards and thus a substantial uniformity and continuity in the distribution of the effect material are achieved.

The present invention has the purpose of solving the problem of limiting the costs as much as possible, looking both at the raw materials to be used and at the processings to be carried out, and in addition the invention has the purpose of achieving even the realization of fancy textile manufactures, with particular features and aesthetical effects that it is impossible to achieve by

the knitting methods using the fancy flammés yarns or equivalent. Therefore the invention allows even to achieve the double purpose of a higher quality of the textile manufactures, as for the fancy, i.e. the aesthetics reached by them, and of a higher processing facility and thus of a lower cost, in comparison with the traditional realizations.

Object of the invention is a process for the production of textile manufactures with fancy effects, according to which a knitting machine for hair fabrics is equipped with thick and relatvely spaced needles (with "thick fineness") is directly fed with textile materials—such as the so-called flames—as effect material; said material is anchored to the structure of the supporting knitted fabrics, by the needles action.

To obtain textile manufactures that show a certain ground uniformity on the supporting fabric, the effect materials (flames or other) are fed together with a material, consisting of effect fibers, fed in a substantially uniform way.

In practice feeding heads—like the so called little cards—are fed by a continuous not spun effect material, card sliver or tops type, loaded, according to a suitable frequency, by discontinuous effect materials—such as flames or fiber clots—that are thus transported by the effect material continuously fed.

Suitable needles selections can be prearranged in the control of the machine needles, to reach—by the card slivers or tops material added by flames or other—an additional effect on the ground structure, for example an effect of streaks generated by better linked fibers.

Advantageously to the effect material fibers an orientation can be imposed—mechanically or pneumatically—suitable to cause an anchorage of said fibers to the support, especially by imposing to the free fibers an orientation from the inside to the outside of the needles circumferential front, after a preliminary orientation towards the inside of the front.

The invention also relates to a textile manufacture formed by a supporting knitted fabric structure and by an effect material, characterized in that said effect material comprises flames or fiber clots, which are directly anchored to said supporting knitted fabric structure.

Said effect material may comprise a first continuous material in form of card sliver or tops and a second discontinuous material in form of flames or fiber clots, said effect material being anchored to said supporting knitted fabric structure.

In order to accomplish the process of the invention, a machine for hair fabrics is equipped with thick and relatively spaced needles, that is needles with "thick fineness", and as effect material, various effect materials are fed, such as impurities, very little balls, neps, portions of yarns, scraps of fabrics, and also and especially clots of textile fibers, the so called "flames"; these effect materials, being directly fed, result to be unpredictably anchorable to the structure of the supporting knitted fabric achieved by the supporting yarn that has been fed to the machine to form the knitted fabric; moreover, by the use of relatively thick needles, these "flames" or other effects can be fed to the machine without detriment of the integrity of the needles themselves.

The feeding of the effect material, formed by the flames or other effect materials, can be achieved by suitable ways also traditional. To obtain textile manufactures showing in the structure of the supporting fabric a certain ground uniformity, i.e. a certain fiber thickness, it is advantageously provided to feed, together with the flames or other, also a material of effect fibers substantially uniform and continuous. It can be even and advantageously provided to feed the feeding heads, like the so called little cards, by a material of card sliver or tops type loaded, suitably and with a proper frequency, by the proper effects—such as the flames or the fiber clots—that consequently are transported by the continuously fed effect material, that nevertheless is not spun.

The effect material—such as the flames or other—fed to carry out the process according to the invention, consists of a material that in practice has not been subjected to any particular preparation, and can be partly formed by material arising from poor quality textile fibers, since it must be only processed to form card slivers or tops without requiring to be spun, while on the contrary the spinning is requested for the effect material fed continuously to the traditional knitting machines. Consequently the advantage of using poor quality materials—as for their attitude to be processed—are added to the advantages of processings reduced to a minimum and practically with negligible costs. In view of that, textile manufactures are then achieved, suitable to show aesthetical characteristics very accentuated and original, that are represented—in the support and ground fabric—by the presence of clots, that is by flames or other concentrations of effect material, that can be particularly remarked and discerned even because of their chromatic characteristics; said flames on the other hand are permanently anchored to the ground fabric and do not have a particular tendency to the stripping of hairs, i.e. to lose fibers.

In avoiding finishing operations such as the brushing or other, the consequent industrial charges are spared both because of the cost of the single operations and because of the losses in weight of fibers that are involved by these finishing operations in the textile manufactures of the type previously known and indicated at the beginning.

By prearranging suitable needles selections, an additional effect is achieved—by the effect material used and in particular by the material of the card sliver or tops type added with the flames—depending on the previously chosen selection of the needles; this additional effect is achieved with the presence of streaks of better linked fibers, with a uniform or not uniform frequency, feasible through said selections.

