(No Model.) 3 Sheets—Sheet 1.

C. W. GREENWOOD.

MACHINE FOR WEAVING CANE FOR CHAIR SEATS.

No. 494,139. Patented Mar. 28, 1893.

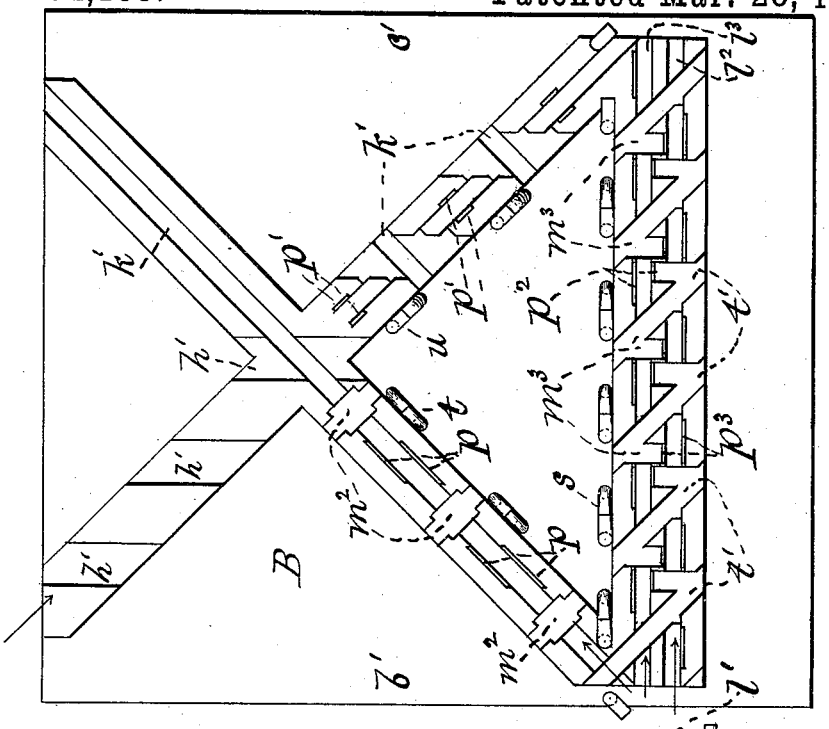

Fig-2

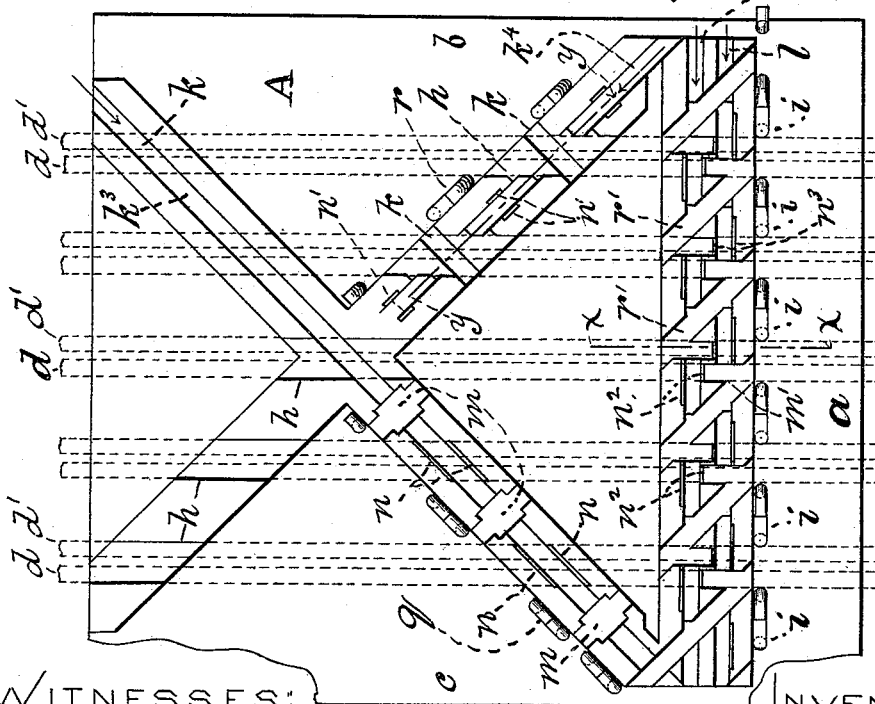

Fig-1.

