

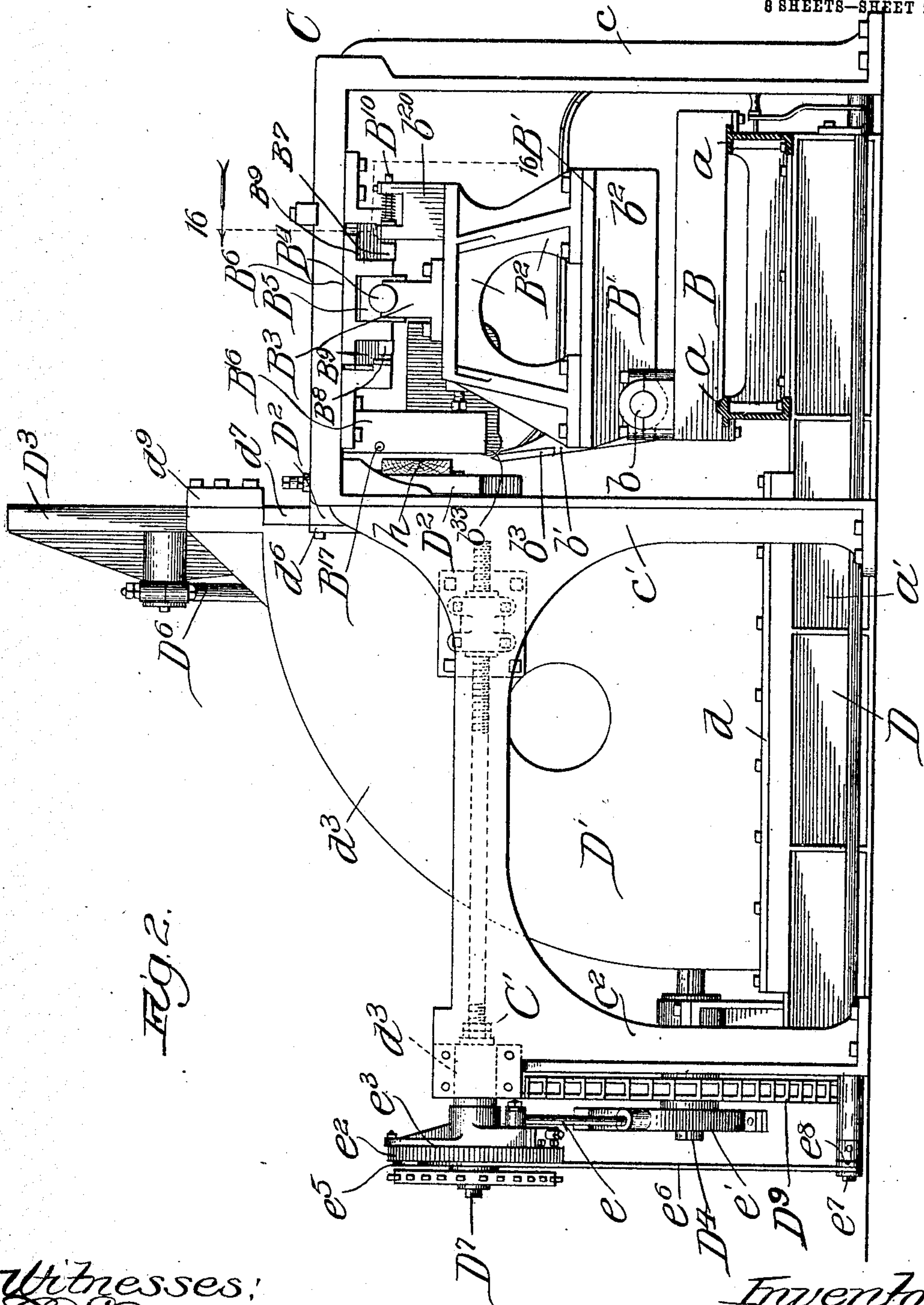


No. 871,473.

PATENTED NOV. 19, 1907.

A. BROSIUS.  
VENEER CUTTING MACHINE.  
APPLICATION FILED FEB. 4, 1907.

8 SHEETS—SHEET 2.



Witnesses:  
Ed. Chylord,  
John Enders.

Inventor:  
Aaron Brosius,  
By Dyrenforth, Dyrenforth, Lee & Wiles,  
Attys.

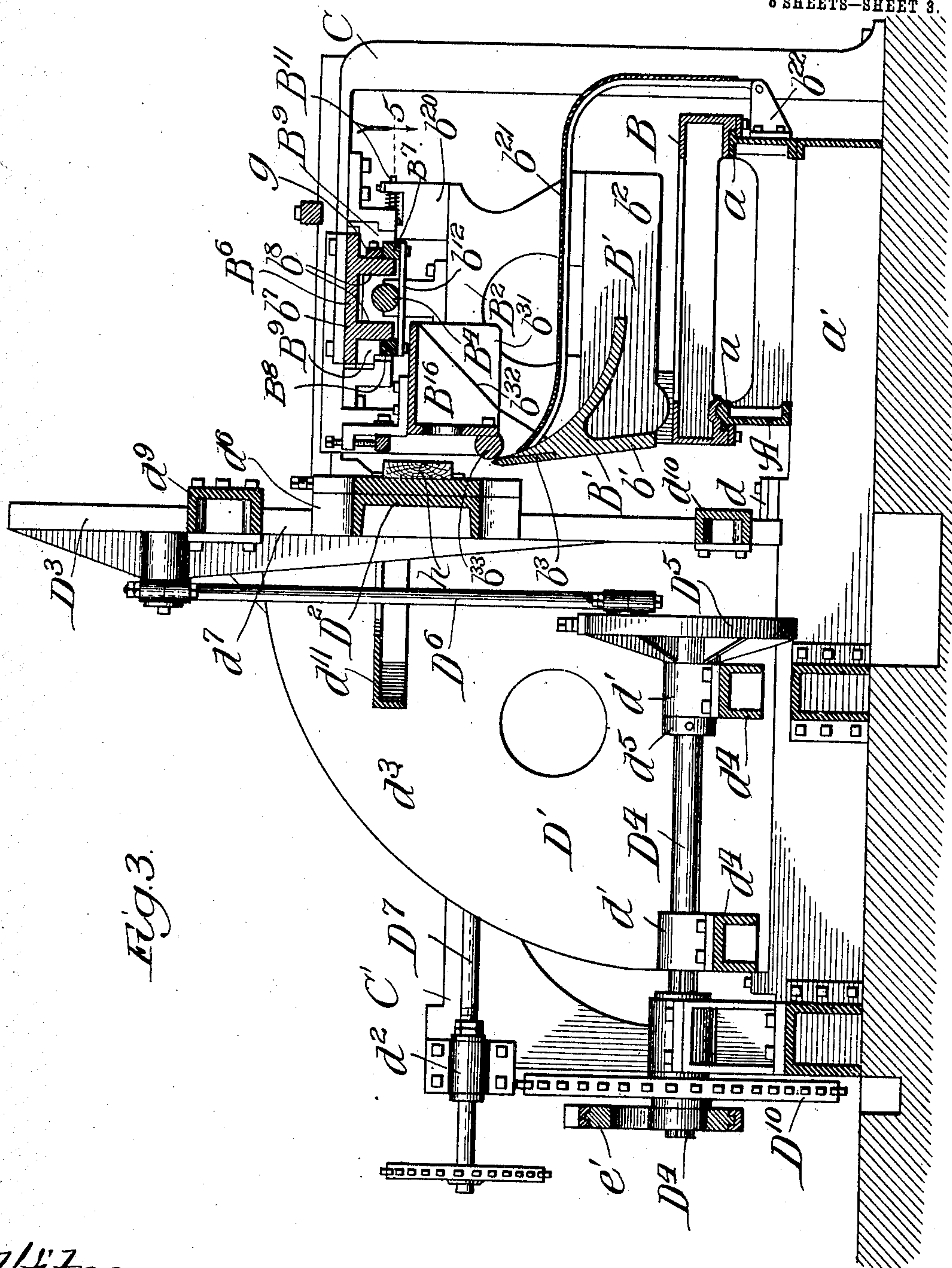


No. 871,473.

