

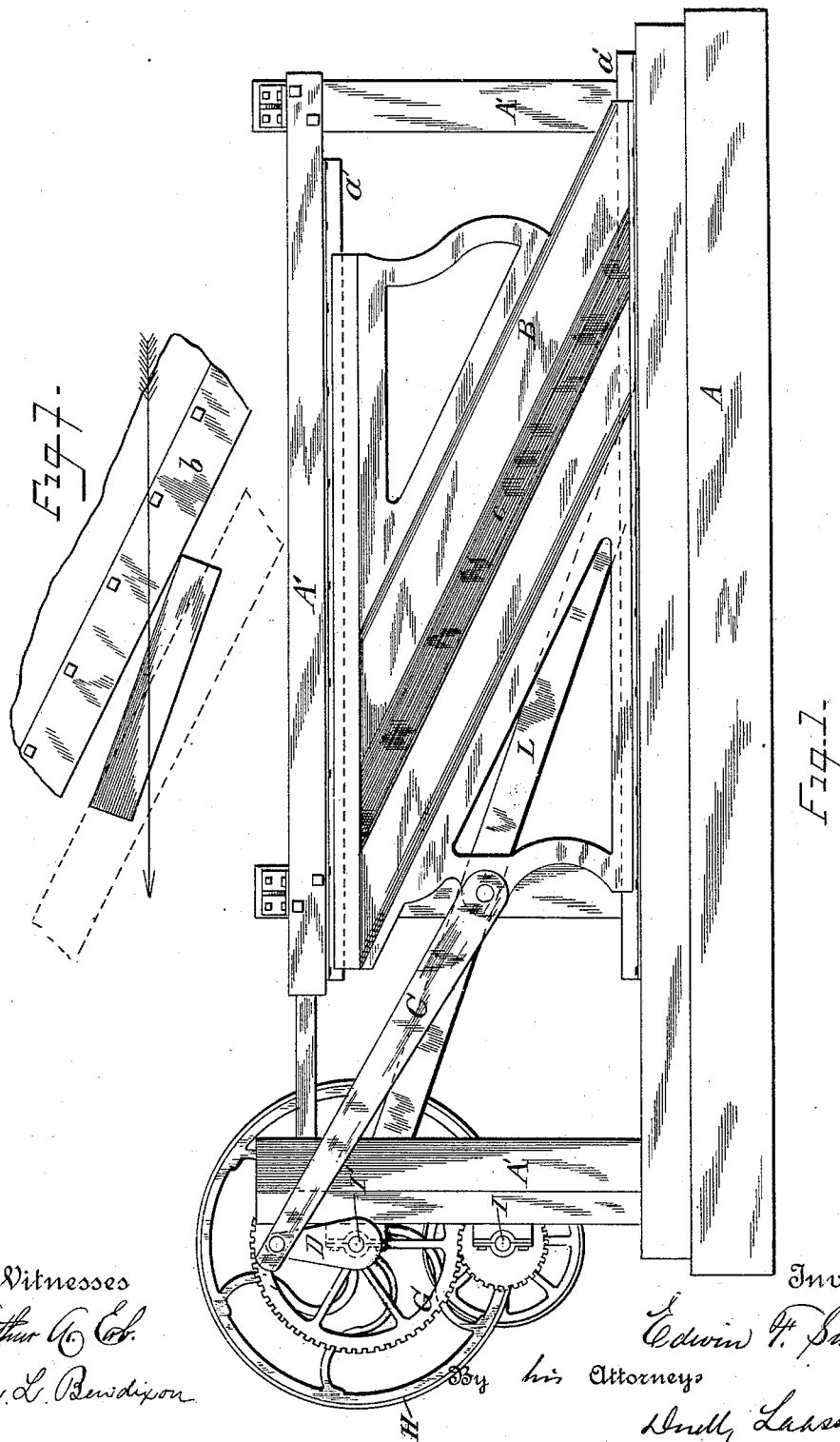
(No Model.)

4 Sheets—Sheet 1.

E. F. SMITH.
VENEER CUTTING MACHINE.

No. 419,975.

Patented Jan. 21, 1890.



Witnesses
Arthur C. Cor.
C. L. Bendixon

Inventor:

Edwin F. Smith
By his Attorneys
Wm. L. Lasey & Co.

