

No. 859,679.

PATENTED JULY 9, 1907.

W. S. MELLEN.

FABRIC.

APPLICATION FILED SEPT. 29, 1904.

Fig. 1.

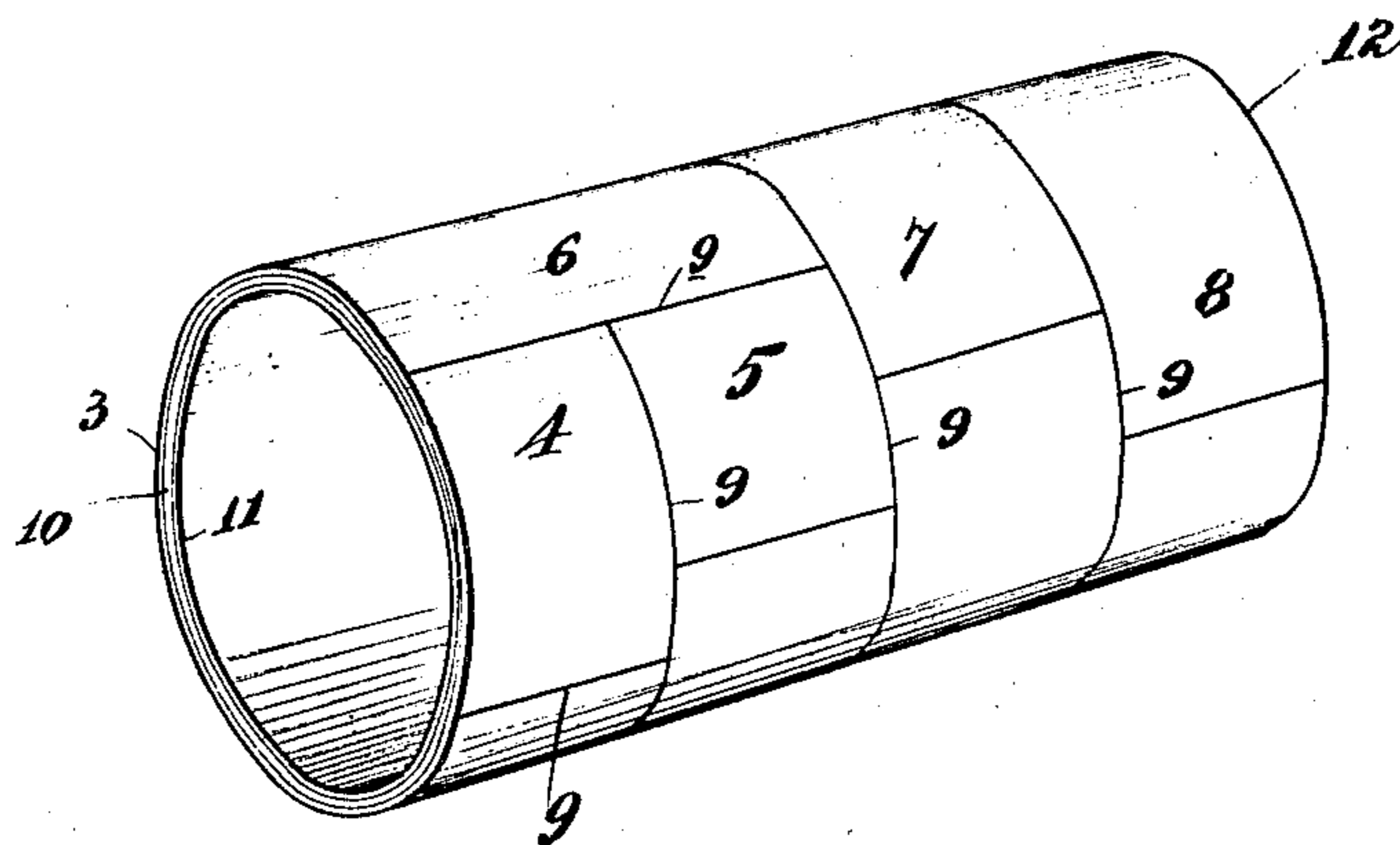


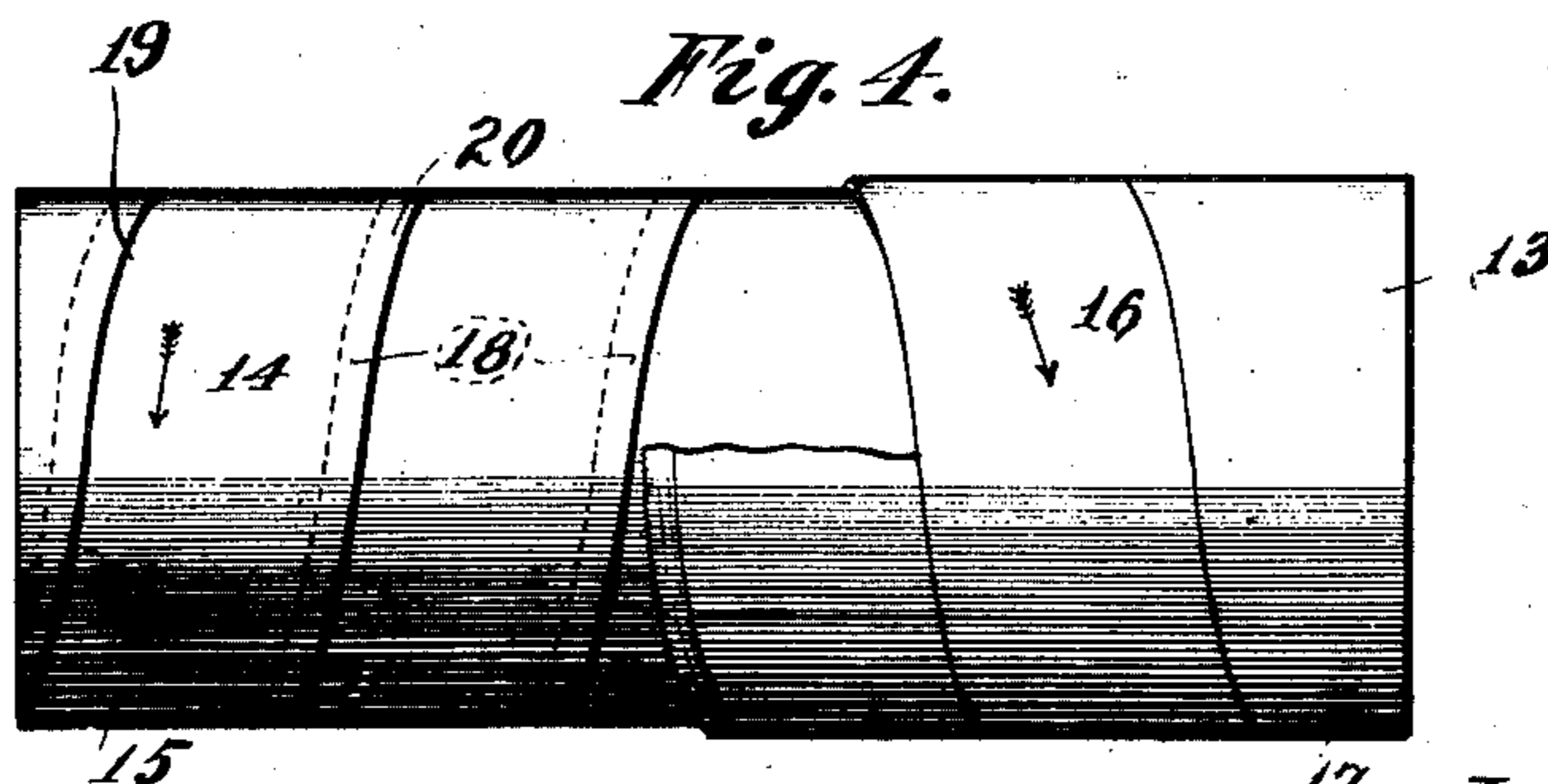
Fig. 2.



Fig. 3.



Fig. 4.



Attest:

Edward L. Dillon
Glady's Wallow.

Inventor:

William S. Mellen,
by
Hugh N. Wagner
His Att'y.

UNITED STATES PATENT OFFICE.

WILLIAM S. MELLEN, OF ST. LOUIS, MISSOURI, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
NATIONAL VENEER PACKAGE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION
OF MISSOURI.

FABRIC.

No. 859,679.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed September 29, 1904. Serial No. 226,438.

To all whom it may concern:

Be it known that I, WILLIAM S. MELLEN, a citizen of the United States, residing at the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Fabrics, of which the following is a specification.

This invention relates to a new fabric, preferably composed of pieces or strips of thin wood.

The invention consists, primarily, in the making of a new fabric, and secondarily, in the manufacture of a widely diversified variety of articles from said fabric. By way of illustration, but not enumeration, a few of the many kinds of articles that can be made of this material will be named—railroad ties, stave columns, buckets, barrels, boards, piping and tubing of all kinds, washtubs, boxes, etc., etc.

In the accompanying drawings, in which like numbers of reference denote like parts wherever they occur, Figure 1 is a perspective view of a laminated cylinder or stave column; Fig. 2 is a sectional view through part of same (on an enlarged scale) to show the joint; Fig. 3 is a similar sectional view through part of an unbent piece of my new fabric; and Fig. 4 is a side elevation of a cylinder like that illustrated in Fig. 1, but constructed in accordance with a modification of my principal invention.

