

No. 795,290.

PATENTED JULY 25, 1905.

G. A. LOWRY.
FABRIC AND METHOD OF MAKING SAME.
APPLICATION FILED FEB. 23, 1904. RENEWED DEC. 24, 1904.

Fig. 1.

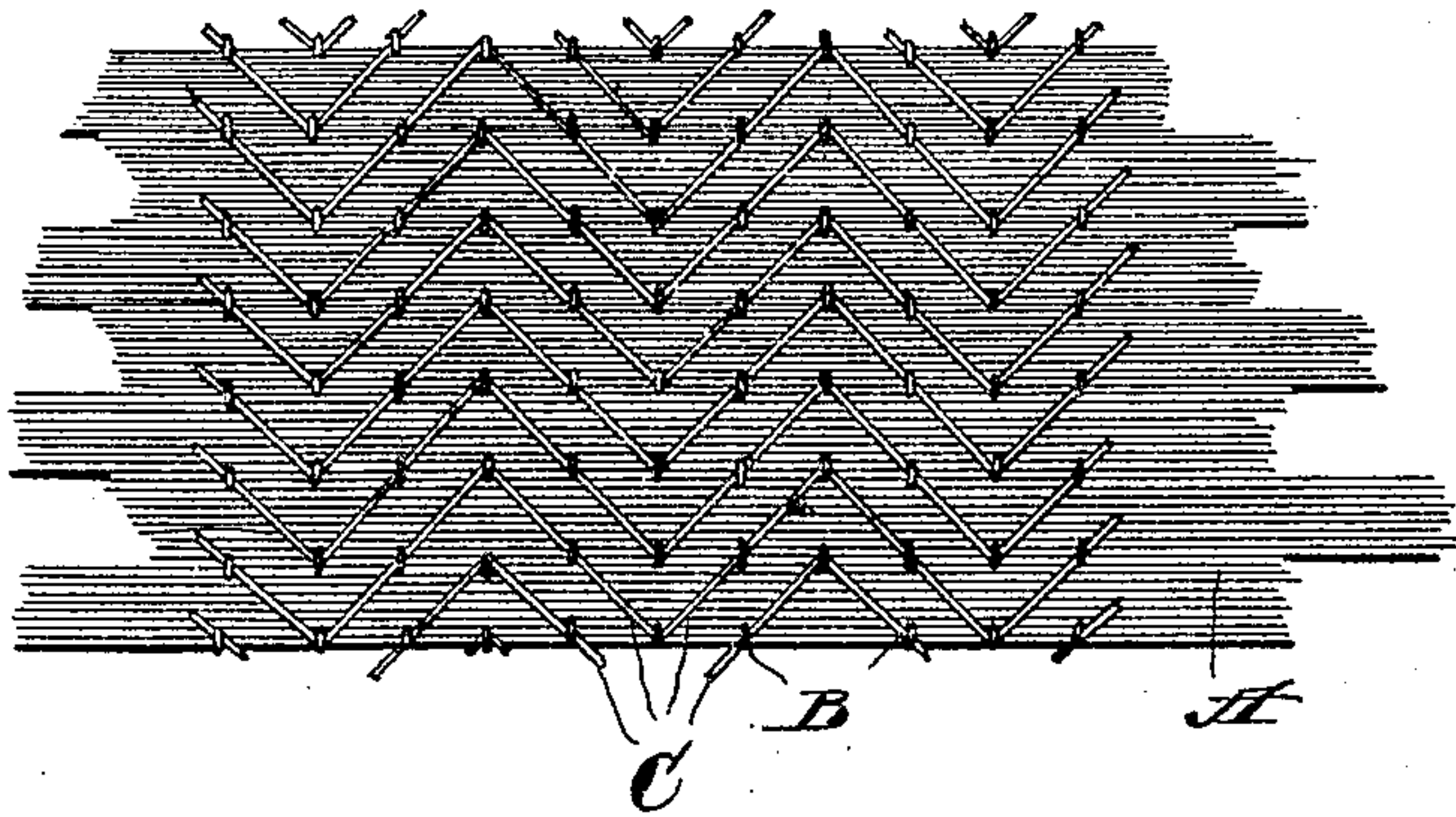


Fig. 2.

