

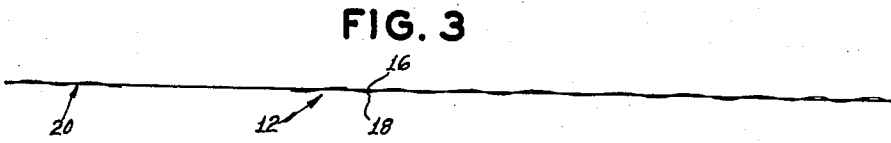
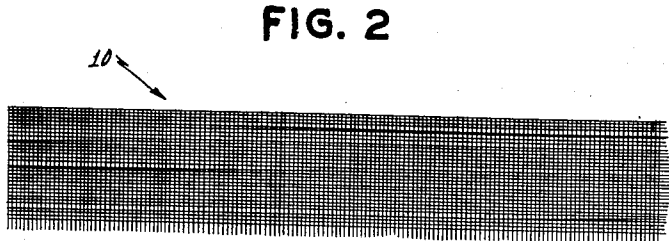
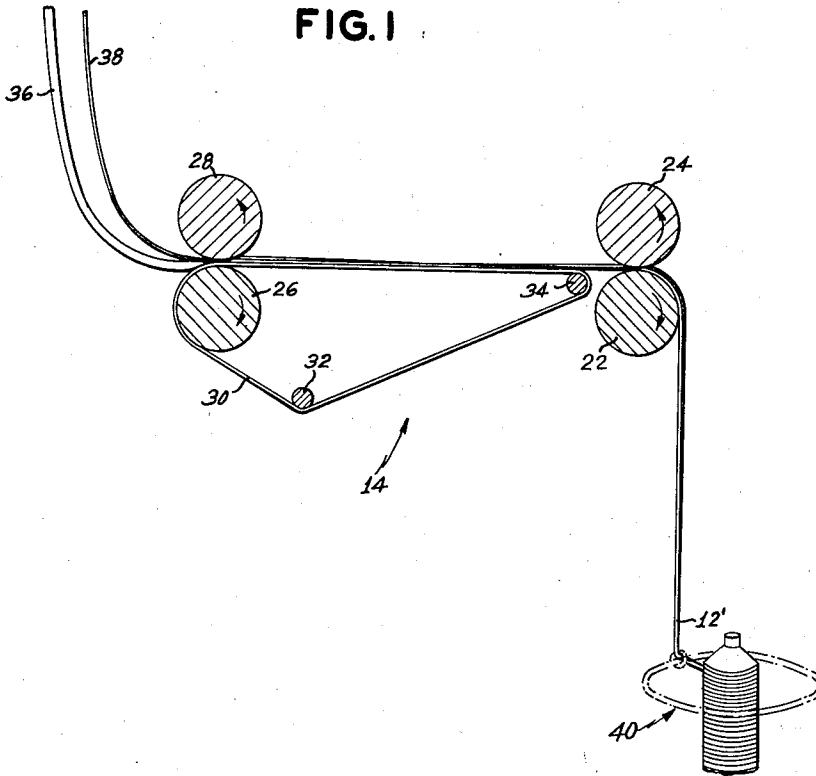
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DIRECT SPUN SHANTUNG YARN AND METHOD OF MAKING SAME

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DIRECT SPUN SHANTUNG YARN AND METHOD OF MAKING SAME

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4 Claims. (Cl. 57—140)

This invention relates to a direct spun shantung yarn 15 and method of making same.

One object of the present invention is the provision of an improved method of making a shantung yarn having thicknesses or slubs of variable length along the length thereof by a direct spinning process.

Another object of the present invention is the provision of an improved method of making a shantung yarn of the above character having slubs disposed in a non-repetitive pattern along the length thereof.

Another object of the present invention is the provision of an improved method of making a shantung yarn by the use of direct spinning apparatus, the latter being conventional in all respects.

Yet another object of the present invention is the provision of a generally improved shantung yarn of the above character which may be simply and economically produced using conventional apparatus.

The above and other objects, features and advantages of the present invention will be more fully understood from the following description considered in connection with the accompanying illustrative drawing.

