April 6, 1937. L. ROQUES 2,076,350

ELASTIC FABRIC WITH ONE OR MORE INEXTENSIBLE ZONES

Filed June 17, 1933

Fig. 1.

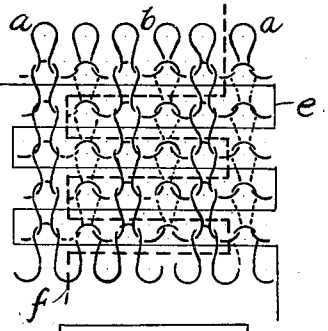


Fig. 2.

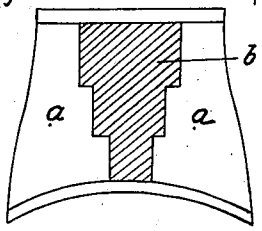
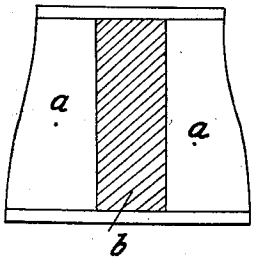


Fig. 3.



INVENTOR
LOUIS ROQUES
By Townsend & Hecker
ATTORNEYS

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ELASTIC FABRIC WITH ONE OR MORE INEXTENSIBLE ZONES

Louis Roques, Paris, France, assignor to Louis Roques and Georges Arrachequesne, Paris, France, a corporation of France

Application June 17, 1933, Serial No. 676,277
In France June 20, 1932

1 Claim. (Cl. 66—190)

This invention relates to a new industrial product of a knitted, netted or textile nature with elasticity afforded in one direction.

The objects of the invention are to provide in such a fabric, one or more zones wherein the elasticity is counteracted; to obtain this counteraction of the elasticity without interrupting the continuity of the warp and weft components or threads forming the elastic fabric; to provide a fabric wherein the body has warp and weft threads, one of which is elastic, and having non-elastic threads incorporated in desired zones for counteracting the elasticity therein of the elastic thread of the body; to enable the manufacturer to readily incorporate this non-elastic thread, and to vary the width and form of the zone wherein said thread is included; to avoid sewing and re-stitching; to incorporate the counteracting zones during the manufacture of the fabric; to maintain substantially the general appearance of an ordinary elastic knitted fabric or the like; to secure simplicity of construction and of the means and method of manufacture; and to obtain other advantages and results as may be brought out in the following description.

It is well known that waist-bands and other articles formed of an elastic knitted fabric comprise one (or more) threads of cotton or silk forming the "loops" of the knitting, said thread crossing one another about an elastic thread provided on the whole length of the article; said elastic thread is designed as "weft thread" in the following description.

It has already been proposed to provide so formed elastic waist-bands, and generally their middle part which corresponds to the sub-umbilical prominence, with an inextensible strip vertically disposed and adapted to conceal said prominence and to hold better the abdominal region; for this purpose, an inextensible piece of drill or batiste was usually sewn on the inner part of the waist-band; this however diminished the solidity of the waist-band (as the seams cut the rubber thread) and increased the thickness, the weight and the cost of the same.

Waist-bands have also been made in which all the back was elastic and the front comprised an upper part and a lower part which were respectively inextensible and elastic in the whole width of the front. The upper part was made with a weft thread of inextensible braid and the lower part with an elastic weft thread, but it is easy to conceive that such fronts of waist-bands, inextensible in the upper part and elastic in the lower part, fitted badly on the body and were of no practical use.

In view of obtaining the equivalent of the above mentioned drill or batiste strips with avoiding their inconvenience, it has been also tried to make on determined looms, more particularly on hand rib looms, front part of waist-bands comprising an inextensible middle part; but said front parts comprised three pieces, both side pieces formed of an elastic weft thread and the middle part having only an inextensible braid thread; said three parts were then united either by seaming and restitching made manually or on the loom.

But said seams or restitchings present great inconveniences as concerns the appearance, the solidity and the cost; with this method, it was furthermore practically impossible to vary at will the form of the nonelastic parts. It resulted from these inconveniences that the fabrication of said articles has been completely abandoned as such articles could only be exceptional ones and the sale of the latter could not be considered as possible in an usual and continuous manner.

Owing to the obvious advantages of the elastic waist-bands comprising inextensible zones, it has then been proposed to make waist-bands of this kind—and more generally knitted fabrics—according to the present invention, for avoiding the above mentioned inconveniences.

I then had thought of making an elastic knitted fabric comprising inextensible zones without any interruption, seam or restitching between the elastic and nonelastic parts. It was necessary to centralize the elasticity of the elastic weft thread in each row of looms in the desired inextensible part and I adjoin therefore to this elastic thread an inextensible braid thread which acts only in the nonelastic part, while the elastic weft thread passes without interruption from one border of the fabric to the other in each row of looms. Both threads being clamped together in the loop of the fabric, the inextensible braid thread brakes and annihilates the elasticity of the rubber thread in all the loop rows of the part (the dimensions and forms of which may be varied at will) which must remain inextensible.

According to my invention, it is thus possible to make any desired pieces of knitted fabric, and particularly elastic waist-bands, comprising in the sense of their elasticity one or more inextensible zones, the form and the width of which may be varied at will. It is also possible to make straps of different heights, bodices, sheaths,

breast-holders, breast-holder-sheaths in one piece, waist-bands, braces, under-thighs, bandages, elastic stockings and the like.

The fabrics of the invention may have at the limit of the extensible and inextensible zones a non-elastic part bordered on each side with a small border forming the ornament which in the art of knitting is called "pekin" and in which the elastic weft thread is apparent. On the other side of the fabric, the non-elastic part is bordered with a small border forming the ornament called in the art of knitting "stick".

The invention is furthermore applicable to all kinds of knitted fabrics (plain, open-work, ribbed fabrics, pattern fabrics and the like).

In my application for patent Serial No. 755,551, filed December 1, 1934, I have described and claimed improvements in and relating to an ordinary knitting machine in order to render it applicable for knitting said new kind of fabric.

Fig. 1 is a plan view of a portion of elastic fabric made in accordance with my invention.

Figs. 2 and 3 are views of girdles embodying the invention showing different forms of parallel sided inelastic sections formed therein.

The piece of the fabric shown in Fig. 1 comprises for instance side parts or sections *a* and a parallel sided middle non-elastic part *b*.

It may be seen that the elastic weft thread *e* runs from the one end of the piece to the other and is inlaid in each row of thread loops without any interruption, and that the inextensible braid thread *f* (which is shown in dotted lines on the drawing and the stroke of which is limited to the formation of the nonelastic part), is inlaid in parallel relation with the elastic thread in the thread loops in this part or sections only of the knitted fabric.

This thread *f* restricts the elasticity of said elastic thread in the part or section *b* to a degree to render said section substantially non-elastic, whereby a fabric having the novel and peculiar construction and advantages set forth is produced.

Figs. 2 and 3 show the embodiment of the invention in elastic girdles having parallel sided inelastic sections of different forms produced therein by the inlaying of inelastic threads with the elastic threads in zone portions of the fabric of the girdles in the manner described.

What I claim is:

A knitted textile fabric having elastic side sections and a parallel sided interposed inelastic intermediate section, said sections being formed of rows of interconnected thread loops, elastic thread inlaid in said rows, and inextensible thread inlaid in parallel relation with the elastic thread in the thread loops in the inelastic intermediate section of the fabric only and restricting the elasticity of said elastic thread in said intermediate section to a degree to render said section substantially non-elastic.

LOUIS ROQUES.