L. P. Hawes,

Cutting Veneers.

No. 34,365. Patented Feb. 11, 1862.

Fig. 3

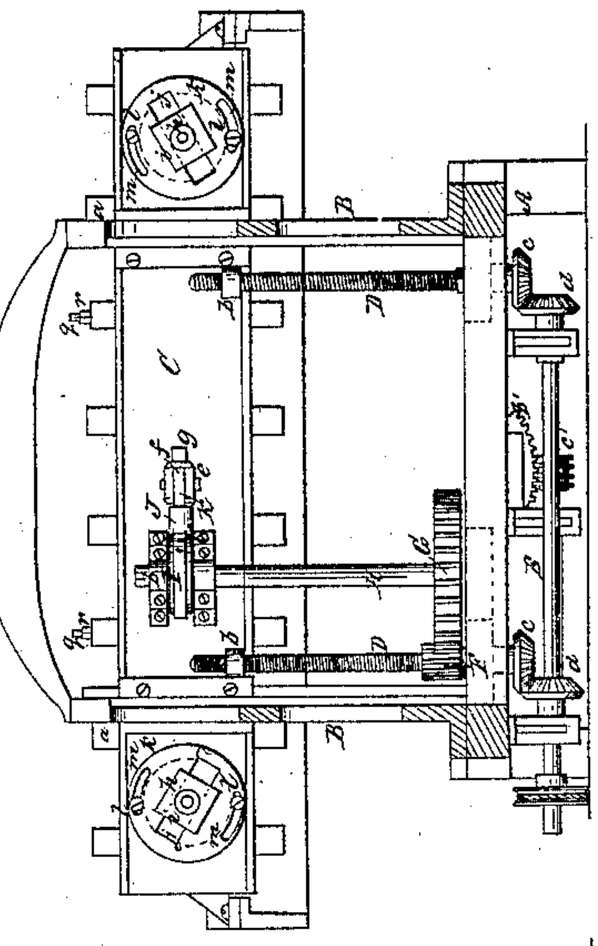


Fig. 2

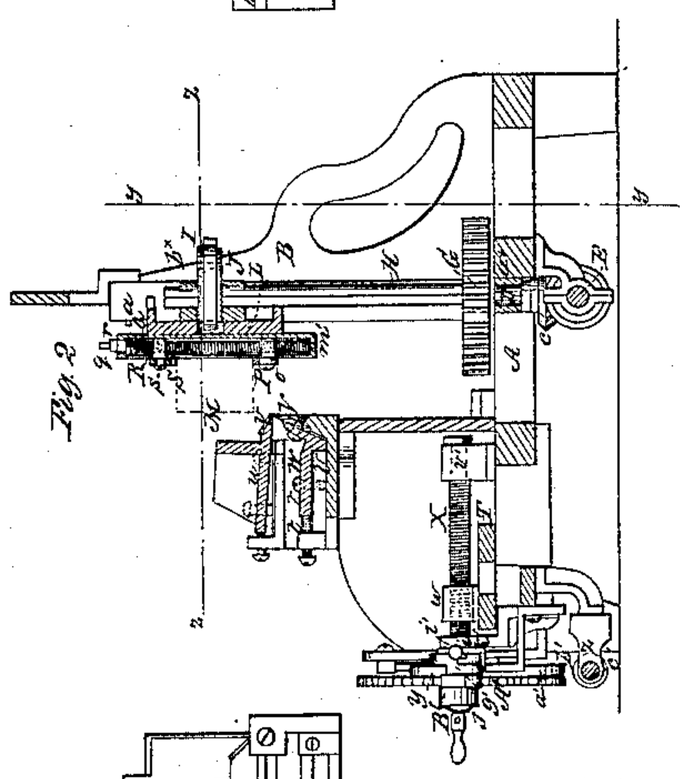


Fig. 6

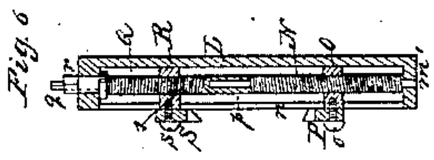


Fig. 5

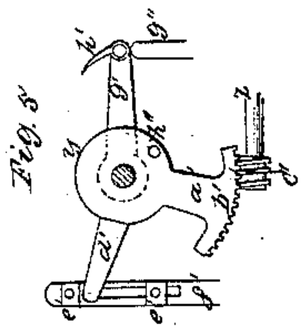


