

Feb. 24, 1925.

1,527,422

M. B. LLOYD

METHOD OF PRODUCING WOVEN REED ARTICLES

Filed Oct. 4, 1922

3 Sheets-Sheet 1

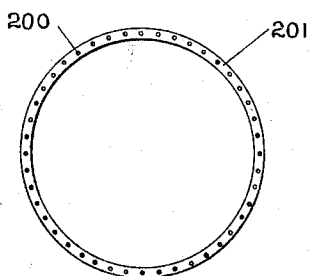


FIG. 1

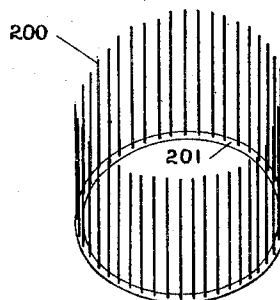


FIG. 2

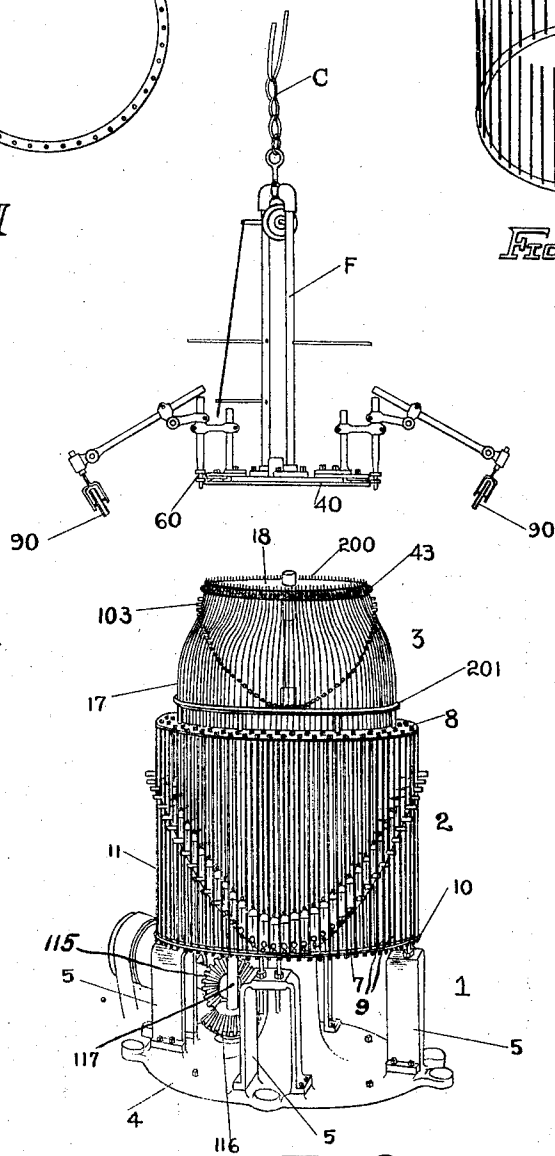


FIG. 3

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3 Sheets-Sheet 2

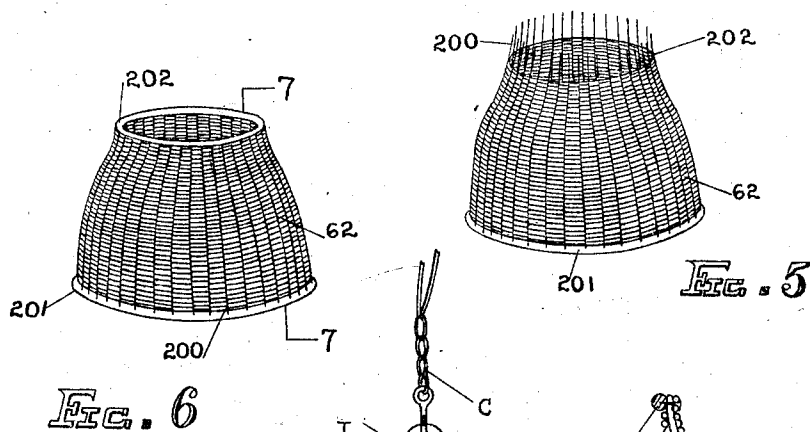


FIG. 6

FIG. 5

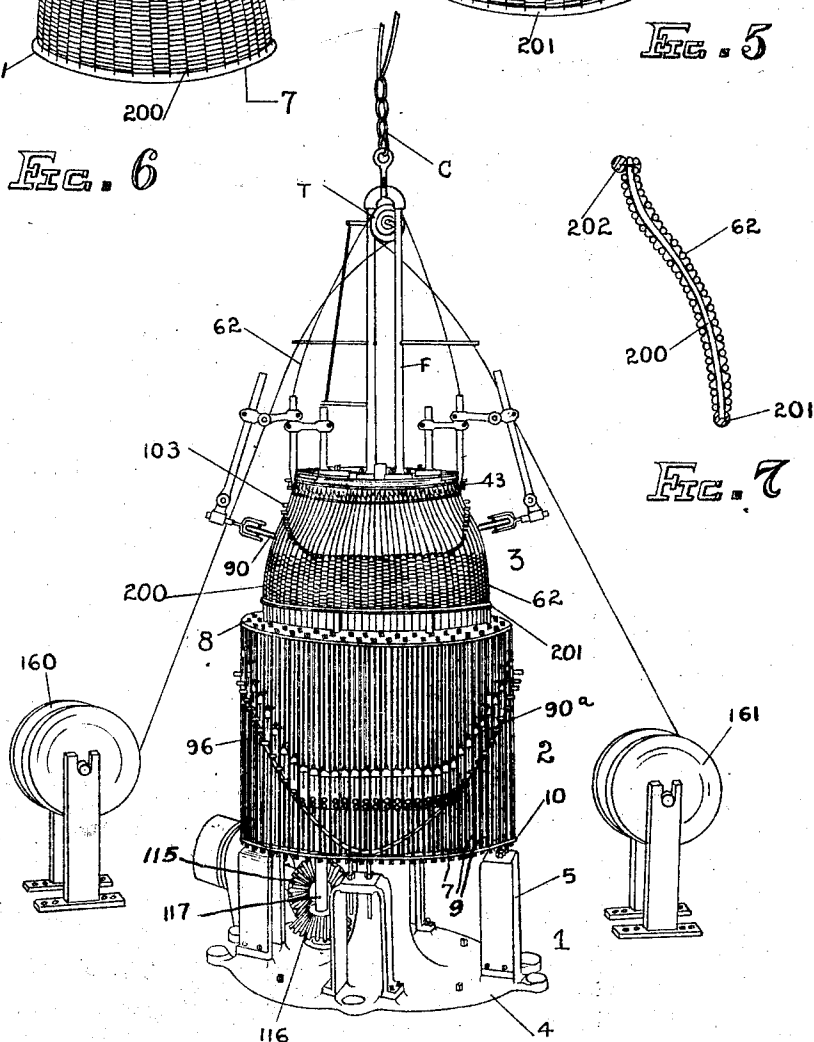


FIG. 7

FIG. 4

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3 Sheets-Sheet 3

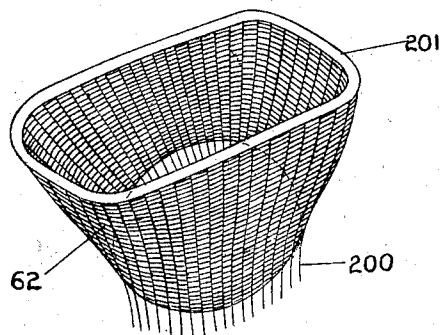


FIG. 8

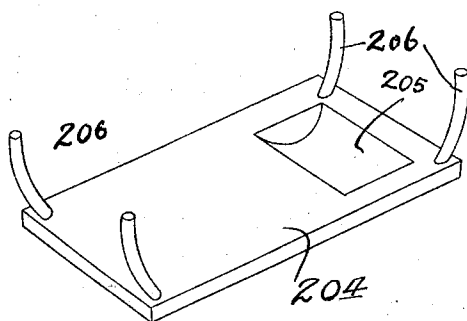


FIG. 9

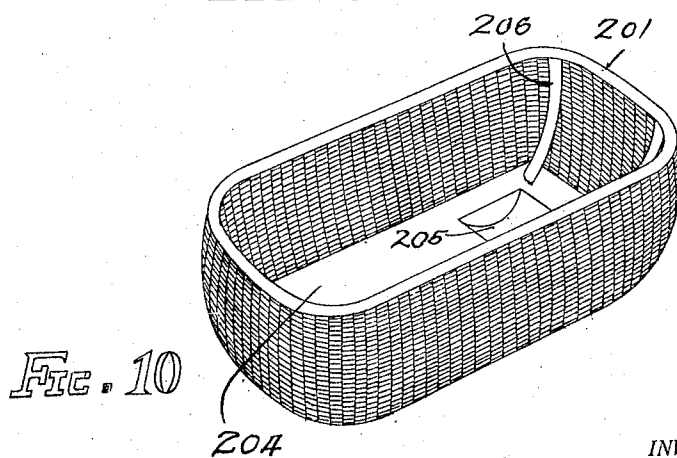


FIG. 10

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UNITED STATES PATENT OFFICE.

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METHOD OF PRODUCING WOVEN-REED ARTICLES.

Application filed October 4, 1922. Serial No. 592,287.

To all whom it may concern:

Be it known that I, MARSHALL B. LLOYD, a citizen of the United States, and a resident of Menominee, county of Menominee, and State of Michigan, have invented a certain new, useful, and Improved Method of Producing Woven-Reed Articles, of which the following is a specification.

While my invention relates generally to the production of reed articles, it relates more particularly to the production of reed articles composed in part of a frame and in part of a woven reed fabric. The term reed fabric, as here used, means a fabric composed of spaced stakes which are relatively rigid and over and under which relatively flexible filler strands are woven and it includes both the natural reed, fibre reed and materials having the general characteristics of reed.