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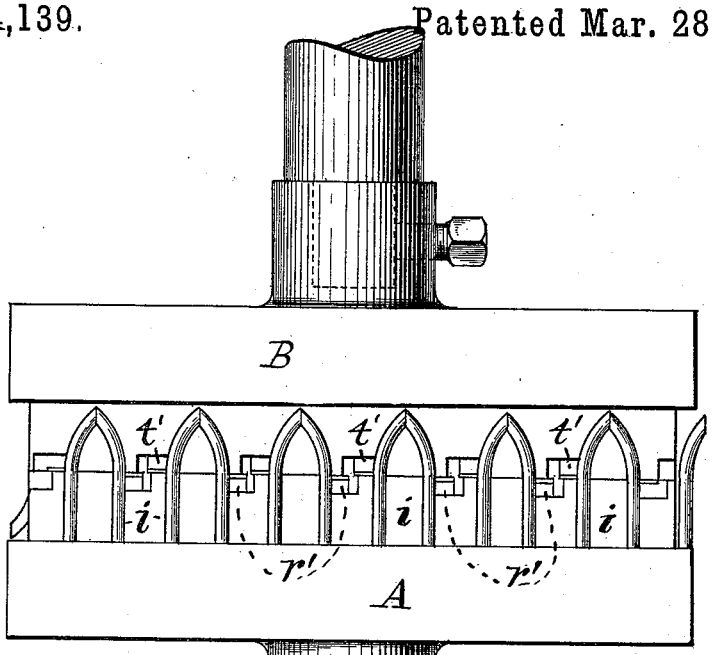

Fig. 3.

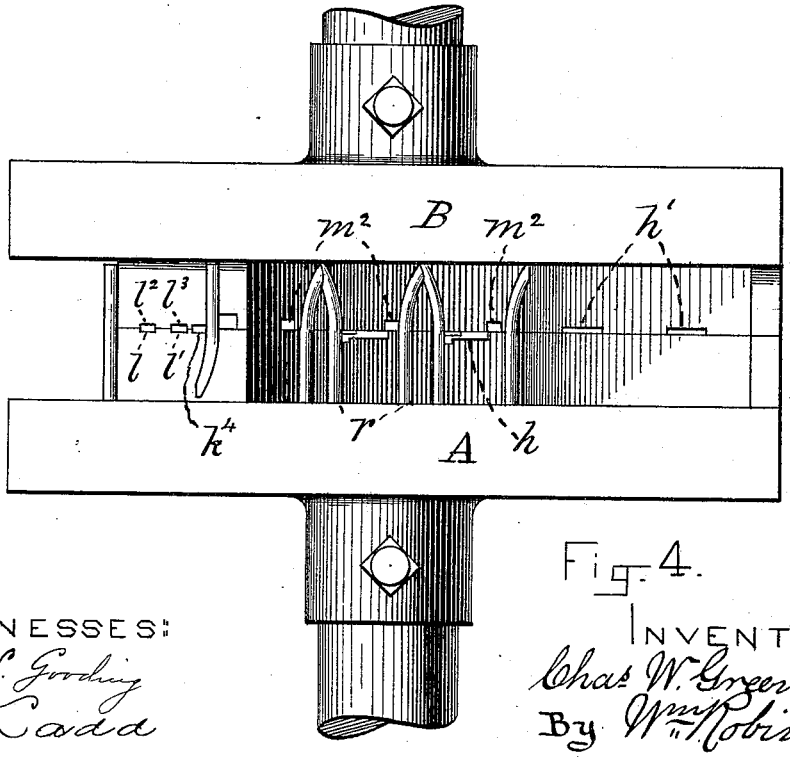

Fig. 4.

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(No Model.) 3 Sheets—Sheet 3.

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MACHINE FOR WEAVING CANE FOR CHAIR SEATS.

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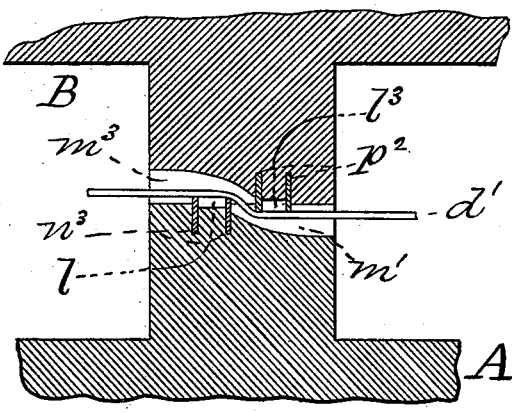

Fig. 5.

