

H. B. MORRIS.

METHOD OF MAKING CHAIR SEATS.

(Application filed May 3, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1

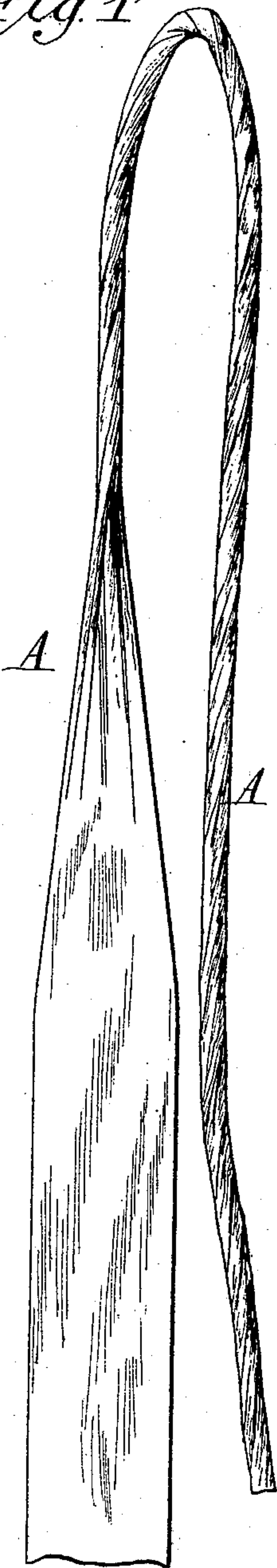


Fig. 2

