

G. A. LOWRY.

FABRIC AND METHOD OF MAKING SAME.

APPLICATION FILED FEB. 23, 1904. RENEWED DEC. 24, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

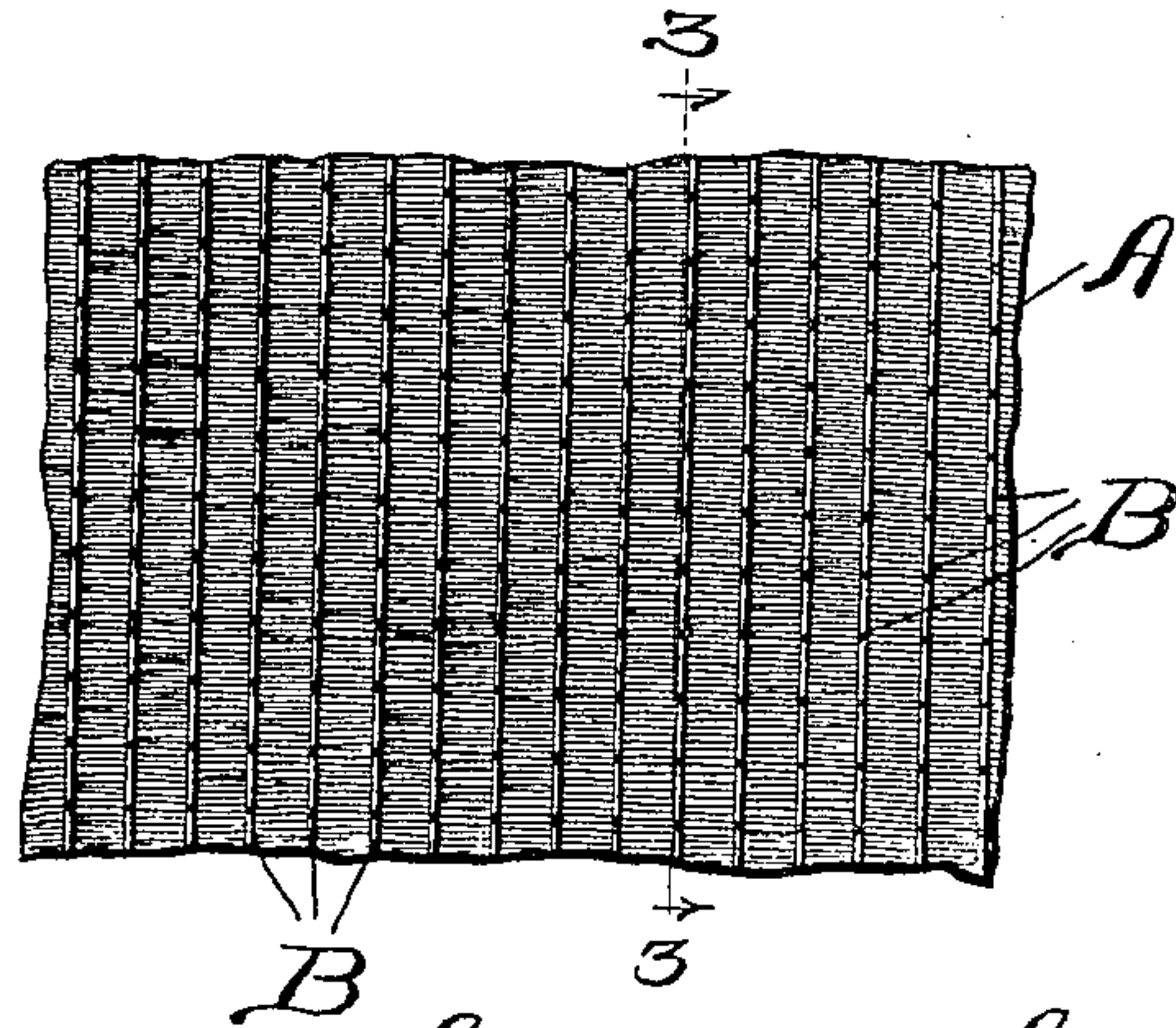


Fig. 2.