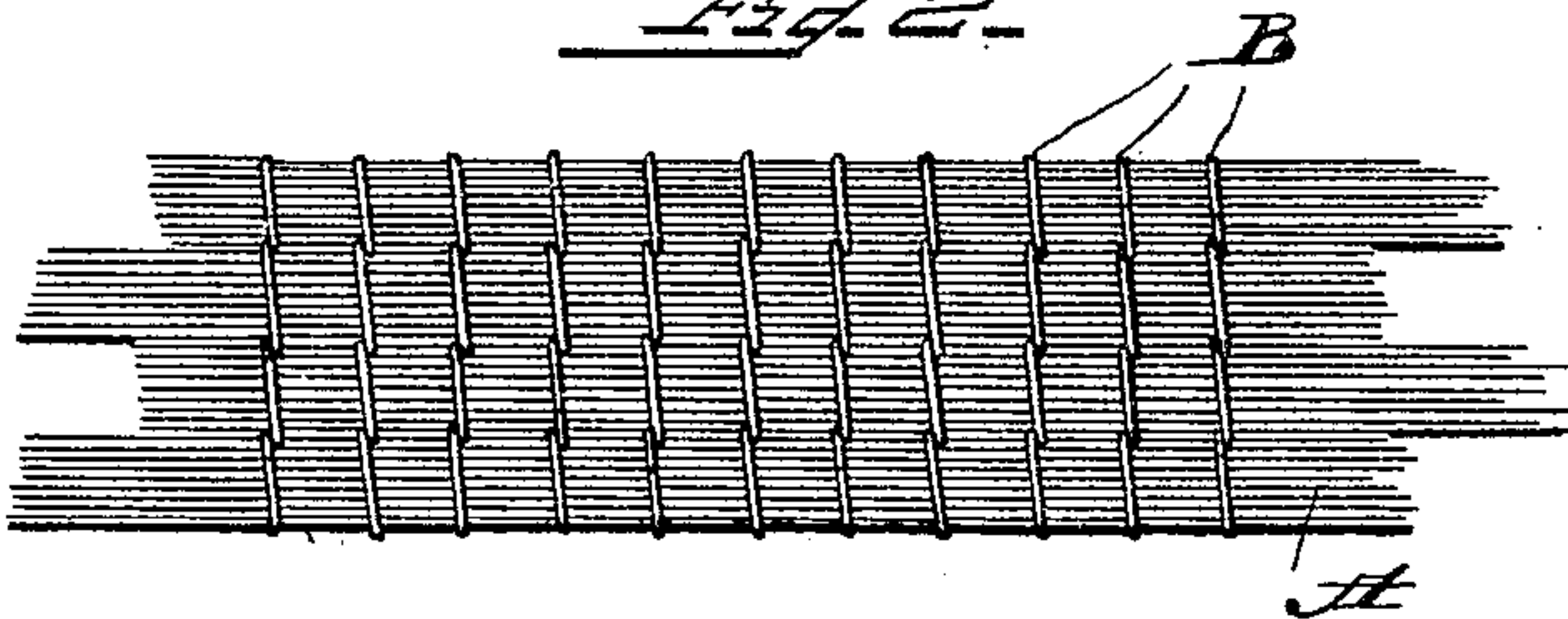
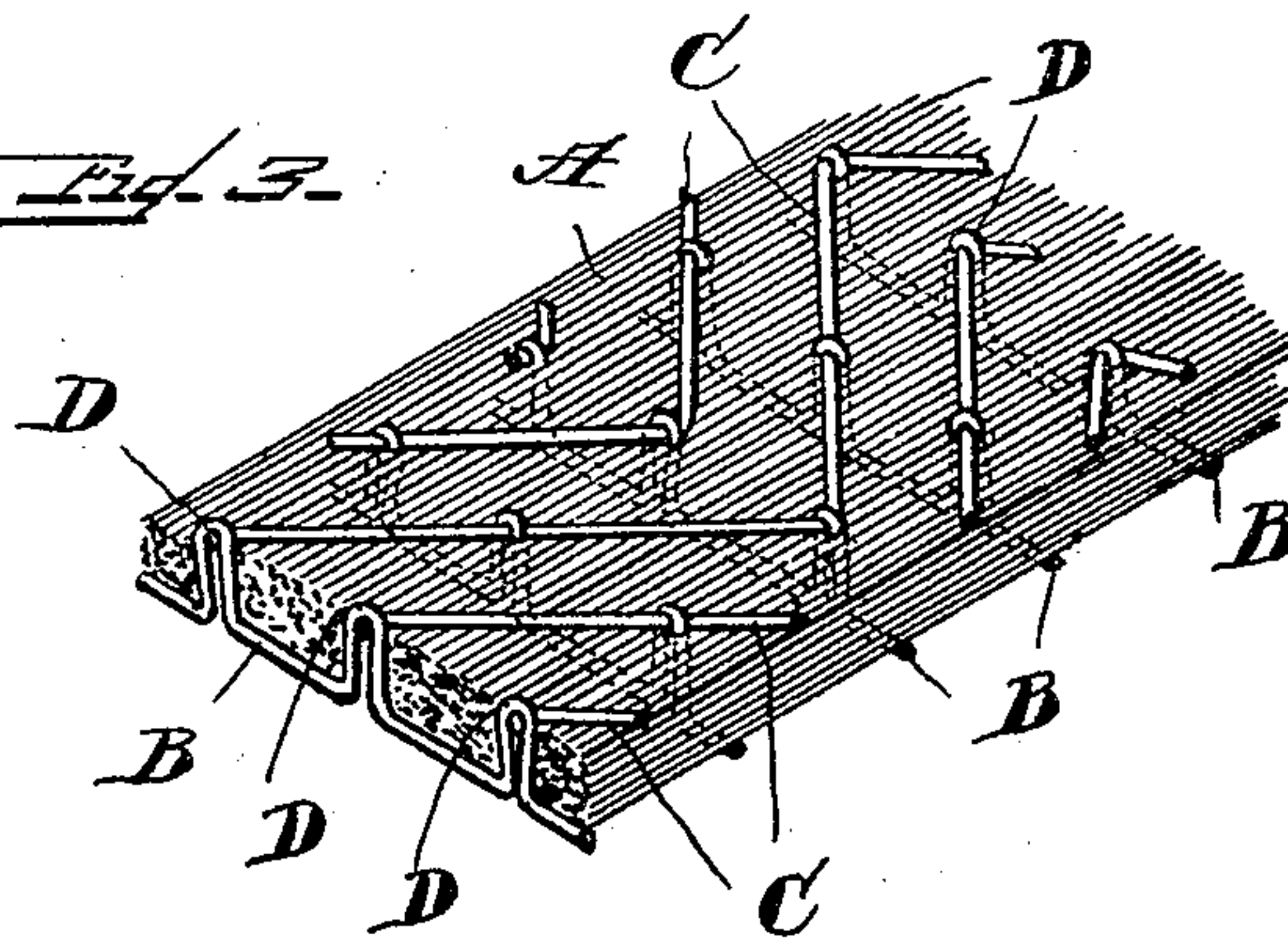