PATENTED NOV. 19, 1907.

A. BROSIUS.  
VENEER CUTTING MACHINE.  
APPLICATION FILED FEB. 4, 1907.

8 SHEETS—SHEET 3.



Witnesses:  
 Carl Gaylord  
 John Enders.

Inventor:  
Aaron Brosius,  
By Dyrenforth, Dyrenforth, Lee and Wiles,  
Attys.

No. 871,473.

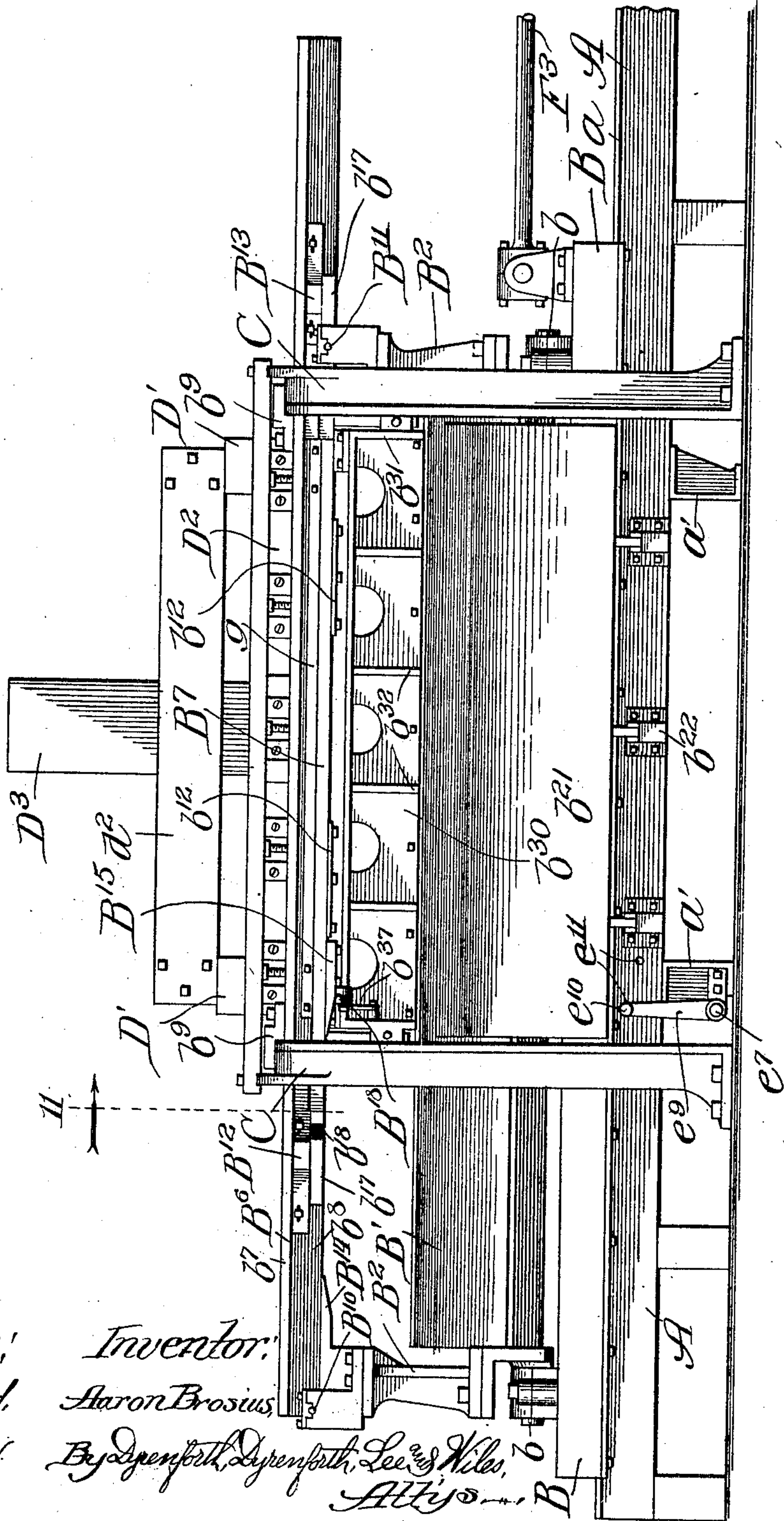
PATENTED NOV. 19, 1907.

A. BROSIUS.  
VENEER CUTTING MACHINE.

APPLICATION FILED FEB. 4, 1907.

8 SHEETS—SHEET 4.

Fig. 4.



Witnesses:  
Edw. J. Gaylord,  
John Enders.

Inventor:  
Aaron Brosius,  
By Dyrenforth, Dyrenforth, Lee & Niles,  
Attys.