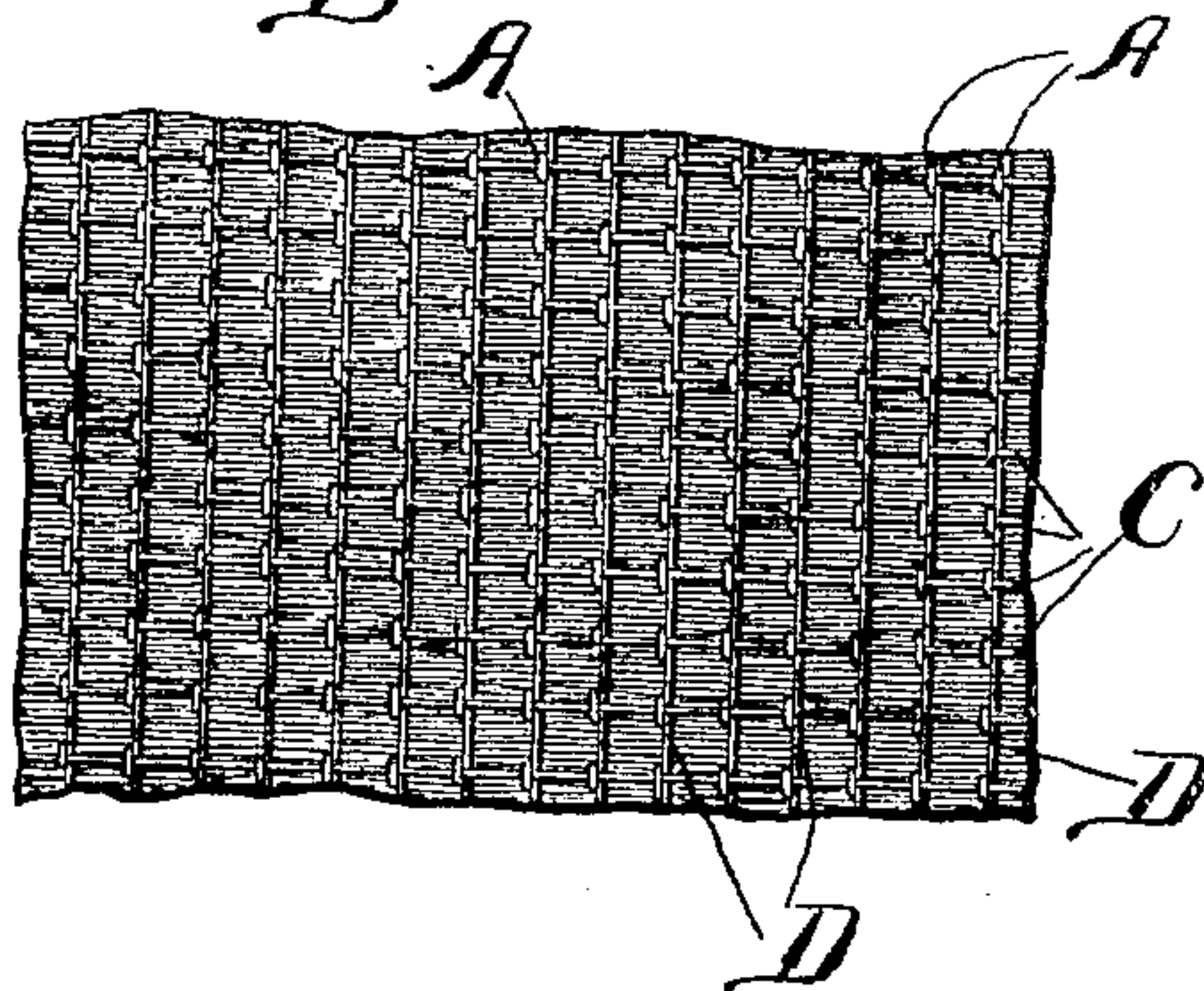


Fig. 3.

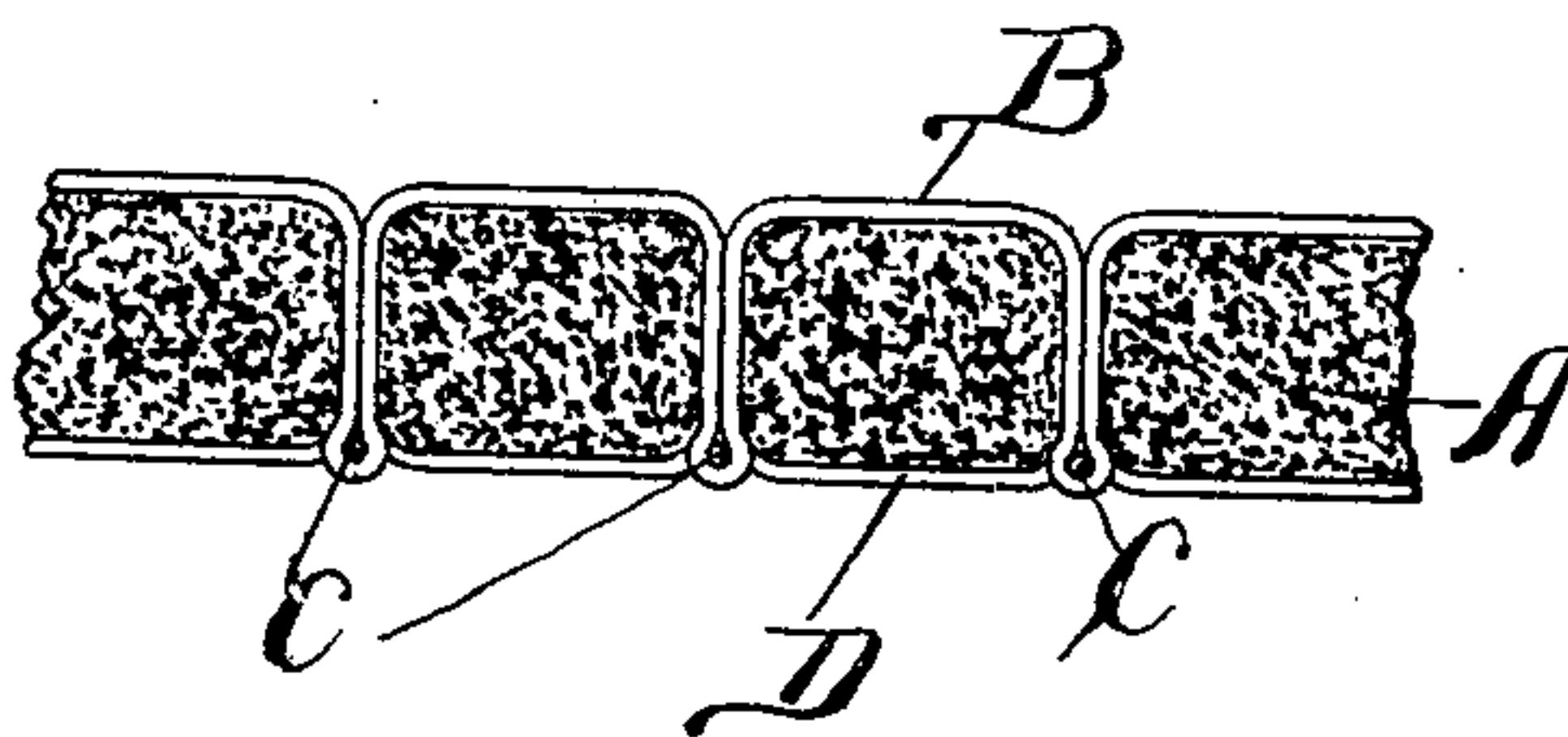


Fig. 3<sup>a</sup>.

