3 Sheets--Sheet 1.

J. N. SEIB.

Veneer Cutters.

No. 141,596. Patented August 5, 1873.

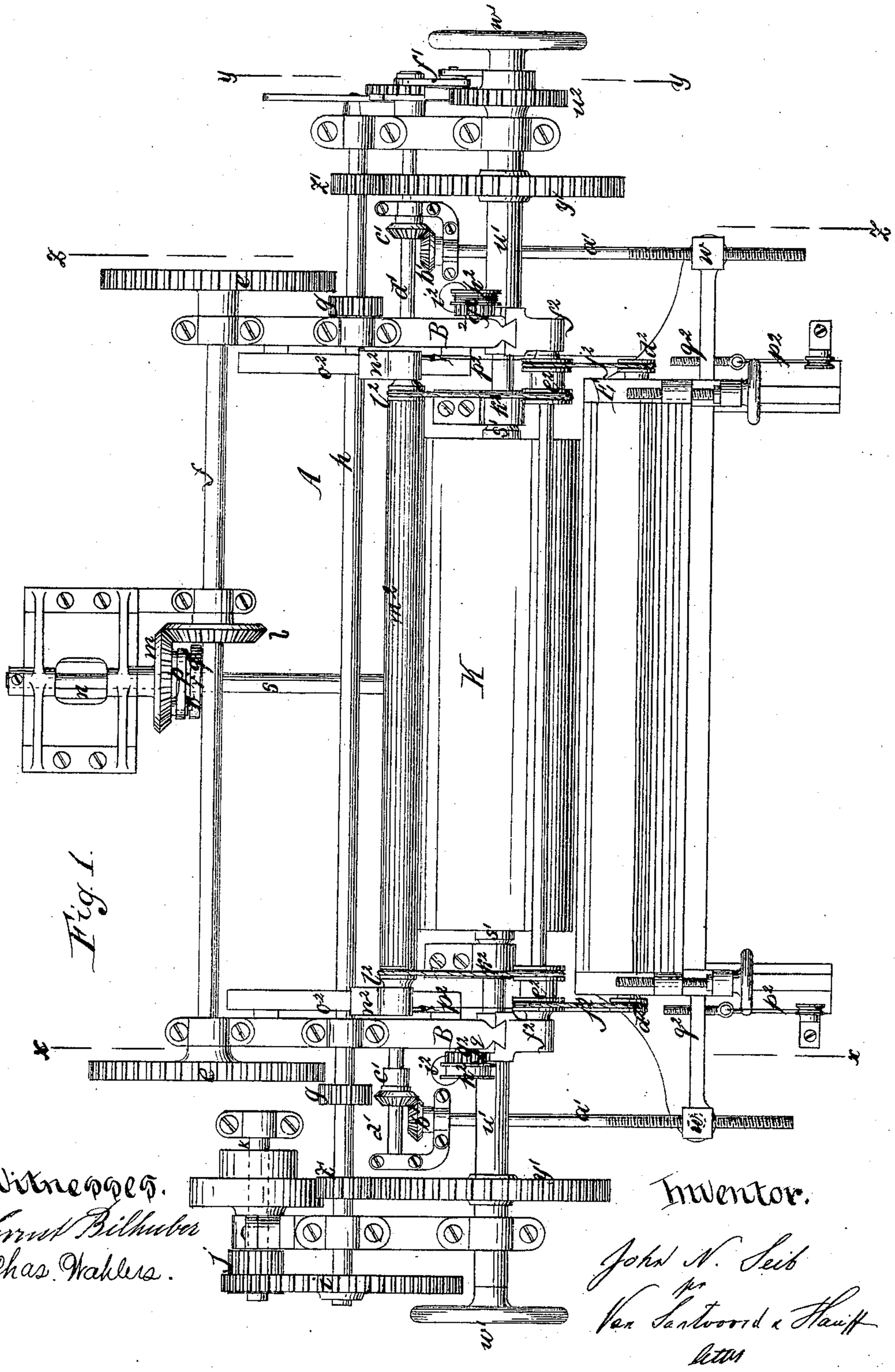

Fig. 1.

