2 Sheets—Sheet 1.

D. F. NOYES.

Machine for Making Veneer-Boxes.

No. 218,307. Patented Aug. 5, 1879.

Fig: 1.

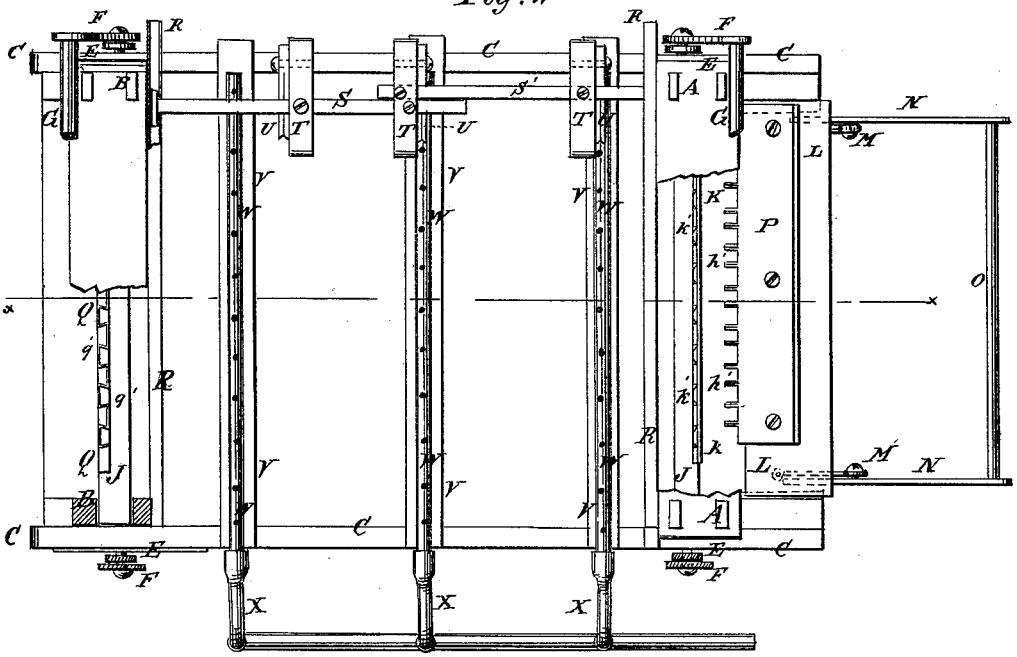
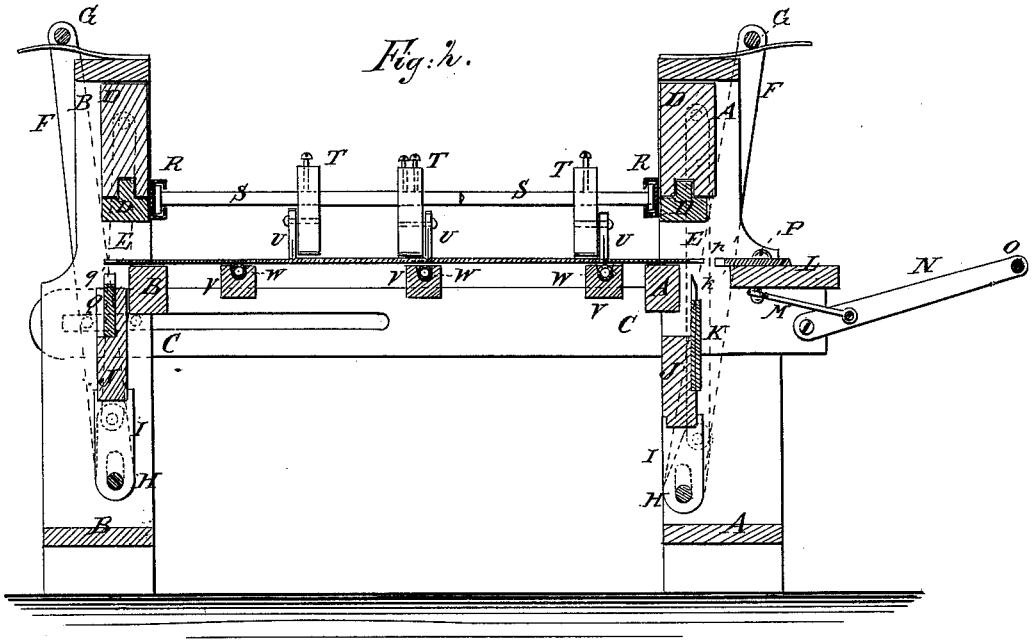


Fig: 2.



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D. F. NOYES.

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Fig: 3.