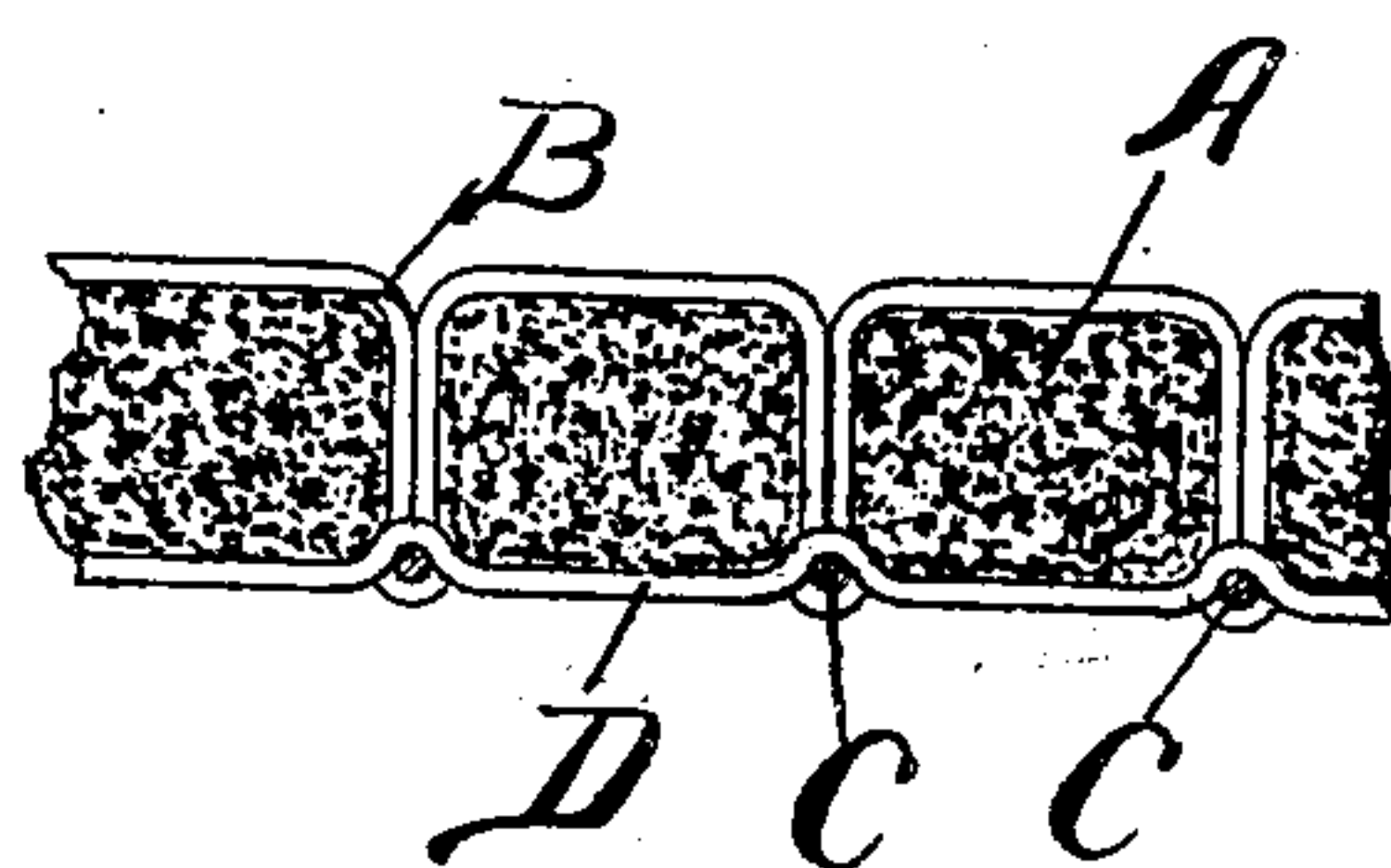
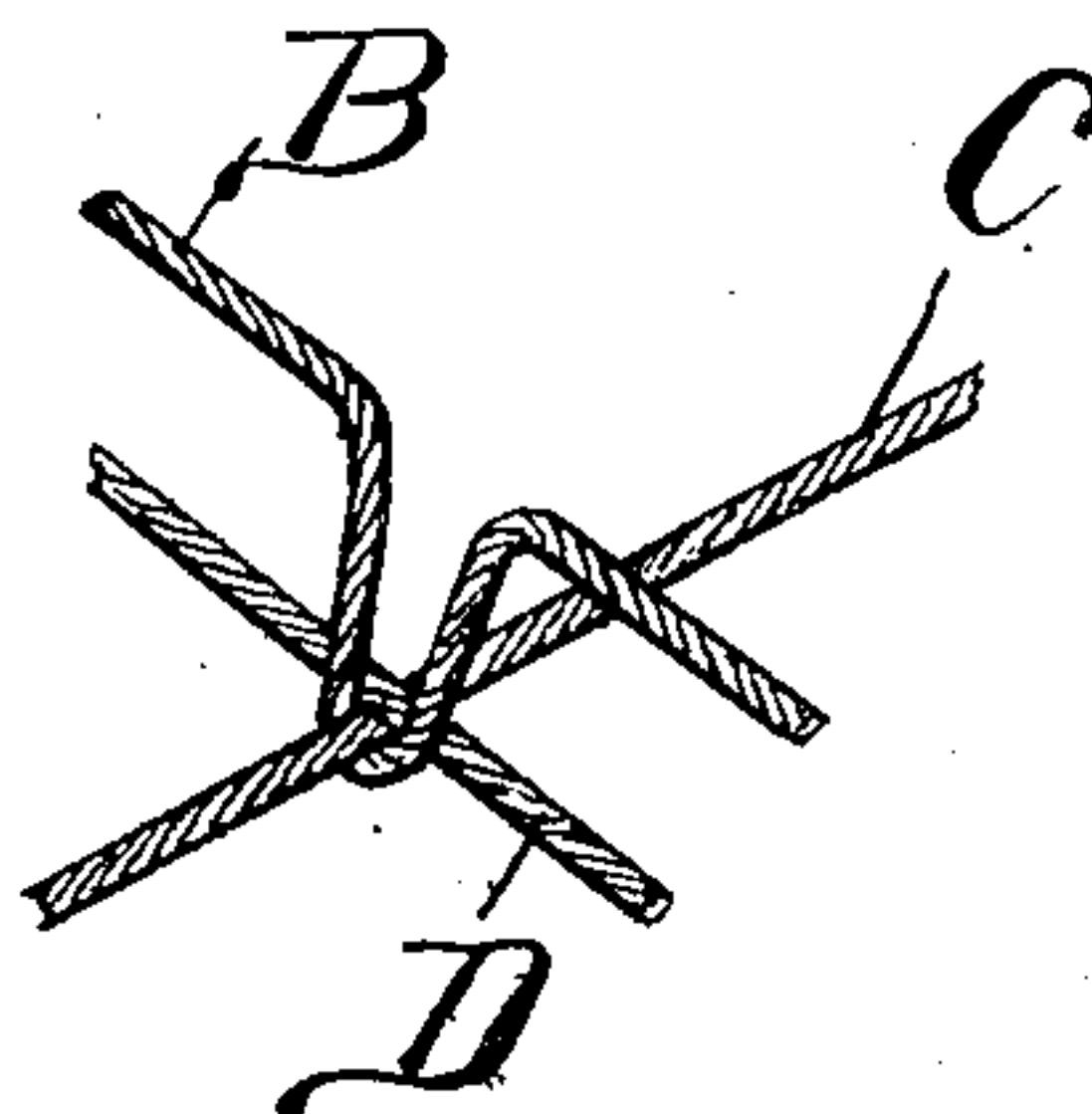