Fig. 1

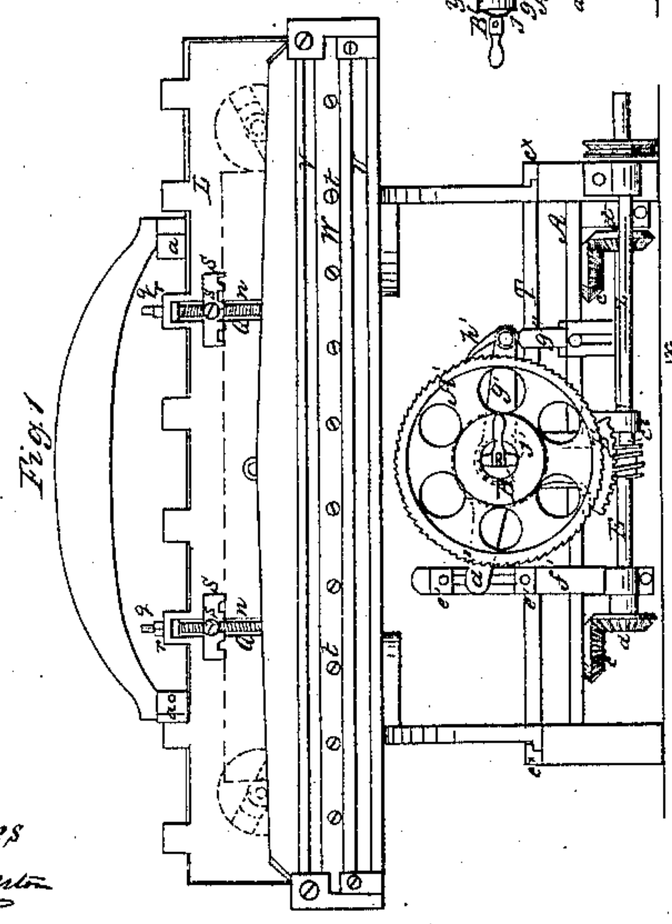
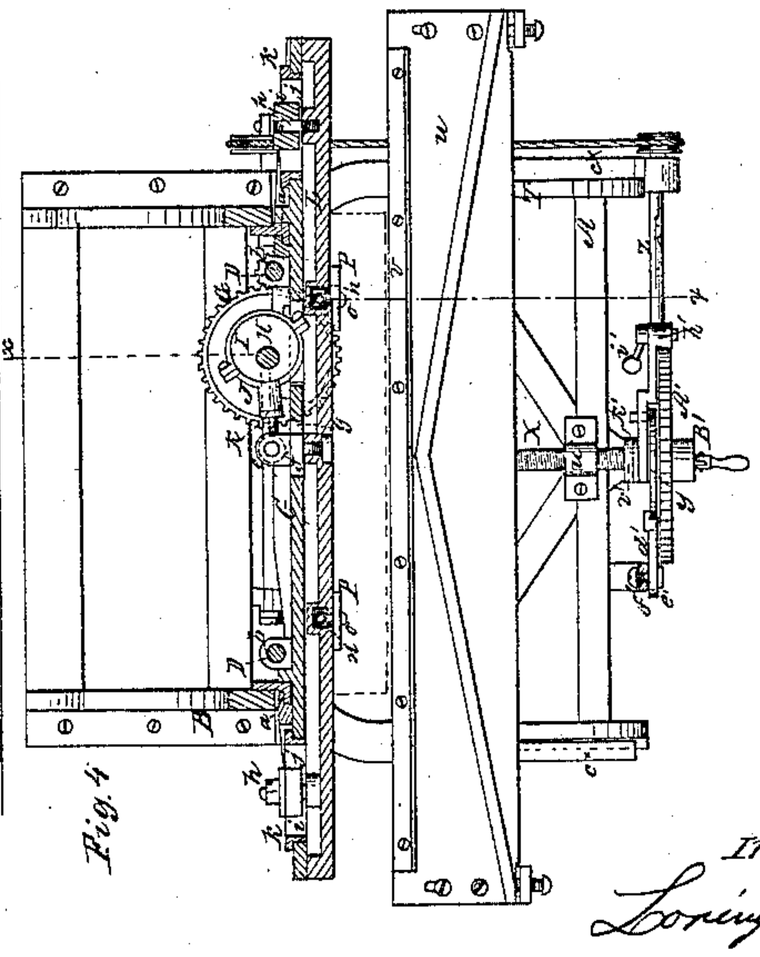


Fig. 4



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR CUTTING VENEERS.

Specification forming part of Letters Patent No. **34,365**, dated February 11, 1862.