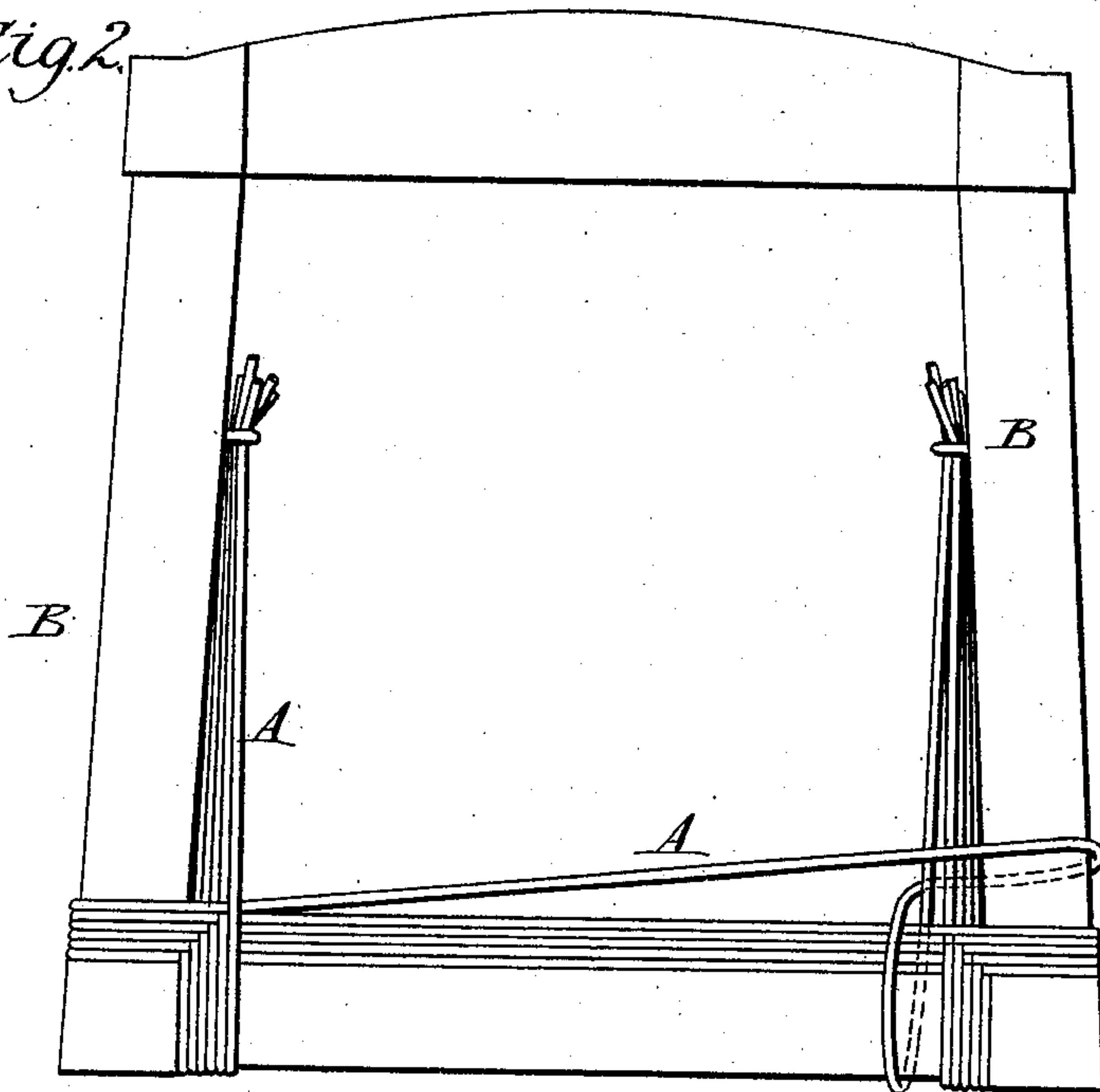
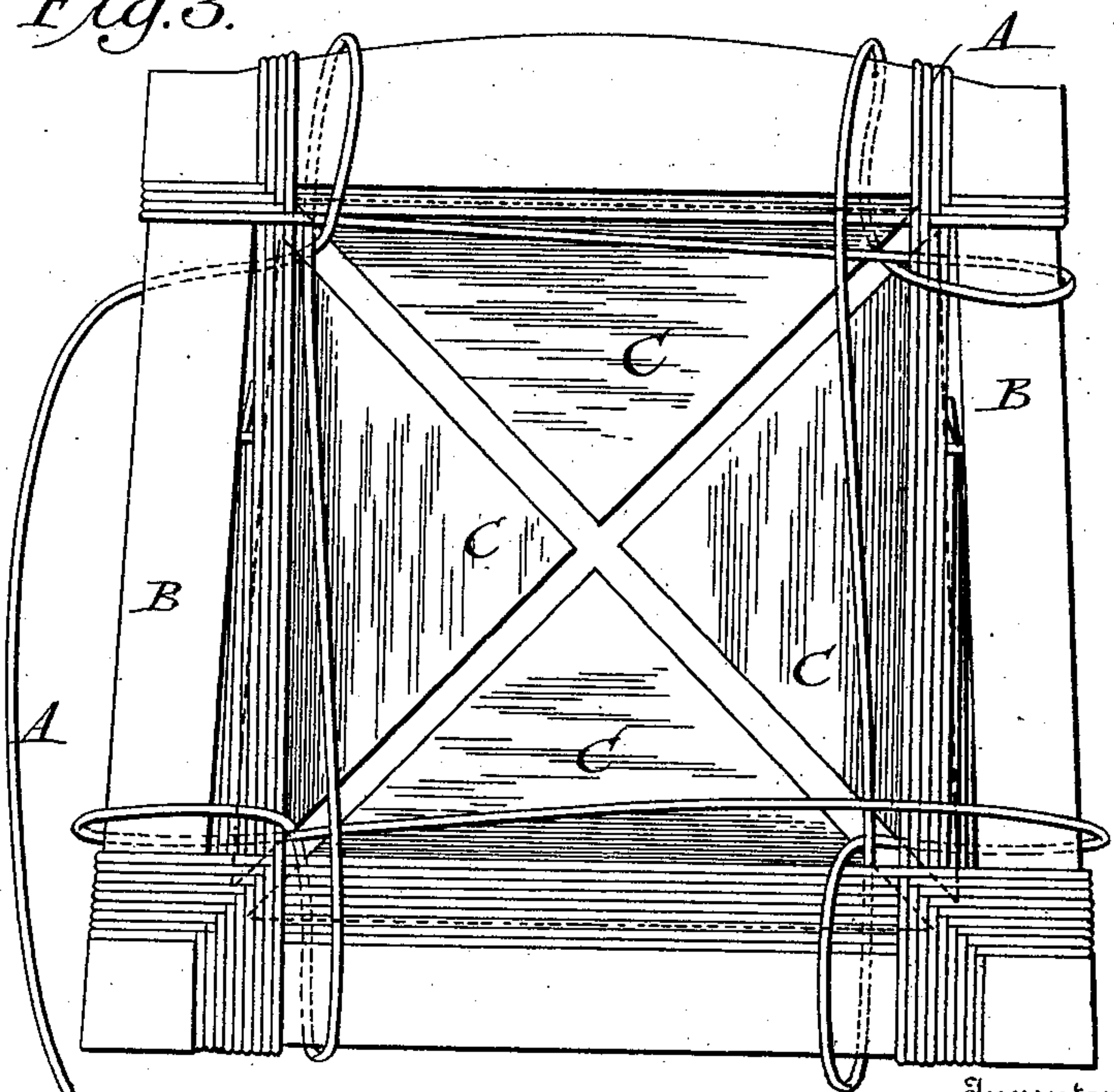


Fig. 3



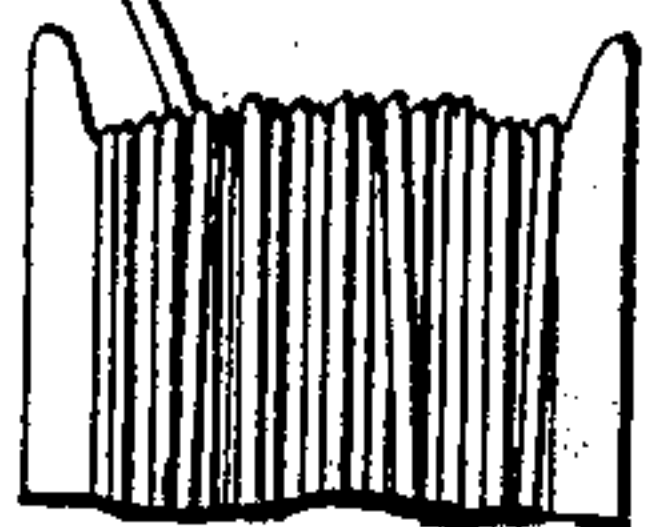
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No. 711,580.