At present a great deal of lumber is wasted. This is due to the fact that for certain purposes a particular quality or character of lumber is needed, and inferior lumber is, therefore, rejected. In view of the decreasing amount of standing timber and consequent expected curtailment of the lumber supply, it has become an economic necessity to utilize every wood fragment so far as possible. This is one of the objects of my invention. Another is to produce a fabric which possesses unusual strength, proportioned to the thickness of the material used, and capable of indefinite increase by multiplication of the laminations.

Still another object of my invention is to enable wood fabric to be molded into a bent form, thus permitting its use for a variety of purposes heretofore impossible.

While the fabric may be made of leather, dried watermelon and canteloupe rinds, and the like, I shall describe it as made of wood. It will be understood that any kind of lumber can be used, but I am able to produce my fabric by using scrap or waste lumber as well as with any other kind.

Thin strips or pieces of wood like veneer, of any length, width, or shape, are chamfered or skived at their ends and edges lapping over the ends or edges of other adjacent similarly-skived pieces or strips of

quasi veneer. The skived edge is of the form clearly shown in Figs. 2 and 3, that is to say, it consists first of a straight portion 1, and then of a beveled part 2. In the formation of the fabric, the chamfered edges of the several pieces of veneer are treated with adhesives and pressed tightly together, thus making a very strong joint. If desired, this pressure may be applied at the same time that the article is being molded from the fabric. The fabric is like a mosaic or piece of patchwork, and may consist of only one thickness or of a series of laminations.

In order that its mode of manufacture may be better understood, I shall now describe same in detail, but wish it understood that the process of manufacture is the subject of a separate application for Letters-Patent co-pending herewith.

The fabric, represented, for example, by the outside layer or lamination 3 in Fig. 1, is formed by first chamfering or skiving the ends and the righthand side of the piece or strip 4, both ends and both sides of the piece 5, the righthand edge and both ends of the strip 6, both ends and both sides of the strip 7, both ends and the left edge of the piece 8, etc., etc., etc., *mutatis mutandis* throughout. The chamfered or skived edges of these several pieces do not appear in Fig. 1, because in the formation of the fabric after said edges have been suitably treated with adhesives they are made to overlap each other, and, therefore, in Fig. 1 only the joints are seen. The several pieces, 4, 5, 6, 7, 8, etc., are laid adjoining each other in the manner depicted in Fig. 1, but flat and upon an endless belt or carrier. The chamfered edges of the various pieces overlap each other, having been first suitably shaped so that like pieces will fit to like pieces. The adhesives applied to the chamfered edges cause same to adhere to each other in a preliminary manner, but the movement of the endless belt or carrier propels each of the pieces longitudinally forward until it reaches a cylindrical or other former and compressor. Fig. 1 shows the fabric after having been formed on and compressed upon a cylindrical former. Moreover, Fig. 1 illustrates an article in which a series of laminations has been produced by feeding the fabric so as to wind around the cylinder a plurality of times and always under pressure. Such laminations may, also, be formed by laying several thicknesses of pieces of veneer, as above described, one on top of the other and passing the same through the former and compressor all at one time, but it is preferable to follow the method of repeated windings, as the compressor is better able to compact the chamfered joints when handling a single thin strip of material than a number of layers. When the article is to be

formed of laminations of fabric, as of the laminations 3, 10, and 11 in Figs. 1, 2, and 3, adhesives will be suitably applied between the different layers, so that when the main body of the article is turned out, as exhibited in the hollow cylinder 12, illustrated in Fig. 1, it will be a compact and solid body. When the fabric is formed into laminations, additional strength may be imparted to the product by arranging the different strips or pieces so that the grain of the wood in the several pieces or strips of the second layer will run transversely to the grain of the wood in the several pieces or strips of the first layer, while the strips or pieces in the third layer will be arranged so that their grain will run transversely to the grain of the strips or pieces in the second layer. It is obvious, also, that the strips of the intermediate layer, when there are only three, for instance, can be constructed of pieces or strips in which part have their grain running longitudinally and another part transversely of the fabric.

The cylinder 13, illustrated in Fig. 4, exhibits an article made by a modification of the hereinabove-described process of manufacture. It is shown as composed of two laminations. These laminations are produced by winding strips of quasi veneer chamfered on one side on their lower edges, and on the other side on their upper edges, the strip 14 thus wound on the former and compressor to form the first layer of the cylinder being wound in the direction indicated by the arrow, and 15 denoting the end of that strip, while the strip 16, forming the outer lamination, is wound from the opposite end of the former, and in the opposite direction (indicated by the arrow), 17 denoting the end of that strip. The cylinder 13 in the modification now being described is formed by feeding a continuous ribbon of quasi veneer into the former and compressor, its upper and outer and its lower and inner chamfered edges having been treated with adhesives. This ribbon is fed at such an angle to the former that the low and inner chamfered edge of each succeeding "wrap" or wind of the ribbon around the former will overlap and adhere to the upper and outer chamfered edge of the preceding wind or "wrap" of the ribbon. This overlapping of the chamfered edges is shown in dotted lines in Fig. 4, as at 18. It will be understood that in Fig. 4 the ribbon 14 is chamfered at its upper side at the edge marked 19, and on its under side on its edge marked 20. The ribbon 16 is similarly chamfered. The compression in this form of the article forms the fabric which is the subject-matter of the present application by uniting the chamfered edges in the same manner as in the other form of the fabric described above. The chamfering or skiving possesses the same characteristics as to form as described in the manner of treating the separate pieces when the fabric is composed of fragments, instead of a continuous strip.

