

A. HOPKINS.
FABRIC.

APPLICATION FILED JULY 15, 1911.

1,019,473.

Patented Mar. 5, 1912.

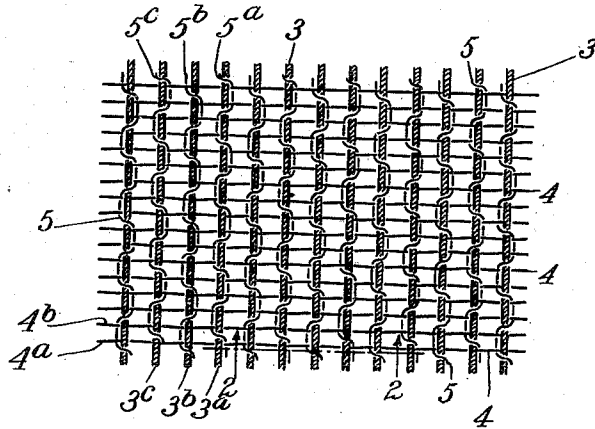


Fig. 1.

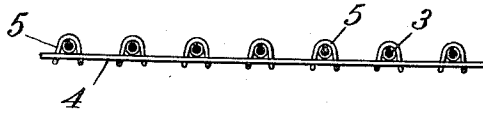


Fig. 2.

Witnesses:

William E. Burton.

Sydney C. Taft.

Inventor:

Alfred Hopkins

by Daniel A. Rollins

Atty.

UNITED STATES PATENT OFFICE.

ALFRED HOPKINS, OF CHELSEA, MASSACHUSETTS.

FABRIC.

1,019,473.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed July 15, 1911. Serial No. 638,600.

To all whom it may concern:

Be it known that I, ALFRED HOPKINS, a citizen of the United States, residing at Chelsea, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Fabrics, of which the following is a specification.

This invention relates to an improvement in fabrics and in particular to fabrics adapted to be used as surgical bandages, the object of the invention being to provide a fabric which shall be flexible and elastic and which at the same time is so constructed as to allow air and moisture to pass freely therethrough.

Sheet rubber was at first used as an elastic bandage for surgical purposes, but while possessing the desirable qualities of flexibility and elasticity, this material was open to the objection that neither air nor moisture could pass therethrough and consequently was discarded by the medical profession. Fabrics woven or knitted wholly or partly of rubber threads have been used for this purpose and have been found to be far superior to the sheet rubber.

My invention combines rubber threads with non-elastic threads and is so woven and constructed that it is provided with large meshes or apertures through which ventilation may take place and is far superior in this respect to anything heretofore produced, so far as I am aware.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims.

Referring to the drawing: Figure 1 is a plan, somewhat conventionalized, of a piece of fabric embodying my invention. Fig. 2 is a section taken on line 2—2 of Fig. 1 and somewhat enlarged.

Like numerals refer to like parts throughout both views of the drawing.

In the drawing, 3, 3 are warp threads. These warp threads are preferably composed of a rubber cord over which is wound fine cotton thread which forms a covering for the rubber. This covering is so wound onto the rubber cord as not to limit or impair the elasticity of the rubber. The particular object of winding the rubber cord is to prevent the contact of the bare rubber with the flesh when the fabric is used as a bandage.

The cotton covering also has a tendency to protect the rubber cord from the effects of moisture and atmosphere.

4, 4 are weft threads. These weft threads or what are sometimes known as filling threads, extend transversely of the warp threads 3, 3 and preferably entirely on one side thereof. They are preferably composed of some non-elastic material, such as cotton, linen or silk.

5, 5 are binding threads preferably composed of some non-elastic material such as mentioned above. Each of the warp threads 3 has associated with it a binding thread 5. The binding thread follows in a general direction the line of the warp thread, crossing it alternately and passing over the top of it alternately from left to right. At every point of turning the binding thread extends under one or more, preferably two, of the weft threads. After the binding thread has passed under one or more of the weft threads, as above set forth, it passes over such warp thread onto the other side thereof and again passes under one or more of the weft threads in the manner previously indicated. This mode of interlocking of the weft threads continues throughout the length of the warp strands.

In order to make the construction clear and in order to point out three particular warp threads, I have indicated three of these by the additional designating characters *a*, *b* and *c*, respectively, which I will now proceed to describe with relation to their locking threads. 3^c and 3^a are the warp threads contiguous to the warp threads 3^b. In a similar manner and for a similar purpose, I have designated two of the weft threads and also two of the binding threads by additional characters *a* and *b*. 5^b is the binding thread associated with the warp thread 3^b. 5^c is the binding thread associated with the warp thread 3^c, and 5^a is the binding thread associated with the warp thread 3^a. The binding thread 5^b passes over the warp thread 3^b from right to left, thence under weft threads 4^a and 4^b, thence from left to right over warp thread 3^b under two more weft strands and then repeats the process. Binding thread 5^c passes up between weft threads 4^a and 4^b over warp thread 3^c, thence under weft thread 4^b and the weft thread contiguous thereto. Binding thread

5* is interlocked in the same manner in respect to the weft thread that binding thread 3^c is. It will thus appear that while the binding thread on any warp thread 5 passes under certain pairs of weft threads, the binding threads on the contiguous warp threads pass between the two threads forming the pairs of weft threads.

It will be observed from the construction 10 heretofore described that it is possible to stretch the fabric longitudinally of the warp threads, the warp threads being in themselves elastic. They are so wrapped that their elasticity is not impaired. The binding threads passing alternately across the 15 warp threads are also capable of extension when the fabric is stretched in the manner above set forth. In my preferred construction where the weft threads are of non-elastic material, the fabric is not capable of extension transversely of said warp threads. 20 I prefer to so construct my fabric that the weft threads lie entirely below or on one side of the warp threads. This produces a comparatively smooth, flat surface for contact with the skin of the wearer of the bandage. 25

While I have described my improved fabric as being especially adapted for elastic 30 bandages, it, of course, can be used for any purpose where elastic sheet material is desirable and, furthermore, I do not wish to limit myself to an elastic construction, as the fabric can be woven entirely of non-elastic material to be used where such material is desirable. 35

Having thus described my invention, what

I claim and desire by Letters Patent to secure is:

1. A fabric, having, in combination, a 40 plurality of warp threads, a plurality of weft threads extending transversely of said warp threads and a plurality of binding threads, each of said binding threads extending alternately over one of said warp 45 threads and under two of said weft threads, the binding thread extending over one of said warp threads passing between a pair of weft threads, and the binding thread passing over the warp threads contiguous to said 50 warp thread passing under said pair of weft threads.

2. A fabric having, in combination, a plurality of elastic warp threads, a plurality of non-elastic weft threads extending 55 transversely of said warp threads and entirely on one side thereof, and a plurality of binding threads, each of said binding threads extending alternately over one of said warp threads and under two of said weft threads, the binding thread extending over any one of said warp threads passing between a pair of weft threads, and the binding threads passing over the warp threads contiguous to said warp thread passing under said pair of weft threads.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALFRED HOPKINS.

Witnesses:

SYDNEY E. TAFT,
LOUIS A. JONES.