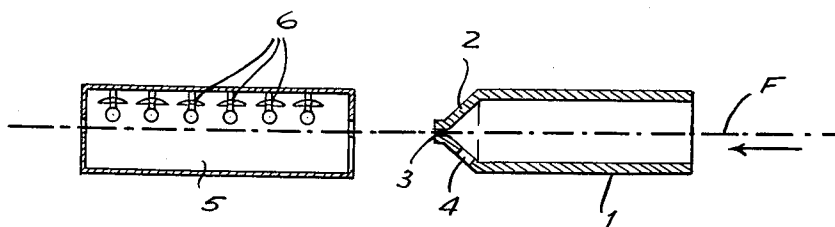


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PROCESS FOR THE PRODUCTION OF KNOP YARNS
AND APPARATUS THEREFOR
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PROCESS FOR THE PRODUCTION OF KNOP YARNS AND APPARATUS THEREFOR

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3 Claims. (Cl. 117-45)

This invention relates to knop yarns herein defined as yarns having at more or less regular intervals protuberances adhering in the form of small beads.

The basic fiber may be a natural fiber or an artificial or synthetic filament, with or without a core, which may consist of a natural, artificial or synthetic spun yarn, or may be based on glass, metal, etc.

In a known process, improved filaments are obtained by coating an appropriate core, for example consisting of spun glass fiber, with a polyvinylchloride plastisol, which may contain in addition loading agents, pigments, ancillary products, etc., as the fiber passes through a spinneret, drying the coated fiber and subjecting it to an appropriate thermal treatment with transformation of the layer of plastisol into a coating solidly adhering to the core yarn. The plastisol employed has very high viscosity.

It has been found that small beads can be produced on the products thus obtaining by recoating with dilute plastisol a spun yarn coated in the manner described, notably by means of an appropriate device which consists of a nozzle formed of a cone having a fine axial hole extending through the tip, the said nozzle being fed with an excess of liquid which can escape through a large lateral hole in the cone.

The invention will be more readily understood from the accompanying drawing in which the figure is a diagrammatic illustration of a forming system embodying the invention.

Example

A spun glass yarn No. 45 is coated with a polyvinylchloride plastisol in two phases, with drying and thermal treatment after each phase. The plastisol has very high viscosity.

The coated yarn F is then dipped into a dilute plastisol having low viscosity. The yarn coated with dilute plastisol thereafter passes horizontally into a nozzle as illustrated in the drawing. This nozzle comprises a hollow cylindrical body 1 extended by a cone 2 formed with an axial hole 3 only slightly larger than the yarn, for example of 0.30 mm. Situated below the axial hole 3 is a discharge hole 4 for the excess of coating solution which may be recovered and reused. This discharge hole is several times larger than the hole in the nozzle, for example 10 times as large.

On leaving the nozzle opening 3, the coated yarn remains smooth. The introduction of the yarn into the oven 5 for the thermal treatment at high temperature (more than 200° C.) comprising a bank of infra-red radiation lamps 6, produces a contraction of the coating,

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which is still fluid, and the formation of small regular beads.

It is obvious that the example described does not in any way limit the scope of the invention.

The dilute plastisol may be of the same color as the basic coating, but very attractive effects are obtained when the base and the beads are of different colors, and especially if they are of contrasting colors.

By varying the viscosity of the dilute plastisol, the size of the beads and/or the distance between them can be varied. More or less irregularly distributed beads may be obtained by using baths mixed in variable proportions.

It is not essential for the artificial resin constituting the essential ingredient of the basic coating to be the same as that of the beads, but if the two resins are the same an excellent adhesion of the beads is obtained. Otherwise, anchoring means may be provided.

The example describes the production of the knop yarn by a new treatment of a coated spun yarn already finished in a separate operation. However, the new treatment may also be directly applied to the process of manufacture of a coated spun yarn.

What is claimed is:

1. A process for the manufacture of knop yarns which comprises applying to a yarn having a first coating layer of a plastisol thereon, an additional coating layer consisting of a second plastisol of low viscosity capable of adhering to said first coating layer and of shrinking when dried, passing said coated yarn through a nozzle having a restricted opening adapted to remove the excess of said low viscosity plastisol, and passing said yarn through a drying zone to dry said low viscosity plastisol and to cause the latter to shrink and form spaced beads on said yarn.

2. The method set forth in claim 1 wherein the first plastisol is a high viscosity solution of the same material as the low viscosity plastisol.

3. Apparatus for producing knop yarns comprising a cylindrical nozzle having a horizontal axis, with a conical head formed with an opening only slightly larger than the basic yarn, the said opening extending axially through the tip of the conical head, said head having in addition a liquid discharge opening substantially larger than the nozzle opening and situated below the latter in the conical head, and a drying oven disposed to receive the coated yarn from said nozzle.

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