(Specimens.)

B. GOODMAN.

OPEN WORK ELASTIC BRAID.

No. 362,440. Patented May 3, 1887.

Fig. 1.

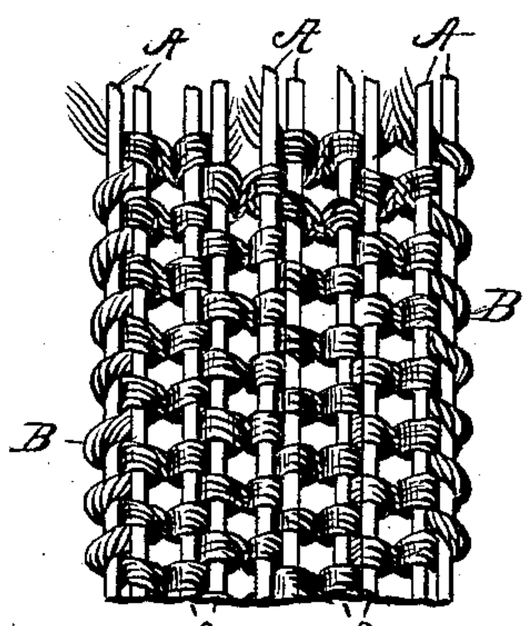
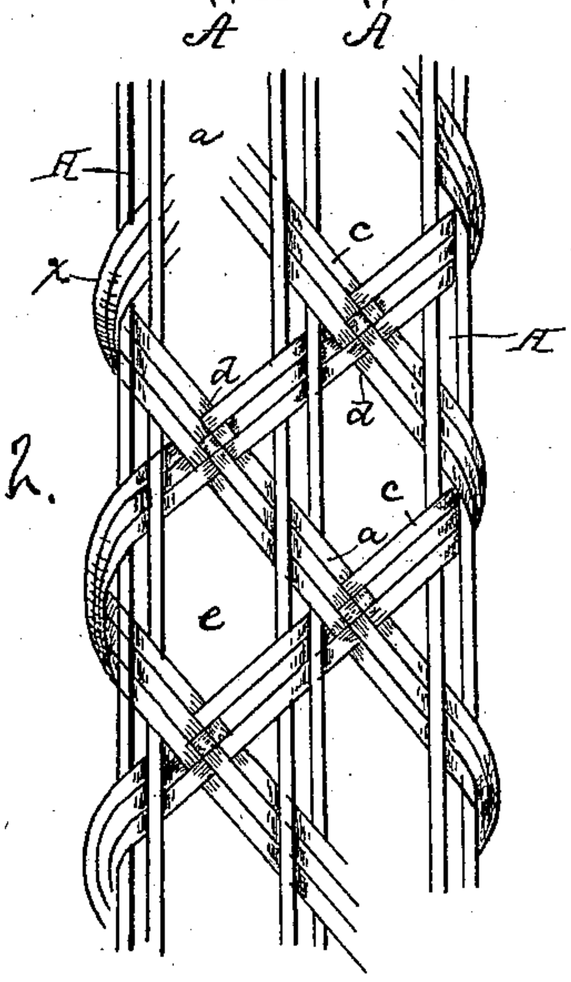


Fig. 2.



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BURKARD GOODMAN, OF NEW YORK, N. Y.

OPEN-WORK ELASTIC BRAID.

SPECIFICATION forming part of Letters Patent No. 362,440, dated May 3, 1887.

Application filed November 30, 1886. Serial No. 220,299. (Specimens.)

To all whom it may concern:

Be it known that I, BURKARD GOODMAN, of the city, county, and State of New York, have invented a new and useful Improvement in Open-Work Elastic Braids, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

In the manufacture of elastic fabrics, especially of the kind known as elastic webbing, it has been generally the practice to weave such fabrics upon a loom, and produce thereby a close, compact, and substantially impervious fabric.

