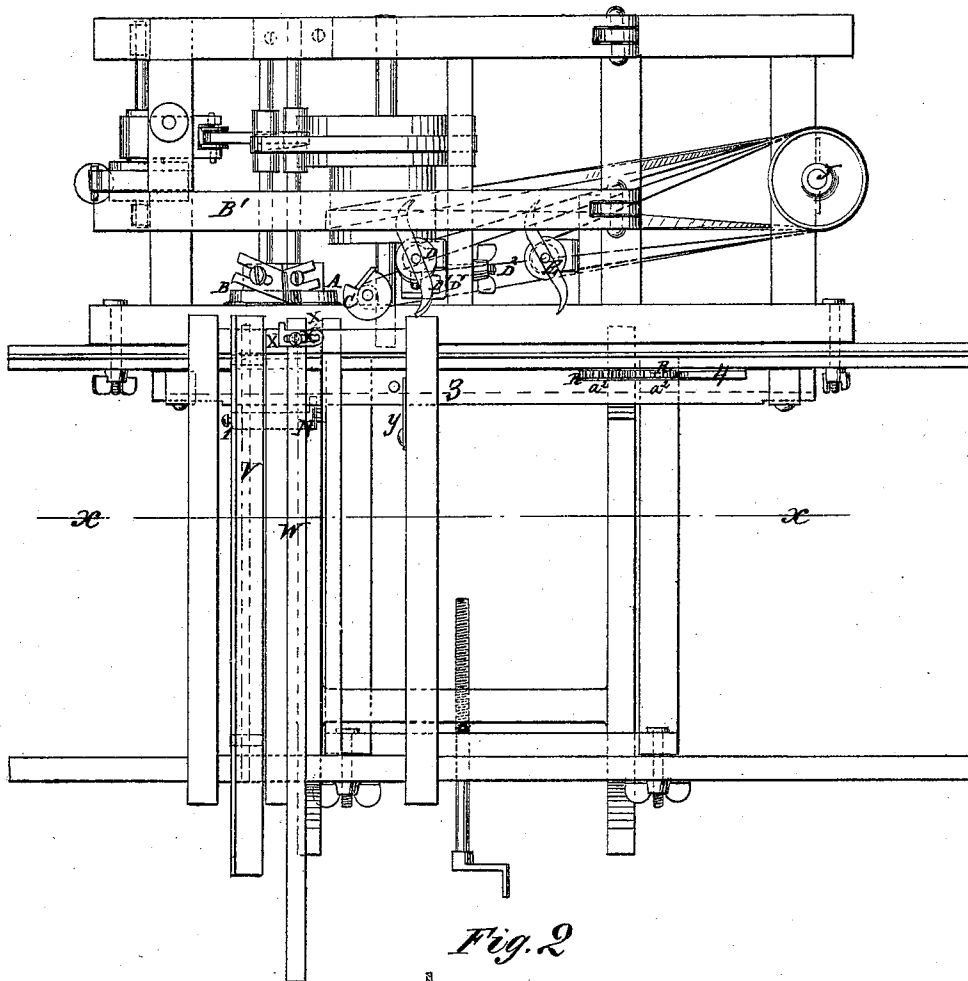


**A. C. VAN ALSTINE.**  
**Dovetailing Machines.**

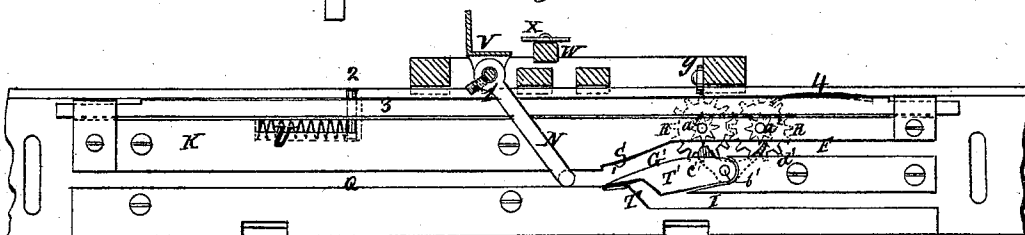
No. 141,096.