In the drawing which illustrates the best mode now contemplated by me for carrying out my invention:

Fig. 1 is a side elevational diagrammatic view of direct spinning apparatus and is illustrative of the method of the present invention:

Fig. 2 is a plan view of a fabric segment formed of direct spun shantung yarns made in accordance with the present invention; and

Fig. 3 is a view of a length of shantung yarn formed according to the present invention.

Referring to the drawing and more particularly to Figs. 2 and 3 thereof, there is shown a segment of shantung fabric 10 which is formed by integrating shantung yarns 12 in any conventional manner. The shantung yarn 12 is formed by a direct spinning process in apparatus 14 and comprises spun fibers 16 and 18, the fibers 16 being drafted and ruptured in the direct spinning apparatus and the fibers 18 being ruptured at irregular intervals in said apparatus without being drafted. The yarn 12, constituted by the spun fibers 16 and 18, has thicknesses or slubs 20 of variable length along the length thereof and said yarn is formed by the method to be described in detail hereinafter.

The shantung yarn 12 may be formed utilizing any suitable direct spinning apparatus, for example the direct spinning apparatus 14 illustrated in Fig. 1. The spinning apparatus 14, which is of conventional construction, comprises a front pair of companion rolls 22 and 24 and a rear pair of companion rolls 26 and 28, said front pair of rolls being driven at a greater peripheral speed than the rear pair of rolls. The front and rear pairs of rolls may be of any suitable construction and may be driven in any conventional manner, and as aforesaid, the front pair of rolls 22 and 24 are driven at a greater peripheral speed than the rear pair of rolls 26 and 28 so that continuous

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filaments fed to said rolls are tensioned and ruptured into staple fiber due to the tension on the filaments in passing from the rear rolls to the front rolls. The companion pair of rolls is adapted to be driven in the direction of the arrows shown in Fig. 1 and the instant direct spinning apparatus is provided with a feed belt 30 operatively associated with the lower rear roll 26 and the belt guiding rolls 32 and 34, said belt being adapted to facilitate the feeding of rovings or yarns through said apparatus. If desired, the direct spinning apparatus may be of the type disclosed in my Patent No. 2,497,511, issued on Feb. 14, 1950, for Direct Spinning Machine and Method, it being understood that the specific spinning apparatus illustrated and described above is given by way of example only.

Pursuant to the present invention, a bundle 36 of continuous filaments, which are capable of being drafted and ruptured in apparatus 14, is fed alongside a bundle 38 of continuous filaments having relatively weak portions along the length thereof, which are capable of being ruptured in said apparatus without drafting in said apparatus. The bundle 36 of continuous filaments will be ruptured by the tensioning process which involves the passage of such continuous filaments between the successive pairs of rolls 25 aforescribed of which the rolls of the front pair are driven at a greater peripheral speed than the rolls of the rear pair so that such filaments will be tensioned and ruptured into staple fiber due to the tension on the filaments on passing from the rear rolls 26 and 28 to the front rolls 22 and 24. The bundle 38 of continuous filaments, which are capable of being ruptured without drafting in the apparatus 14, will be ruptured at irregular intervals corresponding to the weak portions aforescribed. Thus the rupturing operation in apparatus 14 will be effective to convert the bundle of continuous filaments 36 into staple fiber and to rupture the bundle 38 at irregular intervals corresponding to the weak portions of said bundle, it being noted that lengths of the bundle 38 will be in longitudinally spaced disposition along the length of the finished yarn 12 since the front pair of rolls are driven at a greater peripheral speed than the rear pair of rolls. Thus the bundle 38, which may be here characterized as the slubbing bundle or yarn, will be severed at spaced intervals between the front and rear pairs of rolls due to the tensioning process aforescribed and the severed trailing end of such slubbing yarn will be rapidly drawn through apparatus 14 by the front pair of rolls due to the relatively high peripheral speed thereof. It will be apparent that the leading end of the next length of slubbing yarn will be longitudinally spaced from the aforementioned trailing end of the severed yarn. The yarns processed as described above constitute the yarn 12', which is in an intermediate stage of finish and which is adapted to be spun to form finished yarn 12. From the front pair of rolls 22 and 24 of apparatus 14 the yarn 12' passes to a suitable spinning device 40 which is adapted to form said yarn into the direct spun shantung yarn 12 shown in Fig. 3.