Witnesses.

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3 Sheets--Sheet 2

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Fig: 2.

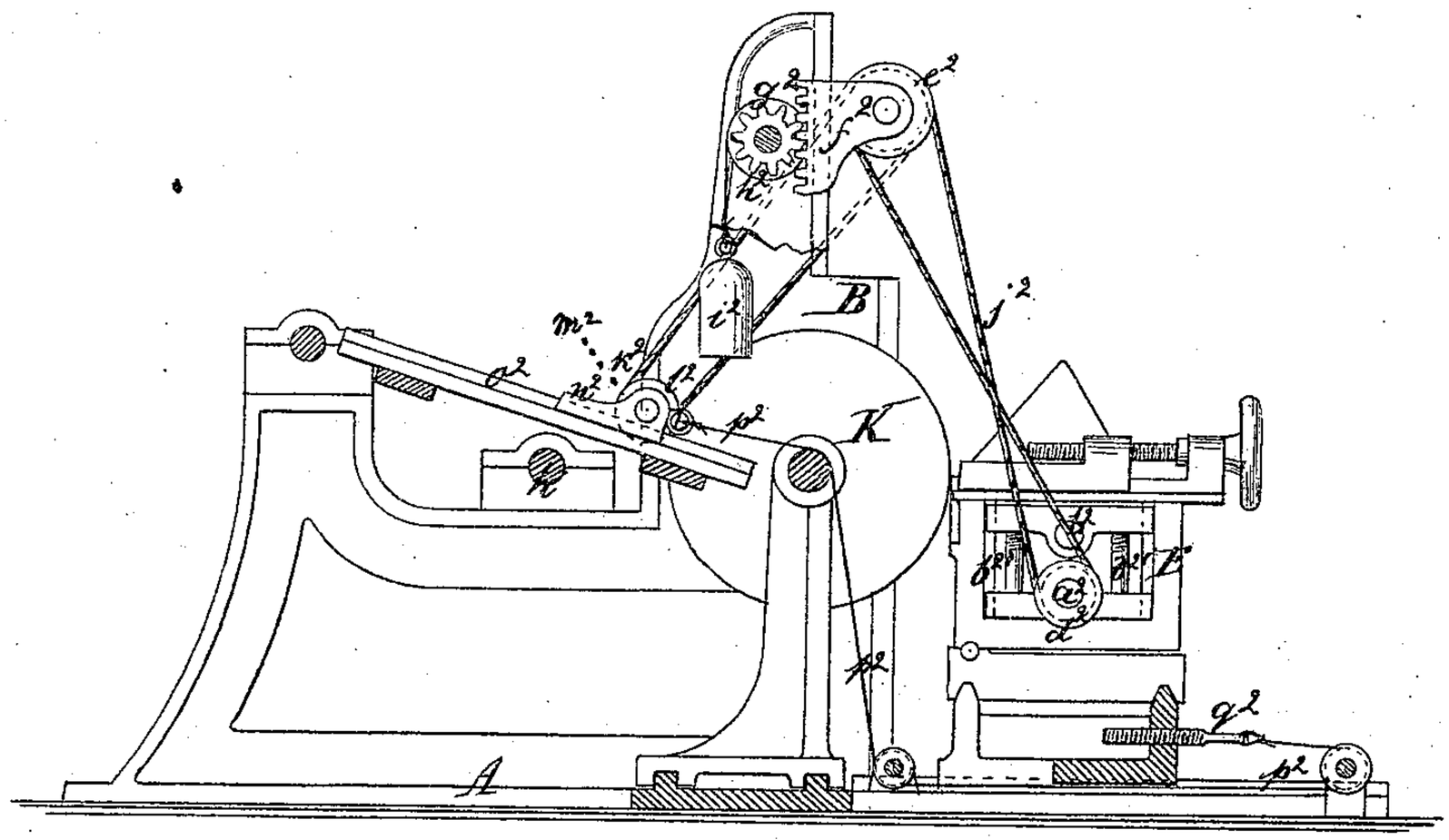


Fig: 4.