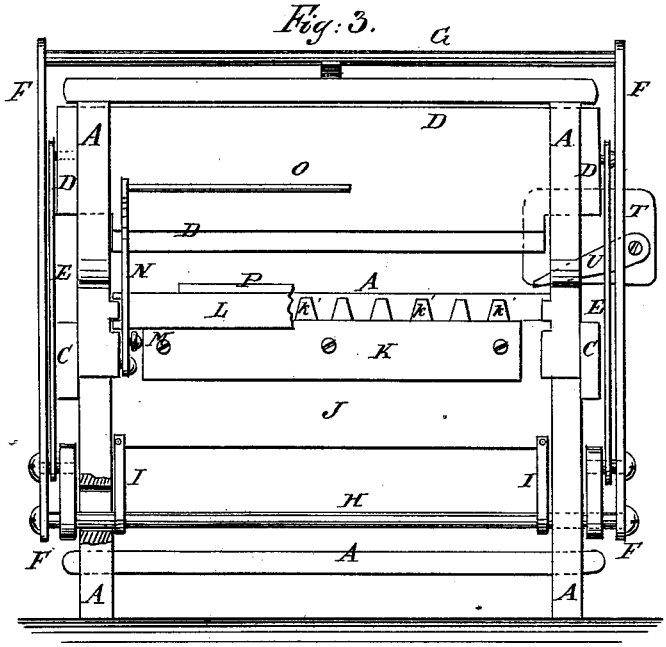


Fig: 4.

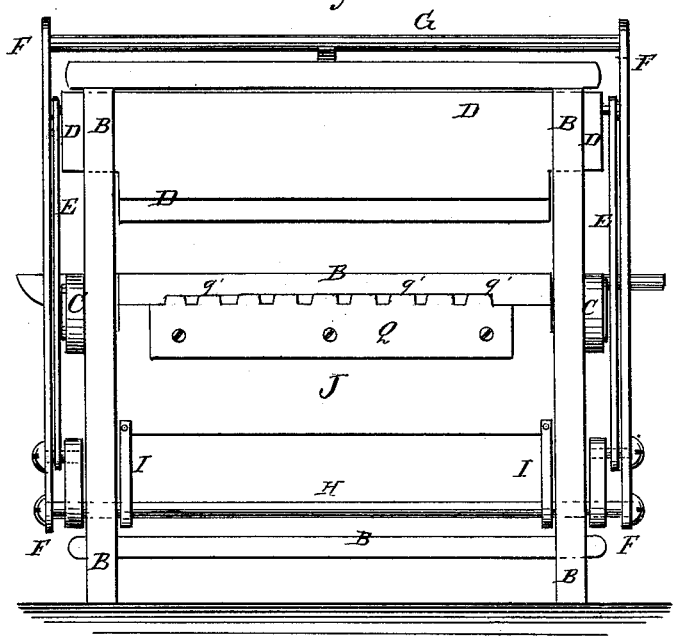
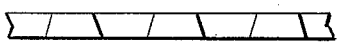


Fig: 5.



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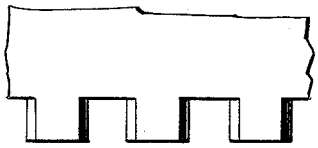


Fig: 7.

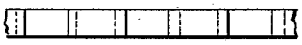


Fig: 8.

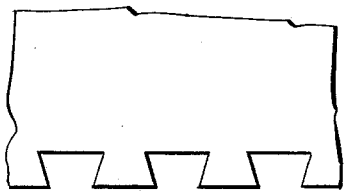


Fig: 9.

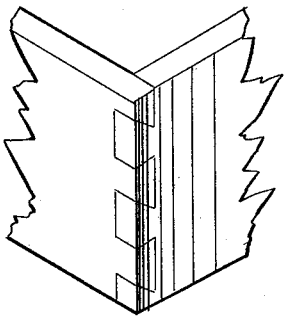


Fig: 10.

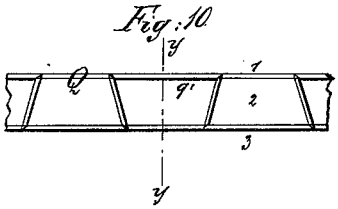
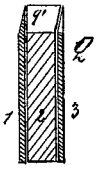


Fig: 11.



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UNITED STATES PATENT OFFICE.

DAVID F. NOYES, OF LEWISTON, MAINE.

IMPROVEMENT IN MACHINES FOR MAKING VENEER BOXES.

Specification forming part of Letters Patent No. **218,307**, dated August 5, 1879; application filed December 13, 1878.