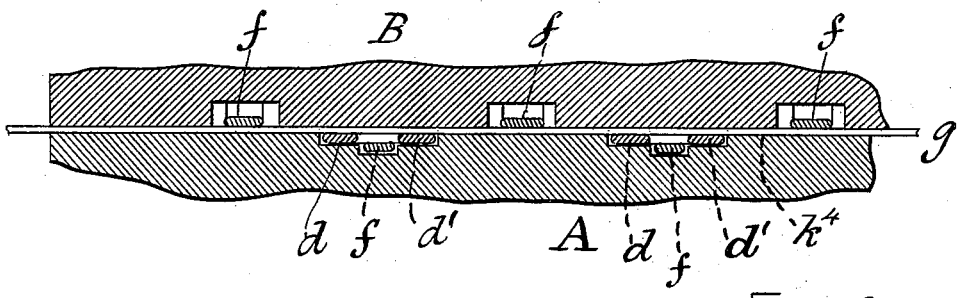

Fig. 6.

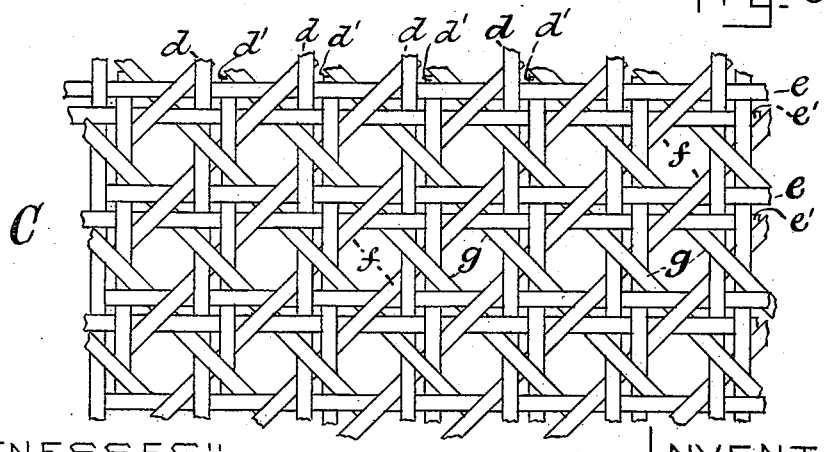

Fig. 7.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR WEAVING CANE FOR CHAIR-SEATS.

SPECIFICATION forming part of Letters Patent No. 494,139, dated March 28, 1893.

Application filed April 26, 1888. Serial No. 271,873. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. GREENWOOD, a citizen of the United States, residing at South Gardner, in the county of Worcester and State of Massachusetts, have invented a new and useful Machine for Weaving Cane for Chair-Seats, &c., of which the following is a specification.

Heretofore cane chair seats and backs have generally been woven by hand without the assistance of any mechanism whatever, thus involving a slow, tedious and expensive process.

The object, therefore, of my invention is to produce a device by means of which a continuous cane seating web may be woven by feeding the strands of cane and operating said device by hand, or in any other suitable manner.

My invention consists in two pressure blocks or frames adapted to be alternately pressed together and separated, the corresponding faces of said blocks being provided with grooves, guides and compressing plates or edges so related to each other and combined that when longitudinal strands of cane are introduced between said blocks and pressure applied said strands will be bent to one side or the other of the diagonal grooves in said blocks in such a way as to permit the introduction of the diagonal canes in a straight line through said diagonal grooves, while at the same time, at another part of said pressure blocks or frames both the longitudinal and the previously introduced diagonal strands of cane will be pressed, at suitable intervals, to one side and the other of the lateral or cross grooves in said blocks, whereby said cross grooves afford a clear and straight channel through which the cross strands of cane are introduced, by which process, when the blocks are opened, a row of meshes, with all the strands in proper position, is found completed, all of which will be more clearly understood from the description which follows, reference being had to the accompanying drawings, which form part of this specification, in which