Patented July 22, 1873.

*Fig. 1*



*Fig. 2*



**Witnesses:**

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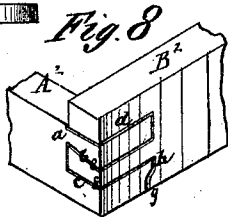
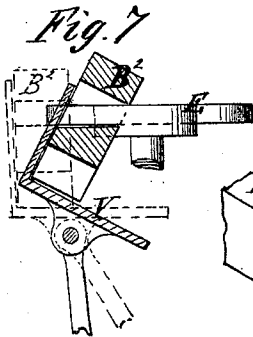
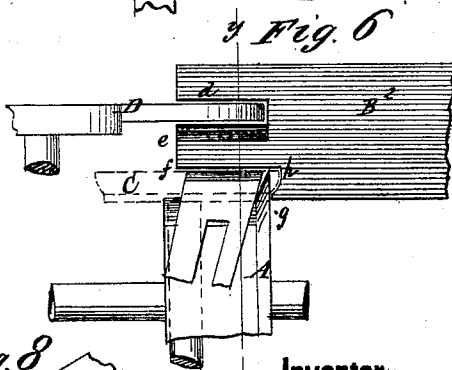
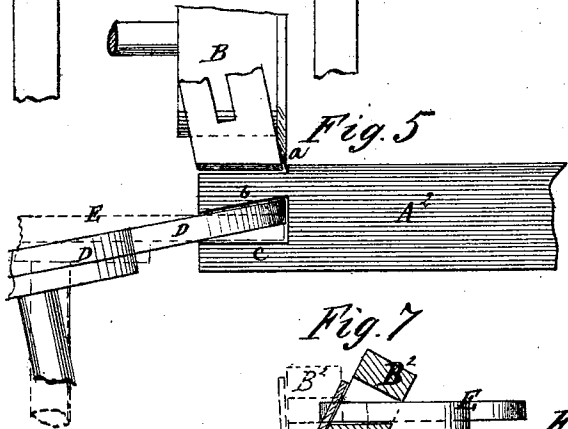
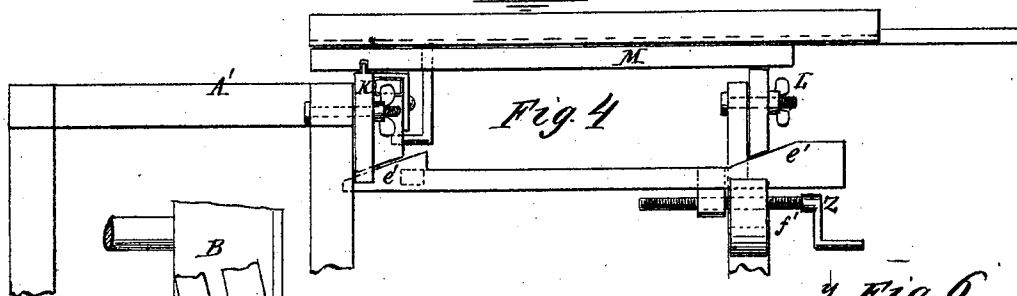
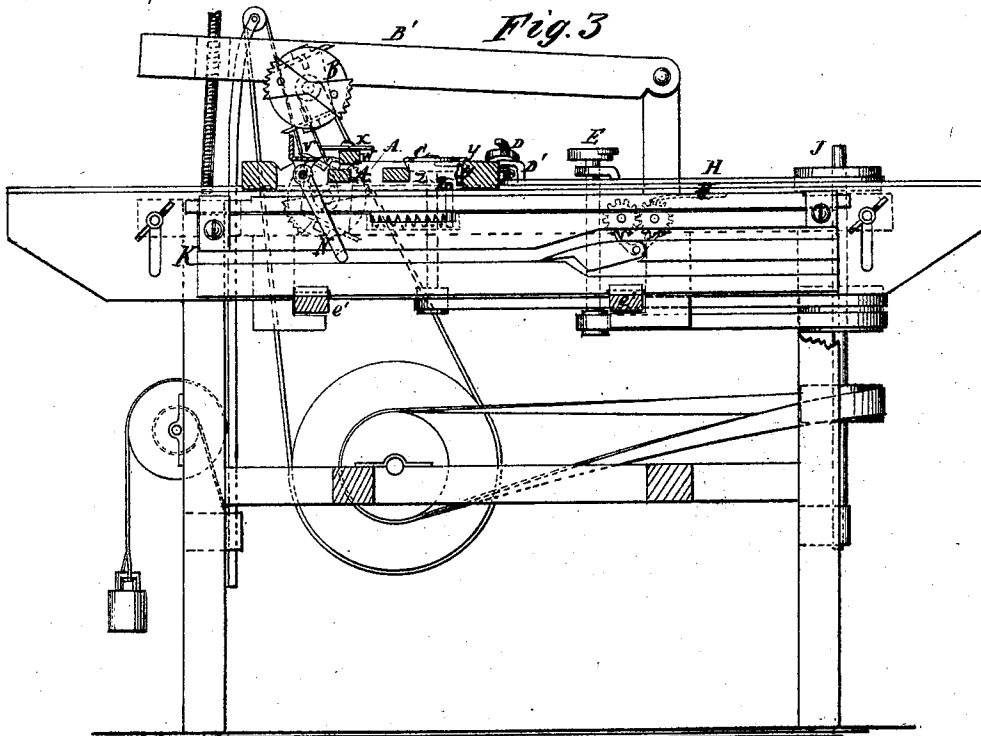
Per

