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Fig. 1.

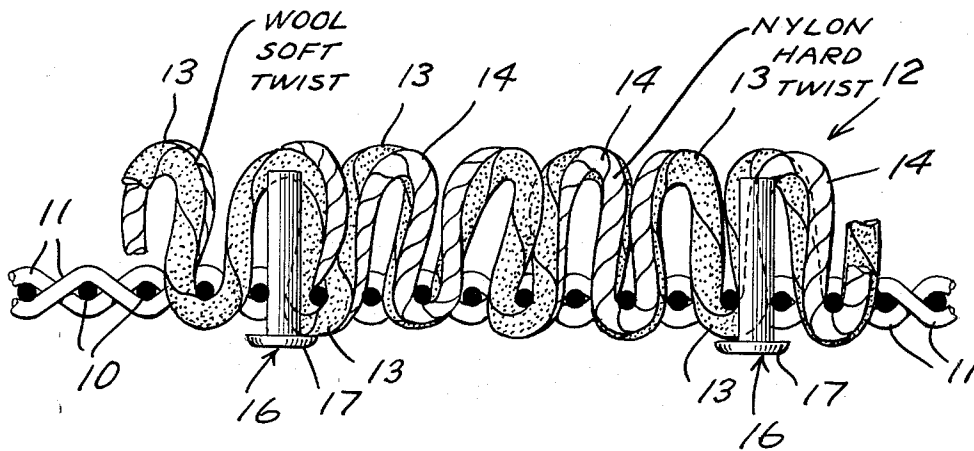
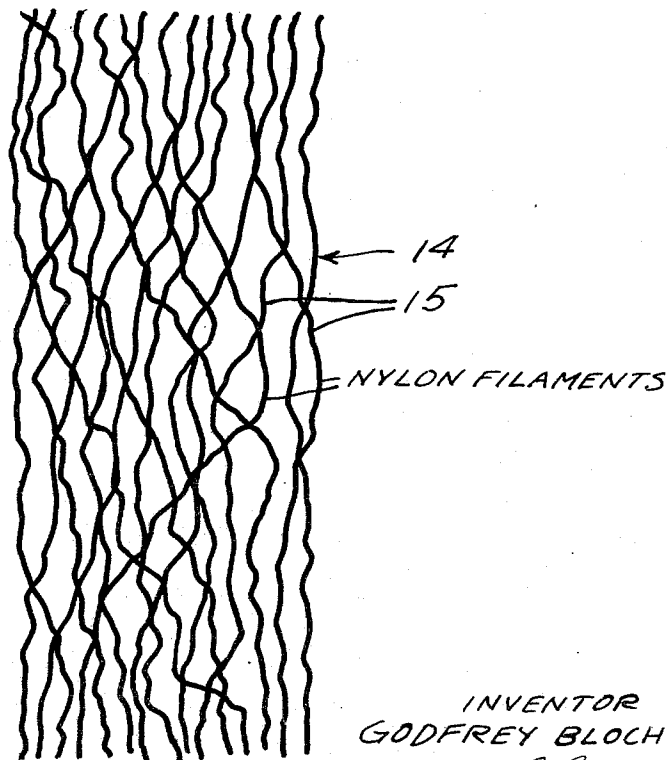


Fig. 2.



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2 Claims. (Cl. 28-78)

This invention relates to pile fabrics and more particularly to a pile fabric having anti-static properties and which combines softness and resilience with long wear.

An object is to provide a fabric of the above type having a combination of yarns which are in contact and which have the above-mentioned properties.

Another object is to provide a pile fabric of the above type having novel and improved characteristics.

Other objects and advantages will be apparent as the nature of the invention is more fully disclosed.

Pile carpets or the like wherein the pile is composed of nylon yarn have undesirable static retaining properties due to the electrical insulating qualities of nylon. On the other hand, blends of nylon staple with other fibers such as wool which would have the property of discharging static have the disadvantage of non-uniform wear as the nylon does not end to break off in cleaning as does wool, but remains intact above the surface of the pile to form a fuzz or to pill.

Anti-static coatings have also been proposed but require renewal as the coatings are removed in cleaning or shampooing.