Fig. 4.



Witnesses  
J. B. Weir  
Robert H. Weir.

Inventor:  
George A. Lowry  
By Brown & Darby  
attys



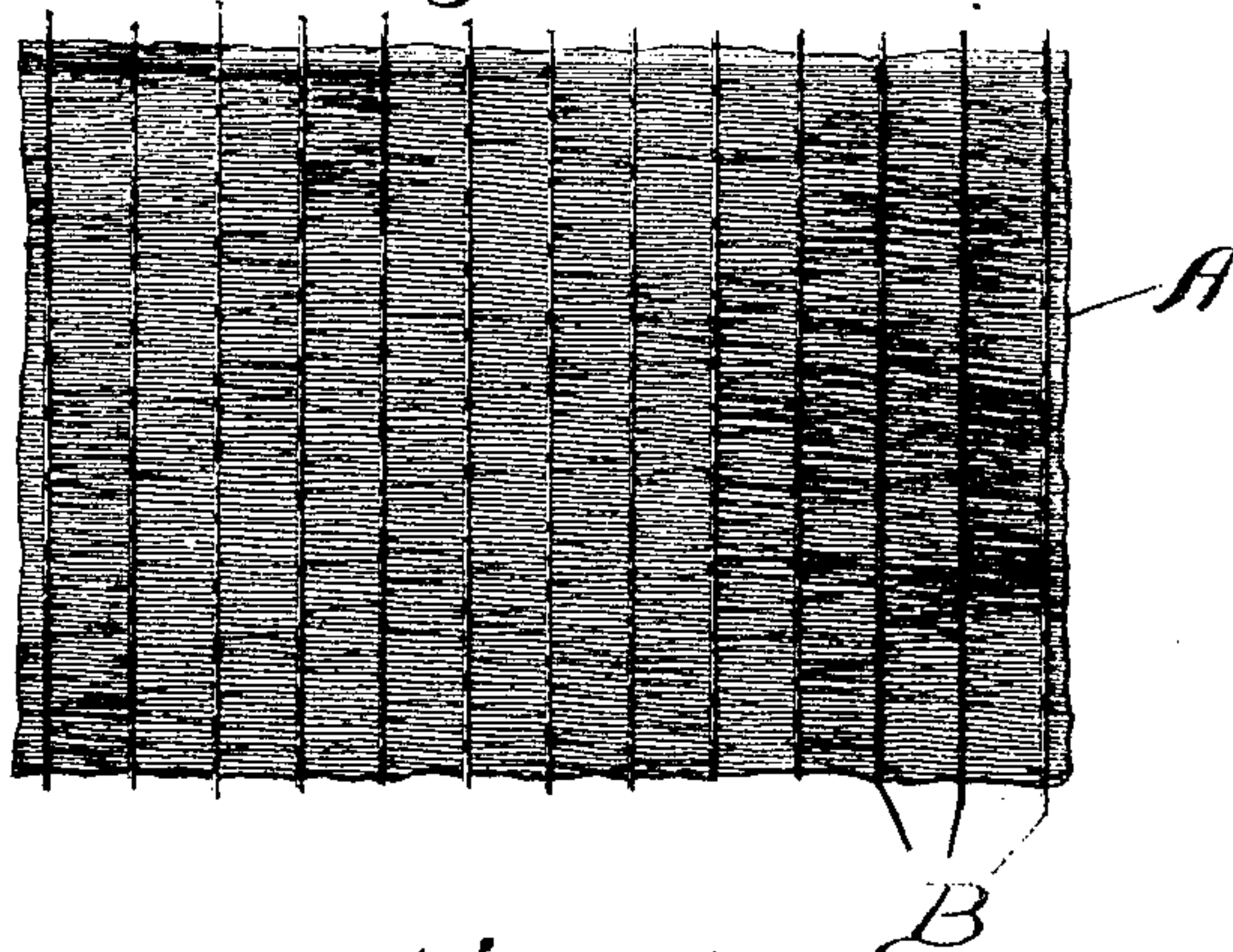
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FABRIC AND METHOD OF MAKING SAME.