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN DOVETAIL-MACHINES.

Specification forming part of Letters Patent No. **141,096**, dated July 22, 1873; application filed April 5, 1873.

*To all whom it may concern:*

Be it known that I, ALFRED C. VAN ALSTINE, of the city, county, and State of New York, have invented a new Improvement in Dovetail-Machines, of which the following is a specification:

The invention consists in the improvement of tenoning and sash-dovetailing machines, as hereinafter described and pointed out in the claims.

Figure 1 is a plan view of my improved machine. Fig. 2 is a longitudinal sectional elevation of the carriage taken on the line *x x* of Fig. 1, and side elevation of a portion of the machine on an enlarged scale. Fig. 3 is a sectional elevation of the machine on the line *x x*, Fig. 1. Fig. 4 is a side elevation of some of the parts. Fig. 5 is a side elevation of part of a tenoning-cutter, also part of a dovetailing cutter and a stile. Fig. 6 is a side elevation of part of a tenoning-cutter, also part of a dovetailing-cutter and a check-rail; it also shows a cope-cutter in dotted lines. Fig. 7 is a section of Fig. 6 on the line *y y*. Fig. 8 is a perspective view of a stile and check-rail, jointed together by tenons and notches formed with the machine.

This machine is mainly arranged like an ordinary tenoning-machine, with a tenoning-head, A, on the frame A<sup>1</sup>, also a tenoning-head, B, on the upper frame B<sup>1</sup>, in such a way that it overhangs said upper frame, which is made narrower than frame A<sup>1</sup> for that purpose. The head B is detachably secured to its shaft by means of a set-screw, to be taken off at pleasure. Next to head A is a cope-head, C; next to cope-head C is a dovetailer, D, which is set as close to cope-head C as it can be and run clear; it is mounted on a bar, D<sup>1</sup>, which is pivoted at D<sup>2</sup> to the machine in such a manner that it can be set perpendicularly, or inclined by swinging the bar on its pivot. E is another dovetailer, which is set far enough from D to allow the check-holder to tip over while passing between them, as hereinafter described. The dovetailers are driven by belts from the upright shaft J. K L represent ways, upon which the carriage M is placed. On the side of way K is a groove or slot, Q, which, at T, branches down with a quick turn, and at S branches up with a