One of the most important features of this process of manufacture consists in the manner by which a laminated article is made. As layer is wound upon layer in the manner hereinabove described, the pressure of the successive layers gradually increases the pressure upon the first layer so that an enormous aggregate pressure can be reached. Thus if the first winding of the material around the former-drum is effected under a

certain pressure the pressure of the second wind or layer of material will be double on the former-drum that of the first layer. An equal amount of pressure will be added by the next layer, so that the pressure on the first layer, when the third one has been wound, will equal double the pressure of the first lamination on the former-drum when first wound therearound. The result is a laminated product of unusual strength.

Having thus described my said invention, what I claim and desire to secure by Letters-Patent is:

1. A ligneous fabric composed of separated pieces of veneer, said pieces being chamfered or skived on their connecting edges and said chamfered portions overlapping each other and being connected to each other by adhesives, said joints being compacted together under pressure.

2. A fabric composed of a patchwork of thin strips or pieces of material, said strips or pieces being suitably chamfered or skived at the ends or edges of same adjacent to similar strips or pieces skived in like manner, the skived portions of both adjacent pieces vertically overlapping each other and being united together by adhesives under pressure.

3. A fabric formed out of individual pieces or strips of a thin material, each of said pieces or strips having at least one edge chamfered or skived, so that the strip or piece at its said skived edge or edges and for a short distance back therefrom is of equal thickness, but the remainder of said skived portion constituting a bevel, said skived portions being connected with adhesives and by overlapping the portions of adjacent strips or pieces, said several strips or pieces being united together under pressure by adhesives applied to said skived portions.

4. A fabric composed of laminated patchwork, said patchwork being composed of individual strips or pieces of thin material, each of said strips or pieces being skived or chamfered on at least one of its edges, said strips or pieces being connected together by adhesives applied to said chamfered portions, same vertically overlapping each other in connecting pieces, and said laminations being connected together by adhesives applied between same, and the whole fabric compacted by pressure applied thereto whereby the chamfered joints and the union between the laminations are solidified.

5. A laminated fabric, each consecutive layer of which is composed of a plurality of straight-edged scarfed pieces of veneer arranged to have adjacent portions of adjacent pieces in engagement with each other, scarf-joints being formed by a part of one piece of veneer vertically overlapping a similar part in an adjoining piece of veneer in the same layer, the pieces of an upper layer being directly secured to the pieces and overlying the joints formed by said pieces of an under layer.

6. A laminated fabric, each consecutive layer of which is composed of a plurality of scarfed pieces of veneer of indifferent areas bounded by straight lines, the adjacent portions of adjacent pieces engaging one another, scarf-joints being formed by a part of one piece of veneer vertically overlapping a similar part in an adjoining piece of veneer in the same layer, the pieces of an upper layer being directly secured to the pieces, and overlying the joints formed by said pieces, of an under layer.

7. A laminated fabric in which the laminations are in vertical relation to each other, each layer of which is composed of a plurality of individual straight-edged pieces of unprescribed area, pieces in each layer engaging each other and vertically overlapping the joints between pieces composing an adjoining layer, and the pieces composing the latter vertically overlapping joints between pieces composing the former, each lamination vertically and directly engaging an adjoining lamination, the contacting edges of adjoining pieces in the same layer being scarfed and arranged so as vertically to overlap, and the laminations being strongly bound to each other by adhesives.

8. A laminated fabric in which the laminations are in

vertical relation to each other and which is composed of
a plurality of non-integral layers in direct vertical engage-
ment with each other and bound together by adhesives,
each of said layers being composed of a plurality of indi-
5 vidual straight-edged pieces of unprescribed area, said
pieces in each layer engaging the adjoining pieces in the
same layer and vertically overlapping joints between pieces
composing an engaging layer, and the pieces composing the
latter vertically overlapping joints between pieces com-
10 posing the former, and the contacting edges of adjoining

pieces in the same layer being scarfed and arranged so as
vertically to overlap.

In testimony whereof I have affixed my signature in
presence of two witnesses this 24th day of September,
1904.

WILLIAM S. MELLEN.

Witnesses:

M. E. LETCHER,
GLADYS WALTON.