Patented May 2, 1939 2,156,935

UNITED STATES PATENT OFFICE

2,156,935

YARN AND FABRIC CONSTRUCTION

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No Drawing. Application January 6, 1938, Serial No. 183,626

10 Claims. (Cl. 57—140)

The present invention relates to novel yarn and fabric constructions and particularly relates to yarn and fabric constructions which include the use of synthetic yarn or rayon materials.

It is among the objects of the present invention to provide an improved yarn, and fabric woven thereof, which fabric will have enhanced texture and will also be improved in other qualities.

Other objects will be obvious or will follow during the course of the following specification.

In accomplishing the above objects according to one embodiment of the present invention, it will be found most satisfactory to combine low, medium and high twist artificial silk or rayon yarns, preferably of viscose or cuprammonium rayon and/or cellulose acetate, each of the ends preferably being composed of between 10 and 250 filaments twisted together with a zero or relatively low twist. Sometimes spun yarns of viscose or cuprammonium rayon, silk or cellulose acetate, or blends thereof may also be included.

As a general rule, it is desirable to combine together the high twist and the low twist yarns by a relatively low united twisting, which may be in the same direction as the twist on each end then the combined yarn is united with a third end having a medium twist.

The final yarn then may be utilized for either the warp or the filling of a fabric or both, and it preferably is utilized in either warp or filling or both, with a spacing of about 20 to 60 ends per inch.

It has been found particularly effective to combine two ends of cellulosic rayon, a synthetic fibre derived from cellulose xanthate, cellulose nitrate or cupra-ammonium cellulose, and at least one end preferably of low twist composed of the cellulose acetate yarn.

As a general rule, the low twist cellulose acetate yarn having a number of turns varying from 0 to 5 may be combined with a relatively high twist cellulosic rayon yarn having a twist of 35 to 65 turns in the same direction as the cellulose acetate yarn, the united twisting of the cellulosic rayon and the cellulose acetate varying from 2½ to 25 turns.

Usually, it is desirable that each end of cellulose acetate yarn be between 40 to 300 denier and have between 10 and 250 filaments, although several different ends may be employed instead of one cellulose acetate end.

This combined or united yarn is then combined with a third end preferably having a twist between 10 and 35 turns preferably in the same direction as the united twisting or in the same direction as either of the individual yarns previously combined and this third yarn may either be a cellulose acetate silk or more preferably a cellulosic rayon.

Preferably, this third yarn also contains from 10 to 250 filaments per end.

To give several specific examples of various yarn and fabric constructions, a warp yarn may be formed by twisting at five turns right, a 150 denier, 60 filament viscose rayon crepe having a twist of 45 turns right with a 100 denier, 28 filament cellulose acetate yarn of 1¼ turns right twist, the united twist being 5 turns right. This united yarn is then combined with a 100 denier, 28 filament cellulose acetate yarn having a twist of 25 turns right, the united twisting being 15 turns right. This will give the desired effect of having low twist, medium twist and high twist yarns combined in a single end with the low twist and the high twist being first combined and then together combined with a medium twist.

This yarn may then be used for the warp of the filling or both, the spacing in the warp or filling preferably being between 30 to 40 ends per inch.

Any suitable weave may be utilized such as a taffeta weave, if desired.

As another example, which is not as preferred as the example just given, a 75 denier, 30 filament viscose rayon yarn of 55 turns right twist is combined with two 100 denier ends of a 28 filament, 1¼ turn right twist cellulose acetate yarn, the united twisting being 5 turns right.

Then, this yarn is combined by twisting 15 turns right with a 75 denier, 30 filament rayon yarn having 55 turns left which will give the desired effect of having a low twist and two high twist yarns combined in a single end with the low twist yarn and one high twist yarn being first combined and then together combined with another high twist yarn.

This yarn, as above stated, may be used for both warp or filling with a spacing of between 30 to 40 ends per inch in either the warp or filling.

As a third example, a 150 denier, 60 filament, 45 turn right twist viscose rayon yarn may be combined by five turns right with a 100 denier, 28 filament, 1¼ turns cellulose acetate yarn, which then is combined with a 100 denier, 28 filament, 40 turn left cellulose acetate yarn by a united twisting of 15 turns right.

This yarn which is not as preferred as the

first two examples given may also be utilized for either the warp or the filling or both.