My invention consists in an open-work braid having the characteristics hereinafter pointed out and having elastic-cord threads introduced therein longitudinally, as hereinafter specified, making, as a result, a fabric which at all times is provided with openings or apertures allowing the free circulation of air, and which at the same time is substantially as elastic as the rubber cords. By reason of the loose braiding of the binding or filling threads they permit of the ready extension of the elastic cords. In producing such elastic open-work braid it is necessary to put the elastic cords under tension and do the braiding upon them while in that condition. When these cords contract on the completion of the operation, the braid is still an open braid, analogous in some respects to open-work trimming-braids. The improved elastic open-work braid differs from said old open-work braid not only in the substitution of elastic warp-threads for the non-elastic threads, but in the manner hereinafter indicated, in which the binding or filling threads are interlocked or interlaced between the elastic warp-threads in contradistinction to being simply crossed by each other.

In my improved braid the braiding-threads are actually interlocked or braided between the adjacent longitudinal cords or threads, while in the old open-work braid the braiding-threads simply overlie one another between the longitudinal threads or cords, without being actually interlocked or braided together at such points.

The advantages of this braid for many purposes, especially the making of such articles as suspenders and garters, are obvious. The material, while equally or more elastic than the present suspender-webbing, at the same time requires less binding or non-elastic material for an elastic fabric of the same width and thickness. It is obvious, likewise, that the openings in the braid make a material which, when so worked in the suspenders, allows the free circulation of the air, and therefore a freer escape of the perspiration of the body.

The invention is exhibited in the accompanying drawings, in which Figure 1 is a view illustrating the completed fabric, and Fig. 2 shows the same upon a very much enlarged scale.

In these views, A represents the longitudinal elastic warp-thread, and B the binding material. As shown, the elastic warp-threads are employed in groups of two, (they may be more,) the binding material B being so interlocked therewith as to confine the groups of elastic threads together, while it at the same time separates each group from the other, so that an appearance of openness is imparted to the finished fabric.

The binding material (see more particularly Fig. 2) consists of three series of threads, *a b c*, (it may consist of more or less,) which become plaited or interlocked together between the groups of elastic warp-threads, as at *d*, thus separating the groups of warp-threads and forming the open spaces *e* therebetween. Thus the first series of threads *a*, starting, for instance, from the point *x*, pass over and around the outside elastic warp-thread, under and between it and its companion thread, over the latter until it is met by the second series of threads *b*, which become braided or interlocked therewith, as at *d*, and the series *a* pass thence under the first elastic warp-thread of the middle group, between it and over its companion thread until it meets the third series of threads *c*, where, becoming braided or interlocked with such thread, it passes to the under side of the inner elastic warp-thread of the right-hand outside group, thence between it and its companion, and over and around the latter. The other series of threads, *b c*, in like manner pass around and between the groups of elastic warp-threads, and only meet another of the series at the points *d*. By thus plaiting or interlocking the

series of binding-threads between the groups of warp-threads the latter are separated a distance apart while the groups are confined together, presenting the openings *e* between each of the groups of warp-threads. It will be also observed that the plaited or interlocked portions *d*, occurring between the groups of warp-threads, prevent them from becoming closed together when the fabric is stretched, and thus the fabric will not materially decrease in width when so stretched.

While I have described the elastic warp-threads as being arranged in pairs, it is apparent that the number of threads separated by the plaited or interlocked portions *d* of the binding material may be raised, as desired.

It is obvious that other material besides india-rubber might be employed for the longitudinal cords—as, for instance, a fine spiral, preferably formed of brass wire, might be so substituted. I prefer, however, the india-rubber cords. Of course in either case these elastic threads are to be covered with a suitable material—as, for instance, cotton or silk—before they are made up into the braid.

Though I prefer to make the fabric, as shown, with longitudinally-extensible rubber cords, yet I may, in addition to such rubber cords, make the binding material likewise, in whole or in part, elastic.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An elastic fabric composed of braiding or binding threads and longitudinal or warp threads wherein the warp-threads are separated by plaited or interlocked portions of the fabric, providing perforations, substantially as described.

2. An elastic fabric composed of braiding or binding threads and longitudinal or warp threads wherein the warp-threads are composed of groups of threads, and the binding material composed of threads which become interlocked only between the groups of warp-threads, thereby providing perforations, substantially as described.

3. An elastic fabric composed of braiding or binding threads and longitudinal or warp threads wherein the warp-threads are composed of groups of threads, and the binding material composed of threads which pass diagonally from side to side across the fabric, passing between each of the warp-threads of the groups, and becoming interlocked only between the groups of warp-threads, providing holes or perforations, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BURKARD GOODMAN.

Witnesses:

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