The present invention overcomes these disadvantages by providing a pile surface composed of pairs of yarns woven, knitted, looped or otherwise formed together. Each pair is composed of a crimped continuous filament yarn such as nylons or the like which has a high resistance to wear but relatively poor static properties, and a spun yarn such as wool having softness, resilience and good static properties. The spun yarn is in close contact with the continuous filament yarn at frequent intervals and serves to discharge the static and to impart softness and fullness to the pile surface.

The continuous filament yarn forms a wear-resistant element and will not pill during use due to the absence of loose ends.

The continuous filament yarn may be crimped or bulked by any known means and the filaments are preferably bonded at their individual points of contact as shown in my Patent No. 465,996, dated April 5, 1949.

In one embodiment metal studs are disposed along the backing to assist in discharging the static and to constitute a support for casters or the like which may be passed over the surface of the fabric.

The nature of the invention will be better understood from the following description taken in connection with the accompanying drawings in which a specific embodiment has been shown for purposes of illustration.

In the drawing:

FIG. 1 is a warpwise section of a fabric embodying the invention; and

FIG. 2 is an enlarged detail illustrating diagrammatically the construction of the bulked pile yarn.

Referring to the drawing more in detail, the invention is shown as embodied in a pile carpet fabric having a woven backing composed of filler yarns 10 and chain yarns 11 of the usual heavy backing yarn material such as jute,

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The pile is shown as composed of pile loops 12, each loop being formed by a pair of yarns 13 and 14. In weaving the fabric of the pile yarns 13 and 14 may be fed through the same reed dent, or through the same heddle eye, or in the case of a tufted fabric may be fed through the same needle eye so that the two yarns lie in close contact in the pile loops and in the backing.

The pile fabric may be woven on a stationary wire loom mechanism wherein the pile loops are laid over the stationary wires first in one direction and then in the other in successive rows. This weave causes the two yarns 13 and 14 to cross each other and lie in close contact at various points.

The yarn 14 may be composed of a continuous filament synthetic such as nylon, Dacron or Orlon or the like. Such yarn may be processed to impart a permanent crimp thereto as by false twisting, gear crimping, crimping in a stuffer chamber or by other known means and the crimped filaments 15 may be bonded at their points of contact as in my patent above mentioned so as to provide a yarn having substantial bulk and coverage and which at the same time is sufficiently stiff to retain the pile elements in upstanding position when subjected to the usual carpet usage. This yarn may be hard or soft twisted, to provide the desired pile characteristics.

The yarn 13 is preferably a spun yarn composed of wool containing from 12% to 18% moisture and may be soft twisted to provide increased coverage. If the nylon yarn 14 is soft twisted the wool yarns 13 may be hard twisted to provide improved support for the pile elements. The wool yarns may be replaced by other yarns composed of spun staple fibers of synthetic material having good static elimination properties such as the acrylonitriles.

In use the wool or acrylonitrile yarn loops provide a soft resilient texture to the surface while the nylon yarns impart a high wear resistance. The wool or acrylonitrile is so disposed as to contact the nylon yarns and thereby assist in discharging the static therefrom as well as in supporting the pile elements.

To support heavy casters or the like, a plurality of metal studs 16 having heads 17 may be disposed in the backing at regular spaced points. These metal studs may be electrically connected together as by a metal strand (not shown) and may be grounded to prevent static accumulation on the fiber.

The backing has been shown as woven. However, the invention may be applied to other types of fabric, such as knitted or tufted fabrics. The pile may be applied by other known means, as by removable wire looms or Axminster looms and the loops may be cut to form cut pile tufts.

While the two types of yarns have been shown as woven in pairs, in some instances it may be desirable to space the individual pile loops or tufts more or less uniformly across the face of the fabric and two or more yarns of either type may be disposed between yarns of the other type or more than one yarn of each type may be grouped together, the essential feature being that a substantial part of the nylon pile elements are in contact with other pile elements which are capable of improving the static discharge properties thereof.

What is claimed is:

1. A pile fabric comprising a backing material and pile loops anchored in said backing material over substan-

tially the whole area thereof, said loops being arranged in pairs and each pair being formed by a pair of yarns in untwisted parallel relationship and in close contact, one of said yarns being composed of bulked synthetic continuous filaments having high static retentivity, and the other of said yarns being spun yarns composed essentially of wool having good static discharge properties.

2. A pile fabric as set forth in claim 1 in which said continuous filament yarn is composed of nylon.

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