

JOHN B. RITCHEY.

Improvement in Dovetailing-Machines.

No. 114,859.

Patented May 16, 1871.

Fig. 1.

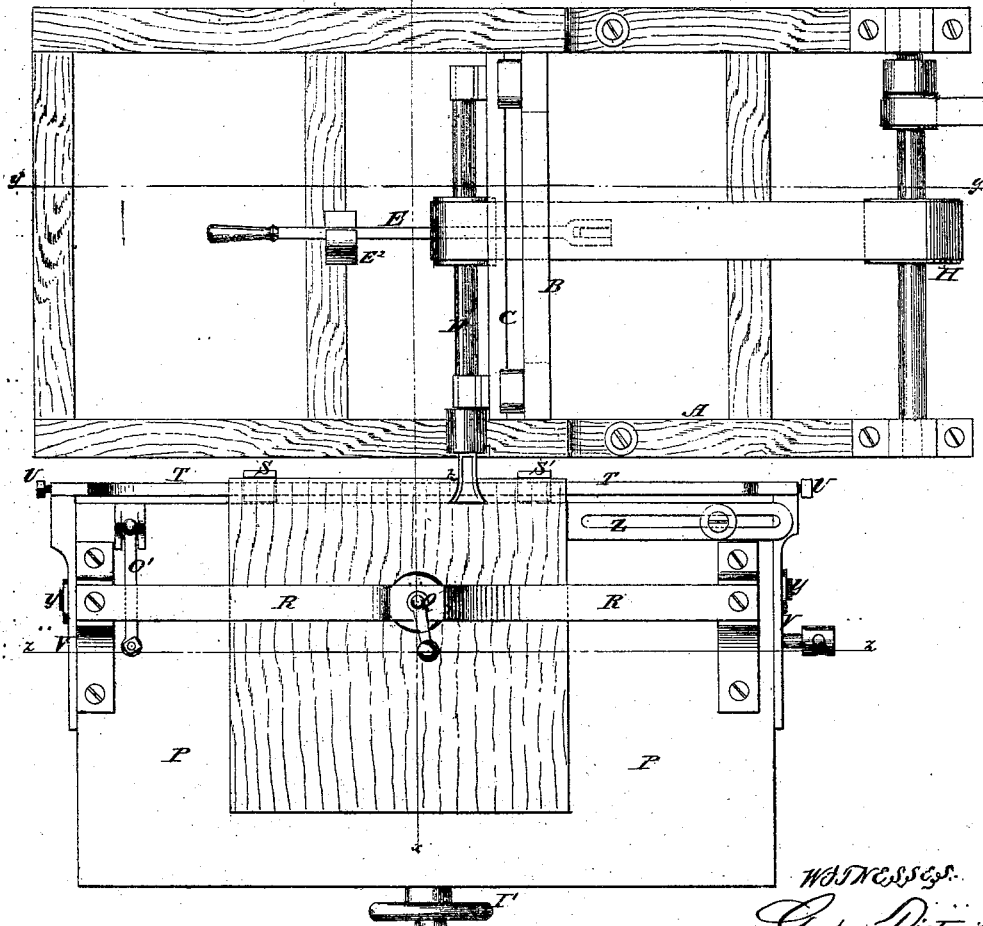
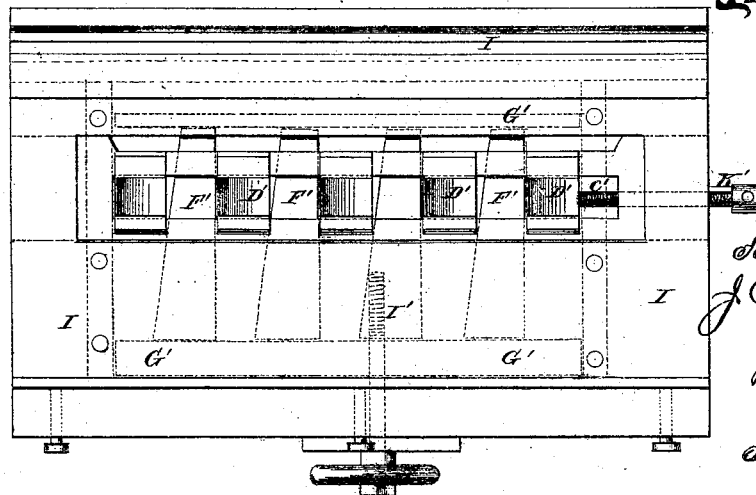


Fig. 2.



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## IMPROVEMENT IN DOVETAILING-MACHINES.

Specification forming part of Letters Patent No. 114,859, dated May 16, 1871.

### *To all whom it may concern:*

Be it known that I, JOHN B. RITCHEY, of Pomeroy, in the county of Meigs and State of Ohio, have invented a new and useful Improvement in Dovetailing-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

This invention relates to improvements in machinery for cutting the notches and forming the tenons on the ends of boards for dovetailing them together; and it consists in the construction and arrangement of parts, as hereinafter described and claimed.

Figure 1 is a plan view of my improved machine. Fig. 2 is a plan of the work-holding and feeding-table support, the said table being removed. Fig. 3 is a transverse vertical section taken on the line *x x* of Fig. 1. Fig. 4 is a longitudinal sectional elevation taken on the line *y y* of Fig. 1. Fig. 5 is a perspective view of the cutter used for forming the tenons of one piece, which are shown in perspective in Fig. 8. Fig. 6 is a perspective view of the other cutter used for forming the slots or notches in the other piece, which are shown in perspective in Fig. 7. Fig. 9 is a sectional elevation through the feeding-table and its support, taken on the line *z z* of Fig. 1; and Fig. 10 is a plan of the bottom of the holding and feeding table.