Patented Oct. 21, 1902.

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Fig. 4.

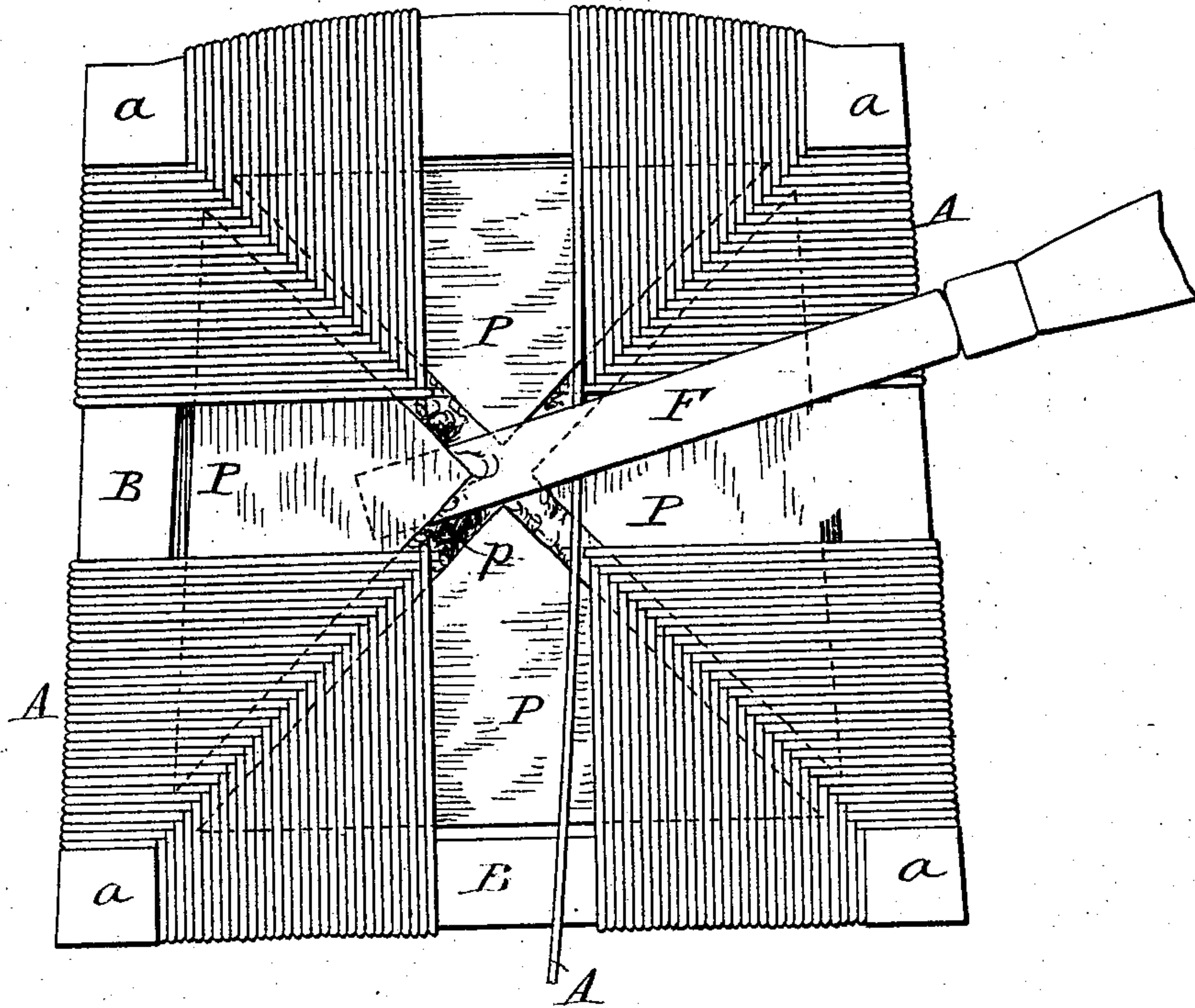


Fig. 5.