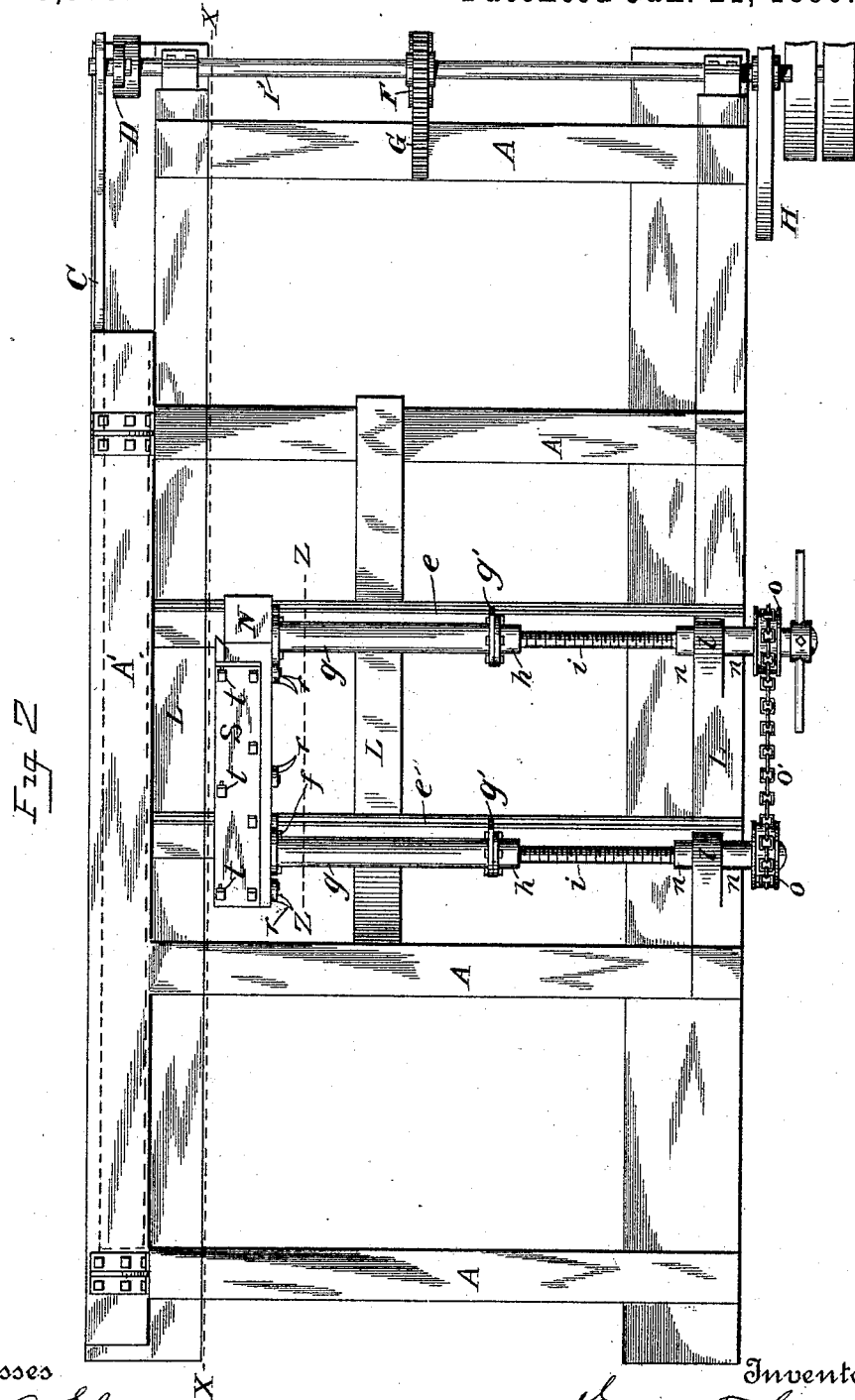
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Dull, Laas + Dull