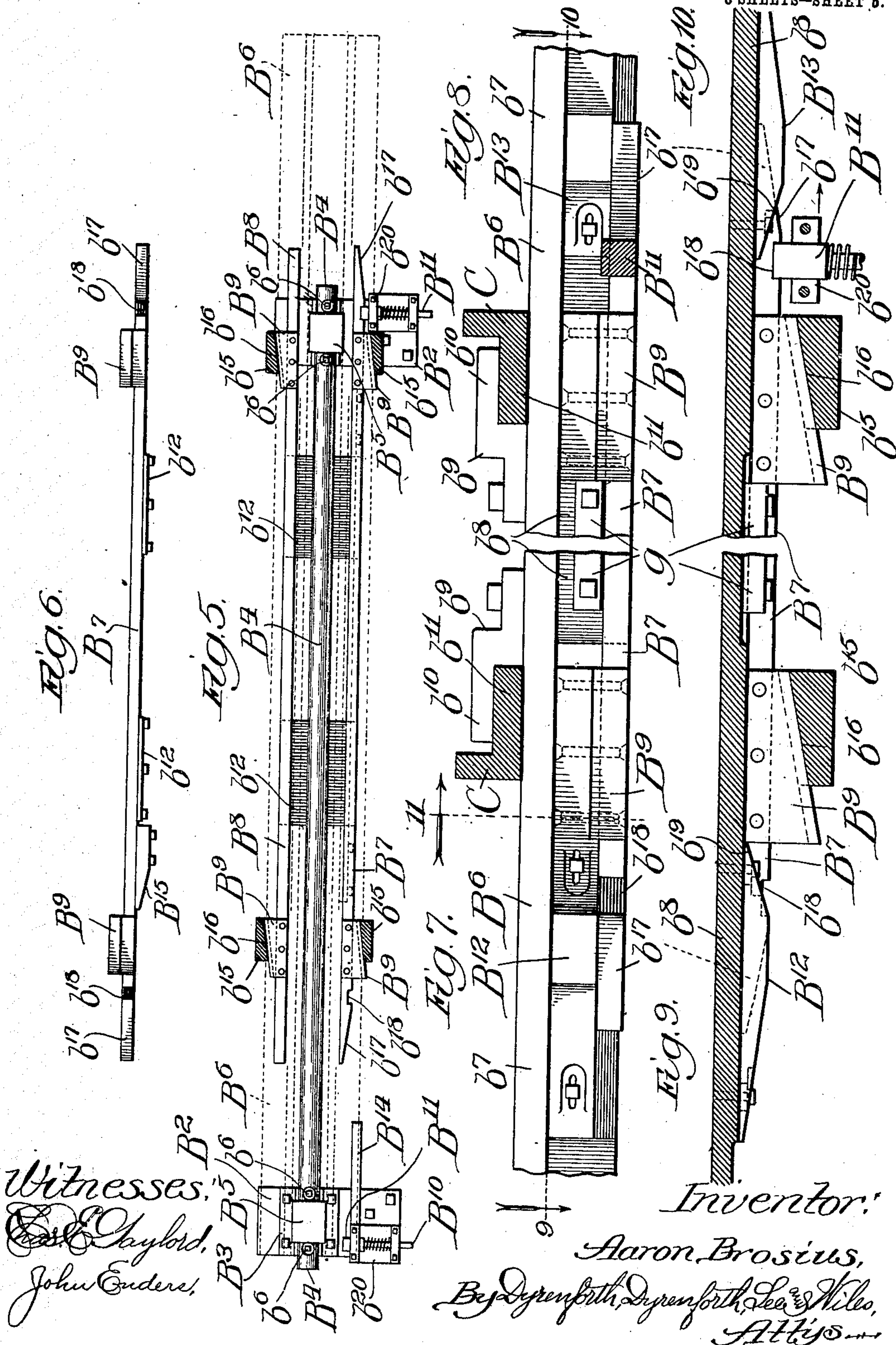


No. 871,473.

PATENTED NOV. 19, 1907.

A. BROSIUS.  
VENEER CUTTING MACHINE.  
APPLICATION FILED FEB. 4, 1907.

8 SHEETS—SHEET 5.







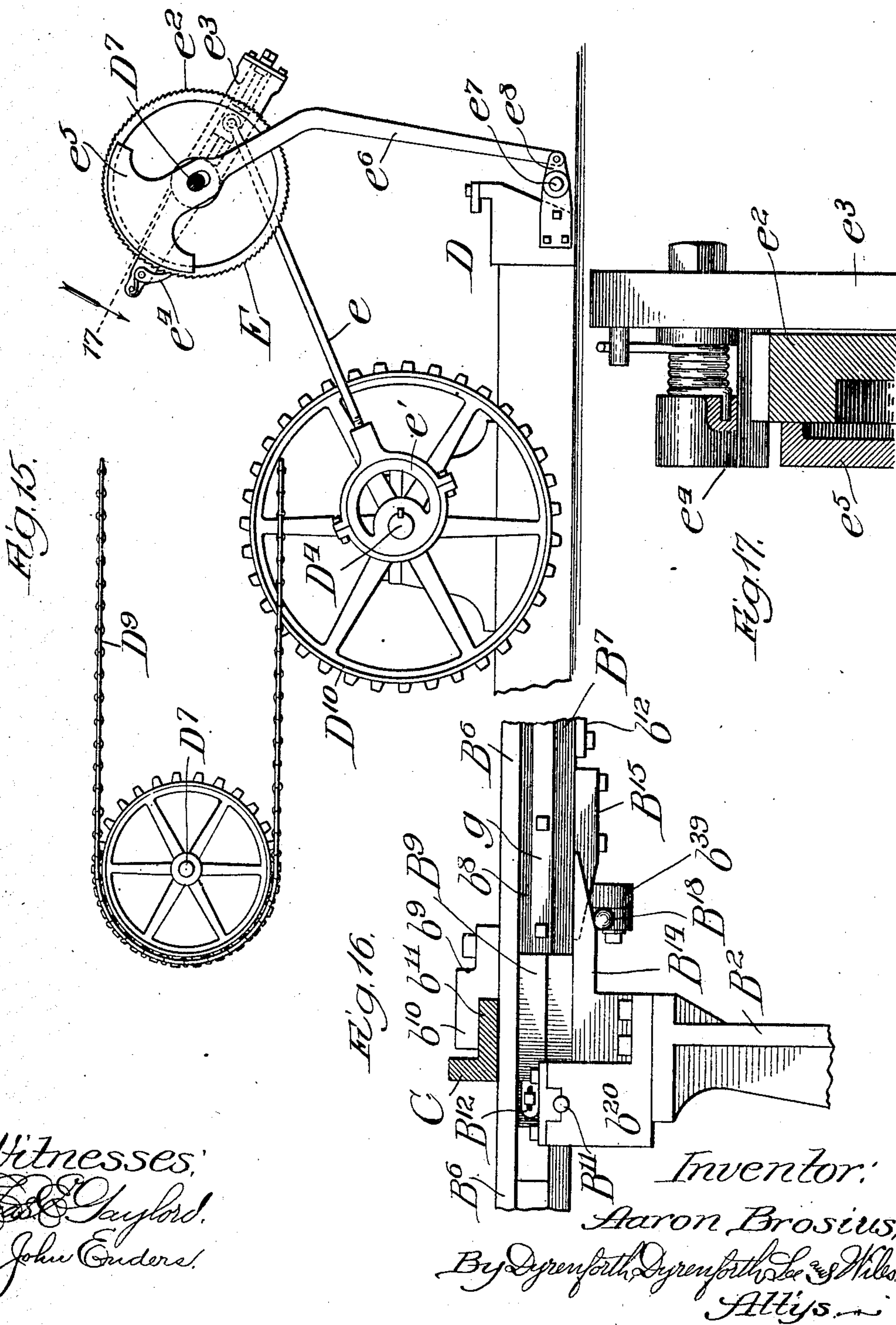
No. 871,473.

PATENTED NOV. 19, 1907.

A. BROSIUS.  
VENEER CUTTING MACHINE.

APPLICATION FILED FEB. 4, 1907.

8 SHEETS—SHEET 7.



Witnesses:  
E. C. Gaylord.  
John Enders.

Inventor:  
Aaron Brosius,  
By Dyrenforth, Dyrenforth & Co. Attys.







# UNITED STATES PATENT OFFICE.

AARON BROSIUS, OF EVANSVILLE, INDIANA, ASSIGNOR OF ONE-HALF TO LOUIS F. NONNAST, OF CHICAGO, ILLINOIS.

## VENEER-CUTTING MACHINE.

No. 871,473.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed February 4, 1907. Serial No. 355,706.