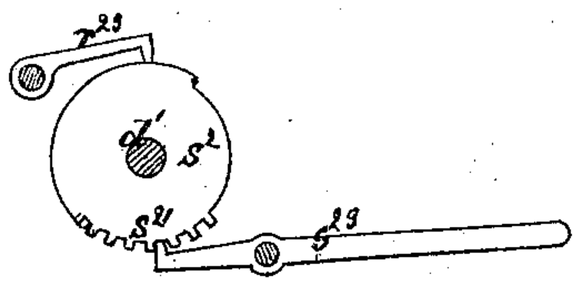
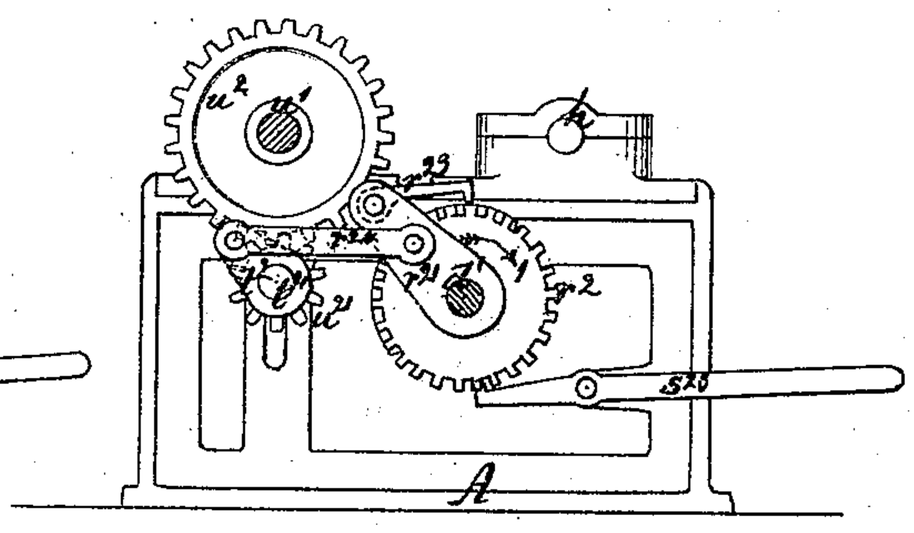


Fig: 3.



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3 Sheets--Sheet 13

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Veneer Cutters.

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Fig 5.