As a fourth example a 100 denier, 60 filament 55 turn right twist viscose rayon yarn may be combined by 15 turns right with a 150 denier, 46 filament 2½ turns, cellulose acetate yarn, which then is combined with a 100 denier, 28 filament, 28 turn right twist cellulose acetate yarn by a united twisting of 7 turns.

As still another example, a yarn may be formed by twisting together a 150 denier, 60 filament, 45 right twist viscose rayon yarn with 100 denier, 40 filament, 2½ turn right cellulose acetate yarn by the united twist of 12 turns right.

This yarn is then combined with a 100 denier, 40 filament 2½ turn right cellulose acetate yarn by a united twist of 7 turns left.

The resultant yarn may be used as a warp or filling or both.

Although, it is preferred that the individual components be single yarns, it is obvious that the construction also applied to yarns in which one or more of the three components is a plied yarn.

If desired, the three ends doubled or undoubled may all be composed of cellulosic rayon, but generally, one or two ends should be formed of cellulose acetate.

However, it is usually preferred to have the final yarn consist of a high twist and a low twist united together first and then combined with a medium twist end, which yarn is used for either the warp or filling or both.

The fabric woven of these yarns will have enhanced texture, a hard, crisp feeling and will also be improved in other fabric qualities.

Although the cellulose acetate component is preferably not highly twisted, it is possible in certain instances to give it a high twist of the order 25 to 100 turns per inch. Zero twist yarns may also be used in lieu of low twist yarns.

By the expression "rayon" utilized in the accompanying claims, is included all synthetic fibers or artificial silk fibers, specific types of rayon being viscose rayon, cuprammonium rayon, nitrate rayon cellulose acetate, cellulose ether, and so forth.

It is apparent that the specific illustrations shown above have been given by way of illustration and not by way of limitation and that the structures above described are subject to wide variation and modification without departing from the scope or intent of the invention, all of which variations and modifications are to be included within the scope of the present invention.

What is claimed is:

1. A yarn construction comprising three intertwisted strands of a synthetic filament or rayon yarn of substantially different twist, one of said strands being initially twisted between about 0 and 15 turns, another being twisted between about 15 and 35 turns and the third being twisted between about 35 to 75 turns and the united twisting being between 5 and 25 turns.

2. A yarn construction formed by united twisting of at least three ends each consisting of from 10 to 250 filaments of a synthetic filament or rayon material, at least one end consisting of cellulose ester and at least another end consisting of cellulosic rayon, at least two of said ends each having a substantial difference in twist and said united twisting being less than the twist of one of said ends and greater than the twist of another of said ends.

3. A yarn construction formed by united twisting of at least three ends each consisting of from 10 to 250 filaments of a synthetic filament or rayon material, at least one end consisting of cellulose ester and at least another end consisting of cellulosic rayon, at least two of said ends each having a substantial difference in twist and said united twisting being less than the twist of one of said ends and greater than the twist of another of said ends, said ends and united twisting being all twisted in the same direction.

4. A yarn construction formed by united twisting of at least three ends each consisting of from 10 to 250 filaments of a synthetic filament or rayon material, at least one end consisting of cellulose ester and at least another end consisting of cellulosic rayon, at least two of said ends each having a substantial difference in twist and said united twisting being less than the twist of one of said ends and greater than the twist of another of said ends, the ends having the lowest twist being first combined by united twisting and the combined strand being then united with the strand having an intermediate twist.

5. A yarn construction formed by united twisting of at least three ends each consisting of from 10 to 250 filaments of a synthetic filament or rayon material, at least one end consisting of cellulose ester and at least another end consisting of cellulosic rayon, at least two of said ends each having a substantial difference in twist and said united twisting being less than the twist of one of said ends and greater than the twist of another of said ends, the said ends initially differing from each other by ten to twenty turns difference in twist.

6. A yarn composed of an end of a 150 denier, 60 filament, 45 right turn crepe rayon combined by 5 turns right with another end of a 100 denier, 28 filament, 1¼ right turn cellulose acetate, which combination in turn is combined with a 100 denier 28 filament, 28 right turn cellulose acetate end by 15 right turns of united twisting.

7. A crisp fabric woven at least in substantial part of the yarn of claim 1 in the warp.

8. A crisp fabric woven at least in substantial part of the yarn of claim 1 in the filling.

9. A crisp fabric woven at least in substantial part of the yarn of claim 2.

10. A crisp fabric woven at least in substantial part of the yarn of claim 6.

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