Fig. 3.



Witnesses-

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UNITED STATES PATENT OFFICE.

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FABRIC AND METHOD OF MAKING SAME.

No. 795,290.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed February 23, 1904. Renewed December 24, 1904. Serial No. 238,229.

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, hay, straw, or the like and which is simple in the construction thereof.

A further object of the invention is to produce a fabric of the character referred to wherein the body portion is of even density and thickness throughout.

A further object of the invention is to provide a fabric of the character referred to having a body portion which is yielding and which presents a smooth, even, and yielding bearing-surface to the warp-threads employed in stitching the same.

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 binder-threads applied thereto in a manner to secure an efficient binding effect throughout such body portion and without any weaving operation in the production of such body portion.

A further object of the invention, in a more specific statement thereof, is to produce a fabric of the character referred to wherein the body portion is held or bound together by suitable binder-threads applied thereto, with a portion thereof arranged in zigzag lines, whereby adjacent threads lap partially past each other, thereby efficiently binding the 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 fabrics.

A further object of the invention is to utilize grass, hay, straw, or the like in the manufacture of fabrics of the class referred to 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 fully hereinafter.

The invention consists, substantially, in the

construction, combination, location, relative 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 bottom plan of a fragment of fabric produced by and embodying the principles of my invention. Fig. 2 is a view in top plan of the same. Fig. 3 is a view in perspective of the same, illustrating one way in which the binding means are applied to the body portion of the fabric.