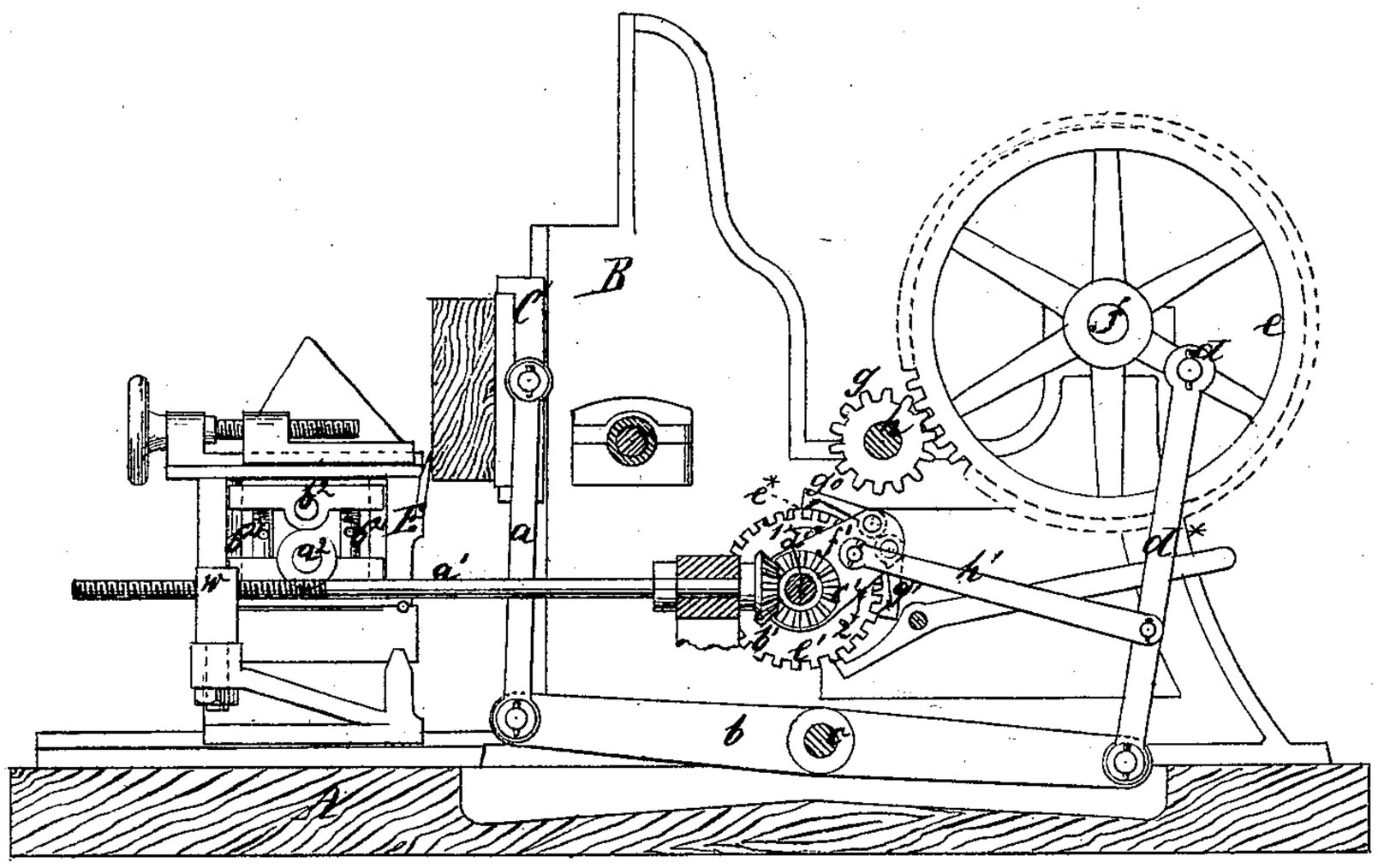


Fig: 6.

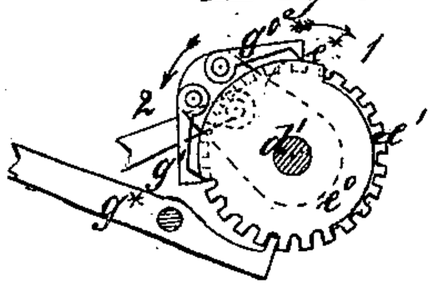


Fig 7.

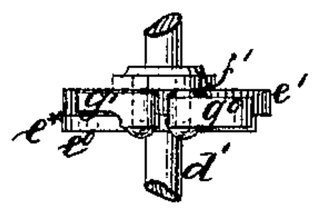
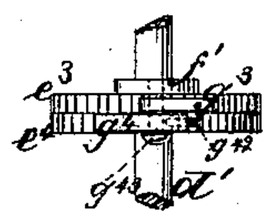


Fig: 8.

Fig: 9.



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UNITED STATES PATENT OFFICE.

JOHN N. SEIB, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN VENEER-CUTTERS.

Specification forming part of Letters Patent No. **141,596**, dated August 5, 1873; application filed May 10, 1873.

To all whom it may concern:

Be it known that I, JOHN N. SEIB, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Veneer-Cutter; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a plan or top view of my machine when arranged for cutting veneers from a circular log. Fig. 2 is a transverse section of the same in the plane *x x*, Fig. 1. Fig. 3 is a similar section of the same in the plane *y y*, Fig. 1, showing the feed mechanism. Fig. 4 is a detached front view of a portion of the feed mechanism. Fig. 5 is a transverse section of my machine when arranged for cutting veneers from a flat log, the plane of section being indicated by the line *z z*, Fig. 1. Fig. 6 is a rear view of the feed mechanism for flat logs. Fig. 7 is a top view of the same. Fig. 8 is a front view of the feed mechanism in a modified form. Fig. 9 is a top view of the same.

