3 Sheets—Sheet 1.

C. W. THOMPSON.

Machine for Goring Veneers for Barrels.

No. 203,509. Patented May 7, 1878.

Fig. 1.

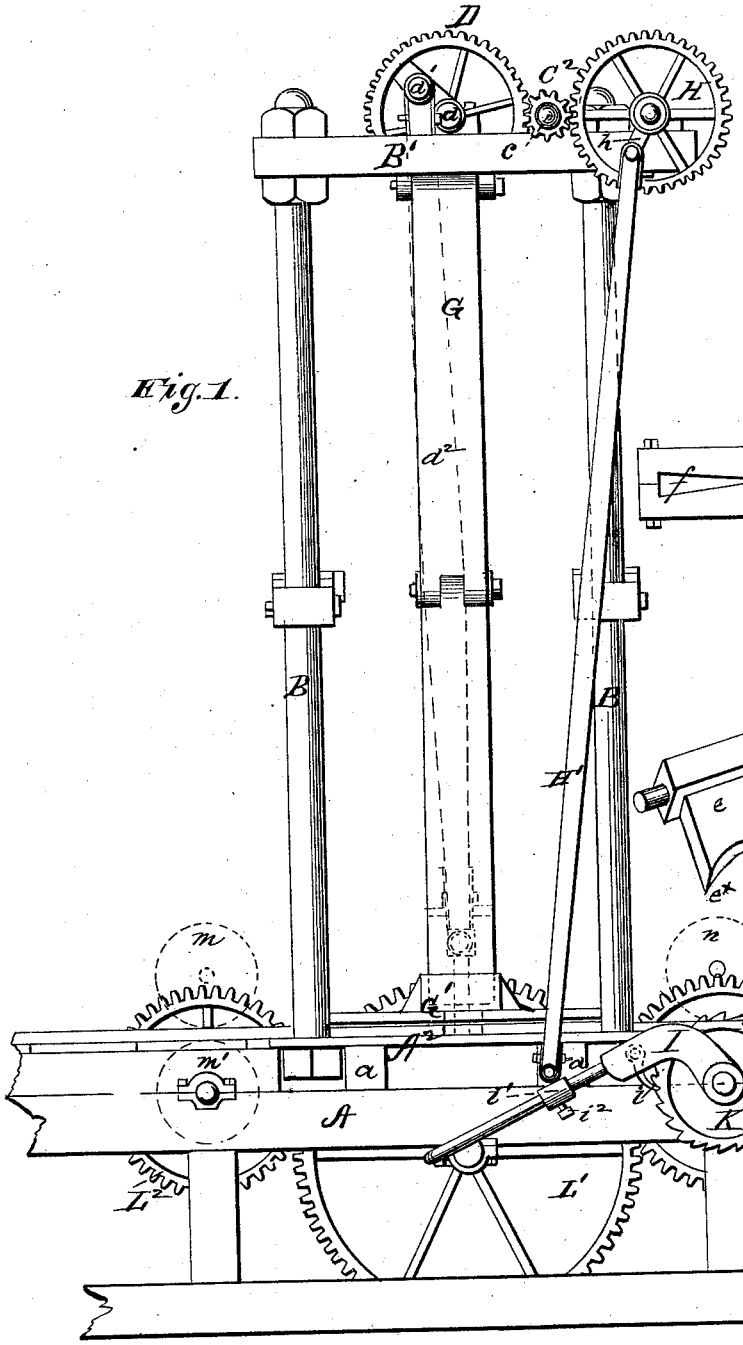


Fig 2.

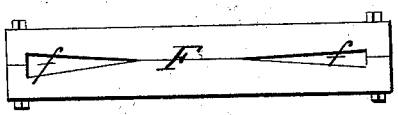
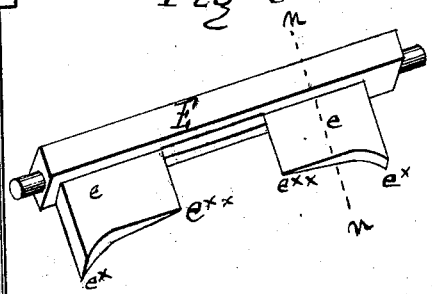


Fig 5



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C. W. THOMPSON.

