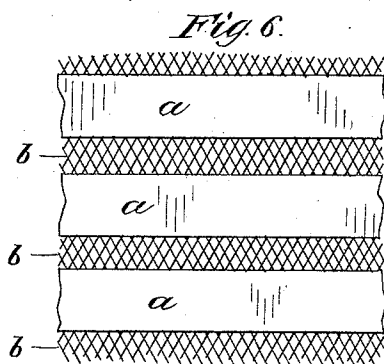
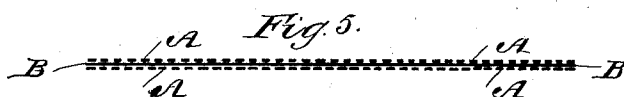
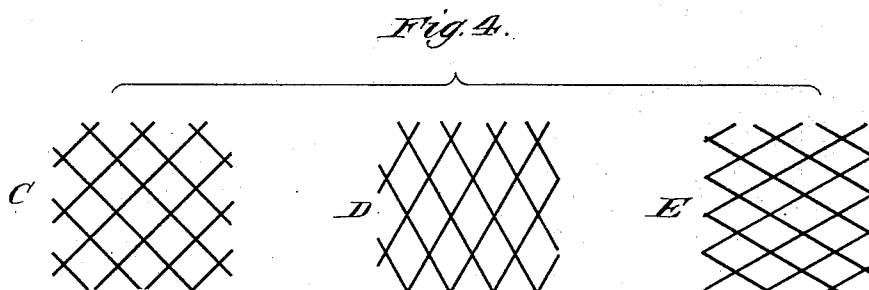
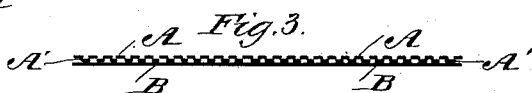
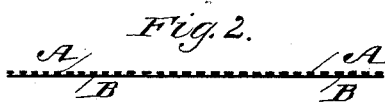
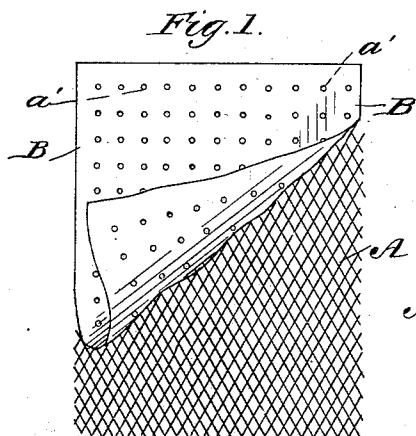


(No Model.)

J. KAYSER.
ELASTIC FABRIC.

No. 375,073.

Patented Dec. 20, 1887.



WITNESSES:

George A. Voss.
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UNITED STATES PATENT OFFICE.

JULIUS KAYSER, OF NEW YORK, N. Y.

ELASTIC FABRIC.

SPECIFICATION forming part of Letters Patent No. 375,073, dated December 20, 1887.

Application filed April 29, 1887. Serial No. 236,560. (No model.)

To all whom it may concern:

Be it known that I, JULIUS KAYSER, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Elastic Fabrics, of which the following is a specification.

My invention relates to that class of fabrics which have a cloth-like or textile surface and are also elastic; and it consists in adhering to one side of a textile fabric so knitted, woven, or otherwise made as to be capable of extension in one or more directions, a lining or backing of perforated india-rubber or equivalent elastic material, whereby, upon stretching the combined fabrics, the textile part will without fracture change the relation of its threads or strands to accommodate its new dimensions, and the perforated rubber or equivalent backing will give elasticity thereto to restore its original dimensions; and because of the perforations in the rubber the fabric is free from the objectionable feature common to other goods of this class—to wit, that they are impervious to the passage of air, and are therefore exceedingly hot and uncomfortable to wear, and in certain cases—as, for instance, in shoe-webbing—such goods are injurious to the ankle-joint, because of the heat and consequent sweating which takes place under the webbing.