Similar letters indicate corresponding parts.

This invention relates to a veneer-cutter of that class which I have described in my patent No. 130,754, dated August 20, 1872, and also in my patent No. 137,489, dated April 1, 1873, and which consists in a certain combination of mechanism whereby veneers can be cut either from a flat, or from a circular, or from a semi-circular log, and each piece of wood can be cut up to the best possible advantage. My present improvements consist in combining with the circular log a steadying-roller, which is held in contact with the log by action of the knife-carriage, and from which motion is transmitted to the cutter that serves to separate the sheet of wood cut off from the log in such a manner that the steadying-roller is always kept firmly in contact with the log, and that the same performs its double office of steadying the log and of imparting motion to the cutter without fail. Further, in a double-acting feed-mechanism combined with a reciprocating stay-log, and so constructed that when the stay-log begins its return stroke the knife-carriage is moved back, and the knife carried clear of the log, while, when the stay-log begins its forward stroke, the knife-carriage is moved forward sufficiently to enable the knife to cut off a veneer of the required thickness.

In the drawing, the letter A designates the bed which forms the support for my machine. From this bed rise two standards, B B, the edges of which are V-shaped, and form guides for the stay-log C, to which a flat or rectangular log is secured, Figs. 1 and 5. Said stay-log connects, by rods *a a*, with working-beams *b b*, which swing on pivots *c*, Fig. 5, and to which an oscillating motion is imparted by connecting them to eccentric wrist-pins *d*, secured in cog-wheels *e*, which are mounted on the opposite ends of a shaft, *f*. These cog-wheels gear into pinions *g* mounted on a shaft, *h*, which can be made to slide in its bearings, so that the pinions *g* can be thrown in or out of gear with the cog-wheels *e*. On the shaft *h* is also mounted a cog-wheel, *i*, which gears in a pinion, *j*, on the driving-shaft *k*, and this pinion is made of such a width that it will not be thrown out of gear with the wheel *i* when the shaft *h* is made to slide in its bearings. On the shaft *f* is mounted a bevel-wheel, *l*, which gears in a corresponding bevel-wheel, *m*, mounted on the end of a transverse arbor, *n*, and in the face of this last-named bevel-wheel is secured an eccentric wrist-pin, *o*, which connects, by a rod, *p*, with another eccentric wrist-pin, *q*, secured in the face of a disk, *r*, Fig. 1, which is mounted on a transverse shaft, *s*, and which serves to impart to the knife-carriage E a transverse reciprocating motion in front of the log. In the ends of the carriage E are secured two nuts, *w*, which are tapped to receive screw-spindles a^1, and on the inner ends of these screw-spindles are mounted bevel-wheels b^1, which gear in corresponding bevel-wheels c' mounted on a longitudinal shaft, d^1, which has its bearings in the standards rising from the bed A. On this shaft is also mounted a lever, f^1, which swings loosely thereon, and which carries two pawls, g^1 g^0, Fig. 5, that extend in opposite directions and engage, one with a ratchet-wheel, e^1, and the other with a disk, e^0, which is situated close behind the ratchet-wheel and turns loosely on the shaft d^1, while the ratchet-wheel is mount-

ed firmly on the same. The periphery of said disk is provided with some teeth and with a raised segment, e^*, Fig. 6, the diameter of which is equal to the outer circumference of the ratchet-wheel e^1. The face of the pawls g^0 is wide enough to extend over the ratchet-wheel and over the disk, while the face of the pawl g^1 is cut off, so that the same engages with the ratchet-wheel, only without coming in contact with the raised segment e^* of the disk during any part of its motion. The disk e^0 is adjusted in the desired position by a stop-pawl, g^*, which engages with the teeth of said disk, and the lever f^1 connects, by a rod, h^1, with the connecting-rod d^*, leading from the eccentric wrist-pin d to one of the working-beams.