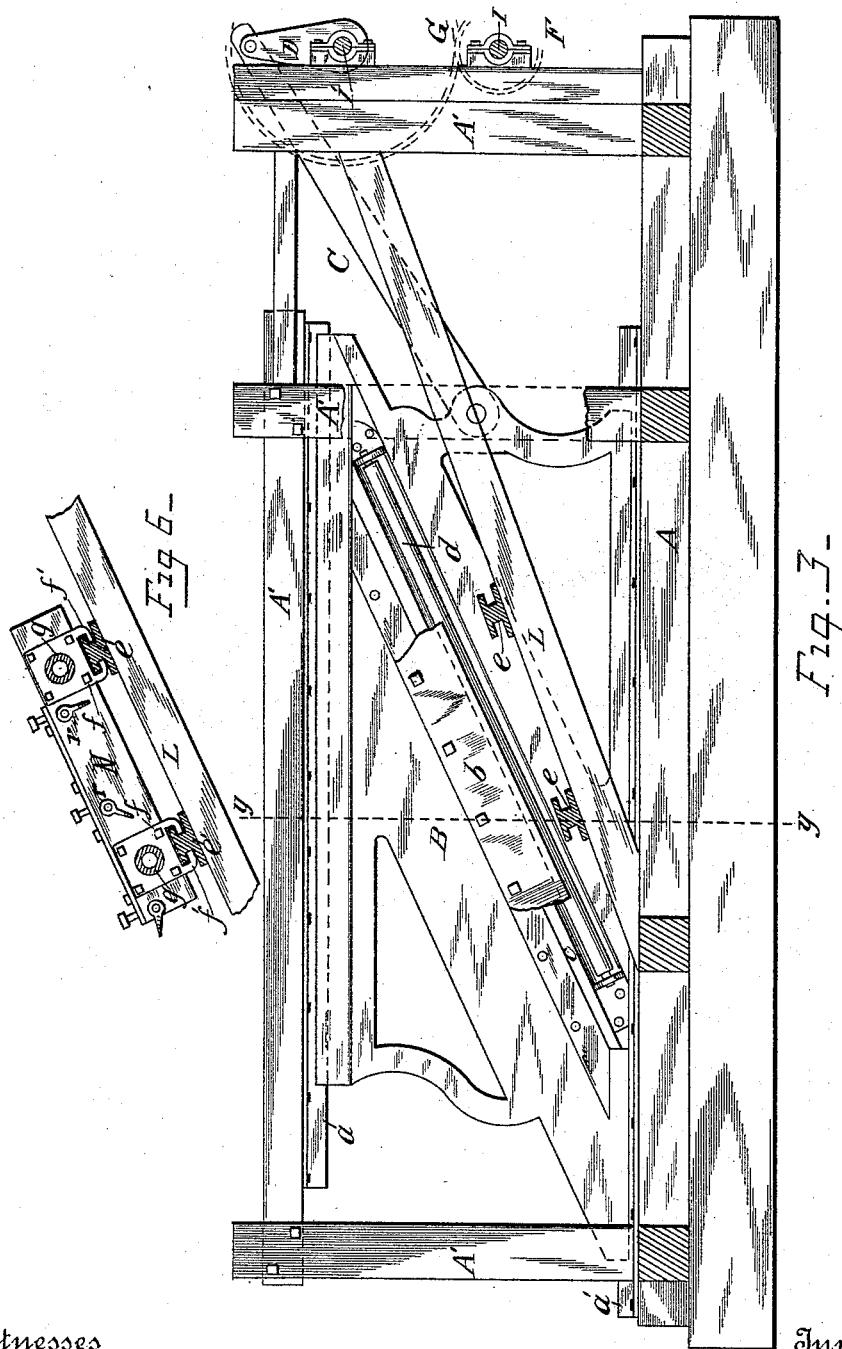
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Fig 4-