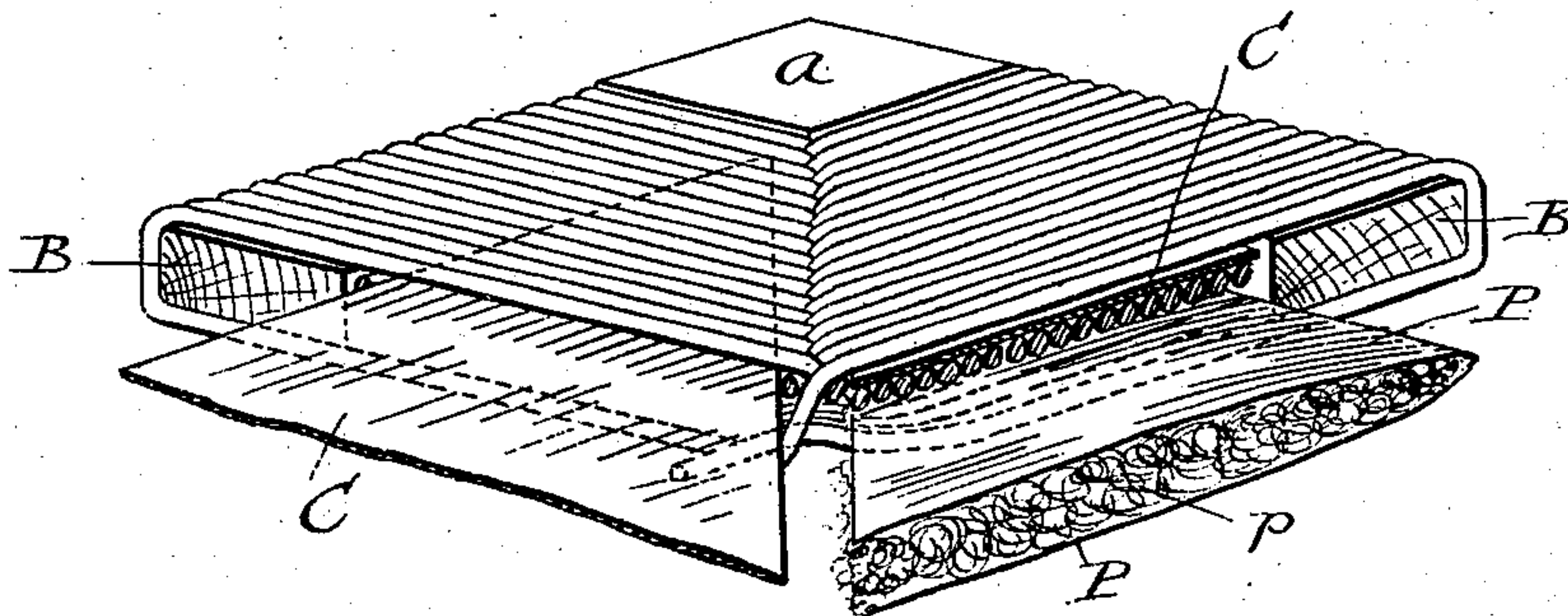
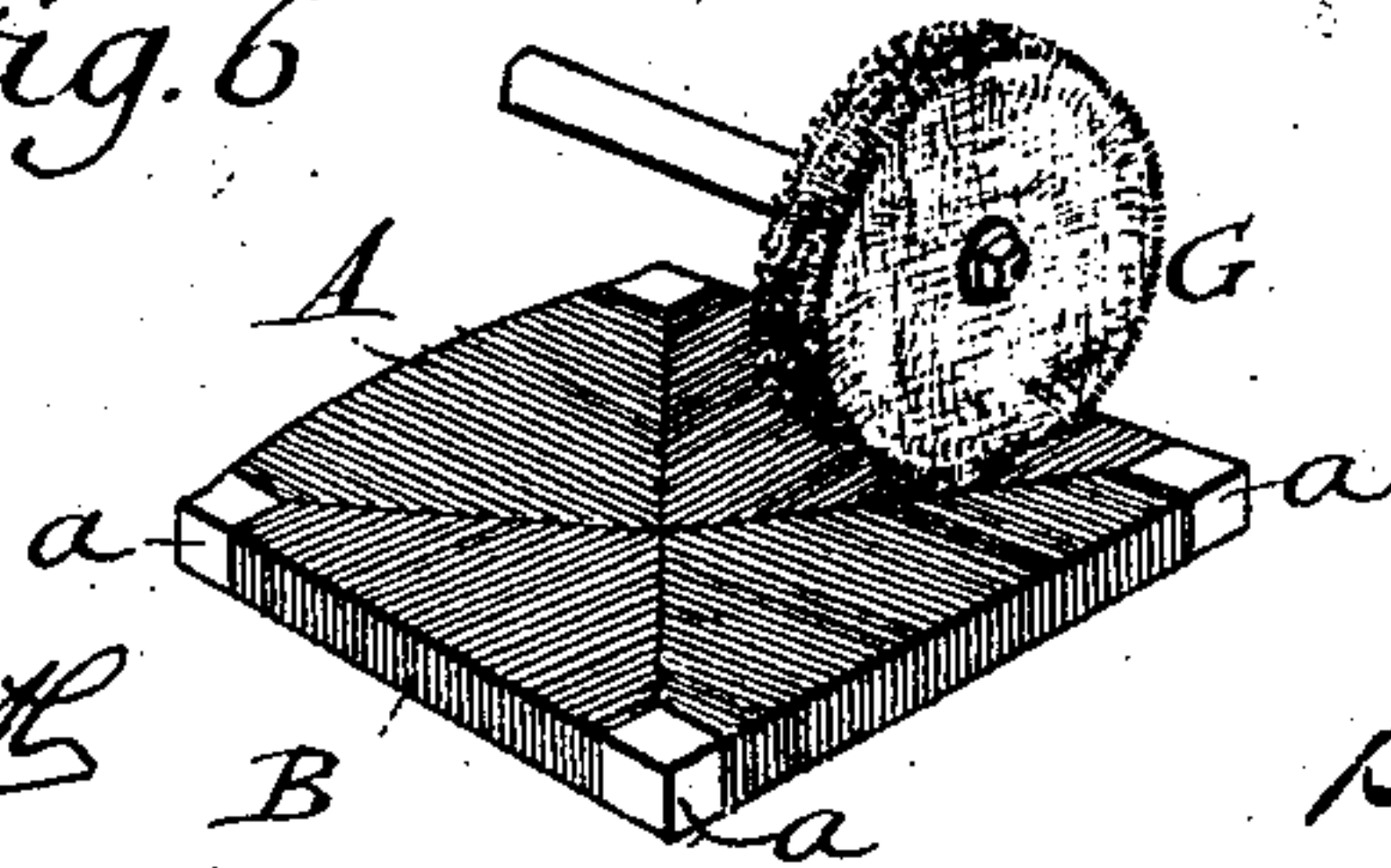