To all whom it may concern:

Be it known that I, LORING P. HAWES, of the city, county, and State of New York, have invented a new and Improved Machine for Cutting Veneers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a front elevation of my invention; Fig. 2, a vertical section of the same, taken in the line *x x*, Fig. 4; Fig. 3, a vertical section of the same, taken in the line *y y*, Fig. 2; Fig. 4, a horizontal section of the same, taken in the line *z z*, Fig. 2; Fig. 5, a detached view of a portion of the knife-feeding device; Fig. 6, a detached view of the dog arrangement by which the bolt is secured to its bed.

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

This invention consists, first, in a novel combination of parts for giving movement to the bolt from which the veneers are to be cut.

The invention consists, secondly, in a peculiar feeding device for adjusting the knife to its work at the commencement of each cut, whereby the thickness of the veneers may be graduated as desired with the greatest nicety, and the knife also withdrawn from the bolt during the return movement of the latter, so that the edge of the knife will be preserved and much friction avoided.

The invention consists, thirdly, in a novel and improved arrangement of dogs for securing the bolt to its bed, whereby the dogging of the bolt may be expeditiously performed and all irregularities of the bolt compensated for by a self-adjusting feature of the dogs.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a horizontal framing, on which two uprights B B are placed, one at each side. These uprights have each a guide *a* attached, and a horizontal bar C is fitted thereon and allowed to slide freely up and down. To the back side of the bar C two nuts *b b* are attached, in which vertical screw-rods D D are fitted. These screw-rods have each a bevel-pinion *c* at their lower ends, and gear into corresponding wheels *d d* on a horizontal shaft E, which is the driving-shaft of the machine. From the above description it will be seen that by turning the shaft E the bar C may be raised and lowered on its guides *a a*.

On one end of the screw-rods D a pinion F is placed, and this pinion gears into a wheel G on the lower part of a shaft H, the lower end of which has its bearing $a^{\times}$ in the framing A, the upper part of the shaft H having its bearing $b^{\times}$ attached to the back of bar C. (See Fig. 2.)

On the shaft H there is placed loosely an eccentric I, said eccentric being attached to its shaft H by a feather and groove, so that the eccentric is made to turn with its shaft H, but is allowed to slide freely up and down on it. The eccentric I has a strap J passing around it, said strap having a rod K attached, which is connected at its outer end by a joint *e* to a slide *f*, which is fitted in a horizontal slot *g* in the bar C, and is attached to a plate L, which may be termed the "bolt-holder" or "bed," and which is secured to the bar C by means of screw-bolts *h*, which pass through slides *i*, and which slides are fitted in slots *j* in circular adjustable plates *k*, attached to or fitted in the bar C. The plates *k* are attached to the back sides of the bar C by screws *l*, which pass through concentric curved slots *m* in the plates *k*, and into the back of the bar C, as shown clearly in Fig. 3.

From the above description it will be seen that as the driving-shaft E is turned the rods D D will be rotated and the bar C raised or lowered, according to the direction in which the shaft E is turned. At the same time a reciprocating movement is given the plate or bolt-holder or bed L through the medium of the shaft H, eccentric I, and slide *f*, and a rolling motion of greater or less degree is also imparted to the bed L in consequence of being connected to the slides *i*, which are fitted in the adjustable plates *k*, the rolling movement being governed by giving the slots *j* a greater or less inclination and in opposite positions with each other. (See Fig. 3.)

To the bed L the bolt M (shown in red) is attached as follows: The bed L has two vertical screws N N fitted in it at suitable points,

the lower ends of said rods being stepped, as shown at *m'* in Figs. 2 and 6. The screws N have on them nuts O—one on each—said nuts being fitted in vertical slots *n* in the bed L. To each nut O a dog P is attached by a screw or pivot *o*, the dogs being allowed to turn freely on said pivots or screws. The screws N N have each a cylinder-shank *p* attached. These shanks extend up through the bed L and have squares *q* at their upper ends. On the shanks *p* hollow screws Q Q are fitted—one on each shank—the screw Q being allowed to turn freely on the shank *p*, and also extending up through the bed L and polygonal terminals *r*, as shown clearly in Figs. 2 and 6. The hollow screws Q have also nuts R on them, and the nuts R work in the slots *n* of bed L. To the nuts R dogs S are attached by pivots or screws *s*, which pass through the center of the dogs.

The bolt M is secured to the bed L by the dogs P S, the latter being adjusted vertically by turning their respective screws N Q, and as each dog is allowed a separate or independent adjustment it will be seen that bolts having upper and lower sides out of parallel may be readily secured to bar C, and any irregularities of surface are compensated for by the pivoted dogs P S, as said dogs thus attached to their nuts are allowed to grasp inclined surfaces. The bolt M, therefore, may be firmly secured to its bed L, however irregular its upper and lower surfaces may be.

