Oct. 11, 1949. A. SILVAIN 2,484,125

ELASTIC FABRIC

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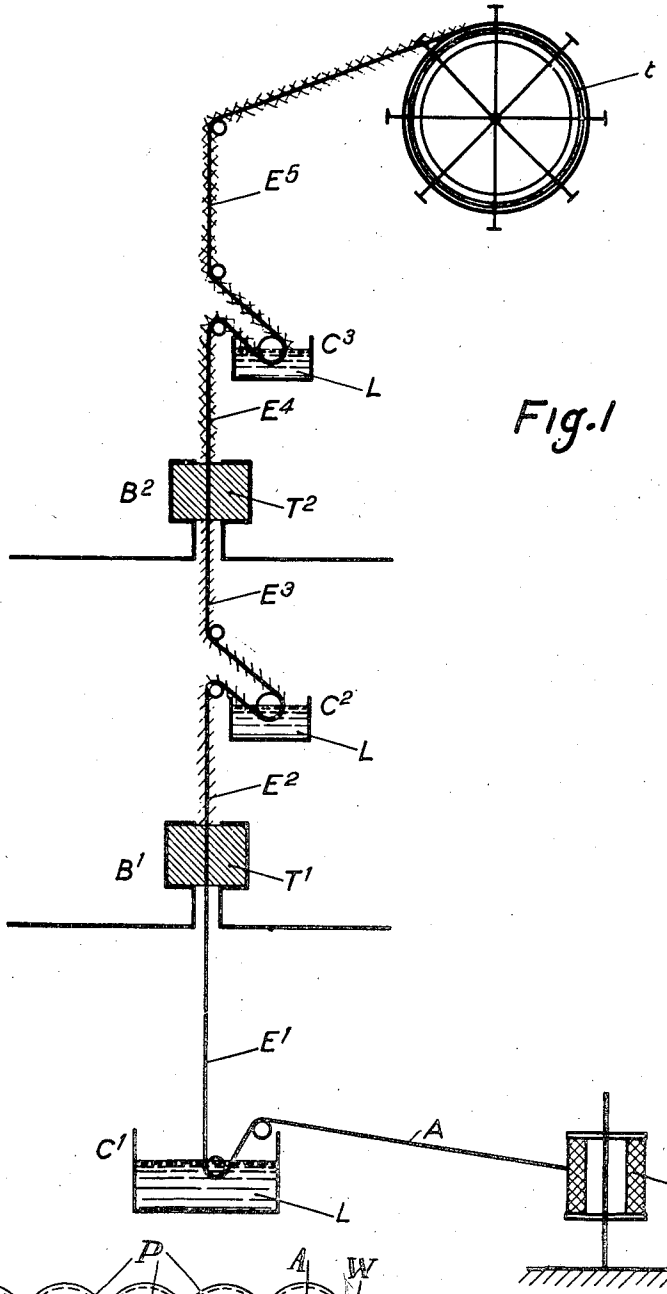



Fig. 1

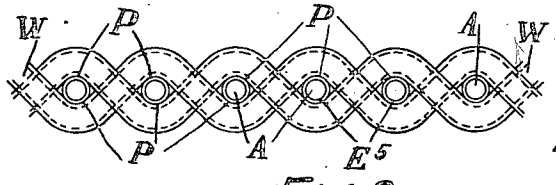



Fig. 2

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## ELASTIC FABRIC

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1 Claim. (Cl. 28—80)

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Plaited, gimped or twisted elastic threads cover under this general expression, threads consisting of a base elastic thread or a thread of bare rubber covered by any textile material of any origin whatever, whether vegetable, animal, mineral, artificial, synthetic or the like through the known methods used for plaiting, gimping or twisting. The threads thus covered are often called yielding dressed threads. Such threads show the property of being elastic and capable of elongation.

Bare elastic threads or bare rubber threads forming the core of the finished product are threads made of products having rubber-like properties such as latex, natural or artificial, synthetic or regenerated rubber or the like, to which various cross-sections are given, either flat, round, square or the like, said cross-sections being variable and obtained through various mechanical methods such as cutting, drawing, through electric methods or the like. These threads may be vulcanized or not before they are covered or dressed.

Plaited, gimped or twisted elastic threads obtained heretofore through the usual prior methods do not form homogeneous members. In fact it is easy to separate the bare elastic thread from the covering textile material.