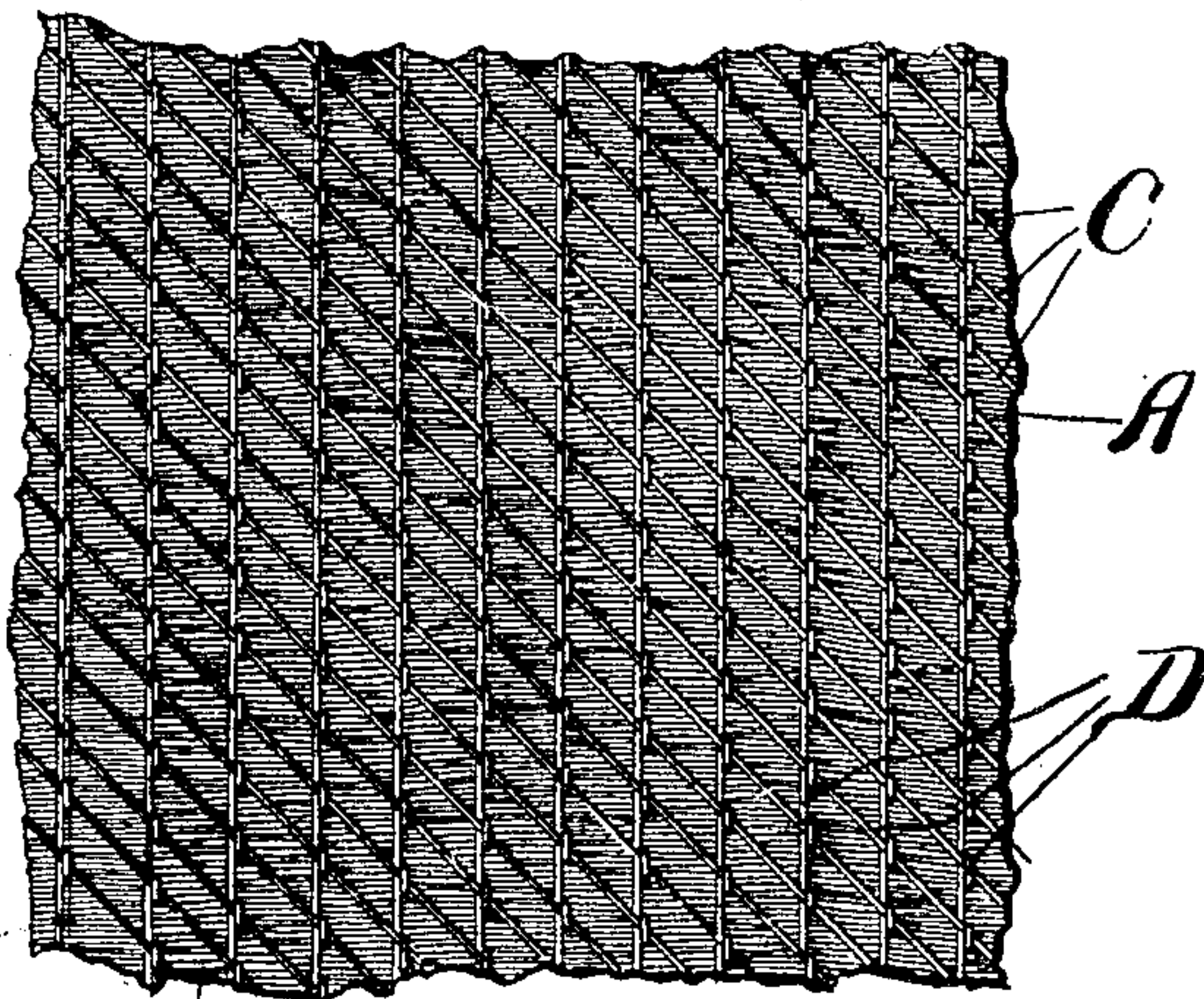
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2 SHEETS—SHEET 2.