*To all whom it may concern:*

Be it known that I, AARON BROSIUS, a citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, have invented a new and useful Improvement in Veneer-Cutting Machines, of which the following is a specification.

My invention pertains particularly to veneer-cutting machines adapted to produce veneers by a process involving the compression of the flitch by the knife which serves to "slice off" the veneers.

My primary object is to provide a machine capable of withstanding the terrific strains produced in carrying out the process indicated; and an additional object is to provide for the automatic cleansing of the knives of veneer-cutting machines, whereby breakage of the veneers is avoided.

It may be preliminarily stated that in the preferred embodiment of the invention there are employed a bed provided with a horizontally disposed knife-carriage track, or guide; a knife-carriage mounted thereon; a laterally shiftable knife-support pivotally joined to said carriage; a horizontal stay-log carriage guide at right angles to the knife-carriage guide; a stay-log carriage mounted thereon; a vertically reciprocating stay-log; a pair of frame-members flanking the stay-log carriage and extending transversely over the knife-carriage and its bed; feed-screws connecting said frame-members and the stay-log carriage; a laterally shiftable knife-support guide supported on said frame-members; means for shifting or rocking said knife-support guide to throw the knife into operative position during the initial portion of the working stroke of the knife; means for retracting or withdrawing the knife-support during the initial portion of the return stroke of the knife; a veneer-confining device shiftable and pivotally supported on said frame-members and serving to cause the veneer to press upon and cleanse the knife during the cutting operation; and means for withdrawing the veneer-presser during the final portion of the working stroke of the knife and withholding the veneer-presser during the return stroke of the knife.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a plan view of a

veneer-cutting machine constructed in accordance with my improvements, the bed of the reciprocating knife-carriage being shown brokenly; Fig. 2, an end elevational view of said machine; Fig. 3, an enlarged sectional view taken as indicated at line 3 of Fig. 1; Fig. 4, a front side elevational view of the machine; Fig. 5, a sectional view taken as indicated at line 5 of Fig. 3 and disclosing a pair of guide-shifting bars employed; Fig. 6, a side elevational view of said bars; Fig. 7, a sectional view taken as indicated at line 7 of Fig. 1 and showing in elevation the left-hand portion of the laterally shiftable knife-support guide; Fig. 8, a similar section taken as indicated at line 8 of Fig. 1 and showing the right-hand portion of said shiftable guide; Fig. 9, a plan section taken as indicated at line 9 of Fig. 7; Fig. 10, a plan section taken as indicated at line 10 of Fig. 8, Figs. 9 and 10 showing one pair of wedges connected with the guide-shifting bars and a pair of releasing cams whose function is to release the catches which serve to actuate said bars; Fig. 11, a section taken as indicated at line 11 of Fig. 7 and showing in section the shiftable knife-support guide and in end elevation a pivotally supported veneer-presser which serves to hold the veneer in contact with the knife and insure continual cleansing of the knife; Fig. 12, a section taken as indicated at line 12 of Fig. 11 and showing the manner in which the veneer-presser is adjustably supported upon its pivotal bar; Fig. 13, a section taken as indicated at line 13 of Fig. 1 and showing one of the guide-blocks of the knife-support entered in the shiftable guide for the knife-support; Fig. 14, a section taken as indicated at line 14 of Fig. 13; Fig. 15, a section taken as indicated at line 15 of Fig. 1 and showing a portion of the mechanism which serves to feed the stay-log carriage towards the plane of the knife; Fig. 16, a section taken as indicated at line 16 of Fig. 2 and illustrating the mechanism for withdrawing the veneer-presser after the severance of the veneer from the flitch, it being understood that the parts are shown in the position which they occupy when the knife-carriage is at the right-hand end of its traverse, as the machine is viewed in Fig. 1; Fig. 17, a section taken as indicated at line 17 of Fig. 15; Fig. 18, an enlarged broken section illustrating the position of the knife and



veneer-presser with relation to the flitch just after the stay-log has begun its downward movement; and Fig. 19, a similar view illustrating the position of said parts as the stay-log begins its upward movement.

In the construction illustrated, A represents a bed supplied with a horizontal knife-carriage guide, or track, *a*; B, a reciprocable knife-carriage, or slide, mounted on said guide and carrying a knife-support B<sup>1</sup> connected therewith by pivots *b*; B<sup>2</sup>, standards rigidly mounted on the end-portions of the knife-support and supporting blocks B<sup>3</sup> to which is rigidly secured a longitudinal shaft B<sup>4</sup> upon which are pivoted guide-blocks B<sup>5</sup>; B<sup>6</sup>, a laterally shiftable guide or upper track in which the guide-blocks B<sup>5</sup> move as the knife-carriage reciprocates; B<sup>7</sup>, B<sup>8</sup>, (Figs. 2, 3 & 5) a pair of guide-shifting bars flanking the guide B<sup>6</sup> and equipped with wedges B<sup>9</sup>; B<sup>10</sup>, B<sup>11</sup>, a pair of bar-shifting catches mounted upon the standards B<sup>2</sup> and carried with the knife-carriage in the reciprocations thereof; B<sup>12</sup>, B<sup>13</sup>, a pair of catch-releasing cams carried by the shiftable guide B<sup>6</sup>; B<sup>14</sup>, B<sup>15</sup>, (Figs. 5 and 6) a pair of cams serving to control the position of the veneer-presser; B<sup>16</sup>, a veneer-presser mounted on a bar or shaft B<sup>17</sup> shiftable and pivotally supported on transverse frame-members presently to be described and connected with a lever B<sup>18</sup> controlled by the cams B<sup>14</sup>, B<sup>15</sup>; C, C, a pair of transversely extending arch-form frame-members standing astride of the knife-carriage and its bed and having rearward extensions C<sup>1</sup> serving as supports for the feed-screws of the stay-log carriage, the shiftable guide B<sup>6</sup> being supported on the members C; D, a bed equipped with horizontal guides *d* at right angles to the guides *a*; D<sup>1</sup>, a stay-log carriage mounted on said last-named guide; D<sup>2</sup>, a vertically reciprocable stay-log carried by a vertical slide D<sup>3</sup>; D<sup>4</sup>, a horizontal shaft journaled in bearings *d*<sup>1</sup>, *d*<sup>1</sup> on the carriage and equipped at its front end with a crank-disk D<sup>5</sup> which is joined by a connecting-rod D<sup>6</sup> to the slide D<sup>3</sup>; D<sup>7</sup>, a pair of feed-screws engaging nuts D<sup>8</sup> with which the sides of the stay-log carriage are equipped, the stems of said screws passing through bearings *d*<sup>2</sup> with which the frame-member extensions C<sup>1</sup> are equipped at their rear portions; D<sup>9</sup>, a sprocket-chain connecting the rear ends of said screw-stems; D<sup>10</sup>, a sprocket-wheel splined on and serving to actuate the shaft D<sup>4</sup>; E, ratchet-mechanism connecting the shaft D<sup>4</sup> with one of said screw-stems; F, a shaft parallel with the shaft D<sup>4</sup> and connected with the sprocket-wheel D<sup>10</sup> by a sprocket-chain F<sup>1</sup>; F<sup>2</sup>, a crank connected with the shaft F and joined by a connecting-rod F<sup>3</sup> to the knife-carriage B; and F<sup>4</sup>, a shaft geared to the shaft F and deriving power from any suitable source.