Fig. 6.



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Fig. 7.

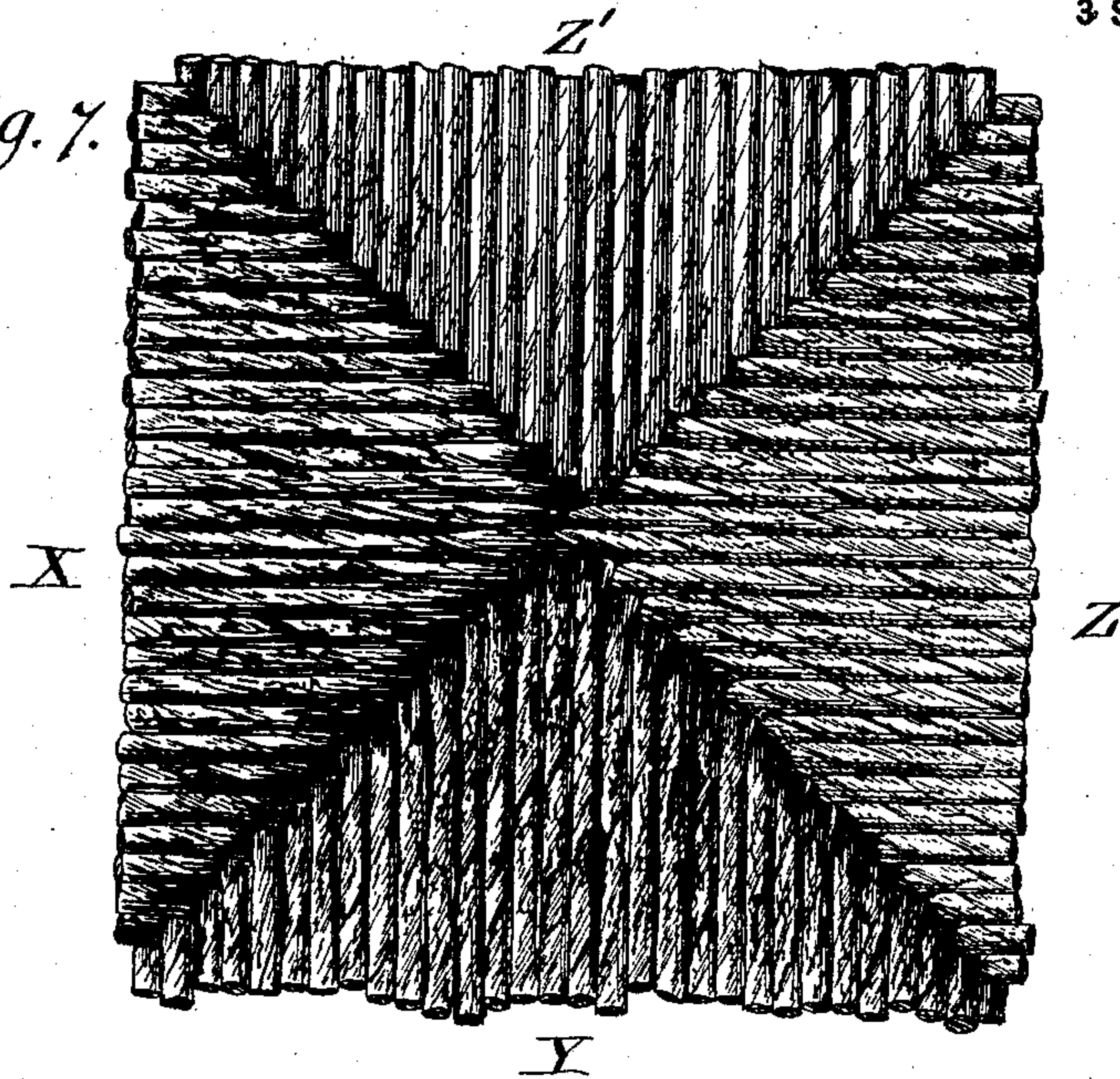
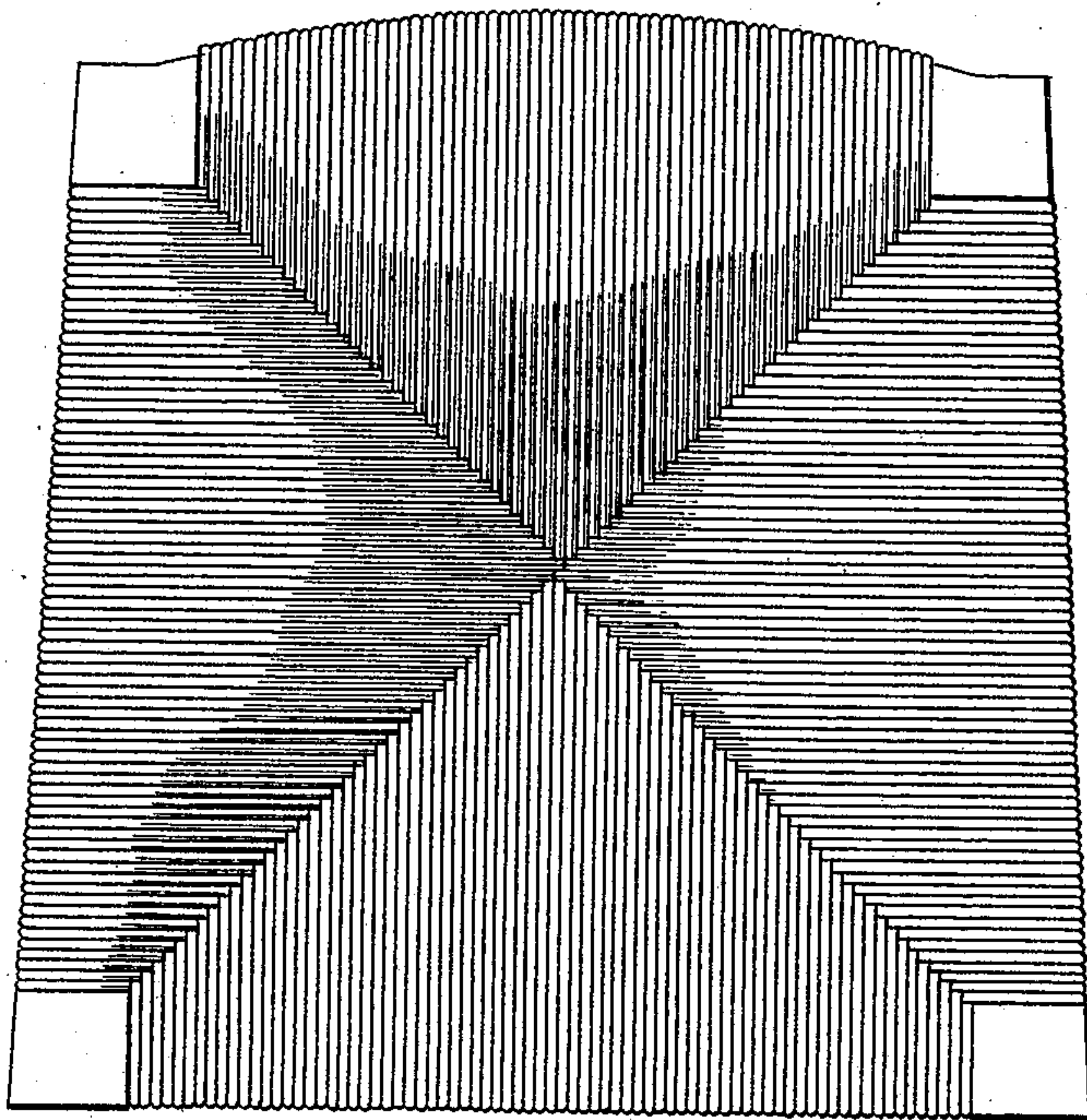