The general object of my invention is to provide a method whereby the production of woven reed articles may be simplified and expedited.

I aim also to provide a method and means whereby the reed fabric can be woven directly upon the frame, at least in part, and whereby the steps, time and expense of producing such reed articles as have a frame are reduced.

My invention consists generally in the steps, acts, and stated sequence thereof whereby the above named objects, together with others that will appear hereinafter are attainable; and my invention will be more readily understood by reference to the accompanying drawings which illustrate what I consider, at the present time, to be the preferred embodiment thereof.

In said drawings, Fig. 1 is a plan view of a part of the frame of reed article with the stakes secured therein.

Fig. 2 is a perspective view of the part shown in Fig. 1.

Fig. 3 is a perspective view of a machine adapted to interweave the filler strand with the stakes.

Fig. 4 is a perspective view similar to Fig. 3 but illustrating the fabric partly woven.

Fig. 5 is a perspective view of a partly completed article as it appears when removed from the machine.

Fig. 6 is a view of the completed reed article.

Fig. 7 is a detail view substantially on the line 7-7 of Fig. 6.

Fig. 8 is a perspective view of a product similar to that shown in Fig. 5 but of a slightly different shape for the production of another article.

Fig. 9 is a perspective view of the other part of the article, part of which is shown in Fig. 8; and

Fig. 10 is a perspective view of the completed article.

The machine which I have shown in the drawings corresponds to the machine disclosed in applicant's Patent No. 1,459,781, June 26, 1923, filed May 28, 1917, and that being the case, the machine will not be described in as great detail as would otherwise be the case. Furthermore in order to simplify an understanding of the details of the machine if reference to the copending case is necessary, similar parts have been given similar reference characters. This machine, it should be understood, is merely one of a number of different machines that may be used as one step in the method. It should, therefore, be considered as by way of illustration and not by way of limitation.

The frame of the machine is characterized by a base portion 1; filler strand packing guide mechanism 2, and fabric limiting portion 3. The base portion 1 comprises a bottom plate 4, upstanding from which are a plurality of standards 5. The portion 2 comprises spaced plates 7 and 8 which are connected and rigidly spaced by a plurality of rods 9. Concentrically spaced around the lower plate 7 is a ring 10 which is supported from the upper plate 8 by a plurality of rods 11. The rods 9 and 11 and their fellows form guides for the sliding portions of the filler strand packing means described hereinafter.