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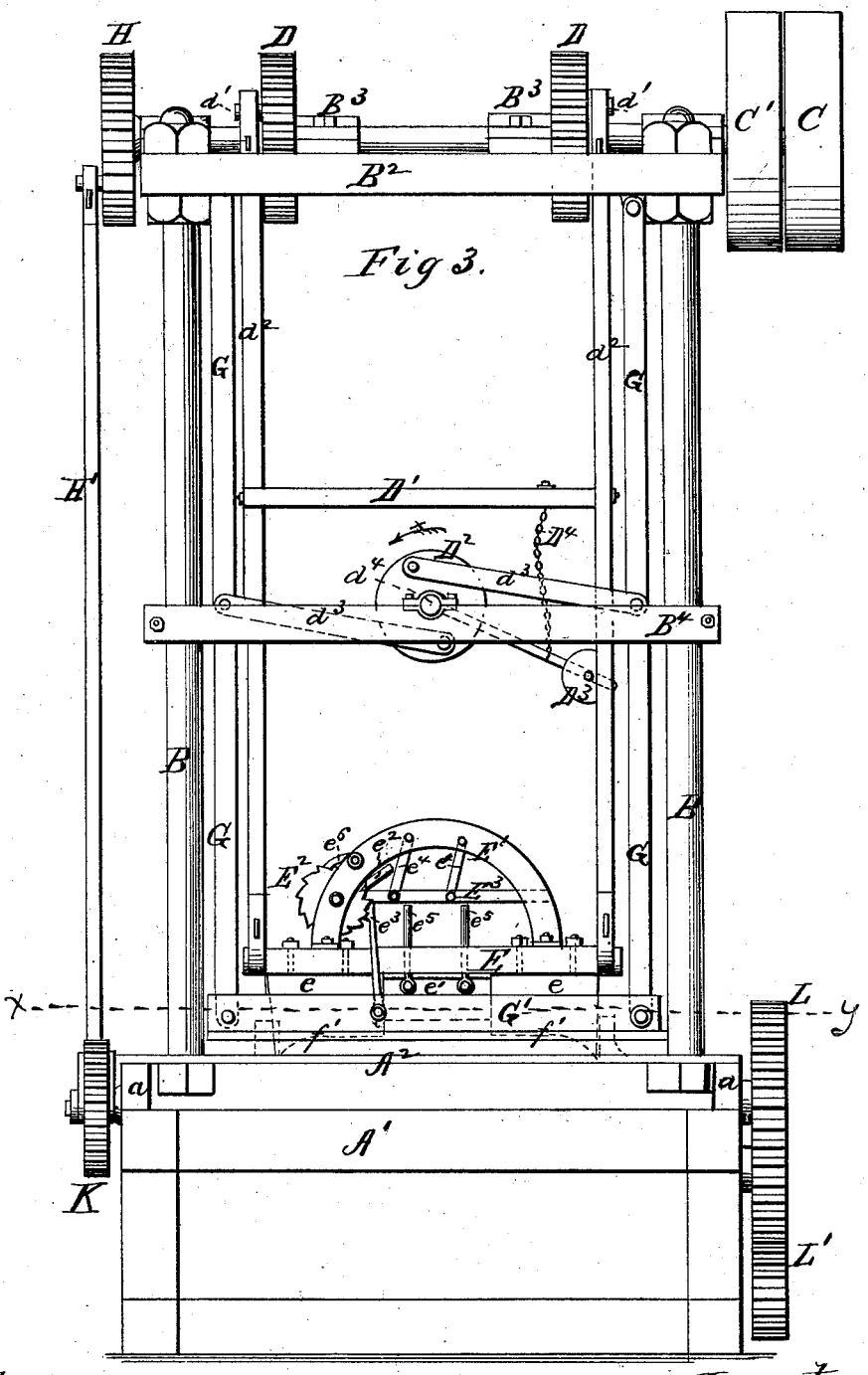

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3 Sheets—Sheet 3.

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Machine for Goring Veneers for Barrels.