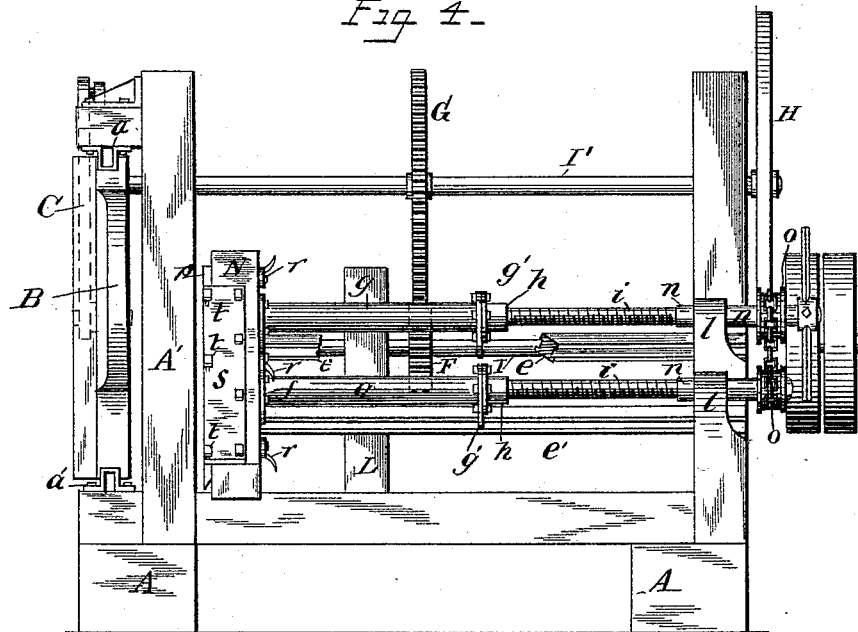
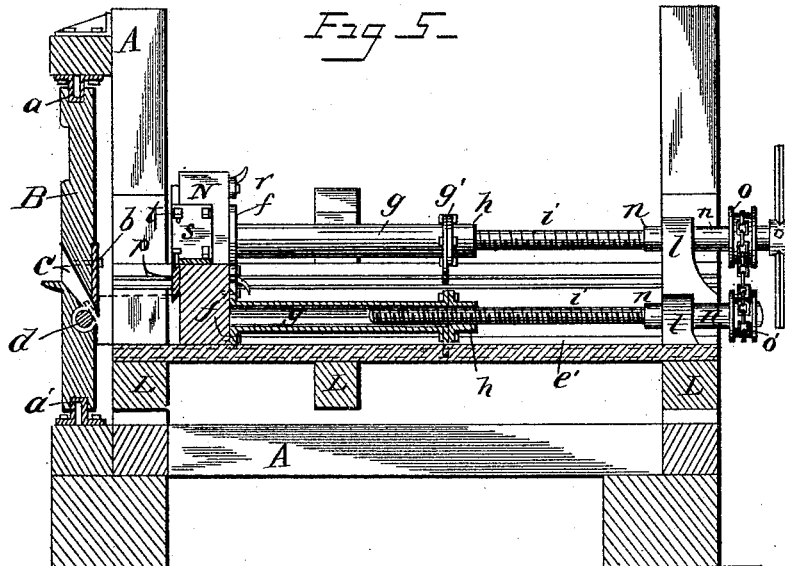


Fig 5-



Witnesses

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Inventor:

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UNITED STATES PATENT OFFICE.

EDWIN F. SMITH, OF SYRACUSE, NEW YORK, ASSIGNOR OF ONE-HALF TO
THOMAS A. FREDERICKS, OF SAME PLACE.

VENEER-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 419,975, dated January 21, 1890.

Application filed July 29, 1889. Serial No. 319,133. (No model.)

To all whom it may concern:

Be it known that I, EDWIN F. SMITH, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Veneer-Cutting Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of machines which cut veneering or thin boards from blocks of wood by means of a reciprocating knife; and the invention consists in the combination of a rectilinearly-reciprocating knife having a straight cutting-edge obliquely to the line of travel, and a block-holder having the plane of the block-seat at an acute angle to the cutting-edge of the knife, whereby the knife is caused to cut the block
15 endwise of the grain and at an acute angle uniformly throughout the depth of the block. My improved machine thus obviates straining the grain of the wood and the resultant splitting or slivering of the wood in the process of cutting the veneering, and produces
20 veneers which are smooth and free from cracks and less liable to warp.

The invention is fully illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a machine embodying my improvements, said view presenting the back of the knife-frame. Fig. 2 is a plan view of said machine. Fig. 3 is a vertical longitudinal section on line *x x*, Fig. 2. Fig. 4 is a front elevation. Fig. 5 is a
35 vertical transverse section on line *y y*, Fig. 3. Fig. 6 is a sectional view on line *z z*, Fig. 2, showing the connection of the block holder or support with the guides on which it is mounted; and Fig. 7 is a diagrammatic view
40 illustrating the relative positions of the knife and block to be operated on, and also the direction of the knife through said block.

Similar letters of reference indicate corresponding parts.

45 A represents a horizontal frame which constitutes the base of the machine. On one side of the said base is erected and rigidly secured a frame *A'*, extending along said side, and to the upper and lower portions of the latter
50 frame are firmly secured lengthwise thereof

two horizontal guides *a a'*, which are perfectly straight and parallel with each other. On these guides slides a stout iron frame B, to the side of which is firmly attached the knife *b*, which is extended lengthwise thereof, 55 and is disposed with its cutting-edge downward and with the heel or trailing end of said cutting-edge at an acute angle of about twenty-five degrees from a horizontal line or to the lower or adjacent guide *a'*, best seen in Fig. 60 3 of the drawings, in which the end portions of the knife are broken away.

Back of the knife *b* and parallel therewith is a longitudinal slot *c*, extending through the frame B, for the passage of the boards 65 cut from the block by the knife. Back of the cutting-edge of the knife and parallel therewith is a roller *d*, which is at a distance from the knife equal to the thickness of the board to be cut from the block, said roller serving 70 to sustain the wood directly in front of the knife and prevent the wood from splitting in advance of the knife.