The bed A upon which the knife-carriage

is supported may be of any suitable construction. It preferably is supported in part upon transverse frame-members *a*<sup>1</sup> which extend rearwardly between the planes of the frame-members C, C and support the guides *d* for the stay-log carriage.

The knife-carriage B is mounted upon the guides *a* in such a manner as to resist any tendency of the knife-carriage to become dislodged from its bed. The knife-support B<sup>1</sup> comprises the longitudinally disposed knife-back *b*<sup>1</sup>, and transverse end-bars *b*<sup>2</sup> cast integrally therewith and upon which the standards B<sup>2</sup> are rigidly mounted. The knife-back *b*<sup>1</sup> supports the blade *b*<sup>3</sup> in the manner shown in Figs. 18 and 19. The edge of the blade is formed with a double-bevel, as indicated at *b*<sup>4</sup>, the front surface of the blade being concave, as indicated at *b*<sup>5</sup>. As has been stated, the blocks B<sup>3</sup> are rigidly mounted on the standards B<sup>2</sup>, so that the blocks B<sup>3</sup> and standards B<sup>2</sup> virtually form rigid arms of the knife-support B<sup>1</sup>. The blocks B<sup>3</sup> are bifurcated, as shown in Figs. 13 and 14, and the shaft B<sup>4</sup> is supported in concavities at the upper edges of the bifurcations of said blocks and rigidly secured to the bifurcations by screw-bolts *b*<sup>6</sup>, as shown in Fig. 14. Each guide-block B<sup>5</sup> is confined between the bifurcations of the supporting-block, as shown in Fig. 14, and since the guide-blocks are pivoted on the shaft B<sup>4</sup> it is evident that the knife-support may turn about its trunnions *b*, notwithstanding the guide-blocks are closely confined within the guide B<sup>6</sup>. In other words, the knife-support may rock upon its trunnions when the guide B<sup>6</sup> is shifted laterally, the guide-blocks B<sup>5</sup> rising or lowering slightly in the channel of the guide B<sup>6</sup> as said guide is shifted. Said guide B<sup>6</sup> comprises a horizontally disposed plate, or bar, *b*<sup>7</sup> equipped on its lower side, a short distance from its edges, with depending flanges *b*<sup>8</sup> between which is afforded a guide-channel which receives the guide-blocks B<sup>5</sup>. Said guide B<sup>6</sup> is equipped on its upper surface between the frame-members C with transverse guide-members *b*<sup>9</sup>, as shown in Fig. 1, said members *b*<sup>9</sup> having raised flanges *b*<sup>10</sup> which are turned away from each other and which engage intumed flanges *b*<sup>11</sup> with which the frame members C are provided, as shown in Figs. 7 and 8. The guide-shifting bars B<sup>7</sup>, B<sup>8</sup> are supported through the medium of the wedge-members B<sup>9</sup> which are rigidly secured to said bars. The bars are rigidly joined together by plates *b*<sup>12</sup>, as shown in Figs. 5 and 6, said plates extending beneath the guide B<sup>6</sup>, as shown in Figs. 3 and 4. The wedge-members B<sup>9</sup> which support the bars B<sup>7</sup>, B<sup>8</sup> are equipped with flanges *b*<sup>13</sup> supported on flanges *b*<sup>14</sup> of wedge-members *b*<sup>15</sup> which are rigidly secured to the under surfaces of the frame-members C. The wedge-members B<sup>9</sup> and the wedge-members



$b^{15}$  are provided with corresponding oblique surfaces  $b^{16}$ , as shown in Figs. 5 and 9, all of said oblique surfaces being parallel, whereby the bars will be given a lateral parallel movement as they are moved longitudinally through the medium of the catches  $B^{10}$ ,  $B^{11}$  with which the reciprocating knife-carriage is equipped.

The bar  $B^7$  is provided at its ends with bevel-surfaces  $b^{17}$ , as best shown in Figs. 5 and 9, and adjacent to said bevel-surfaces with recesses  $b^{18}$  serving to receive the catches  $B^{10}$ ,  $B^{11}$ . The cams  $B^{12}$ ,  $B^{13}$  are applied to one of the flanges  $b^8$  of the shiftable guide  $B^6$  above the plane of the bar  $B^7$ . Said cams  $B^{12}$ ,  $B^{13}$  are provided with bevel-surfaces  $b^{19}$  which are opposed to the bevel-surfaces  $b^{17}$ . The catches  $B^{10}$ ,  $B^{11}$  are of such vertical thickness as to project into the path of the cams  $B^{12}$ ,  $B^{13}$ , as shown in Fig. 8. The arrangement is such that when the knife-carriage is at the left-hand end of its guide, as shown in Fig. 1, the catch  $B^{11}$  will engage the notch  $b^{18}$  at the right-hand end of the bar  $B^7$ , as shown in Fig. 10, and when the knife-carriage moves to the right, the bar  $B^7$  and through the medium thereof the bar  $B^8$ , will be moved to the right a short distance, until the inner end of the catch  $B^{11}$  encounters the bevel-surface  $b^{19}$  of the cam  $B^{13}$ , whereupon the catch will be released from the bar and the knife-carriage will continue its movement without further movement of the bars. During the short longitudinal movement of the bars just described, the wedges will operate to shift the guide  $B^6$  toward the plane of the stay-log. When the knife-carriage reaches the end of its working stroke, the catch  $B^{10}$  will engage the recess  $b^{18}$  near the left-hand end of the bar  $B^7$ , and during the initial portion of the return stroke of the knife-carriage, the bars  $B^7$ ,  $B^8$  will be shifted to the left until the catch  $B^{10}$  encounters the bevel-surface  $b^{19}$  of the cam  $B^{12}$ , whereupon the catch will be withdrawn from the notch  $b^{18}$  and the knife-carriage will continue its return movement. During the short movement of the bars to the left, the guide  $B^6$  will be shifted away from the stay-log to withdraw the knife from contact with the flitch and permit the stay-log carriage to be fed towards the knife a distance equal to the thickness of a veneer. The catches  $B^{10}$ ,  $B^{11}$  are horizontally disposed in transverse relation to the bar  $B^7$  and are supported in brackets  $b^{20}$  mounted upon the standards  $B^2$ . The catches are equipped with springs which serve to project them into the notches  $b^{18}$ . The cams  $B^{12}$ ,  $B^{13}$  are adjustably connected with the guide  $B^6$ , as shown in Figs. 7 and 8.