The fabric limiting portion is composed of a plurality of members 17 which are given that shape which is desired in the finished fabric. One member 17 is provided for every stake and these members 17 are so formed that they coact in holding the stakes in proper alignment.

In the practice of the method herein dis-

closed no stake holding means are provided. That is to say instead of providing the machine with mechanism for this purpose the stakes 200 are secured directly in the part
5 201 of the frame of the article to be produced. Detailed reference will be herein-after made to the frame and to the construction of the article.

The stake manipulating and controlling means is characterized by a plate 40, which
10 in this instance, is of circular form and of a size substantially co-extensive with the outer portions of the upper ends of the members 17, in one sense forming a continuation thereof. The plate 40 is removably
15 mounted on the plate 18, by means of dowel pins (not shown) so that when these parts are in position they rotate together. In the edge of the plate 40 there is formed a curved
20 groove in which a portion of a helical spring 43 is accommodated. The spring 43 is of such size with relation to the plate 40 as to tend to compress itself on the plate and into said groove, and is preferably formed
25 with two complete convolutions for every stake of the fabric. The upper ends of the stakes 200 are accommodated in the spring 43 the detail manner of which is disclosed in said copending application.

In the present instance, it is desired to provide a woven fabric in which the filler strand passes over one stake and under the next adjacent stake and to this end I provide means which moves, outwardly, the
35 upper portion of every other stake, together with means for holding the stakes out a sufficient length of time and for properly returning them to initial position. At the point where the stakes are manipulated I
40 arrange a somewhat blade-like member 60 through which the filler strand 62 passes, finally emerging from the lower portion. Thus when the machine is operated and the stakes manipulated, the filler strand is laid
45 into place so that it passes over one stake and under the next adjacent stake. Thereafter the filler strand is properly packed upon the preformed fabric.

In order to weave the fabric rapidly and
50 yet keep the speed of the parts within reasonable limits, I find it desirable, though not necessary, to insert a plurality of filler strands at spaced intervals. In the instant case two filler strands are inserted at diametrically opposite points. It will be understood that two sets of stake manipulating mechanisms are provided.

Wheels 90 are provided to assist in holding the stakes in place.

It is important that the filler strand be properly and uniformly packed if the fabric is to be properly formed. The filler strand packing mechanism comprises a plurality of
60 fingers 103 which are carried by certain packing arms, the lower ends of which are

pivotaly attached to weight 90^A which in turn ride upon the cam 96. The action of these parts is described in detail in said copending application, and it is thought necessary here only to state that the filler strand
70 is automatically packed as it is inserted, and that the packing mechanism adjusts itself properly as the fabric is formed.

In order that the filler strands may be placed under proper tension a tensioning
75 mechanism T is provided and the filler strands pass thereto from the reels 160 and 161. The tensioning mechanism T and the entire head of the machine are secured together as by means of tubular frame F.
80 The machine, in this instance, is driven by the gear 115 which is suitably actuated by a belt, pulley or other driving means and the gear 115 meshes with the bevel gear 116, the shaft 117 of which carries a pinion, (not
85 shown) that engages with a gear (not shown), and thereby rotates the body of the machine.

Having thus described the general structure of the machine I shall describe the
90 operation of producing a woven reed article having a frame. As before stated, the stakes 200 are suitably secured in the frame portion 201. This frame portion may be made of different materials, but in practice, it is
95 preferably made of a wood or other material that can be bent or shaped, if such practice is followed. The frame portion 201 is substantially the diameter of the outer contour of the members 17 at the lower end thereof.
100 To place the frame member 201 and the attached stakes 200 over the machine, the plate 40, all the mechanism mounted thereon, and the tensioning mechanism are raised as by means of a cable C (see Fig. 3). The
105 frame member 201 and the stakes 200 may then be slipped over the fabric limiting portion 3 of the machine with the stakes in up-standing relation. Thereafter the stake manipulating mechanism is lowered into place,
110 and the free ends of the stakes properly inserted under the spring 43. Thereafter the machine is set in motion and the filler strands intertwined with the stakes the machine being kept in operation until the desired amount of fabric is produced. Thereafter the head plate and attached parts, are again removed and the fabric and frame portion removed. The article now appears
115 as in Fig. 5.