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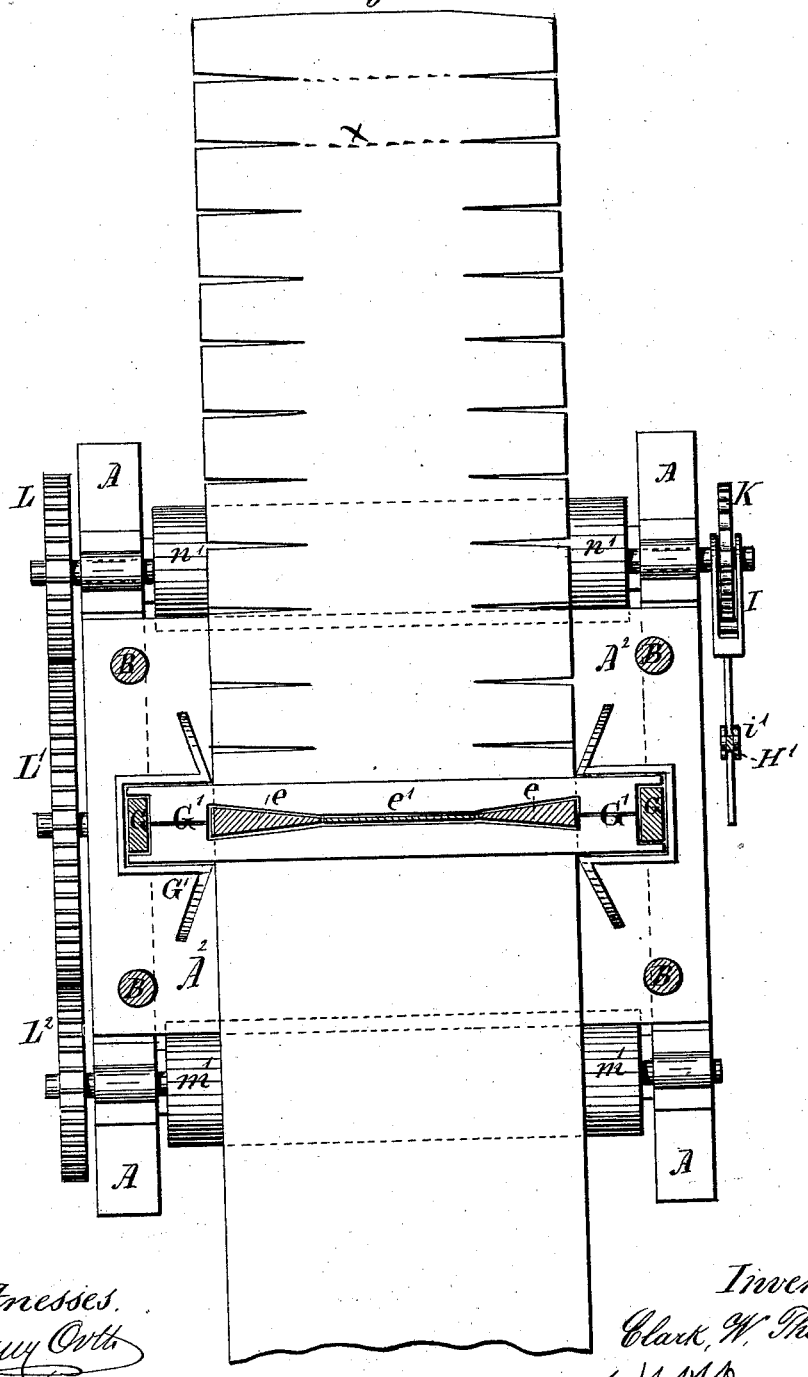
Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

CLARK W. THOMPSON, OF WELLS, MINNESOTA.

IMPROVEMENT IN MACHINES FOR GORING VENEERS FOR BARRELS.

Specification forming part of Letters Patent No. **203,509**, dated May 7, 1878; application filed May 1, 1877.

To all whom it may concern:

Be it known that I, CLARK W. THOMPSON, of Wells, in the county of Faribault and State of Minnesota, have invented certain new and useful Improvements in Machines for Goring Veneers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a side view of my improved machine. Fig. 2 is a plan view of the cutter-bed. Fig. 3 is a front elevation. Fig. 4 is a horizontal section taken on line *x y*, Fig. 3; and Fig. 5 is a detached view of the cutter-head and the cutters or dies which are rigidly attached thereto.

The frame consists, essentially, of the longitudinal sills A, transverse sills A^1, and a metallic bed-plate, A^2, supported upon blocks *a* at a short distance above the sills A A^1, these parts being firmly bolted together.