The knife-frame B receives a reciprocating motion by a pitman C, connecting said frame 75 with a crank D, secured to a counter-shaft I', which is extended horizontally across the rear end of the machine and mounted in boxes or suitable bearings secured to posts erected on the base A. Beneath this counter- 80 shaft and parallel therewith is the driving-shaft I, mounted likewise on the sides of the posts, and having secured to it a pinion F, which meshes with a gear-wheel G, rigidly attached to the aforesaid counter-shaft, which 85 latter has also attached to it the balance-wheel H.

The aforesaid reciprocating motion of the knife-frame B is rendered rectilinear and horizontal by the guides *a a'*, on which the 90 said frame slides.

e and *e'* represent another set of rectilinear parallel guide-rails, preferably I-shaped in cross-section, and secured to inclined beams L L, which are firmly supported on the base 95 A, said beams being at a more acute angle to a horizontal line than the knife *b*, and the guide-rails *e e'* being arranged at right angles to the plane of the knife-frame B. Upon the said guide-rails *e e'* is mounted the block 100

support or holder N, for holding in its requisite position the wood block to be operated on, as indicated by dotted lines in Fig. 5 of the drawings. Said holder consists of a stick
 5 of timber, preferably of rectangular form in cross-section, and having firmly bolted to its back two brackets *f f*, which ride on the guide-rails *e e'* and are formed with lips *f' f'*, by which they embrace the top flanges of said
 10 rails, as illustrated in Fig. 6 of the drawings. From the aforesaid brackets extend rigidly and parallel with the guide-rails *e e'* two tubes *g g*, terminating with brackets *g' g'*, which engage the guide-rails in the same
 15 manner as the brackets *f f*, and thus sustain the tubes in parallelism with the guide-rails. To the brackets *g' g'* are rigidly attached the nuts *h h*, in which work screws *i i*, journaled in pedestals *l l*, secured to the inclined
 20 beam on the side of the frame opposite to that on which the knife-frame is arranged. By means of collars *n n*, attached to the screws at opposite sides of the pedestals, the screws are prevented from moving longitudinally.
 25 To the free ends of the screws are rigidly attached sprocket-wheels *o o*, which are connected with each other by a drive-chain *o'*, so that by turning one of said screws the other is compelled to turn with it in the same di-
 30 rection. Suitable levers or handles are attached to one of the screws for turning the same. By means of these screws and their connections with the nuts *h h* the holder N is moved toward and from the knife-frame B,
 35 as may be desired. The holder N is provided on the side facing the knife-frame with a suitable gripping-plate *p*, by which to firmly hold the wood block against the side of the holder. In order
 40 to render the gripping-plate adjustable in its position, so as to adapt it to hold blocks of different sizes, I provide said plate with vertical slots, (not necessary to be shown,) and insert through said slots and through the

holder bolts provided at the back of the
 holder with nuts *r r*, by which to tighten the
 bolts. To better enable the gripper to hold
 the wood block during the operation of cut-
 ting the boards or veneering from the same,
 I secure to the top of the holder N another
 50 plate *s*, provided with screw-threaded eyes, in which are inserted set-screws *t t*, bearing on the top edge of the gripping-plate.

It will be observed that in my improved machine the wood block is sustained at an
 55 acute angle to the cutting-edge of the knife, and both are at an acute angle to the line of the movement of the knife, which latter is rectilinear, as illustrated in Fig. 7 of the
 drawings. In this manner I obtain a draw-
 60 cut in such a direction in relation to the grain of the wood to be cut as to effectually guard against splitting and slivering or otherwise straining the fibers of the wood in the boards
 cut from the block.

I do not claim, broadly, a reciprocating knife having its cutting-edge at an acute angle to the line of travel of the knife, as I am aware the same is not new; but

What I do claim as my invention, and de-
 70 sire to secure by Letters Patent, is—

In a veneer-cutting machine, the combination of a rectilinearly-reciprocating knife having a straight cutting-edge obliquely to the line of travel, and a block-holder having
 75 the plane of the block-seat at an acute angle to the cutting-edge of the knife, whereby the knife is caused to cut the block endwise of the grain and at an acute angle uniformly throughout the depth of the block, substan-
 80 tially as set forth and shown.

In testimony whereof I have hereunto signed my name this 12th day of July, 1889.

EDWIN F. SMITH. [L. s.]

Witnesses:

MARK W. DEWEY,
 C. H. DUELL.