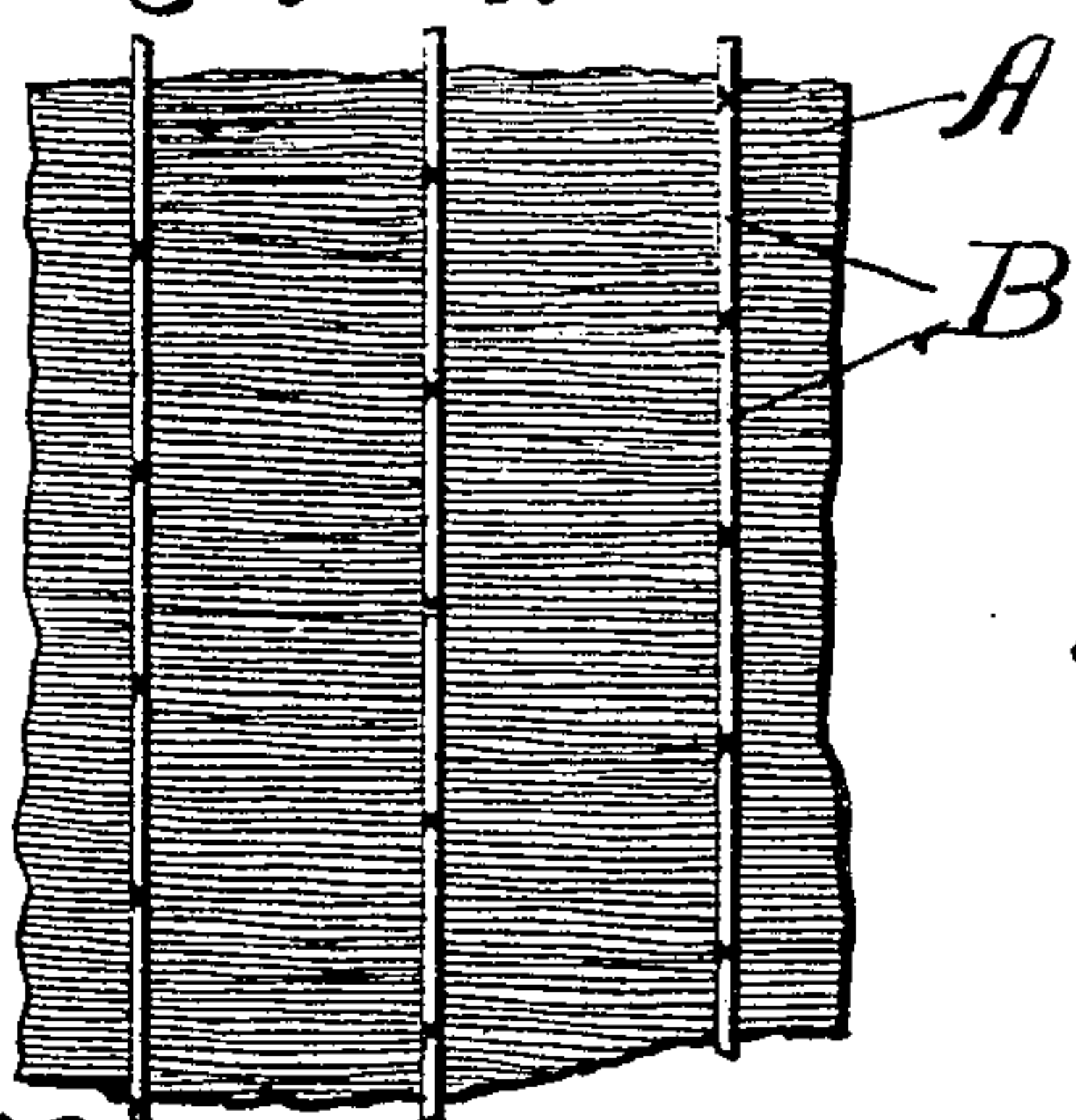
*Fig. 5.*



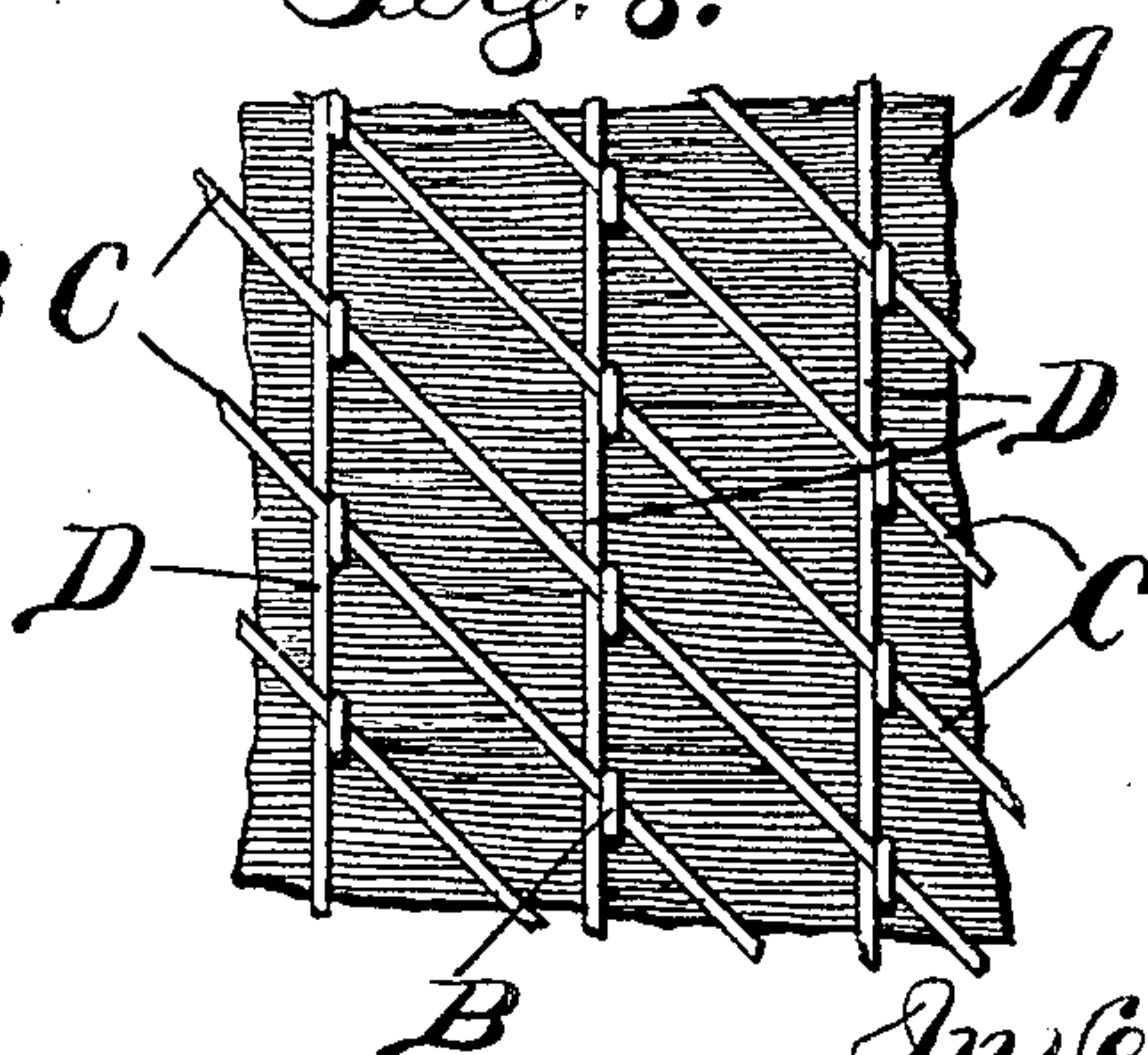
*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



Witnesses

*J. B. Weir*

*Robert H. Weir*

Inventor

*George A. Lowry*

*By Brown & Darby*  
*attys.*



# UNITED STATES PATENT OFFICE.

GEORGE A. LOWRY, OF CHICAGO, ILLINOIS.

## FABRIC AND METHOD OF MAKING SAME.

No. 795,292.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed February 23, 1904. Renewed December 24, 1904. Serial No. 238,231.

*To all whom it may concern:*

Be it known that I, GEORGE A. LOWRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Fabric and Method of Making Same, of which the following is a specification.

This invention relates to fabrics having the body thereof composed of grass, hay, straw, or the like, and method of making the same.

The object of the invention is to produce a fabric having a body portion composed of the stems, stalks, or spears of grass, straw, hay, or the like of even density and thickness throughout and presenting a smooth, even, and yielding bearing-surface to binder-threads applied thereto to bind the same into an integral fabric.

A further object of the invention is to produce a fabric of the character referred to wherein the body portion is held or bound together by suitable binding-threads applied thereto in a manner to secure an efficient binding effect throughout the body portion and without any weaving or spinning operation in the production of such body portion.

A further object of the invention is to utilize waste grass, hay, straw, or the like, which is unfit for other use, in the manufacture of useful commodities—such as mats, rugs, carpets, mattings, or other fabric—and without the necessity of first forming the grass, straw, or the like into twine or other similar spun or woven condition.