An additional effect may be also achieved by

the fibers of the effect material by imposing, mechanically and/or pneumatically, an orientation of the fibers in order to cause a better anchorage of them to the support; generally this effect is reached by imposing to the free fibers a push from the inside to the outside of the needles circumferential front, after having carried out a preliminary orientation towards the front inside (both by the movement of the clothings of the little cards and by a pneumatic effect used in the machines for hair fabrics).

The flames used to reach the effect can be even natural or generated by simple processings of loose fibers, and can be colored both in a uniform way and by mixing flames of various colors to obtain, by the presence of flames of various colors, a presence of color spots in correspondence of the flames anchored to the fabric.

By virtue of the possibility of using a card sliver and consequently of exploiting the characteristic of clots, flames, neps, various impurities with bigger size than those that can be tolerated in making a yarn, and thus arising from by-products of low cost and also in various colors with the purpose of reaching more fancy effects, the invention allows the positive exploitation of the following characteristic: the flames and clots of various colors of the above textile materials (by-products), in the carding operation carried out to form the card sliver (tops), are only partly open, thus forming around the flame a halo of fibers of the same color that, by the effect of the above fiber orientation system (pneumatic or mechanical) and the relevant knitting, creates, in correspondence of the flames, shades and nuances of a tone on a different tone with a chromatic delimitation sharply more accentuated than that obtained by the flammé yarn in the knitting machines, in addition to a flames demarcation more clean-cut in comparison with what is offered by the flames that are formed by the flammé yarn in the processing carried out by the knitting machines.

It is understood that the description shows only an embodiment given as a practical demonstration of the invention, as said invention may vary in the forms and arrangements without any way coming out from the scope of the appendant claims.

Claims

1. Process for the production of textile manufactures with fancy effects, characterized in that a knitting machine for hair fabrics with thick and relatively spaced needles (with "thick fineness") is directly fed with textile materials—such as the so-called flames—as effect material, and that said effect material is anchored to the structure of the supporting knitted fabric, by the needles action.

2. Process according to claim 1, characterized in that, to achieve textile manufactures showing a substantial ground uniformity on the supporting fabric, the flames or other effect materials are fed together with an effect material fed in a substantially uniform way.

3. Process according to claims 1 and 2, characterized in that a continuous non spun effect material, of card sliver or tops type, loaded according to a proper frequency by discontinuous effect materials—such as flames or fiber clots—is fed to the feeding heads of the machine for hair fabric, said discontinuous effect materials being transported by the continuous effect material.

4. Process according to the previous claims, characterized in that suitable needles selections are prearranged, to reach—by the material in card sliver or tops added together with the flames or other—an additional effect in the ground structure, such as streaks of better linked fibers.

5. Process according to the previous claims, characterized in that the fibers of the effect material are mechanically and/or pneumatically oriented so as to cause an anchorage of them on the support, especially by imposing to the free fibers an orientation from the inside to the outside of the needles circumferential front, after a preliminary orientation towards the inside of the front, anyway by machines for hair fabrics with thick fineness, that allow the ideal anchorage (bridge anchorage type) of the fibers that have to be knitted again.

6. Textile manufacture formed by a supporting knitted fabric structure and by an effect material, characterized in that said effect materal comprises flames or fiber clots, which are directly anchored to said supporting knitted fabric structure.

7. Textile manufacture according to claim 6, characterized in that said effect material comprises a first continuous material in form of card sliver or tops and a second discontinuous material in form of flames or fiber clots, said effect material being anchored to said supporting knitted fabric structure.

Patentansprüche

1. Verfahren zur Herstellung von Textilwaren mit Phantasieeffekten, dadurch gekennzeichnet, daß eine Strickmaschine für Haarstoffe mit dicken und verhältnismäßig große Abstände aufweisenden Nadeln (mit "dicker Feinheit") direkt mit Textilmaterialien—wie den sogenannten Flammen—als dem Effektmaterial beschickt wird und daß das Effektmaterial durch die Wirkung der Nadeln am tragenden, gewirkten oder gestrickten Stoff verankert wird.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß, um Textilwaren zu erzielen, die einen verhältnismäßig gleichmäßigen tragenden Stoff aufweisen, die Flammen oder anderen Effektmaterialien gemeinsam mit einem im wesentlichen gleichmäßig zugeführten Effektmaterial zugeführt werden.