On the framing A there is placed a carriage T, said carriage being fitted between guides $c^{\times}$ $c^{\times}$ on the framing. On this carriage T a knife-bed U is fitted, the bed being parallel with the bolt M, and having a knife V fitted on it and secured in proper position by a plate W and screws *t*, the knife being secured in an inclined position, as shown clearly in Fig. 2. The knife-bed U is provided with a top plate *u*, which has a steel plate *v* at its inner end and directly over the cutting-edge of the knife. This steel plate is hardened and serves to prevent the knife from following the grain of the wood, performing the same offices as the "cap" of a joiner's plane.

X is a horizontal screw, which is fitted in suitable bearings *v' v'* on the framing A and passes through a nut *w* on the carriage T.

On the outer part of the screw X there is placed loosely a circular plate Y, provided with a radial arm *a'*, having a segment-rack *b'* gearing into a screw *c'* on a horizontal shaft Z, the bearings of which are attached to the framing A. The plate Y also has another radial arm *d'*, which is at right angles with *a'*, and has its outer end between two adjustable stops *e' e'* fitted in an upright *f'* on the framing. The plate Y, with its arms *a' a'*, rack *b'*, and stops *e' e'* are shown in Fig. 5.

On a hub of the plate Y there is placed loosely an arm *g'*, to the outer end of which there is attached a pawl *h'*, having a weight *i'*, Fig. 2, connected with it in such a way as to keep said pawl engaged with a ratchet A', which is placed on the outer part of the screw and connected therewith by a feather and groove.

To the outer end of the screw X there is fitted an eccentric B', and this eccentric bears against a spring *j'*, which is in contact with the ratchet A'. By adjusting the eccentric B' the hub of plate Y may be pressed against a collar *k'* on the screw X sufficiently hard to admit of the plate Y turning the screw X at the proper time.

The operation is as follows: The bolt M, being secured to the bed L and the knife V being in proper position, the shaft E is rotated in such a manner as to bring the bar C down, the bed L, and consequently the bolt M, having the reciprocating and rolling motion given it previously described, so that the knife V can cut the veneer easily and smoothly from the bolt. When the veneer has been cut from the bolt, and the latter consequently at the lowest point of its movement, the motion of shaft E is reversed and the bolt is made to ascend. At the same time the shaft Z is rotated by a belt from shaft E and the screw X is rotated through the medium of the screw *c'*, segment *b'*, and plate Y in a direction to move back the carriage T and throw the knife V out from the bolt, so that the latter while moving upward will not be in contact with the former. The distance of the outward movement of the carriage T is determined by the arm *d'* of the plate Y, and the pawl *h'*, arm *g'*, a pin *h''* on plate Y, and the ratchet A'. The screw X is turned to move backward the carriage T so long as the plate Y turns the screw, and this is permitted until the arm *g'* is not allowed to turn with plate Y but is arrested in its movement by a stop *g''*, and the pawl *h'*, catching into the ratchet A', prevents the screw from turning and causes the plate Y to slip on the screw-shaft until the outer end of the arm *d'* strikes the upper stop *e'* of the upright *f'*. When the bolt has reached the extent of its upward movement, the motion of the shaft E is reversed and the screw X is turned through the medium of the screw *c'*, segment *b'*, and plate Y in a reverse direction, and the carriage T is fed forward and the knife V presented to the bolt for the succeeding cut, the screw X turning until the arm *d'* passes from the upper to the lower stops *e'*, the pins *h''* raising the arm *g'* and pawl *h'* a certain distance. Consequently the forward movement of the carriage exceeds its backward movement sufficiently to allow for the thickness of the veneers, and the thickness of the latter may be varied by adjusting the stop *g''*, which, with the pin *h''*, controls the movement of the arm *g'* and its pawl *h'*. The belt which drives the shaft Z may slip on its pulleys when the rotation of the screw X is arrested.

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

1. The combination of the adjustable slot-

ted plates *k* slides *i*, and eccentric I, with the bar C, bed L, and knife V, as herein shown and described.

2. The arrangement of the screw X, connected with the carriage T, and provided with the circular plate Y, having the arms *a' d'* attached, the former being provided with the segment-rack *b'* and the latter fitted between the stops *e' e'*, in connection with the ratchet A', also fitted on screw X, and the arm *g'*, having the pawl *h'* attached, and fitted on a collar of plate Y, all being arranged in relation with each other and operated from the shaft Z, substantially as and for the purpose set forth.

3. The arrangement, as shown and described, of the screws N Q, with the nuts O R and dogs P S, for the purpose of dogging the bolt to the bed L.

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