In various sections throughout the country are vast areas of marshland 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 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 are unsuitable for utilization in this manner, being unable to stand the manipulation necessary to work the same preliminarily into twine or to weave the twine into fabrics by reason of the joints in such stems, stalks, or spears, and consequently the manufacture of mattings, carpets, or other fabrics out of material of this nature has been limited to the use of unjointed grasses. Moreover, where the stems, stalks, or spears of grass, straw, and the like are first formed into a twine and then such twine is woven into fabrics the twine presents substantially a solid unyielding body or surface for the threads employed in the stitching operation in the production of the fabric to rest upon or to bear against. Consequently excessive wear is imposed upon such threads or other binder employed for this purpose, which rapidly wears the same out.

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 without first forming such stems, stalks, or spears into twine or similar form and then weaving the same. Therefore I 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 grass, straw, and the like.

In carrying out my invention I propose to condense the stems, stalks, spears, or the like into the form of a flattened mass or matting of substantially equal thickness and density throughout and of substantially the ultimate width of the fabric to be produced, 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 I propose to suitably unite or bind this body portion thus formed, and while the material composing it is maintained in such condensed mat form, by applying thereto and therethrough suitable threads, and one of the important features of my present invention is the manner of applying the stitches of the binder-thread so as to efficiently bind the stems, stalks, or spears of grass, straw, or the like into an integral fabric. In this manner I 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 in unlimited quantity, inasmuch as the material composing the body portion is available in practically unlimited quantities for such use 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 formed into a flattened 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; but I do not desire to be limited or restricted in this respect. While the body portion thus formed is maintained in condensed and compressed condition, a binder is applied thereto and therethrough in such a manner as to bind the same into an integral mass or fabric. This binder may be in any suitable or convenient form—such, for instance, as binder-threads—and the binder-threads may be applied to such body portion in many different ways in order to secure the binding effect upon the body portion of the fabric. I have shown one method of application of the binder to the body portion of the fabric wherein I employ warp or stitching threads (indicated at B) formed into loops, which loops are arranged to be projected through the mass of material composing the body portion of the finished product and through which loops are passed shuttle-

threads C, said shuttle-threads lying upon one of the flat sides or surfaces of the body portion and being caught into the loops D, formed in the other or warp-binder threads, as clearly shown in the drawings. (See Figs. 1 and 3.) In this manner it will be seen that the binder-threads are applied to the body of the fabric so that one set of said threads will lie upon one of the sides or flattened surfaces of the body portion and the other set of threads will extend transversely across the first-mentioned set and at intervals will be formed into loops, which loops pass through the body of the mass of material and around the first-mentioned set of threads, thereby efficiently binding the mass of material into an integral fabric, and since this body portion is composed of condensed and compressed stems, stalks, or spears of grass, straw, or the like it will be seen that such body portion presents a yielding surface to which the binder-threads are applied. It will also be seen that it is unnecessary to take into account the joints of the stems, stalks, or spears.

In order that the shuttle-threads may not be pulled through the body portion of the fabric by the pull or strain exerted upon the looped threads (and which as a convenient designation may be termed the “needle-threads”) during the operation of applying the same to the fabric and in order to secure an efficient binding effect upon the material composing the body portion of the fabric, I prefer to avoid applying the shuttle-threads in lines parallel with the lengths of stems, stalks, or spears. Therefore in accordance with the principles of my invention I propose to apply the shuttle-threads C to the mass of grass, straw, or the like composing the body portion of the fabric in lines inclined with respect to the lengths of the stems, stalks, or spears. One convenient method of application of the shuttle-threads is shown in the drawings and wherein the shuttle-threads are applied in zigzag relation; but I desire it to be distinctly understood that my invention is not to be limited or restricted in this respect. In the zigzag relation shown each succeeding line of shuttle-thread is zigzagged throughout its length, but is parallel with the next adjacent shuttle-threads, and in the particular form shown each leg or part forming a straight portion of the zigzag line is held or caught by a plurality of loops D, formed in the needle-threads, the needle-threads being applied in the particular form shown and preferably, though not necessarily, in a line transverse with respect to the lengths of the stems, stalks, or spears composing the body portion and in lines parallel with respect to each other. In this manner the stems, stalks, or spears contained in that portion of the body which lies between two adjacent loops in the needle-thread is bound to the body of the fabric or to the portions thereof lying on opposite sides