Figure 1 is a plan view of the lower pressure block or frame, and Fig. 2 an inverted plan of the upper pressure block or frame, illustrating my invention. Fig. 3 is an elevation, looking from the side *a*, Fig. 1, showing the pressure blocks in position, pressed together, and showing a row of guides and the ends of the diagonal grooves in both blocks. Fig. 4 is another elevation of said blocks, at right angles to the view shown in Fig. 3, looking from the side *b* Fig. 1. Fig. 5 is a vertical cross section through the line *x. x.* Fig. 1. Fig. 6 is a vertical section through the diagonal line *y, y,* Fig. 1; while Fig. 7 shows a portion of the completed cane web as woven between said pressure blocks.

It will be understood that in practice the pressure blocks or frames are made wide enough to weave a web of sufficient width for chair seats or for such purpose as said web may be required.

Similar letters of reference indicate corresponding parts in all the figures.

In bringing the pressure blocks or frames A and B together as shown in Figs. 3 and 4 the upper block B (Fig. 2) is turned over upon the lower block A (Fig. 1), in such a way that the sides *b*, *b'*, and the sides *c*, *c'* of the two blocks correspond with each other.

An inspection of Fig. 7 shows that the web C is composed of strands of cane interwoven and crossing each other in four directions, namely, the longitudinal strands *d*, *d'*, in pairs, the cross strands *e e'* in pairs, and crossing said longitudinal strands at right angles; the single diagonal strands *f* passing under all the longitudinal strands *d*, *d'* and over all the cross strands *e e'*, and the diagonal strands *g* passing over all the longitudinal strands *d d'* and under all the cross strands *e e'* at right angles to said diagonal strands *f*. The blocks or frames A, B, therefore are provided with grooves corresponding to these various strands. The longitudinal strands *d*, *d'*, lie in the longitudinal grooves *h*, *h'*, and are kept in place, laterally, at the end *a* of the block by the vertical guides *i*. The blocks A, B, are also provided with diagonal grooves *k* in the lower block A, and *k'* in the upper block B, and also with parallel cross grooves *l*, *l'*, in the lower and corresponding cross grooves l^2 l^3 in the upper block.

It will be observed that when the block B is turned over upon the block A the diagonal grooves of the block B cross at right an-

gles the diagonal grooves of the block A. Said blocks A and B are also provided at suitable intervals with recesses m, m', m^2, m^3, into which certain strands of the cane which are to form the web are pressed, in order to leave clear grooves and runways for strands which are to cross and intermesh with those pressed into said recesses.

The blocks A, B, are provided, at both sides of the various grooves and close thereto, with vertical plates or edges n, n', n^2, n^3, on block A, and p, p', p^2, p^3, on the block B. These vertical plates are of various widths and project slightly beyond the surface of the blocks and all their edges on the same block are in the same horizontal plane. When however the blocks are pressed together the edges of the vertical plates of one block come opposite and drop into the recesses or spaces of the other block. These vertical plates are arranged in pairs, one at each side of the groove, as shown, and their object is to force the strands of cane with which their edges come in contact, down, or up, into the recesses of the opposite block, thus leaving the grooves open and clear between said pairs of plates.

The principle of operation is clearly illustrated in Figs. 5 and 6. In Fig. 5 the longitudinal strand d' is forced upward into the recess m^3 by the vertical plates n^3 of the lower block A, and downward into the recess m' by the vertical plates p^2 of the upper block B. This leaves the grooves l, l', clear for the insertion respectively of the cross strand e' below said longitudinal strand d', and the cross strand e above the same. It will be understood that when the longitudinal strand d' is bent out of a straight line by the vertical plates n^3, p^2, as shown, the adjacent longitudinal strand d is also similarly bent out of a straight line but in a reverse direction, by the vertical plates n^2 p^3, whereby, in running, in a straight line through the clear grooves l, l', the cross strands e e' respectively run alternately below and above the longitudinal strands d, d', the two strands e e' passing, in all cases, on opposite sides of the same longitudinal strand. The same vertical plates, it will be understood, which press the longitudinal strands alternately to one side and the other of the cross grooves l, l', at the same time press the diagonal strands f, g, into proper position so that the cross strands e, e', may have a clear run way and at the same time properly intermesh with both the longitudinal and the diagonal strands, thus completing the web, as clearly illustrated in Fig. 7.