Fig. 8.



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UNITED STATES PATENT OFFICE.

HENRY B. MORRIS, OF MICHIGAN CITY, INDIANA.

METHOD OF MAKING CHAIR-SEATS.

SPECIFICATION forming part of Letters Patent No. 711,580, dated October 21, 1902.

Application filed May 3, 1902. Serial No. 105,852. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. MORRIS, a citizen of the United States, residing at Michigan City, in the county of Laporte and State of Indiana, have invented certain new and useful Improvements in the Method of Making Chair-Seats, of which the following is a specification.

In my United States Patent No. 672,102, of April 16, 1901, I have described a method of making chair-seats designed to resemble the well-known flag or rush seats, which consists in covering a seat-frame with a twisted or spun colored paper cord of indefinite length, then treating the paper seat thus formed with waterproofing material, and after smoothing down the waterproofed seat by rubbing it with sandpaper applying a finishing-varnish. I also describe in said patent a way of packing the seat by means of pads, which were introduced between the layers of paper cord.

My present invention relates to certain improvements in the method described in my above-mentioned patent.

I have discovered that a much better finish may be given to the seat by subjecting it to a buffing operation after it has been waterproofed, so as to cause the waterproofing material on the surface of the seat to soften, whereby it may be more evenly distributed and a finer polish obtained, while irregularities in the surface are obliterated or smoothed down. In carrying out this part of my invention after the paper cord is properly wound on the seat-frame and has been treated with some waterproofing material, such as shellac varnish, the seat is buffed by means of a rapidly-revolving buffing-wheel, which is so formed as to act upon the entire exposed surface of the seat and which is revolved at such high speed as to cause the generation of sufficient heat to soften the varnish, thereby enabling it to be evenly distributed and also to receive a better polish than it would if not heated. This buffing operation also removes or flattens down all irregularities in the paper, presses the strands together, and causes them to adhere. After the seat is thus prepared I apply one or more coats of a finishing-varnish, as heretofore. I find that a paper seat thus prepared is stronger, harder, and more durable than that described in my for-

mer patent and presents a much better appearance.

In carrying out this process I have found that it is desirable to provide a support for the fabric while it is undergoing the buffing operation, and for this purpose I insert pieces of veneer, pasteboard, or the like between the layers of the fabric in such manner as to hold the upper layer firmly and smoothly, the individual strands lying evenly in such manner as to all present themselves to the buffing-wheel, thereby insuring the formation of a smooth polished surface in which all the strands are uniformly treated. The pieces of veneer remain in the seat and cause it to retain its proper shape. I have also found that instead of placing previously-formed packing-pads of uniform size between the layers of the covering better results are obtained by stuffing loose packing material into the spaces between the layers of the covering in varying quantities, as occasion may require.

In the accompanying drawings, Figure 1 shows how a strip of colored paper is twisted or spun into a cord of suitable kind. Fig. 2 is a plan view of a chair-seat frame with a number of strands of paper cord applied to prepare the frame for the main winding. Fig. 3 is a top plan view of a chair-seat partially formed, the manner of winding the continuous cord being indicated by the loose turns of the cord. This figure also indicates the manner of inserting the pieces of veneer. Fig. 4 is a bottom-plan view similar to Fig. 3, indicating the manner of inserting the packing material. Fig. 5 is a detail view in section, showing the particular manner of arranging the pieces of veneer and the packing material between the layers of the paper cord. Fig. 6 illustrates the manner in which the seat is buffed. Fig. 7 is a detail view, on an enlarged scale, of the paper seat and serves to indicate to some extent the different appearance of the material during the different stages of the process of treating it. Fig. 8 is a plan view of the completed seat.

The paper cord A may be formed in precisely the same manner as that described in my before-mentioned patent, though I of course do not herein limit myself to the precise method therein described. The cord is wound upon the seat-frame B before being

varnished, and preferably it is moistened or dampened before being wound, because the strands are thus made to lie more closely together and will flatten down to a more desirable extent where they cross each other, and thus produce a more compact fabric.

When the seat-frame is wider at the front than at the rear, as indicated in Fig. 2, a few strands of the cord are wound upon it and secured in the manner indicated in Fig. 2 and as fully illustrated and described in my former patent. The main winding of the cord is proceeded with in the same manner as that described in said patent and as indicated in Fig. 3. After a few strands of the cord have been wound on the frame pieces of veneer C, which are preferably triangular in outline, are arranged in the frame. Card-board or other material similar to veneer may be used, but I find thin pieces of wood to be the best. The veneer is inserted, preferably, between the upper and middle layers of the windings, the opposite corners of the triangular pieces being held by the few windings of the cord while the winding is proceeded with. When the winding of the cord has progressed to a considerable extent, I insert packing material in the manner indicated in Fig. 4. In my former patent pads of packing material were inserted. These were of uniform size, and it was found that the pads did not always pack tightly and did not put the cords under sufficient tension and cause the surface of the paper windings to curve or round out to the proper extent. According to my present improvements when the winding has progressed to the extent shown in Fig. 4 pieces of paper P are inserted between the lower and middle layers of the paper winding, and then excelsior or similar material p is introduced. A single layer of paper may be employed, which should lie next to the bottom layer of the paper winding, the main purpose of the paper being to prevent the excelsior or other packing material from sifting through the under side of the seat. Preferably, however, I employ two thicknesses of paper, forming an open pocket, such as illustrated in Fig. 5, and stuff the packing material between the layers. By using a suitable tool F the excelsior may be stuffed into the corners and around the edges in such manner as to round out the windings and put the cords under tension, causing them to lie close together and preventing them from bending laterally or separating from each other. Most all of the packing material may be inserted when the seat is in the condition shown in Fig. 4. The winding may then be proceeded with, and just before the last two or three windings are applied more packing material may be inserted, if desired. When the winding is completed, the seat will be composed of the frame completely covered by the windings of paper cord excepting at the corners a. There will be triangular pieces of veneer between the upper and middle layers of

the cord and packing material between the bottom and middle layers. This construction is clearly indicated in Fig. 5. The pieces of veneer serve a double purpose. They serve to support the strands while they are being buffed in the manner hereinafter described, and they also serve to hold the strands evenly while the seat is in use, preventing a small number of strands being depressed below the common level by pressure applied to a few of them.