The cam  $B^{14}$  is carried by the left-hand standard  $B^2$ , as shown in Fig. 4, and the cam  $B^{15}$  is carried by the bar  $B^7$  as shown in the same figure. In Fig. 4, the lever  $B^{18}$  is shown engaged by the cam  $B^{15}$ , the veneer-

presser being thereby held in a retracted position. When the knife-carriage moves to the right and the bar  $B^7$  is moved to the right during the initial portion of the movement of the knife-carriage, the cam  $B^{15}$  is withdrawn from the lever  $B^{18}$ , thereby permitting the veneer-presser to assume its working position. When the knife-carriage reaches the end of its working stroke, the cam  $B^{14}$  engages the lever  $B^{18}$  and retracts the veneer-presser, thereby permitting the veneer to drop upon an apron  $b^{21}$  which is pivotally supported on brackets  $b^{22}$  connected with the bed  $A$ , as shown in Fig. 3. During the initial portion of the return stroke of the knife-carriage, the bar  $B^7$  is shifted to the left and the cams  $B^{14}$ ,  $B^{15}$  assume the relative position shown in Fig. 16, so that the lever  $B^{18}$  will be engaged by the cam  $B^{15}$  before the cam  $B^{14}$  is wholly withdrawn from engagement with the lever. Thereupon, the cam  $B^{15}$  holds the lever  $B^{18}$  depressed during the remainder of the return stroke of the knife-carriage.

The flanges  $b^{10}$  of the transverse guide-members  $b^9$  with which the guide  $B^6$  is equipped on its upper surface, are equipped adjacent to the stay-log  $D^2$  with depending brackets  $b^{23}$  in the upper portions of which the ends of the shaft  $B^{17}$  are journaled. This feature is clearly shown in Figs. 11 and 12. The shaft  $B^{17}$  is square, except its end portions which are journaled in the brackets  $b^{23}$ . Supported on the shaft  $B^{17}$  adjacent to the brackets  $b^{23}$  are brackets  $b^{24}$  provided with slots  $b^{25}$  through which pass bolts  $b^{26}$  which serve to clamp the brackets to the shaft. The members  $b^{24}$  are provided at their upper ends with flanges  $b^{27}$  which are turned toward the stay-log and are equipped with set-screws  $b^{28}$  which serve in the adjustment of the brackets  $b^{24}$ . Rigidly connected with horizontal flanges  $b^{29}$  with which the brackets  $b^{24}$  are provided at their lower ends is an angle-bar  $b^{30}$  having end flanges  $b^{31}$  of substantially rectangular form and having triangular vertical ribs  $b^{32}$  at suitable intervals. Connected with the lower edge of the angle-bar  $b^{30}$  is a presser-bar  $b^{33}$  of substantially circular cross-section, but having a flattened surface which abuts against the bar  $b^{30}$ , and having also a cut-away portion affording a flat vertical surface  $b^{34}$  adapted to lie adjacent to the flitch, as shown in Fig. 18. The end flanges  $b^{31}$  of the angle-bar  $b^{30}$  are equipped with lugs  $b^{35}$  provided with set-screws  $b^{36}$  which bear against the lower vertical edge-portions of the brackets  $b^{23}$  and serve to limit the movement of the bar  $b^{33}$  towards the flitch. Connected with the left-hand end flange  $b^{31}$  is a link  $b^{37}$  whose upper end is connected with the rear end of the lever  $B^{18}$ . The central portion of the lever  $B^{18}$  is supported on a pivot  $b^{38}$  projecting from a bearing  $b^{39}$  which is connected with



the flanges  $b^8$  of the guide  $B^6$  by bolts  $b^{40}$ . From this description it will be seen that the veneer-presser is shifted with the shiftable guide  $B^6$ , and is also capable of an independent rocking movement with relation to the guide-member.

The frame-members  $C$  may be of any suitable form. As shown, each member has three legs  $c, c^1, c^2$ , the intermediate leg having its front surface in the rear of the front surface of the stay-log. The bearings  $d^2$  of the feed-screws  $D^7$  are connected with the upper portions of the rearward extensions  $C^1$ , the stems of the screws being provided with thrust-collars embracing the bearings, as shown in Fig. 1. It will be understood, therefore, that the tendency of the knife, owing to its peculiar formation, to ride over the surface of the flitch in the cutting operation is resisted by the frame-members  $C$ , since the thrust from the stay-log carriage is transmitted through the feed-screws to said frame-members, and the thrust from the knife-support is transmitted through the guide, or track,  $B^6$  to said frame-members.

The stay-log carriage  $D^1$  may be of any suitable construction. As shown, it comprises housing-sides  $d^3$  connected at their base-portions by cross-members  $d^4$  which support the bearings  $d^1$ . The front bearing  $d^1$  is confined, as shown in Fig. 3, between the crank-disk  $D^5$  and a collar  $d^5$ , whereby the shaft  $D^4$  is moved longitudinally as the stay-log carriage moves towards the knife. The stay-log  $D^2$  has its ends equipped with guides  $d^6$  which engage vertical guides  $d^7$  with which the front portions of the side members  $d^3$  are provided. The slide  $D^3$  which is rigidly connected with the stay-log moves in a guide  $d^8$  provided centrally in a cross-member  $d^9$  which connects the upper front portions of the sides of the housing. The lower end of the slide  $D^3$  moves in a guide in a transverse member  $d^{10}$  which connects the lower portions of the sides of the housing, as shown in Fig. 3. The stay-log  $D^2$  is backed and strengthened by an arch  $d^{11}$  which is apertured to permit the connecting rod  $D^6$  to pass through it.

The ratchet-mechanism  $E$  comprises, as shown in Figs. 15 and 17, a connecting rod  $e$  actuated by an eccentric  $e^1$  on the shaft  $D^4$ ; a ratchet-wheel  $e^2$  on the stem of one of the feed-screws  $D^7$ ; a rock-lever  $e^3$  actuated by the connecting rod  $e$  and equipped with a spring-held pawl  $e^4$ ; a cam  $e^5$  having a slot receiving the stem of the screw  $D^7$  and equipped with an arm  $e^6$ ; and a rock-shaft  $e^7$  equipped at its rear end with a crank  $e^8$  connected with the arm  $e^6$ , and equipped at its front end with a hand-lever  $e^9$  provided with a spring-held pin  $e^{10}$  adapted to engage recesses  $e^{11}$  with which the bed  $A$  is provided, as shown in Fig. 4. When the hand-lever  $e^9$  is in the position shown in Fig. 4, the cam  $e^5$

is in the position shown in Fig. 15, permitting the pawl to engage the ratchet-wheel; and when the hand-lever  $e^9$  is turned to the right from the position shown in Fig. 4, the cam  $e^5$  is lifted through the medium of the crank  $e^8$ , thereby lifting the pawl out of engagement with the teeth of the ratchet-wheel, it being observed that the pawl projects over the cam  $e^5$  as indicated in Fig. 17.

The connections between the shaft  $F$  and the knife-carriage and the shaft  $D^4$  which reciprocates the stay-log are such that the knife and stay-log are given simultaneous movements of reciprocation. Thus, when the knife-carriage is moved from its position at the left-hand end of its traverse shown in Fig. 1 to the right end of its traverse, the stay-log is depressed from its elevated position shown in Fig. 2, to its lowermost position; and when the knife-carriage makes the return stroke, the stay-log is raised to its elevated position, the movements being synchronous. This is accomplished by causing the shaft  $D^4$  to rotate at the same speed as does the shaft  $F$ , the sprocket-wheels upon said two shafts being of the same size for accomplishing this purpose.