To all whom it may concern:

Be it known that I, DAVID F. NOYES, of Lewiston, in the county of Androscoggin and State of Maine, have invented a new and useful Improvement in Machines for Making Dovetailed Veneer Boxes, of which the following is a specification.

Figure 1, Sheet 1, is a top view of my improved machine, part being broken away to show the construction. Fig. 2, Sheet 1, is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1. Fig 3, Sheet 2, is an end view of the same, part being broken away to show the construction. Fig. 4, Sheet 2, is a view of the other end of the machine. Figs. 5 and 6, Sheet 2, are an end and a plan view of the beveled tenons. Figs. 7 and 8, Sheet 2, are an end and a plan view of the dovetailed tenons. Fig. 9, Sheet 2, is a perspective view of an edge of a box, showing the beveled and dovetailed tenons interlocked. Fig. 10 is a detail top view of a part of the dovetail cutter-plate, showing its parts and the arrangement of its teeth. Fig. 11 is a detail cross-section of the same, taken through the line *y y*, Fig. 10.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine for forming dovetailed veneer boxes, which shall be so constructed as to form the boxes out of seasoned veneer, and which shall be simple in construction, convenient in use, and effective in operation, forming neat and strong boxes.

The invention consists in the combination of the vertically-sliding clamping-bars and the vertically-sliding cutter-bars, provided with the cutter-plates with each other and with the end frames of the machine; in the combination of the connecting-bars, the levers the rods, and the arms with the vertically-sliding clamping-bars, the vertically-sliding cutter-bars, and the end frames of the machine; in the combination of the grooved bars or ways, the bar made in two parts, having cross bars or heads upon their outer ends, and having their inner ends overlapped, the adjustable holding-blocks, and the cutters, with each other and with the end frames of the machine; in the combination of the adjustable grooved bars, the perforated steam-pipes, and the flexible tubes with the side bars of the frame of the machine; and in the cutter formed of three parallel plates having teeth formed upon their upper edges, the teeth of the outer plates alternating with each other, and the teeth of the intermediate plate joining their adjacent edges, as hereinafter fully described.

A and B are the vertical end frames of the machine, to the middle parts of the posts of one of which, as A, are securely bolted the ends of the side bars, C. The other parts of the side bars, C, are slotted longitudinally, to receive the bolts that secure the posts of the other end frame, B, to the said side bars, C.

This construction allows the end frames, A B, to be adjusted nearer together or farther apart, as the sizes of the pieces of wood to be cut may require.

The upper parts of the posts of the end frames, A B, are slotted longitudinally to receive the ends or tenons formed upon the ends of the clamping blocks or bars D, so that the said clamping-bars may be moved down to clamp the veneer to be cut upon the central cross-bars of the said end frames, A B, and hold it securely while being cut.

To the ends of the clamping-bars D, at the outer sides of the posts of the end frames, A B, are pivoted the upper ends of the connecting-bars E, the lower ends of which are pivoted to the levers F at a little distance from their lower ends.

The outer ends of the levers F are connected by a round, G, which serves as a handle in operating them, and causes the levers of each pair to move together. The lower ends of the levers F of each pair are attached or pivoted to the ends of a rod, H, which rods H pass through short slots in the lower parts of the posts of the end frames, A B, and to them, at the inner sides of the said posts, are pivoted the lower ends of the arms I, the upper ends of which are attached to the lower edges of the cross-bars J. The ends of the cross-bars J, or tenons formed upon the said ends, slide up and down in short longitudinal slots in the lower parts of the posts of the end frames, A B. To the outer side of the upper part of the sliding cross-bar J, at one end of the machine, is at-

tached a cutter-plate, K, the upper edge of which projects above the upper edge of the said cross-bar J, and has cutters or teeth *k'* formed upon it. The teeth *k'* are made slightly tapering, as shown in Fig. 3, and with their upper and side edges sharp.

By this construction the ends of the rods H serve as fulcrums to the levers F when drawing the clamping-bars D downward, and the pivots at the lower ends of the connecting-bars E serve as fulcrums to the said levers F when raising the cutter-bars J.

L is a horizontal cross-bar, the ends of which slide upon ways attached to or formed upon the side bars, C, and the posts of the end frame, A. To the under side of the end parts of the cross-bar L are pivoted the ends of two connecting-bars, M, the other ends of which are pivoted to the levers N at a little distance from their inner ends. The levers N, at their inner ends, are pivoted to the frame-work of the machine, and their outer ends are connected by a round, O, to cause them to move together, and to serve as a handle in operating them.

To the inner part of the upper side of the sliding cross-bar L is attached a cutter-plate, P, the inner edge of which projects beyond the inner edge of the sliding cross-bar L, and has teeth or cutters *p'* formed upon it. The teeth *p'* are inclined, to correspond with the inclination of the side edges of the teeth or cutters *k'*.