Referring to Figs. 1, 2 and 6: the vertical plates p of the upper block press down the longitudinal strands d d' and the alternate diagonal strands f, below the surface of the lower block A and at the same time the vertical plates n' press the next adjacent or intermediate diagonal strands f above the surface of the upper block B, as clearly shown in Fig. 6, whereby the diagonal strand g is run in a straight line through the diagonal groove k^4 in proper position relatively to the various strands which it crosses. In like manner, the vertical plates n of the lower block press up said longitudinal strands d, d' and the alternate diagonal strands g above the surface of the upper block B, and at the same time the vertical plates p' press the next adjacent or intermediate diagonal strands g below the surface of the lower block A, whereby the diagonal strand f is run in a straight line through the diagonal groove k^3, in proper position relatively to the various strands which it crosses. It will be understood that diagonal strands g are passed through the grooves r' parallel to the groove k^4, in the same manner as they are passed through the latter; also that strands f are passed through the grooves t' parallel to the groove k^3, in the same manner as they are passed through said groove k^3. In weaving this web the longitudinal strands d, d', are first stretched in position between the guides i, a suitable tension being applied at the ends, to hold them in position.

The operation will be understood as follows, supposing the web to be already commenced and a portion of it completed: The blocks A, B, are pressed together as shown in Figs. 3 and 4 thus compressing the longitudinal strands and such of the diagonal strands as are already in place, in the manner already described. Strands are now pushed through the diagonal grooves k^3 k^4 one strand through each groove, in the direction of the arrows. At the same time, or at least before changing the position of the parts, cross strands are pushed through the cross grooves l, l', one strand through each groove. The blocks A B are now opened and drawn apart a sufficient distance; the web is then drawn forward in the direction of the side a of the block A a distance equal to the distance between two adjacent rows of meshes in the web. The blocks are now again closed together and the same operation is repeated of inserting one set of diagonal and one set of cross strands. When the cross strands are inserted last each insertion of a pair of cross strands completes one row of meshes in the web.

The guides i not only serve to guide the individual strands into proper place, but, passing through a row of meshes in the web they serve to keep the latter in proper position relatively to the pressure blocks. Other guides q, r, s, t, u, serve to guide the various strands into their proper channels.

The various strands of cane may be advanced to and introduced between the pressure blocks, and said blocks be operated, by hand, or by any other means found suitable.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Blocks or frames provided with longi-

tudinal grooves *h*, *h'*, and the cross grooves *l*, *l'* at right angles to said longitudinal grooves, said blocks being provided, at suitable intervals, with projections arranged in pairs at either side of said cross grooves and with recesses opposite said projections, substantially as described.

2. The blocks or frames A, B, having their corresponding surfaces provided with longitudinal grooves *h*, *h'*, cross grooves *l*, *l'*, and diagonal grooves *k'*, k^3, and with plates or projections arranged at each side of said cross and diagonal grooves, in pairs, at suitable intervals apart, and with recesses opposite said plates, substantially as set forth.

3. The blocks or frame A, B, provided, respectively, with longitudinal grooves *h*, *h'*, cross grooves at right angles thereto, projections arranged alongside of said cross grooves, recesses opposite said projections, diagonal grooves *k'*, k^3, the diagonal grooves of one block crossing the diagonal grooves of the other block at right angles when the corresponding faces of said blocks are brought together, substantially as described.

4. The blocks A, B, provided, respectively, with longitudinal and cross grooves crossing each other at right angles, diagonal grooves also crossing each other at right angles, and vertical plates or projections arranged at each side of said cross and diagonal grooves, in pairs, said plates or projections on one block corresponding to depressions in the opposite block, substantially as described.

5. The blocks or frames A, B, provided, respectively, with longitudinal grooves, grooves crossing the same at right angles, projections at the sides of said cross grooves at suitable intervals apart, and depressions or recesses opposite said projections, the whole so related to each other that when said blocks are brought together, face to face, a cane web may be interwoven between said blocks by passing strands of cane through or along said grooves, substantially as set forth.

6. The blocks or frame A, B, provided with grooves, and having guides arranged in close proximity to said grooves for the purpose of guiding strands of cane into said grooves, substantially as described.

CHARLES W. GREENWOOD.

Witnesses:
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HARRY T. DUNN.