The operation will be readily understood from the foregoing description. When the knife-carriage is at the left end of its traverse as shown in Fig. 1, the guide  $B^6$  of the knife-support is in position to withhold the knife from its cutting plane. As the knife-carriage moves to the right, the catch  $B^{11}$  shown in Fig. 5, during the first three inches of movement of the knife-carriage, moves the guide-shifting bars  $B^7, B^8$ , thereby shifting the guide  $B^6$  toward the plane of the stay-log, whereupon the catch  $B^{11}$  engages the cam  $B^{13}$  with which the guide  $B^6$  is equipped, releasing the guide-shifting bars. During this initial movement, the cam  $B^{15}$  is withdrawn from its position above the lever  $B^{18}$  shown in Fig. 4, thereby permitting the veneer-presser to assume its working position with the stops  $b^{36}$  bearing against the brackets  $b^{33}$ . A longitudinally disposed stop-bar  $g$  applied to one side of the guide  $B^6$ , as shown in Figs. 4 and 7, serves to limit the movement of the guide-shifting bars  $B^7, B^8$ , the ends of said stop-bar affording stops for the wedge-members  $B^9$  attached to the bar  $B^7$ . After the guide  $B^6$  has been shifted toward the plane of the stay-log, the knife-carriage continues its movement to the right and the veneer is severed from the flitch  $h$  and is caused to pass between the concave surface  $b^5$  of the knife and the adjacent convex surface of the presser-bar  $b^{33}$ , the space through which the veneer passes being shown in Fig. 18. It is understood, of course, that the stops  $b^{36}$  which limit the inward swing of the veneer-presser, should be so adjusted as to permit the veneer-presser to keep the veneer pressed closely against the



concave surface  $b^5$  of the knife, thereby preventing gumming of the knife, the tendency without this provision being for the concavity of the knife to become filled with a hard substance which impairs the operation of the knife and causes breakage of the veneers. Preferably, the arrangement is such that the presser-bar  $b^{33}$  bears upon the surface of the flitch above the edge of the knife and also bears upon the portion of the veneer which is severed from the flitch, as will be readily understood from Fig. 18. It is understood, of course, that the stay-log begins to descend practically at the same instant that the knife-carriage begins its movement to the right, but, in practice, the flitch is a short distance above the edge of the knife at the beginning of this movement, so that the shifting of the guide  $B^6$  and the release of the veneer-presser are effected before the flitch is engaged by the knife. When the knife-carriage reaches the end of its working stroke, the cam  $B^{14}$  rides upon the lever  $B^{18}$  and retracts the veneer-presser, and the catch  $B^{10}$  engages the notch  $b^{18}$  at the left end of the bar  $B^7$ . During the initial portion of the return stroke, the guide-shifting bars  $B^7$ ,  $B^8$  are moved to the left, thereby shifting the guide  $B^6$  away from the stay-log, and during this movement, also, while the cam  $B^{14}$  is withdrawn from its position shown in Fig. 16 the cam  $B^{15}$  assumes a position above the lever  $B^{18}$ , thereby withholding the veneer-presser from its working position while the knife-carriage continues its return stroke. When the knife-carriage reaches the left end of its traverse, the catch  $B^{11}$  reengages the notch  $b^{18}$  at the right hand end of the bar  $B^7$ , ready to effect movement of the guide-shifting bars when the knife-carriage moves again to the right. During the return stroke of the knife-carriage and while the knife is out of its working position, the stay-log is fed toward the knife through the medium of the ratchet-mechanism  $E$  and the feed-screws  $D^7$ .

By reference to Fig. 18, it will be understood that owing to the double-bevel of the knife-blade, the base of the knife-edge will be caused to compress the flitch, the result being to reduce the angle of divergence of the veneer from the plane of severance, thereby lessening the tendency of the veneer to break. The result of forcing the base portion of the knife-edge to compress the flitch is to create a great strain upon the knife and knife-carriage, the tendency of the knife being to ride over the flitch. This tendency is resisted by the guide  $B^6$  which is located at a distance above the knife. The strain is transmitted through the guide  $B^6$  to the frame-members  $C$ , and the corresponding strain upon the stay-log and stay-log carriage is transmitted to the same frame-

members through the feed-screws. It will thus be seen that the improved construction provides for great rigidity of the knife, which is an absolute essential where the process herein indicated is followed in veneer-cutting.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation is to be understood therefrom.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a veneer-cutting machine, the combination of a stay-log, a laterally shiftable longitudinally reciprocating knife and knife-support, and a laterally shiftable guide for the knife-support.

2. In a veneer-cutting machine, the combination of a stay-log, a knife-carriage guide, a knife-carriage mounted thereon, a knife-support mounted on said knife-carriage, and a shiftable guide for said knife-support.

3. In a veneer-cutting machine, the combination of a stay-log, a knife-carriage guide, a knife-carriage mounted thereon, a laterally shiftable knife-support carried by the knife-carriage, and a laterally shiftable guide for said knife-support.

4. In a veneer-cutting machine, the combination of a stay-log, a knife-carriage guide, a knife-carriage mounted thereon, a knife-support pivotally joined to the knife-carriage below the plane of said stay-log, a knife carried by said support, and a laterally shiftable guide for said knife-support with which said knife-support is connected at a distance from said pivot.

5. In a veneer-cutting machine, the combination of a horizontal knife-carriage-guide, a knife-carriage mounted thereon, a horizontal stay-log carriage guide at right angles to said knife-carriage guide, a stay-log carriage mounted on said stay-log carriage guide, a vertically reciprocating stay-log, a knife-support pivotally joined to said knife-carriage, a knife carried by said support, and a laterally shiftable guide connected with said support above said knife.

6. In a veneer-cutting machine, the combination of a stay-log, a knife-carriage guide, a reciprocating knife-carriage, a laterally shiftable knife-support carried by said carriage, a laterally shiftable guide for said knife-support, and means carried by said carriage serving in the shifting of said guide.

7. In a veneer-cutting machine, the combination of a stay-log, a knife-carriage guide, a reciprocating knife-carriage, a laterally shiftable knife-support carried by said carriage, a laterally shiftable guide for said knife-support, wedge-members serving to shift said last-named guide, and means carried by said knife-carriage for actuating said wedge-members.

8. In a veneer-cutting machine, the com-



combination of a stay-log, a knife-carriage guide, a reciprocating knife-carriage, a laterally shiftable knife-support carried by said carriage, a laterally shiftable guide for said knife-support, guide-shifting bars embracing said shiftable guide and equipped with wedge-members, and means carried by said carriage for moving said bars.

9. In a veneer-cutting machine, the combination of a stay-log, a knife-carriage guide, a reciprocating knife-carriage, a laterally shiftable knife-support carried by said carriage, a laterally shiftable guide for said knife-support, guide-shifting bars equipped with wedge - members, one of said bars having bevel-surfaces and notches adjacent to said bevel-surfaces, and bar-shifting catches carried by said knife-carriage and adapted to engage said notches.

10. In a veneer cutting machine, the combination of a stay-log, a knife-carriage guide, a reciprocating knife-carriage, a laterally shiftable knife-support carried by said carriage, a laterally shiftable guide for said knife-support, guide-shifting bars equipped with wedge-members, one of said bars having bevel-surfaces and notches adjacent to said bevel-surfaces, bar-shifting catches carried by said carriage and adapted to engage said notches, and catch-retracting cams carried by said shiftable guide, for the purpose set forth.