B B B B are four posts, preferably of iron, rising from the bed-plate A^2, surmounted at their upper ends by girts B^1 B^2 B^3 B^4, bolted to the posts, and forming a rectangular supporting-frame. C is a loose pulley, and C^1 a fixed pulley, mounted upon a shaft, *c*, which rotates in suitable bearings on girt B^1.

Shaft *c* carries two pinions, C^2, which mesh with two gear-wheels, D, keyed to a shaft, *d*, (see Fig. 1,) which is mounted upon the central girts B^3. d^1 d^1 are crank-pins projecting from the outer faces of wheels D D.

d^2 d^2 D^1 E constitute a pitman-frame and knife-carrier, the upper end of which is attached to the crank-pins d^1 d^1, the lower end being arranged to slide vertically in suitable supporting ways or guides, preferably connected to and moving with a platen or follower, to be hereinafter described.

The links or pitmen d^2 are connected with the knife-bar or cutter-head E by means of straps or their equivalents, to permit the desired movement of parts.

The knife or die is made in three sections, *e* e^1. The end sections are firmly secured to the head E, and are both thicker and wider at their outer ends, their lower cutting-edges corresponding substantially to the throat or slot *f f* in the cutter-bed F, Fig. 2, and in profile to the dotted lines *f′ f′*, Fig. 3, whereby as they (the knives) are forced through the veneer they have a shear-cut.

The central section, e^1, of the knife is free to rise and fall independently of the end sections *e e* when actuated by mechanism which will soon be described.

The cutter-bed F is secured to the bed-plate A^2 in such position that the knives *e e* will enter the throats *f f*.

G G are toggle-levers, having their upper ends pivoted to the under side of the rectangular frame on posts B B. The lower ends of the toggle-levers are pivoted to the ends of a platen or follower, G′.

The outer ends of links d^3 are pivoted to the toggle-levers, their inner ends being connected with crank-pins, which project from crank-wheel D^2.

The weighted lever D^3 is keyed to the shaft d^4 of the crank-wheel D^2, which shaft is mounted on girt B^4. D^4 is a chain or other flexible device, connecting the weighted lever with a girt, D^1, moving with the pitmen d^2.

Thus it will be seen that the revolution of wheels D D imparts a rising-and-falling motion to the pitman cutter-frame, and that, as this frame rises above the position shown in the drawings, it lifts the weighted lever, rotates crank-wheel D^2 in the direction indicated by the arrow *x*, draws the central joints of the toggle-levers toward said crank-wheel, and lifts the platen G′.

E^1, Fig. 3, represents one of two arches or brackets which rise side by side from the cutter-head E. E^2 is a count-wheel, mounted between the arches E^1 so as to rotate freely upon an axle, and carrying an arm, e^2. e^3 is a pawl mounted upon the platen G′, and engaging with the ratchet-teeth of count-wheel E^2, so that as this wheel rises and falls with the cutter-frame it (the wheel) is moved forward one tooth at each reciprocation. E^3 represents one of a pair of bars hung side by side upon pendulum-links e^4 e^4. e^5 e^5 are stems or shanks sliding freely in an open space or spaces formed in the cutter-head E, and attached at their lower ends to the center section, e^1, of the

knife. e^6 is a retracting-spring, which holds the bars E^3 in the position shown, except as hereinafter noted. H is a spur-gear mounted upon the upper frame. H′ is a pitman connecting the crank *h* of wheel H with the vibrating arm I by means of a pivot-sleeve, i^1, which is adjusted upon said arm, and held in place by set-screw i^2. Arm I carries a pawl, *i*, which actuates a ratchet-wheel, K. L is a spur-gear keyed to the same shaft with ratchet-wheel K. L^1 is an intermediate gear-wheel, through which motion is communicated to another spur-gear, L^2, for driving the feed-rollers, of which there are four, *m m′ n*, and another on the shaft of the wheels K L.

Each pair of rollers is provided with gears, which will time the movement and permit such spreading apart vertically as may be found necessary, and the upper rollers are weighted or pressed downward by springs.

The sheet of veneer is moved under the platen and knife by the intermittent motion of the feed-rollers, the relation being such that this feed takes place while the knife and platen are up out of the way; and from an examination of the drawings it will be readily understood that as the pitman cutter-frame is descending the toggle-levers press the platen firmly upon the veneer until the further downward motion of the weighted lever is checked thereby. This occurs at about the time that outer points or ends of the cutters *e e* reach the veneer. The continued descent of the pitman cutter-frame forces these knives through the veneer and into the slots *f f* of the cutter-bed F, the chain D^4 permitting the crank-wheel D^2 and toggle-levers G to remain stationary until the knives have been withdrawn from the veneer, and all danger of splitting the veneer thereby avoided.