3. Verfahren nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß ein kontinuierliches, ungesponnenes Effektmaterial vom Typ eines Karden- oder Faserbandes, das nach einer geeigneten Frequenz unterbrochen mit Effektmaterialien—wie Flammen oder Faserbüscheln—beladen ist, den Zuführköpfen der Maschine für Haarstoffe

zugeführt wird, wobei die mit Unterbrechungen angebrachten Effektmaterialien vom kontinuierlichen Effektmaterial transportiert werden.

4. Verfahren nach den vorhergehenden Ansprüche, dadurch gekennzeichnet, daß geeignete Nadelauswahlen vorbestimmt werden, um aus dem gemeinsam mit den Flammen od. dgl. zugeführten Karden- oder Faserband zusätzliche Effekte in der Grundstruktur, wie Streifen aus besser verflochtenen oder verknüpften Fasern zu erreichen.

5. Verfahren nach den vorhergehenden Ansprüchen, dadurch gekennzeichnet, daß die Fasern des Effektmaterials mechanisch und/oder pneumatisch ausgerichtet werden, um ihre Verankerung am Trägermaterial zu erzielen, wobei insbesondere den Fasern eine Ausrichtung von der Innenseite zur Außenseite der Nadelumfangsfront nach einer vorhergehenden Ausrichtung auf die Innenseite der Front zu erteilt und auf jeden Fall mit Maschinen für Haarstoffe mit dickem Feinheitsgräd gearbeitet wird, die die ideale Verankerung (vom Typ der Brückenverankerung) der Fasern gestatten, welche wieder verstrickt werden müssen.

6. Textilware, die aus einem tragenden gestrickten Material und einem Effektmaterial gebildet ist, dadurch gekennzeichnet, daß das Effektmaterial Flammen oder Faserbüschel aufweist, die direkt am tragenden gestrickten Stoff verankert sind.

7. Textilware nach Anspruch 6, dadurch gekennzeichnet, daß das Effektmaterial ein erstes kontinuierliches material in Form eines Kardenoder Faserbandes und ein zweites, diskontinuierliches Material in Form von Flammen oder Faserbüscheln aufweist und das Effektmaterial am tragenden, gewirkten Stoff verankert ist.

Revendications

1. Procédé pour la production de produits textiles à effets de fantaisie, caractérisé en ce qu'un métier à tricoter pour des tissus à poil comportant de grosses aiguilles relativement espacées (à "finesse grossière") est directement alimenté au moyen de matières textiles, par exemple celles dites flammes, en tant que matière d'effet, et que la matière d'effet est ancrée dans la structure de tissu tricoté de support, par l'action des aiguilles.

2. Procédé suivant la revendication 1, caractérisé en ce que, pour réaliser des produits textiles présentant une uniformité de fond substantielle sur le tissu de support, les flammes ou autres matières d'effet sont fournies conjointement avec une matière d'effet fournie d'une manière en substance uniforme.

3. Procédé suivant les revendications 1 et 2, caractérisé en ce qu'une matière d'effet non tissée continue, du type d'un ruban de carde ou d'une mèche, chargée selon une fréquence appropriée au moyen de matières d'effet discontinues, telles que des flammes ou des matons de fibres, est fournie aux têtes fournisseuses du métier pour tissu à poil, ces matières d'effet discontinues étant transportées par la matière d'effet continue.

4. Procédé suivant l'une quelconque des revendications précédentes, caractérisé en ce que des sélections d'aiguilles appropriées sont préagencées en vue d'obtenir, au moyen de la matière ajoutée en ruban de carde ou en mèche avec les flammes ou autres effets, un effet supplémentaire dans la structure du fond, par exemple des rayures de fibres mieux liées.

5. Procédé suivant l'une quelconque des revendications précédentes, caractérisé en ce que les fibres de la matière d'effet sont orientées par voie mécanique et/ou pneumatique de manière à provoquer leur ancrage dans le support, en particulier en imposant aux fibres libres une orientation allant de l'intérieur vers l'extérieur du front circonférentiel des aiguilles, après une orientation préliminaire vers l'intérieur du front, en tout cas par des machines pour tissus à poil de finesse grossière qui permettent l'ancrage idéal (type d'ancrage en pont) des fibres qui doivent être retricotées.

6. Produit textile formé par une structure de tissu tricoté de support et par une matière d'effet, caractérisé en ce que la matière d'effet comprend des flammes ou des matons de fibres qui sont ancrés directement dans la structure de tissu tricoté de support.

7. Produit textile suivant la revendication 6, caractérisé en ce que la matière d'effet comprend une première matière continue en forme de ruban de carde ou de mèche, et une seconde matière discontinue en forme de flammes ou de matons de fibres, cette matière d'effet étant ancrée dans la structure de tissu tricoté de support.