Similar letters of reference indicate corresponding parts.

A is a rectangular frame, on which is a vertical support, B, for a vertically-reciprocating gate or frame, C, on which the cutter-mandrel D is mounted horizontally, so that the head to which the cutters are to be attached is presented at one side of said frame A. This mandrel-carrying gate is mounted in suitable guides on the vertical frame, and has a hand-lever, E, connected to it for raising and lowering it, said lever being suitably supported on a stand, F, to which it is jointed.

The cutter-mandrel is turned by a belt, G, driven by the counter-shaft and pulley H, suitably mounted on the frame A. This frame has a broad and long horizontal work-table

support, I, mounted on the side to which the cutter-head is presented by means of the vertical plate K, ways L, and the vertically-adjusting screw M. Said support is provided on the top with the horizontal and parallel ways N, which are perpendicular to the cutter-mandrel, and in which the sides O of the work-table P move back and forth for feeding the table and the work in front of the cutter, the work being clamped upon it by the clamp-screw Q screwing down through the cross-beam R. This table has adjustable gage-studs S at the edge fronting the cutter, for gaging the depth of the notches. Said gages are mounted on the bar T, so as to slide lengthwise on it, for boards of different widths, and provided with the adjusting-screws U for shifting them; and this bar T is attached at each end to a slotted bar, V, arranged against the end of the table, and connected to the long bar W in the space under the table, between the latter and the support I, which bar extends from end to end of the table and receives the adjusting-screw X, mounted in the table for adjusting the bar T and the gage-stops S toward or from the table, as required for the depth of the notches, which must be governed by the thickness of the stuff.

The slotted bars V have clamp-screws Y passing through them into the table for clamping them up tight, and preventing any movement after being adjusted.

Z is an adjustable gage placed on the top of the table to act against one edge of the work for gaging the distance of the first notch from the edge.

The board being clamped upon the table, and adjusted against the gages S and Z, must be moved along from time to time as each notch is cut, and each movement must be exactly the same, which can be very readily accomplished by having a number of stops arranged exactly equal distances apart, one after another, against which any suitable projection on the table may be caused to strike as the latter is moved along; but as it is desirable to vary the movements for different work it becomes necessary to have these stops adjustable, which I propose to accomplish in the following way:

Below the table P, and attached to the sup-

port I, is a bar, A', parallel with the major axis of the table, having the long vertical longitudinal slot B' and a horizontal longitudinal slot, C', on which are mounted the vertical adjustable stops D', working in the vertical slot, and having a flange, E', above and below the said bar.

Between each stop is a horizontal wedge-shaped piece, F', placed endwise between the ribs or flanges G' of the adjusting-plate H', to which the adjusting-screw I', mounted in the support I, is connected, so as to move the adjusting-plate H' forward and backward in the transverse direction of the slotted stop-supporting bar A'. This bar has an adjusting-screw, K', in one end screwing against the stop D' next to that end. These stops are adjusted near together by the moving of the wedges F' back toward the outer edge of the table, and then forcing them together by the set-screw K'; and they are adjusted from each other by screwing screw K' outward and forcing the wedges in. The wedges are moved by the adjusting-plate H' and screw I'.

L is the projection on the table used for striking against the stops D' to arrest it at the right position. It is attached to the spring-bar M', which is connected at the free end by the link N' with the bell-crank trip-lever O' on the top of the table, for raising the said projection over the stops readily to allow the table to be moved back. For feeding forward the said projection is forced up to pass over the stops by the inclined tops thereof.

P' is a spring, arranged with the bar M' to assist in causing it to spring down and engage behind the stops.

The cutter for forming the notches or slots a, having side walls parallel with the longitudinal axis of the board, has the two edges b (one at each side of the hollow space d) parallel with the axis of rotation, and as far apart as the greatest breadth of the notches is to be; and, in connection with these, it has the end edges e, which cut the vertical walls f' of the notches, while the edges b cut the side walls g.

The cutter for forming the tenons h, by cutting out the notches i between them, has two end edges, k, similar to the edges e of the other cutter; but the side edges l are formed on a concave curve, beginning at the outer ends of the edges k, and running backward toward

the axis of rotation, which curve is formed on a radius equal to that of the edges b of the cutter for forming the notches a. Therefore the convex walls m of the projections h will exactly fit the concave walls g of the notches a when the said projections are inserted in the notches, the respective boards to which they belong being placed perpendicular to each other, in the ordinary way of putting dovetailed work together.

When the boards to be fitted are placed in position and adjusted along the cutter, the said cutter is held above them by the hand-lever E resting in the notched holder E<sup>2</sup>, and it is let down against the upper surface to perform the work.

In forming the projections h the cutter is allowed to pass completely through the board; but in forming the notches a it is arrested when the slot has been made as wide at the bottom of the board as the narrowest part of the tenons. For this purpose the adjustable stops E<sup>3</sup> are placed on the vertical frame B for the lower end of the gate C to come in contact with. Adjustable stops E<sup>4</sup> may also be used to control the upward movement of the gate.

The vertical adjustment for the support I of the table is provided for regulating the table relatively to the cutters for boards of different thicknesses.

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

1. The combination, with the reciprocating table P and the vertically-moving rotary cutter, of the gage-stops S, bars T, V, and W, and adjusting-screw X, all substantially as specified.

2. The combination of the adjustable stops D', wedges F', adjusting-plate H', and adjusting-screws I' and k', all substantially as specified.

3. The combination, with the table P and adjustable stops D', of the spring-bar M, provided with projection L' and trip-lever O.

4. The combination, with the gage-bar T, gages SS', and the slotted bars V, of the clamp-screws y y, substantially as specified.

JOHN B. RITCHEY.

Witnesses:

JAMES RITCHEY,  
WESLEY BRALEY.