My invention has for its object an improvement to such threads, and relates to the manufacture of dressed elastic threads the constitutive parts of which are brought together to form a homogeneous system, while retaining and even improving their original properties.

This improvement consists chiefly in that either the core before it is coated, or the covering threads before the cover is formed around the core, or else both the core and the cover together are embedded in or impregnated with a material of rubber-like properties; said operation is repeated after the formation of each successive cover so that the layer or layers of said material may form an elastic seal between the successive coats or covers and that after vulcanization, the coated thread may form a homogeneous system the elements of which are secured together in an intimate and permanent manner.

My invention is applicable both in the case of the core being made of a single thread and in the case of its comprising a plurality of threads, a sheet of threads, a ribbon, or the like, of any outline or cross-section adapted to be used for plaiting, gimping or twisting. Thus, for instance, the core may include one or more bare elastic threads enclosed inside an elastic ribbon. This core generally consists of a product having properties similar or equivalent to those of rubber, vulcanized or unvulcanized.

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As for the textile covers or dressings, they may be made of any suitable textile or else of any other vegetable, mineral, animal or artificial material forming threads, sheets of threads, ribbons or the like, in brief appearing in a form allowing plaiting, gimping or twisting.

From this standpoint, the cover may be formed of elastic threads or ribbons, vulcanized or not.

The invention will now be described with reference to the accompanying drawings in which:

Figure 1 shows diagrammatically in vertical section a process for the manufacture of a thread used according to the present invention and including, by way of example, an elastic core provided with two textile coverings.

Figure 2 is an enlarged cross section of a fabric including covered elastic threads according to the present invention.

The elastic core A of the type disclosed hereinabove is wound off the spool *b* and enters the gimping machine under a predetermined tension corresponding to its proposed application.

This core A receives a first layer of a rubber-like product L as it passes through a bath contained in a vat C1 and forms a compound core E1.

This compound core E1 receives a first coat or cover of a suitable textile T1 as it passes through the spindle B1 so as to form the system E2.

The system E2 receives in its turn a layer of rubber-like product L as it passes through the vat C2 and forms now the system E3.

This system E3 is then provided with a second cover as it passes through the spindle B2. The new system E4 formed receives a further layer of rubber-like material L at C3 after which the dressed rubberized thread E5 is wound over a spool at *t*.

Obviously the number of dressings and passages through rubber-like material may be different from those disclosed, as required by the proposed application of the finished thread.

The latter may as it passes out of the machine, be vulcanized or not according to its intended use.

The threads obtained when gimped, plaited or twisted form a system the elements of which are interconnected in a perfectly homogeneous and final manner.

Such threads show a great resistance, much more considerable than that of any of the known threads of the same type and their resilience is much greater by reason of the multiplicity of the layers of the product L.

Their resistance to wear is much higher by reason of the homogeneity of the system comprising the core and the covers thereof.

Lastly the presence of the outer layer of the product L prevents practically any deterioration of the threads so that the latter are perfectly suitable for the execution of objects which are to remain under water or to be submitted to the action of perspiration.

When the elastic threads provided with an unvulcanized outer cover are used, alone or with other textile threads, in the manufacture of woven, knitted, plaited, or other products such as fabrics, knitted wares, lace plaits, tulle, lacework, the threads forming the product are embedded in the unvulcanized outer cover, so that a subsequent vulcanization of the finished product causes an intimate bonding of the threads thereof and transforms it into a homogeneous elastic system.

An enlarged cross section of a fabric according to the invention is shown in Figure 2 of the drawing. The warps of the fabric are formed by rubberized threads E5 according to the invention, the outer rubber layer of which has been left unvulcanized. A are the cores of the rubberized threads. The wefts W which preferably also have an unvulcanized rubber covering, adhere at the points P to the unvulcanized outer layer of the threads E5 and when the fabric is subsequently vulcanized, the warps E5 and wefts W are bonded together at the points P, so that the finished



fabric forms a homogeneous elastic system, from which the threads forming the same are unable to escape, even if some of them are cut or broken.

What I claim is:

An elastic fabric formed at least partially of covered elastic threads, comprising an elastic core, at least one coating of a rubber-like product covered with dressing threads and an outer layer of unvulcanized rubber-like product, and subsequently vulcanized, the threads forming said fabric adhering together by said unvulcanized outer layers and being bonded together by the subsequent vulcanization, whereby the finished product constitutes a homogeneous elastic system.

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