At each reciprocation of the knives or cutter, and corresponding advance of the veneer, the count-wheel E^2 is rotated one tooth, as has been explained, until the arm e^2 on said wheel is moved into a horizontal position, in which latter position the outer end of this arm will engage with one of the links e^4, and move both links into a vertical position in line with the stems e^5 e^5, so that during the next downward stroke of the pitman cutter-frame these links e^4 e^4 will force the central section e^1 of the knife down and cut the sheet between the inner points of the gores cut by the sections *e e* of the knife, thus completely cutting the gored portion of the sheet from that portion which has not been gored, as will be understood without further explanation.

The distance which the sheet of veneer is fed forward at each stroke of the knife—or, in other words, the width of each stave—is regulated by the position of the pivot-sleeve i^1 upon the arm I, and the number of staves which are formed in one piece is governed by the number of teeth in the count-wheel E^2, when the machine is working automatically; but the sheet may be cut in two at any desired point by moving the links e^4 e^4 into a vertical position by hand.

It will, of course, be understood that when the section e^1 is not employed for thus severing the sheet, its edge merely rests upon the veneer and the cutter-head E straddles it, the stems or shanks e^5 e^5 passing between the bars E^3 and by the sides of links e^4 e^4.

By an examination of Fig. 4 it will be seen that if the machine be so operated that the knife e^1 shall sever the sheet on the dotted lines *x*, Fig. 4, the veneer will be formed into staves, the width of which will be determined by the position of the pitman H′ on the pawl-lever I.

It will also be seen, by an examination of Fig. 5, that the parts which substantially constitute the goring-die are the cutter-head E and the dies *e e*, the outer ends of which project downward, as is indicated at $e^\times$ $e^\times$, Fig. 5, in such manner that as they are forced down through the veneer they operate with a shear-cut.

It will also be seen that if these dies are cut upon a vertical transverse plane—say upon the dotted line *n n*, Fig. 5—the edges thus exposed will have parallel sides, so that the cutting-faces of the dies may be ground, when dulled, without changing the shape or size of the gores.

The result of employing this form of dies—that is, converging in both directions from $e^\times$ to $e^{\times\times}$—is, that I produce a shear-cut from the edges of the sheet toward its center, avoid splitting the sheet, and can grind them (the dies) without changing the form of the gores.

What I claim is—

1. In a machine for cutting gores in veneers, the combination, with a bed provided with slots or throats corresponding substantially to the desired form of gore, of mechanism for feeding the veneer over said bed, two reciprocating knives or dies which cut gores in both sides of the veneer, and an independently-acting cutting-off knife, arranged between the inner points of the goring-knives to sever the sheet, substantially as set forth.

2. In a machine for goring veneer, the combination, with goring knives or dies which form gores in the sides of the veneer, and an intermediate independently-acting knife which severs the sheet, of an automatic mechanism which throws said intermediate knife into action at predetermined intervals, substantially as set forth.

3. In a machine for goring veneer, the combination, with the goring knife or dies and the knife which severs the gored sheet from the ungored sheet, of an automatic mechanism which throws said severing-knife into action at predetermined intervals, and which also permits the operator to throw said severing-knife into action at will.

4. The combination, in a machine for goring veneers, of the bed-plate F, provided with throats *f f*, and the cutter-head E, carrying the

dies *e e*, provided with converging faces, substantially as set forth.

5. The combination of the platen G′, toggle-levers G G, rock-shaft d^4, link d^3, and weighted lever with the pitman-frame for actuating the platen, substantially as set forth.

6. The combination, with the slotted platen G′, of the goring-knives *e* and the independently-acting knife e^1, substantially as set forth.

7. The combination, with the knife-carrier E and knives *e e* e^1, of the count-wheel E^2, carrying the arm e^2, ratchet e^3, and links e^4 e^4, substantially as set forth.

8. In a machine for goring veneer, the combination of the feeding-rollers *m m′ n n′*, gear-wheel L L^1 L^2, pawl-lever I, and adjustable pitman H′, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CLARK W. THOMPSON.

Witnesses:
C. W. BUNN,
D. C. WAGNER.