of the same and at various points throughout the length of the stems, stalks, or spears contained in such portion, said portion being bound alternately to the adjacent portions of the body on opposite sides thereof. This result, it will be observed, is secured by reason of the fact that successive shuttle-threads when arranged in zigzag relation and parallel to each other, as above explained, will partially loop past each other in the successive bends thereof. Consequently the stems, stalks, or spears referred to and contained between adjacent loops in the needle-threads are bound by the bends or legs of one of the zigzagged shuttle-threads to the portion of the body of the fabric lying adjacent thereto on one side and by the bends or legs of the next adjacent zigzagged shuttle-thread to the adjacent portion of the body of the fabric on the opposite side, and so on throughout the body of the fabric. As above explained, however, I do not desire to be limited or confined to this specific arrangement of the shuttle-threads or of the needle-threads or other binder employed, as the same may be altered or varied throughout wide limits without departure from the spirit and scope of my invention; but,

Having now set forth the object and nature of my invention and the 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 the stems, stalks or spears into a mass of substantially the ultimate width of the fabric to be produced and applying binder-threads thereto, certain of said binder-threads being applied in diagonal or inclined relation with respect to the lengths of the stems, stalks or spears, 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 such stems, stalks or spears into flattened or mat form of the desired thickness and density, and then applying needle and shuttle binder-threads thereto, the shuttle-threads being applied in diagonal relation with respect to the lengths of the stems, stalks or spears, and the needle binder-threads being looped through the mass of stems, stalks or spears, and around the shuttle binder-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 compressing the stems, stalks or spears into flattened or

mat formation, and then applying thereto needle and shuttle binder-threads, the shuttle binder-threads being applied in zigzag lines, and the needle-threads having loops projecting through the mass of stems, stalks or spears, and looped around the shuttle-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 the stems, stalks or spears into a flattened mass of suitable density, and of substantially the ultimate width of the fabric to be produced and then applying binder-threads thereto to successively bind definite portions of the body of the mass alternately to the portions lying next adjacent thereto on opposite sides thereof, as and for the purpose set forth.

5. In the manufacture of fabrics, the method which consists in condensing or compacting loose untwisted unspun or unwoven material into a flattened mass of the desired density and width to produce the fabric, and then applying binder-threads thereto in lines inclined with respect to each other, as and for the purpose set forth.

6. In the manufacture of fabrics, the method which consists in condensing and compacting stems, stalks or spears of grass, straw or the like, into flattened mat formation of the desired density, and then applying needle and shuttle threads thereto, the shuttle-threads being applied in parallel zigzag lines, 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, condensed and compacted into flattened mat formation, and having binder-threads, certain of said threads being applied to one side or surface of the mass and in inclined relation with respect to the length of the stems, stalks or spears of grass, and the other binder-threads being looped through the mass and around the first-mentioned binder-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 compressed into flattened mat formation and having a set of binder-threads looped therethrough and a set of binder-threads applied to one surface thereof and engaged by such loops, said last-mentioned binder-threads being inclined relative to the line of the first-mentioned binder-threads, as and for the purpose set forth.

9. In the manufacture of fabrics, the method which consists in assembling a quantity of stems, stalks or spears of grass, straw or the like, compacting the assembled mass, binding individual bunches thereof, and binding an association of bunches to each other, as and for the purpose set forth.

10. The method of making fabrics, consisting of assembling a quantity of stems, stalks or spears of grass, straw or the like, compacting the assembled mass in bunches, and binding together a plurality of compacted bunches, as and for the purpose set forth.

11. The method of making fabrics, consisting in condensing or compacting loose, untwisted unspun or unwoven material, and binding the same in bunches into an integral mass of substantially the ultimate width of the fabric to be produced, each bunch being bound to adjacent bunches on opposite sides thereof, as and for the purpose set forth.

12. In the manufacture of fabrics, the method which consists in laterally condensing or compacting loose, untwisted, unspun material to the desired density and to substantially the ultimate width of the fabric to be produced, and applying binder-threads thereto, 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.