Whenever the shaft f revolves the stay-log E receives a reciprocating motion, and an oscillating motion is imparted to the lever f^1, which carries the pawls g^1 g^0. If this lever moves in the direction of arrow 1 the pawl g^1 rides over the teeth of the ratchet-wheel e^1 and the pawl g^0 slides on the raised segment of the disk e^0 until it passes from this segment and engages with the teeth of the ratchet-wheel, thereby imparting motion to said ratchet-wheel in the direction of arrow 1 during a portion of the stroke of the lever f^1 in this direction. By this motion of the ratchet-wheel e^1 the feed-screws a^1 are turned backward, causing the knife-carriage to retreat, while the stay-log moves upward. Before the stay-log begins to move downward the motion of the lever f^1 is reversed, and the pawl g^1 engages with the teeth of the ratchet-wheel e^1 during its entire stroke in the direction of arrow 2 and the feed-screws are turned so as to move the knife-carriage in toward the stay-log.

From this description it will be seen that the forward motion of the knife-carriage is greater than its backward motion, since the pawl g^0 engages with the ratchet-wheel e^1 only during a portion of the back-stroke of the lever f^1, while the pawl g^1 engages with said ratchet-wheel during the entire forward motion of said lever, and by changing the position of the disks e^0 the difference between the forward and backward motion of the knife-carriage can be adjusted as may be desired.

By imparting to the knife-carriage a backward motion while the stay-log moves upward the log is prevented from rubbing against the knife, and the cutting-edge of said knife is preserved.

Instead of using a ratchet-wheel, e^1, and disk e^0, for the feed mechanism, I can also use two ratchet-wheels, e^3 e^4, (see Figs. 8 and 9,) which are both firmly keyed to the shaft d^1, their teeth pointing in opposite directions, and one of which engages with a pawl, g^3, while the other engages with a pawl, g^4. The pawl g^3 is pivoted to the lever f^1, but the pawl g^4 is provided with a slot, g^{41}, which straddles a pivot, g^{43}, secured in the lever f^1. Through the butt-end of said pawl extends a screw, g^{42}, and, if the lever f^1 oscillates the pivot g^{43} slides in the slot g^{41} until it strikes the end of said slot or the point of the screw g^{42}. If the lever f^1 moves in the direction of arrow 1, therefore the pawl g^4 remains stationary until the pivot g^{43} strikes the end of the slot, when said pawl engages with the ratchet-wheel e^4 and imparts to the knife-carriage a backward motion. When the lever f^1 moves forward in the direction of arrow 2 the pawl g^3 engages with the ratchet-wheel e^3 during the entire stroke of said lever, and the knife-carriage is fed in toward the log-carrier a sufficient distance to cut off a veneer. The difference between the backward motion and the forward motion of the knife-carriage is regulated by the set-screw g^{42}.

In order to cut veneers from a cylindrical log, (see Figs. 1, 2, 3, and 4,) I provide each end of the log with suitable holes to engage with the center points and pins of chucks s^1, which are secured to the ends of tubular spindles, which slide in tubes w^1 and are fed toward each other by hand-wheels w'. On the tubes w^1 are mounted cog-wheels y', and, if the shaft h is moved in the proper position, pinions z', which are mounted on said shaft, are thrown in gear with the cog-wheels y', and the motion which is imparted to the shaft h from the driving-shaft is transmitted to the tubes w^1, and through them to the log attached thereto, while the motion of the stay-log C is stopped. The reciprocating motion of the knife-carriage E is also stopped, and said knife-carriage is fed toward the log by a feed mechanism, detached views of which are shown in Figs. 3 and 4. It consists of a ratchet-wheel, r^2, which is firmly keyed on the shaft d^1, and close behind this ratchet-wheel is placed, loosely, a disk, s^2, (Fig. 4,) the diameter of one section of which is equal to the extreme diameter of the ratchet-wheel, while another section therof is turned down, so that its radius is equal to the radius of a circle embracing the grounds or lowest portions of the ratchet-teeth. On this disk are also formed a series of teeth, s^{21}, which engage with a stop-pawl, s^{23}. On the shaft d^1 swings, loosely, a lever, r^{21}, which carries a pawl, r^{23}, and which connects by a rod, r^{24}, with a crank, t^2, mounted on a shaft, t^{21}, that is geared together with one of the tubular shafts w^1 by cog-wheels w^2 and w^{21}. The proportion of these cog-wheels is such that the lever r^{21} makes two or more oscillations for every revolution of the shaft w^1, and whenever said lever moves forward in the direction of arrow 1 the shaft d^1 imparts motion to the feed-screws a^1 of the knife-carriage, and the knife is fed toward the log. When the lever r^{21} swings back the pawl r^{23} rides over the teeth of the ratchet-wheel and on the high section of the disk s^2, and when said lever moves forward the pawl is not permitted to engage with the ratchet-wheel until it has passed the high section of the disk. The disk can be adjusted on the shaft d^1 by means of