11. In a veneer-cutting machine, the combination of a stay-log, a laterally shiftable longitudinally reciprocating knife and knife-support, a laterally shiftable guide for the knife - support, and a laterally shiftable veneer-presser coacting with said knife.

12. In a veneer-cutting machine, the combination of a stay-log, a laterally shiftable longitudinally reciprocating knife and knife-support, a laterally shiftable guide for said knife-support, and a veneer-presser movable with said laterally shiftable guide and independently movable with relation to said laterally shiftable guide.

13. In a veneer cutting machine, the combination of a stay-log, a laterally shiftable longitudinally reciprocating knife and knife-support, a laterally shiftable guide for the knife-support, veneer-presser supports movable with said shiftable guide, and a veneer-presser pivotally mounted on said supports.

14. In a veneer-cutting machine, the combination of a stay-log, a laterally shiftable longitudinally reciprocating knife and knife-support, a laterally shiftable guide for the knife-support, a veneer-presser support movable with said laterally shiftable guide, a veneer-presser movably mounted on said support, means for shifting said shiftable guide, and means for moving the veneer-presser with relation to said shiftable guide.

15. In a veneer-cutting machine, the combination of a stay-log, a reciprocating knife-

carriage, a knife-support pivotally mounted thereon, a knife carried by said support, guide-blocks connected with said knife support and capable of turning with relation thereto, and a laterally shiftable guide receiving said guide-blocks.

16. In a veneer-cutting machine, the combination of a stay-log, a reciprocating knife-carriage, a knife-support pivotally connected with said carriage and equipped with standards, guide-blocks supported on said standards, a laterally shiftable guide receiving said guide-blocks, a knife carried by said support between said shiftable guide and the pivot of the knife-support, and means carried by said standards serving in the shifting of said guide.

17. In a veneer-cutting machine, the combination of a reciprocating knife-carriage, a knife-support carried thereby, a stay-log carriage movable toward and away from the knife-carriage, a reciprocating stay-log connected with the stay-log carriage, frame-members extending across the knife-support and having rearward extensions, feed-screws connected with said frame members and with the stay-log carriage, and a knife support guide connected with said frame-members, for the purpose set forth.

18. In a veneer-cutting machine, the combination of a knife-carriage guide, a reciprocating knife-carriage mounted thereon, a knife-support pivotally connected with said carriage, a stay-log carriage guide at right angles to the knife-carriage guide, a stay-log carriage mounted upon the stay-log carriage guide, a reciprocating stay-log mounted on said stay-log carriage, frame-members extending across the knife-support and having rearward extensions, feed-mechanism connecting said frame-members with the stay-log carriage, and a shiftable knife-support guide connected with said frame-members.

19. In a veneer-cutting machine, the combination of a horizontal knife-carriage guide, a knife-carriage mounted thereon, a knife-support pivotally connected with said carriage and equipped with a knife and equipped also with a guide - member located above said knife, a horizontal stay-log carriage guide at right angles to the knife-carriage guide, a stay-log carriage mounted thereon, a vertically reciprocable stay-log mounted on the stay-log carriage, frame-members located at the sides of the stay-log carriage and projecting over the knife - support, feed-screws connecting the stay-log carriage with said frame-members, a shiftable knife-support guide equipped with transverse guides slidably connected with said frame-members wedge - members movably connected with said frame-members, and means carried by the knife-support and serving to actuate said wedge-members and thereby actuate said shiftable guide.



20. In a veneer-cutting machine, the combination of a horizontal knife-carriage guide, a knife-carriage mounted thereon, a knife-support pivotally connected with said carriage and equipped with a knife and with standards extending above said knife, a shaft supported by said standards and equipped with guide-blocks, a horizontal stay-log carriage guide at right angles to the knife-carriage guide, a stay-log carriage mounted upon the stay-log carriage guide, a vertically reciprocable stay-log mounted upon the stay-log carriage, frame-members extending transversely over said shaft and rearwardly at the sides of the stay-log carriage, feed-screws connecting the stay-log carriage with said frame-members, a laterally shiftable bar provided on its lower side with a guide-channel receiving said guide-blocks, transverse guide-members connected with said bar and slidably connected with said frame-members, longitudinally disposed bars embracing said laterally shiftable bar and equipped with wedge-members, wedge-members secured to said frame-members and engaging said first-named wedge-members, bar-actuating catches mounted on the knife-support, and catch-retracting cams carried by said laterally shiftable bar, for the purpose set forth.

21. In a veneer-cutting machine, the combination with a stay-log and a knife mounted to move relatively to each other, of a yieldingly held veneer-presser adapted to engage a veneer after partial severance thereof from the flitch and maintain the veneer in close contact with the knife during the severing operation, whereby coating of the knife is obviated.

22. In a veneer-cutting machine, the combination of a horizontally reciprocating knife, a vertically reciprocating stay-log, and a pivotally supported longitudinally immovable veneer-presser coacting with said knife.

23. In a veneer-cutting machine, the combination with a stay-log and a knife having relative movements for effecting the severance of a veneer from a flitch, said knife having a concave surface, of a yieldingly-held veneer-presser having a convex surface presented at the concave surface of the knife, for the purpose set forth.

24. In a veneer-cutting machine, the combination with a horizontally reciprocating knife and a vertically reciprocating stay-log,

of frame-members located above the knife, veneer-presser supports connected with said frame-members, a veneer-presser pivoted on said supports, and means for withdrawing said veneer-presser from the knife.

25. In a veneer-cutting machine, the combination with a knife and stay-log having relative movements for severing a veneer from a flitch, said knife having a concave surface, of a yieldingly-held presser-bar having a convex surface presented to the concave surface of the knife, and having also a surface adapted to engage the exposed surface of the flitch above the edge of the knife, for the purpose set forth.

26. In a veneer-cutting machine, the combination with a reciprocating knife and a stationary frame, of a bar supported from said frame, brackets adjustably connected with said bar, and a presser-bar supported from said brackets and located adjacent to the knife.

27. In a veneer-cutting machine, the combination with a reciprocating laterally shiftable knife, of a longitudinally immovable veneer-presser pivotally supported above said knife and weighted so as to swing towards the knife, stops limiting the inward swing of the presser, and means for swinging the presser away from the knife, for the purpose set forth.

28. In a veneer-cutting machine, the combination of a horizontal knife-carriage guide, a reciprocating knife-carriage mounted thereon, a knife-support pivotally connected with said knife-carriage, a knife carried by said knife-support having a double-bevel edge, a horizontal stay-log carriage-guide at right angles to the knife-carriage guide, a stay-log carriage mounted thereon, a vertically reciprocable stay-log, frame-members extending over the knife-support, feed-mechanism connecting the stay-log carriage with said frame-members, a shiftable knife-support guide connected with said frame-members, veneer-presser supports movable with said shiftable guide, and a pivotally supported veneer presser carried by said supports and coacting with said knife, for the purpose set forth.

AARON BROSIUS.

In presence of—

J. H. LAUDES,

R. A. SCHAEFER.