With this construction, when the veneer has been arranged upon the center cross-bars of the end frames, A B, the levers F are swung downward. The first effect of this movement is to draw the clamping blocks or bars D downward, to clamp the veneer upon the cross-bars of the frames A B. As the downward movement of the levers F is continued, the next effect is to force the bar J and the cutter K upward, and cause the teeth *k'* to cut out the wood or chips between the tenons and form the shoulders of the said tenons.

After the clamping-bars D have been forced down, and before the cutters *k'* have made their cut, the levers N are forced upward, which forces the bar L inward and causes the cutters *p'* to enter the end of the veneer and form the inclined or beveled sides of the tenons.

To the upper part of the outer side of the sliding bar J, or in a rabbet formed in the said outer side at the other end of the machine, is attached a cutter-plate, Q, the upper edge of which projects above the bar J, and has teeth or cutters *q'* formed upon it. The teeth or cutters *q'* are so formed, as shown in Fig. 1, as to form dovetailed tenons upon the end of the veneer.

The cutter Q is single, but would be impracticable if made in one piece, as it would then require too much labor to keep it sharp, while this can readily be done when made in pieces.

The outer plate, 1, is made with straight teeth, beveled upon their outer sides, to cut off the ends of the tenons square.

The teeth of the inner plate, 3, are made straight, and are beveled upon their inner sides to cut off the shoulders of the tenons square. The teeth of the intermediate plate, 2, are inclined, to cut the inclined edges of the dovetailed tenons. The three plates are so arranged that the teeth of the two outer plates, 1 3, may alternate with each other, and the teeth of the intermediate plate join their adjacent edges, as shown in Figs. 1 and 10. With this construction the tenons formed at the two ends of the machine will match with each other and form a close and strong angular dovetailed joint, as shown in Fig. 9.

The cutter-plate Q is forced upward to make the cut by swinging the levers F downward, in the manner hereinbefore described.

To the inner sides of the upper parts of the end frames, A, B are attached two bars, R, in the inner sides of which are formed T or dovetailed grooves to receive and serve as ways for the cross bars or heads formed upon or attached to the outer ends of the bar S. The bar S is made in two parts, the inner ends of which overlap each other, as shown in Fig. 1, so that the said bar may be adjusted in length to correspond with the distance apart at which the end frames, A B, are adjusted.

Upon the bar S are placed three blocks, T, which are secured in place adjustably by set-screws. To the sides of the blocks T are secured cutters U, made somewhat in the form of gages, to groove or score the veneer at the three points where it is to be bent to form the edges of the box. The bar S and its blocks and cutters T U may be moved across the machine to score the veneer by hand or by any suitable mechanism, as may be desired. The sliding cutters that form the tenons may also be operated by gearing driven by steam or other power, if desired, instead of using the hand-levers, as hereinbefore described.

V are adjustable cross-bars, which rest upon the side bars, C, directly beneath the points in the veneer where the scores are to be formed. The bars V have deep grooves formed longitudinally in their upper sides to receive pipes W, which are finely perforated upon their upper sides, and are connected by flexible tubes X with a boiler or other steam-generator, so as to steam the veneer at the points where it is to be bent, so that it may be bent without breaking or checking as soon as it is taken from the machine.

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

1. The combination of the vertically-sliding clamping-bars D, the vertically-sliding cutter-bars J, provided with the cutter-plates K *k'*, Q *q'*, and the horizontally-sliding cutter-bar L, provided with the cutter-plate P *p'*, with each other and with the end frames, A B, of the machine, substantially as herein shown and described.

2. The combination of the connecting-bars E, the levers F, the rods H, and the arms I

with the vertically-sliding clamping-bars D, the vertically-sliding cutter-bars J, and the end frames, A B, of the machine, substantially as herein shown and described.

3. The combination of the grooved bars or ways R, the bar S, made in two parts, having cross bars or heads upon their outer ends, and having their inner ends overlapped, the adjustable holding-blocks T, and the cutters U, with each other and with the end frames, A B, of the machine, substantially as herein shown and described.

4. The combination of the adjustable grooved bars V, the perforated steam-pipes W, and the flexible tubes X with the side bars, C, of the frame of the machine, substantially as herein shown and described.

5. The cutter Q, formed of three parallel plates having teeth formed upon their upper edges, the teeth of the outer plates alternating with each other, and the teeth of the intermediate plate joining their adjacent edges, substantially as herein shown and described.

DAVID F. NOYES.

Witnesses:
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C. SEDGWICK.