The paper cord constituting the covering of the seat-frame is more or less irregular in its formation. To manufacture a cord perfectly smooth and even would require quite elaborate machinery, and if the cord were very smooth and regular the fabric would not so closely resemble the ordinary rush or flag seat. The strands are larger in diameter in some places than in others. Small pieces of fiber project from the strands in various places, and the spiral edges of the paper are sometimes slightly torn. This is indicated to some extent in Fig. 7, where X is designed to indicate the paper fabric before it is treated with waterproofing material. Y indicates a portion of the fabric when treated with shellac or similar material in the manner described in my former patent. Z indicates a section of the fabric after it has been buffed in accordance with my present invention, and Z' indicates a section of the fabric after it has been treated with a finishing-varnish. It will be understood, however, that Fig. 7 is merely designed to indicate certain steps in my improved process. The seat is not treated in sections, but the entire covering is treated at each step in the process.

After the seat-frame has been covered with the paper cord in the manner above described and when it is dry the paper is treated with a thin solution of shellac or similar waterproofing material. The shellac to some extent reduces the irregularities in the paper, but it does not obliterate them. The cords are still of unequal diameter, ragged edges are still apparent, and there are still openings at various points between the strands. The varnish is thicker on some parts of the surface than on others, and the strands do not adhere closely to each other at all points. In my former patent I described sandpapering the surface in order to make it smoother. This process while good so far as it went was not perfect, as the action was purely mechanical, serving only to remove the most prominent imperfections found on the surface of the fabric. According to my present improvements after this fabric is treated with the waterproofing material the seat is subjected to a buffing operation, which is such as to generate sufficient heat to soften the shellac and also to either brush off or flatten down the ragged edges and other irregularities found in the fabric.

In Fig. 6 I have indicated how the seat is buffed. The buffing-wheel G is composed of

a large number of disks of canvas or similar material. These are revolved at a very high speed, and when the seat is brought into contact with the wheel heat is generated, which softens the varnish. The seat is pressed against the wheel, so that it is subjected simultaneously to heat, abrasion, and pressure, all three of which forces coact simultaneously to give a good smooth finish to the fabric. Where small hard pieces of paper project prominently from the fabric, they are brushed off by the abrasive action. Where they are less prominent, they are pressed down into the fabric and the varnish being softened are caused to adhere to it. Where the varnish is thicker in some places than in others, it is spread out more evenly, and where the strands are thicker in some places than others they are flattened down and caused to fill gaps or cracks found between the strands. Not only is the varnish on the surface of the strands softened, but also that at the sides, and the cracks between the strands are completely filled, and the strands are caused to adhere to each other. The buffing-wheel operates in the manner illustrated in Fig. 6, where it will be seen that the disks are arranged parallel with the strands in such manner as to operate not only upon the surface thereof, but also between the strands. The amount of heat generated may be regulated by the amount of pressure exerted, and by nicely regulating the pressure the varnish may be first caused to melt and then to gradually cool, the finishing touches being given by the wheel under slight pressure while the varnish is cooling. As a result of this buffing operation a smooth polished surface is given to the upper surface of the seat, and then a coat of finishing-varnish, such as copal, is applied.

The treatment of the seat above described is for the top portion thereof. The bottom layer of the fabric need not be treated in this manner. It is preferably, however, coated with shellac, but not buffed or treated with a finishing-varnish. The shellac may be applied by means of a brush, enough of the material being used to soak into the outer surface of the paper cords. It is of course not necessary that the cords should be saturated clear through with the shellac.

So far as part of the invention is concerned other material than paper may be employed.

In my application for patent, Serial No. 113,793, filed June 30, 1902, I have claimed the chair-seat herein shown and described as an article of manufacture. I have also claimed

in said application a method which consists in partially winding strands of the covering material about a chair-seat frame, inserting pieces of strengthening material between the layers of the fabric, then continuing the winding of the frame, then inserting packing material between the layers of the fabric and forcing it into place in such manner as to put the strands under tension, and then completing the winding of the frame.

I claim as my invention—

1. The method, substantially as herein described, consisting in winding a chair-seat frame with a paper cord, treating the paper covering with a waterproofing material, then subjecting the surface of the waterproofing material to a buffing operation which melts or softens the waterproofing material and imparts a polish thereto, and finally applying a coating of finishing-varnish.

2. The method, substantially as herein described, consisting in winding a chair-seat frame with a paper cord, treating the paper covering with a waterproofing material, and then subjecting the covering while the waterproofing material is soft simultaneously to pressure and to an abrasive action for the purpose specified.

3. The method herein described, consisting in covering a chair-seat frame with paper cord, treating the paper covering with a waterproofing material, then subjecting the surface of the waterproofed covering simultaneously to heat, pressure and abrasion which softens the waterproofing material, causes it to spread, removes irregularities from the surface and flattens down and spreads the individual strands of the fabric, whereby they are caused to adhere to each other and to present a smooth regular surface.

4. The method, substantially as herein described, which consists in covering a chair-seat frame with a paper cord, treating the paper covering with waterproofing material, and then simultaneously heating and abrading the surface of the waterproofed paper, and subjecting it to a gradually-reduced pressure to equalize the distribution of the waterproofing material on the surface, flatten down irregularities of the fabric, cause the strands to adhere, and to give the surface a smooth hard polish.

In testimony whereof I have hereunto subscribed my name.

HENRY B. MORRIS.

Witnesses:

HARRY W. MILLER,
ARTHUR N. GITTINGS.