the stop-pawl s^{23}, and if the disk is turned forward the feed-motion is diminished, and vice versa.

By gearing up the feed mechanism the operation of cutting veneers from a circular log is materially facilitated, and a continuous sheet is cut off. In order to cut this sheet into veneers of convenient width I extend, through the knife-carrier in the rear of the knife, two shafts, a^2 b^2, one below the other, (see Figs. 2 and 5,) and in the lower shaft a^2 I secure a knife, the cutting-edge of which, on passing the upper shaft, extends close to the surface thereof. On the shaft a^2 are mounted two pulleys, d^2, (Figs. 1 and 2,) one on each end, and each of these pulleys connects by a belt, j^2, with a pulley, e^2, the shaft of which has its bearings in slides f^2 fitted to one of the standards B. Said slides are provided with cogs, which gear in pinions g^2, each mounted on a shaft that carries a pulley, h^2, from which is suspended a weight, i^2, so that by the action of this weight the corresponding slide is forced upward, and thereby the belts j^2, running from the pulleys d^2 to the pulleys e^2, are kept taut. From the pulleys e^2 extend belts k^2 to pulleys l^2, which are formed on the ends of a roller, m^2. This roller (Figs. 1 and 2) has its bearings in slides n^2 fitted to guides o^2, which extend from the standards B in an inclined direction. From the slides n^2 extend cords p^2, over suitable guide-pulleys, to screws q^2, which are tapped into the lower portion of the knife-carriage. By means of these screws the cords p^2 can be tightened, and the roller m^2 is pressed up against the surface of the log K, so that, when the log revolves, the roller m^2 receives a revolving motion, which is transmitted, by the belts j^2 k^2, to the cutter-shaft a^2, and that the motion of this shaft depends upon the motion of the log, and the veneer cut from said log is divided into sheets of uniform width. As the cutting operation progresses the knife-carriage is fed in toward the log, and the screws q^2, which move with said knife-carriage, keep the cords p^2 tight, and thus the roller m^2 is continually kept in contact with the log until the latter is entirely cut up. The shaft b^2 is adjusted in relation to the shaft a^2 by means of screws b^{21}, (Figs. 2 and 5,) which serve to move the bearings of the shaft b^2 down toward or away from the shaft a^2. The guides o^2 of the slides n^2 are inclined, so that the weights i^2 are enabled to keep the belts k^2 tight, as well as the belts j^2. The knife-shaft a^2, and also b^2, may be supported at one or more places between its ends, so as to prevent them from springing apart.

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

1. In combination with the knife-carriage and the reciprocating stay-log of a veneer-cutting machine, a feed mechanism which carries the knife-carriage back when the stay-log recedes and forward when the stay-log advances, substantially as shown and described.

2. The combination of the adjusting-disk s^2 and stop-pawls s^{23} with the feed-wheel r^2, feed-pawl r^{23}, screw-rods a^1, and knife-carriage E of a veneer-cutter, substantially as set forth.

3. The combination of slides n^2, cords p^2, and adjusting-screws q^2 with the knife-carriage E and roller m^2, substantially as shown and described.

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