The direct spun shantung yarn 12 will have thicknesses or slubs 20 of variable length along the length thereof, said slubs being disposed in a non-repetitive pattern along the length of the yarn. From the above it will therefore be apparent that the direct spun shantung yarn 12 is formed by associating a bundle 36 capable of being drafted with a bundle 38 incapable of being drafted, and subjecting said bundle to a rupturing operation in the direct spinning apparatus 14 whereby to draft and rupture the bundle 36 and to rupture the slubbing yarn 38 at irregular intervals, said bundles being thereafter spun in any suitable manner to form the spun shantung yarn.

The bundle 36 may be composed of continuous fila-

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ments of any suitable material which are adapted to draft and rupture in the apparatus 14 and if continuous filaments of nylon, Dacron, or the like are utilized pursuant to the above method such filaments will be preruptured and will have a sufficiently low twist so as to permit such preruptured filaments to draft in the tensioning process 5
aforedescribed. Thus if a bundle of nylon, Dacron or any other continuous filaments are utilized which are elastic under tension, such filaments will be preruptured and will have a sufficiently low twist so that such preruptured filaments will draft in the aforedescribed tensioning process in the direct spinning apparatus. The slubbing yarn or bundle 38 may be composed of filaments or fibers of any suitable material and if desired, such slubbing bundle may be composed of staple fibers twisted to prevent the drafting thereof, said bundle being adapted to rupture at intervals in passing through the direct spinning apparatus 14 in the manner aforedescribed relative to the bundle 38 of continuous filaments having relatively weak portions along the length thereof. From the above, it will be apparent that the slubbing bundle 38 may be composed of any type of filaments or fibers which will rupture without drafting in the spinning apparatus 14, for example continuous filaments having relatively weak portions along the lengths thereof or any suitable twisted discontinuous fibers which will rupture without drafting in the direct spinning apparatus. In the illustrated embodiment the bundle 36 is of a substantially larger size than the bundle 38 and by way of example the bundle 36 may be of the order of 2200 denier with the bundle 38 being of the order of 600 denier.

From the above it will be apparent that the shantung yarn 12 will have thicknesses 20 of variable length along the length thereof, which thicknesses or slubs will be disposed in a non-repetitive pattern along the length of the yarn. The shantung yarn 12 may be simply and economically produced without in any way altering or modifying conventional direct spinning apparatus. 35

While I have shown and described the preferred embodiments of my invention, it will be understood that various changes may be made in the idea or principles of the invention within the scope of the appended claims. 40

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A method of making a direct spun shantung yarn, comprising the steps of feeding a bundle of continuous filaments which are capable of being drafted and ruptured alongside a bundle of continuous filaments having rela-

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tively weak portions along the length thereof which are capable of being ruptured without drafting into direct spinning apparatus having spaced companion pairs of rolls operated at different surface speeds for drafting and rupturing said bundle of continuous filaments and for rupturing said bundle of continuous filaments having relatively weak portions at irregular intervals corresponding to said weak portions, and spinning said bundles together to form a direct spun shantung yarn having thicknesses of variable length along the length thereof.

2. A method of making a direct spun shantung yarn comprising the steps of simultaneously feeding into a drafting apparatus two bundles of filaments alongside each other, viz., a bundle of filaments that is capable of being ruptured and drafted and another bundle that may be ruptured but is incapable of being drafted; rupturing and drafting the first mentioned bundle of filaments by means of said apparatus; simultaneously rupturing at irregular intervals not determined by any pattern the second mentioned bundle of filaments; and spinning together said two bundles to form a direct spun shantung yarn having thicknesses or slubs of variable length along the length thereof.

3. A direct spun shantung yarn made by the method defined in claim 2. 25

4. A direct spun shantung yarn formed from a pair of bundles of filaments, one of said bundles having been ruptured and drafted and the other of said bundles being composed of continuous filaments having relatively weak portions spaced at irregular intervals and ruptured at said weak portions, said spun yarn having thicknesses or slubs of variable length along the length thereof. 30

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