long incline until the desired point is reached that will give the dovetail to the tenon of the check-rail, as hereinafter described; then the two branch slots F and I continue on parallel with each other. At R are two cog-wheels, set back of the pieces that form the slots aforesaid; said wheels have sixteen teeth. On each of said wheels is a ratchet-wheel, *a*, with eight teeth; these ratchet-wheels are set so that the teeth on one will point to the center of a space between the teeth of the other at the plane of their axes. Just below and between the ratchet-wheels is a post or verge-pin, *b'*, on which is a sleeve or tube. To said sleeve or tube is fastened the verge or arms *c' d'*, which reach the ratchet-wheels, so that when the wheels are moved they give to the verge an escapement-motion. On the outer end of said sleeve is a tongue, T', which, when in use, will close one of the intersecting slots and open the other. On the top of the way K is a sliding pawl-bar, 3, on which is a pawl, 4, that engages with one of the cog-wheels R. At U is a spiral spring, arranged in the way to act on a pin, 2, in the pawl-bar. The ways K L rest on inclined planes *e'*, and are raised or lowered by means of the screw Z, by which said inclined planes are adjusted.

The carriage M has a gage-bar, W, on the end of which is a stop, X; it also has a rocking angle-bar, V, which is secured to the rocking shaft 1, in which is a finger-bar, N; at Y is a button on the carriage.

To operate this machine for dovetailing sash-stiles, the carriage M is raised by means of the inclines *e'* and screw Z, so that the sash-stile, when laid on the carriage M, will be above and clear of the head A and cope C; the head B is then set so as to cut the stile A<sup>2</sup>, Fig. 8, to the required thickness, as at *a*; the dovetailer D is then set so as to give the dovetail or diagonal cut, as at *b*; the dovetailer E is set so as to cut the last part of the dovetail mortise, as at *c*; then the stop X is adjusted to give the depth of cut required; the stile is then put on the carriage M, against the gage-bar W, and passed through, and is finished at each end by one operation. The stiles for the bottom sash are run with the face of the stuff down, and the stiles for the upper sash are run with the face up.

To operate this machine for forming check-rails B<sup>2</sup>, the head B is removed; the carriage M is let down so that the head A will cut the shoulder *g* the required depth; the dovetailer D is set perpendicular, and adjusted to cut out for the lip at *d*, so as to fit over the stile, where it is taken to the required thickness, as *a*; the dovetailer is adjusted so as to cut the dovetail side of the tenon, as at *e*; the stop X is drawn back; the finger-bar N is put in the slot Q, and secured to the rocking shaft 1; and the button Y is thrown over so as to catch the pin 2 on the sliding pawl-bar 3. The machine is now set in motion, and the check-rail is put on the rocking bar V, with the work edge down and face side from the operator, who stands at the left-hand side of the machine, as represented in the drawing; it is then passed over the head A, the shoulder *g* is cut, and the parallel side of the tenon is made; next, the cope C cuts the shape, *h*, for the head or other molding on the sash; the dovetailer D then cuts out for the lip, as at *d*, and after it passes clear of the dovetailer D the finger-bar N drops down in the slot I, and throws the rocking bar V from the operator; then the dovetailer E cuts the dovetail side *e* of the tenon; this completes one end of the check-rail. The carriage M is then drawn back till the finger-bar N has passed the tongue T; at the same time the button Y catches the pin 2, and carries the pawl-bar 3 back with it just far enough so that the pawl 4 will move

the wheels R just one tooth; this throws the tongue T' down, and closes the slot I, and opens the slot F. Then the other end of the check-rail is put through, the same as before, and when the finger-bar N reaches the tongue T' it turns up into the slot F, and tips the rocking bar V toward the operator; this gives the dovetail *e* to the tenon, as required, and finishes the check. When the carriage M is moved forward the pin 2 is released from the button Y; then the spiral spring U throws the pawl-bar 3 back, so that the pawl 4 drops back of the next tooth; this is for checks for the bottom sash. All the change that is required for top checks is to throw off the cope-belt.

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

1. The combination of the tongue T', escapement *c' d'*, ratchet-wheels *a'*, cog-wheels R, pawl 4, and pawl-bar 3, with the branched guide-slot and the carriage M, substantially as specified.

2. The combination of the finger-bar N of the tilting bar V, branched guide-slots Q F I, tongue T', and automatic devices for shifting the tongue.

ALFRED C. VAN ALSTINE.

Witnesses:

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ALEX. F. ROBERTS.