Other objects of the invention will appear more full hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement and method of operation, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a view in top plan of a fragment of fabric produced by and embodying the principles of my invention. Fig. 2 is a similar view of the reverse side. Fig. 3 is a broken detail view in section on the line 3-3 of Fig. 1 looking in the direction of the arrows. Fig. 3<sup>a</sup> is a similar view on the same line looking in the direction of the arrows. Fig. 4 is a broken skeleton detail showing an arrangement of binder-threads employed to bind the body of the fabric. Figs. 5 and 6

are views similar to Figs. 1 and 2, respectively, showing a modified arrangement embodying the principles of my invention. Figs. 7 and 8 are views similar to Figs. 5 and 6, but enlarged in order to show more clearly the construction, arrangement, and method of operation.

In various sections throughout the country are vast acres of marsh land upon which is grown immense quantities of marsh-grass, and in certain sections of the country throughout wide areas vast quantities of straw are produced, especially in the wheat-growing sections of the country, and which straw is burned or otherwise destroyed in order to get rid of it. In efforts heretofore made to utilize these vast quantities of marsh-grass, straw, and the like the stems, stalks, or spears of the grass or straw have been formed into twine and the twine has been woven into fabrics, mats, rugs, carpets, and the like. Much of the larger part of the vast quantities of marsh-grass, straw, and the like available for use in the manufacture of useful and merchantable commodities is unsuitable for utilization in this manner, being unable to stand the manipulation necessary to form the same preliminarily into twine or to weave the twine into fabrics, because of the presence in the stems, stalks, or spears of the grass, straw, or the like of joints, and consequently the manufacture of mats, carpets, or other fabrics out of material of this nature has been limited to the use of unjointed grasses, thereby involving a large percentage of waste in the grass harvested from the marshes. Moreover, where the stems, stalks, or spears of grass, straw, and the like are first formed into twine and then such twine woven into fabrics the twine presents substantially a solid unyielding body or surface, against which must lie or bear the threads employed to bind the body thereof into an integral fabric. Consequently such binder-threads are exposed to excessive wear, which rapidly wears the same out, and hence resulting in a rapid destruction of the fabric. In accordance with the principles of my present invention I propose to produce a fabric having a body portion composed of the stems, stalks, or spears of grass, straw, and the like, which does not require the preliminary formation of the same into twine and which does not require any weaving operation in the production of a fabric. Therefore I am enabled to effect a saving in the expense



incident to the manufacture of the stems, stalks, or spears of grass into twine, and I am also enabled to employ the jointed as well as the unjointed grasses, straw, and the like, thereby utilizing the large percentage of grass, straw, and the like harvested or available for use and which has according to former methods been unsuited for such use.

In carrying out my invention I propose to condense the stems, stalks, spears, or the like into the form of a flattened compacted mass or matting of the required density and of substantially uniform thickness throughout, and preferably, though not necessarily, with the stems, stalks, or spears in substantially parallel relation with respect to each other to form the body portion of the fabric, and then to suitably unite or bind this mass thus formed and while the material composing it is maintained in such condensed compacted form by applying thereto and there-through suitable binder-threads, and one of the important features of my invention is the manner of applying the binder-threads so as to efficiently bind the stems, stalks, or spears of grass, straw, or the like into an integral fabric. In this manner I am enabled to produce an exceedingly smooth, simple, and durable fabric, the body portion of which is rendered soft and flexible and yielding, and which may be produced with great economy and by the utilization of material which is available in practically unlimited quantities and at all seasons of the year.

In the drawings reference-sign A designates the body of the fabric, composed of stems, stalks, or spears of grass, straw, or the like and which is formed into a flattened compacted mass of the desired density and thickness. If desired and in order to secure uniformity of thickness or density of the mass throughout, the stems, stalks, or spears composing the body portion may be arranged with their butt-ends projecting in alternately opposite directions and in substantially parallel relation with respect to each other, but I do not desire to be limited or restricted in these respects. While the body portion thus formed is maintained in condensed and compressed condition, binder-threads are applied thereto and there-through in such a manner as to bind the same into an integral mass or fabric. In practice and in accordance with the principles of my present invention I propose to employ three sets of binder-threads, which for distinction I will designate, respectively, the "needle-threads," the "shuttle-threads," and the "auxiliary" threads, the needle-threads being indicated by reference-sign B, the shuttle-threads by reference-sign C, and the auxiliary threads by reference-sign D. These binder-threads may be applied to the condensed compacted mass in many suitable or convenient ways, the essential feature being the application

thereto to the mass of stems, stalks, or spears in such manner as to bind the same together into an integral mass. In practice I propose to apply the needle-threads B in lines or rows extending parallel to each other and transversely across with respect to the length of the stems, stalks, or spears composing the body portion of the fabric, and on one side thereof said needle-threads having loops formed therein, said loops being projected through the mass. The shuttle and auxiliary threads in accordance with the principles of my invention are applied to the other side of the mass of material, the auxiliary threads lying against the surface of the mass of material, the shuttle-threads passing outside of said auxiliary threads and across the same, thereby binding or holding the auxiliary threads to the surface of the mass of material, said shuttle-threads also passing through the loops of the needle-threads, as most clearly indicated in the diagram or skeleton view, Fig. 4. In this manner I secure a most efficient binding action of the binder-threads, whereby the stems, stalks, or spears of grass, straw, or the like are held and bound into an integral fabric. In practice I prefer to arrange the auxiliary binder-threads in straight lines parallel with respect to each other and extending transversely with respect to the length of the stems, stalks, or spears of grass composing the body portion, each auxiliary binder-thread being arranged adjacent to but to one side of the plane defined by a needle-thread and the loops formed therein. The shuttle-threads may be applied in any convenient manner. For instance, and as shown in Figs. 1, 2, 3, 3<sup>a</sup>, and 4, the shuttle-threads are arranged in straight parallel lines extending in the direction of the length of the stems or stalks of grass and transversely across the line of the auxiliary threads passing through the loops in the needle-threads and outside of the auxiliary threads, as clearly shown.

Another arrangement embraced within the spirit and scope of my invention is shown in Figs. 6, 7, and 8, wherein the shuttle-threads C are disposed in straight parallel lines diagonally or inclined with respect to the lengths of the stems, stalks, or spears of grass, straw, or the like and with respect to the lines of the auxiliary threads and of the planes of the needle-threads. It will be observed that the auxiliary threads not only aid in securing an efficient binding of the mass of material into an integral fabric, but also serve to prevent the shuttle-threads from being drawn too far into the body of the fabric by the encompassing loops or the needle-threads.