Figure 1 illustrates a plan view of a piece of my goods. Fig. 2 illustrates a vertical section thereof. Fig. 3 illustrates a modified construction. Fig. 4 illustrates details of construction. Fig. 5 illustrates a section of my invention, with the textile fabric both sides of the rubber. Fig. 6 illustrates a modified form of construction.

A is the expansible textile fabric.

The general class of fabrics employed by me include those from which stockings, gloves, elastic underwear, and the like articles are produced, jersey-cloth being a well-known example. I do not limit myself to such fabrics, however.

The fabric A is laid out flat, and a thin sheet, B, of india-rubber, having innumerable small perforations, *a*, made in it, is adhered to the textile fabric by any suitable cementing or adhering material.

Any suitable apparatus may be employed for applying the rubber to the textile fabric, or the textile fabric to the rubber, as the case may be.

During the process of the attachment or union of the textile fabric and rubber I change the character of the product by the degree of stretch or tension applied to the textile fabric, whereby it will have equal expansibility in all directions or more expansibility lengthwise than crosswise of the goods, or more crosswise than lengthwise, as the case may be. This is illustrated in Fig. 4 of the drawings, which illustrates three differently-shaped meshes of the textile fabric very many times enlarged. This greater stretching of the knitted fabric in one direction than in the other may very advantageously be performed on the ordinary tentering-frame or dressing frame.

If the textile goods are not stretched in one direction more than another at the time of their union with the rubber, then the meshes will be practically rectangular, as seen at C, and the resulting combined fabric can be stretched in all directions to substantially the same extent. If, however, the goods are stretched lengthwise, so that the meshes are elongated lengthwise, as shown at D, then the resulting combined fabric will not be capable of as great lengthwise stretching as sidewise, because the several threads composing the textile fabric are already nearer parallelism lengthwise than sidewise; and if the textile goods are stretched sidewise, so that the meshes are elongated across the goods, as shown at E, then the resulting combined fabric will have greater capacity for lengthwise than for sidewise stretching.

In some instances I obtain the ventilation of the goods by making the rubber in strips of greater or less width, which are to be separated somewhat when applied to the textile fabric. I find that goods thus made are more easily expanded than when the rubber is in a continuous perforated sheet. I show this construction in Fig. 6. The strips of rubber are seen at *a* and the fabric at *b* between the strips of rubber. This figure shows the back of the goods.

In order to produce a fabric having a high finish, but reduced cost, I employ two layers

or thicknesses of textile fabric of different kinds—as, for instance, an outer layer of silk material and an inner layer of cotton or woolen material, as seen at A', Fig. 3. The inner layer of cheaper material coming immediately in contact with the rubber, enough plastic rubber, or cement, as the case may be, should be used to penetrate through the inner layer and attach the outer silk layer to the combined base or backing of cotton or woolen material and rubber; or the silk and the cheaper material may be united to each other by weaving, so that they are practically one fabric composed by interweaving the silk with the cheaper fiber. I also, to produce a double-faced product, apply the textile fabrics in any of the ways above mentioned to both sides of the rubber, as illustrated in section at Fig. 5.

My goods above described are adapted to a great variety of uses, among them garters, suspenders, corsets, shoe-webbing, and the like.

Having described my invention, I claim—

1. As a new article of manufacture, the herein-described elastic fabric, consisting of a web or sheet of knitted fabric and a web or sheet of perforated elastic material suitably united together, substantially as shown and described.

2. As a new article of manufacture, the herein-described elastic fabric, consisting of a web or sheet of knitted fabric and a web or sheet of perforated rubber suitably united together, as shown and described.

3. As a new article of manufacture, a multiply fabric consisting, essentially, of a web or sheet of knitted fabric and a web or sheet of perforated elastic material suitably united together, said multiply fabric being capable of expansion within the limits of either ply in its normal condition, as set forth.

4. As a new article of manufacture, a multiply fabric consisting, essentially, of a sheet or web of knitted fabric and a sheet or web of perforated rubber united together, said multiply fabric being capable of expansion within the limits of either ply in its normal condition, as set forth.

Signed at New York, in the county of New York and State of New York, this 28th day of April, A. D. 1887.

JULIUS KAYSER.

Witnesses:

PHILLIPS ABBOTT,
GEORGE A. VOSS.