It should here be stated that instead of first fastening the stakes in the frame portion 201 and then placing the same over the machine, if desired the frame portion 201
125 may be first placed around the machine and then the individual stakes secured in place and the weaving operation performed as before described. In both instances, however, the weaving is performed with the stakes attached to part of the frame of the article
130

itself. Where a circular article is desired, it may be completed by the addition of another frame member 202 to which the ends 203 of the stakes are secured. Such a completed article is shown in Fig. 6 and a section thereof in Fig. 7, and which may be used for a number of different purposes.

Reed articles of different sizes and different shapes may be readily made by changing the contour, shape and size of the upper portion of the machine or, as before stated, machines of different kinds may be employed without affecting the method.

Thus the product shown in Fig. 8 may be produced by making the lower part of the fabric limiting means 17 conform to the shape of the frame 201 in Fig. 8. This does not affect the upper part of the machine where the stakes are manipulated. The stakes, it will be understood, are inserted in the frame 201 in the manner already described, and the weaving will be done in like manner. The product is thus one which is elongated at one end and is well adapted for the manufacture of a baby carriage body of the so-called gondola shape. To complete the body the usual base plate 204, having a footwell 205 and the upstanding end frame members 206, is provided. It is placed within the article shown in Fig. 8 or conversely, the article of Fig. 8 is placed over the structure of Fig. 9 and the parts suitably secured together. There is thus produced the completed body shown in Fig. 10.

From the foregoing description it will be obvious that the production of reed articles having frames is greatly expedited and that the method simplifies and lessens the cost of production of such goods.

In the claims, the term, woven reed articles, has been used for convenience, but this would be construed to include stake and strand fabrics that are composed of so-called fibre reed, and other materials having the general characteristics of reed, as well as the natural reed itself.

The many advantages of my invention will be apparent to those skilled in this art without further comment.

I claim:—

1. The method of producing shaped woven reed articles having frames which consist in associating a frame member and spaced stakes upon the forming frame of a weaving machine capable of interweaving a filler strand upon said spaced stakes after the bottom ends of said stakes have been fixed to said frame member, temporarily securing the free ends of said stakes so that said stakes assume the shape of the forming frame, interweaving a filler strand with said shaped

stakes by said machine, and affixing the product thus produced to another article frame.

2. The method of producing shaped reed articles having frames which consists in associating a frame member and spaced stakes upon the forming frame of a weaving machine having a stake manipulating means and a filler strand interweaving means, inserting the free end of said stakes in said stake manipulating means and thereby shaping said stakes to said forming frame, interweaving a filler strand with said shaped stakes by said interweaving means, and affixing the product thus produced to another article frame.

3. The method of producing shaped reed articles having endless frames, which consists in associating one of said endless frames with a plurality of spaced fixed stakes upon the forming frame of a weaving machine capable of weaving a filler strand upon said stakes after the bottom ends thereof have been fixed to said endless frame, temporarily securing the free ends of said stakes so that said stakes assume the shape of the forming frame, interweaving a filler strand with said spaced stakes by said machine and affixing the product thus produced to another article frame.

4. The method of producing shaped woven reed articles having frame which consists in associating a frame member and spaced stakes upon the forming frame of a weaving machine capable of simultaneously interweaving and packing a filler strand with said spaced stakes after the bottom ends of said stakes have been fixed in said frame member, temporarily securing the free ends of said stakes so that said stakes assume the shape of the forming frame, interweaving and at the same time packing a filler strand upon said spaced stakes by said mechanism and affixing the product thus produced to another article frame.

5. The method of producing shaped woven reed articles having frames which consists in associating a frame member and spaced stakes upon the forming frame of a weaving machine capable of interweaving a filler strand with said stakes and forming said stakes and strand to a desired shape, after said stakes have been secured at their bottom ends to said frame, removing the product thus produced from the machine, reshaping said product into a different form and affixing the reshaped product to another article frame.

In testimony whereof, I have hereunto set my hand, this 23rd day of August, 1922.

MARSHALL B. LLOYD.