It is obvious that many other relative arrangements of needle, shuttle, and auxiliary binder-threads would suggest themselves to persons skilled in the art and still fall within



the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact forms and arrangements or mode of operation described and shown.

From the foregoing description it will be seen that I produce a most efficient fabric for use as a carpet, mat, rug, or the like and with great economy in manufacture, wherein the body presents a soft yielding bearing-surface for the binder-threads employed in connection with the formation thereof, which is strong and durable, and which can be manufactured and produced at small expense, utilizing waste products and avoiding loss or waste of material.

Having now set forth the object and nature of my invention and method of carrying the same into practical operation, and having described the construction of the article resulting from such method of operation, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

1. In the manufacture of fabrics having a body portion composed of stems, stalks or spears of grass, straw or the like, the method which consists in condensing and compacting the stems, stalks or spears into a flattened mass or mat of the desired density and thickness, and then applying binder-threads thereto in sets, one set having loops formed therein and projecting through the mass, another set passing through said loops, and a third set passing between the mass and the second set, as and for the purpose set forth.

2. In the manufacture of fabrics having a body portion composed of stems, stalks or spears of grass, straw or the like, the method which consists in condensing and compacting such stems, stalks or spears into a flattened mass of the desired thickness and density, and then applying needle, shuttle and auxiliary binder threads thereto, the needle-threads being applied to one side or surface of the mass and having loops projecting through such mass, the shuttle and auxiliary threads being applied to the opposite side or surface of the mass, the shuttle-threads passing through the loops in the needle-threads and the auxiliary threads passing alongside of the loops in the needle-threads and between the mass and the shuttle-threads, as and for the purpose set forth.

3. In the manufacture of fabrics having a body portion composed of stems, stalks or spears of grass, straw or the like, the method which consists in condensing and compacting such stems, stalks or spears into a flattened mass of the desired thickness and density, and then applying needle, shuttle and auxiliary binder threads thereto, the needle-threads being applied in parallel lines to one side or surface of the mass and transversely across the lengths of the stems, stalks or spears of grass and having loops therein pro-

jecting through the mass, the auxiliary threads being applied in lines parallel with respect to each other adjacent to and parallel with the planes defined by the needle-threads and their loops and to the opposite side or surface of the mass, and the shuttle-threads being applied to the same side of the mass as the auxiliary threads and in lines parallel with respect to each other and passing through the loops in the needle-threads and outside of the auxiliary binder-threads, as and for the purpose set forth.

4. In the manufacture of fabrics having a body portion composed of stems, stalks or spears of grass, straw or the like, the method which consists in condensing and compacting such stems, stalks or spears into a flattened mass of the desired thickness and density, and then applying needle, shuttle and auxiliary binder threads thereto, said needle-threads being applied to one side or surface of the mass in lines substantially parallel with respect to each other and extending transversely across the stems, stalks or spears of grass, straw or the like, and having loops projecting through the mass, the shuttle-threads applied to the opposite side or surface of the mass in lines substantially parallel with respect to each other and adjacent to and parallel with the planes defined by the needle-threads and their loops, and the shuttle-threads extending in lines parallel with respect to each other and in inclined or diagonal relation with respect to the lengths of the stems, stalks or spears, and passing through the loops formed by the needle-threads and outside of the auxiliary threads, as and for the purpose set forth.

5. In the manufacture of fabrics, the method which consists in condensing or compacting loose untwisted or unwoven material into a flattened mass of the desired density, and then applying binder-threads thereto in sets, one set having loops formed therein and extending through the mass and the other sets being applied to the opposite side of the mass, one being engaged by said loops and the other passing inside of the set which passes through the loops of the first-mentioned set, as and for the purpose set forth.

6. As a new article of manufacture, a fabric having a body portion composed of stems, stalks or spears of grass, straw or the like, condensed and compacted into a flattened mass and having binder-threads applied thereto to hold the same into an integral fabric, said binder-threads being arranged in sets, one set being applied to one side or surface of the mass and the others applied to the other side or surface of the mass, and designated respectively as needle, shuttle and auxiliary threads, the needle-threads having loops formed therein, said loops extending through the mass of material, the shuttle-threads passing through said loops, and the



auxiliary threads lying against the surface of the mass inside of the shuttle-threads, as and for the purpose set forth.

7. As a new article of manufacture, a fabric having a body portion composed of stems, stalks or spears of grass, straw or the like, condensed and compacted into a flattened mass of the desired density and thickness, and bound together by binding-threads arranged in sets, one set being applied to one side or surface of such mass and having loops therein, said loops passing through such mass, the other sets being applied to the opposite side of the mass, the threads composing one of such other sets passing through the loops formed in the first-mentioned set and in straight parallel lines inclined relatively to the length of the stems or stalks of grass, straw or the like, and also passing outside of the second of such other sets of threads, as and for the purpose set forth.

8. As a new article of manufacture, a fabric having a body portion composed of loose untwisted and unwoven material, condensed and compacted into a flattened mass, and having a set of binder-threads with loops therein, said loops projecting through such mass, and a set of binder-threads applied to the opposite side of the mass and through the loops in said first-mentioned set of binder-threads, and a set of auxiliary binder-threads applied to the same side of the mass and be-

tween the surface of the mass and the second set of binder-threads above mentioned, as and for the purpose set forth.

9. In the manufacture of fabrics, the method which consists in compacting stems, stalks or spears of grass, straw or the like, and then applying binder-threads thereto in sets, one set having loops formed therein and projecting through the mass, another set lying against the surface of the mass, and a third set passing through said loops and binding the second set to the mass, as and for the purpose set forth.

10. In the manufacture of fabrics, the method which consists in compacting loose, untwisted or unwoven material into a mass, and then applying to such mass binders in sets, one set being applied to one surface of the mass and having loops projecting through the mass, another set being applied to the other side of the mass and alongside of said loops, and a third set passing through said loops and over the second set, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 11th day of February, 1904, in the presence of the subscribing witnesses.

GEORGE A. LOWRY.

Witnesses:

C. H. SEEM,  
S. E. DARBY.