

(No Model.)

4 Sheets—Sheet 1.

M. MARCOUX.  
SHINGLE SAWING MACHINE.

No. 285,051.

Patented Sept. 18, 1883.

Fig. 1.

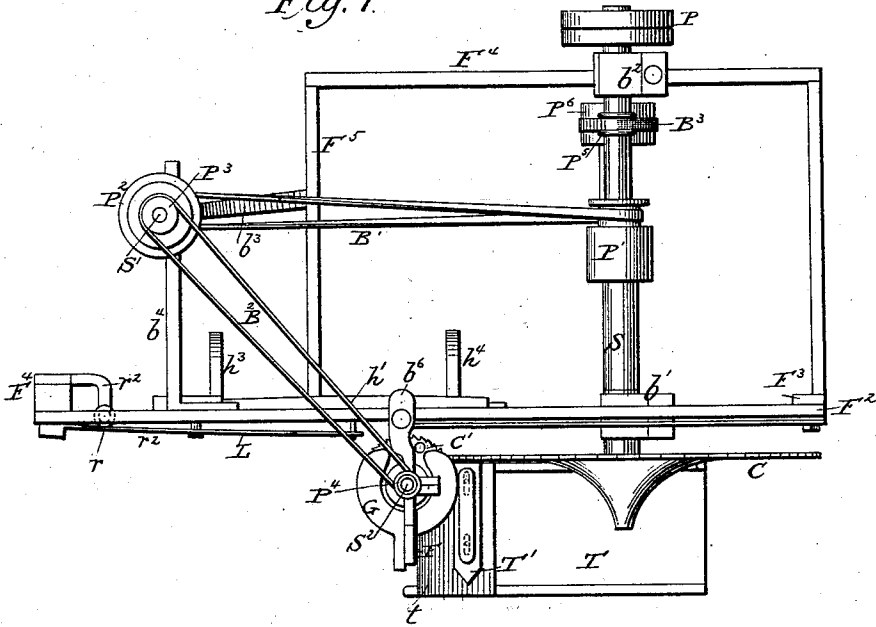
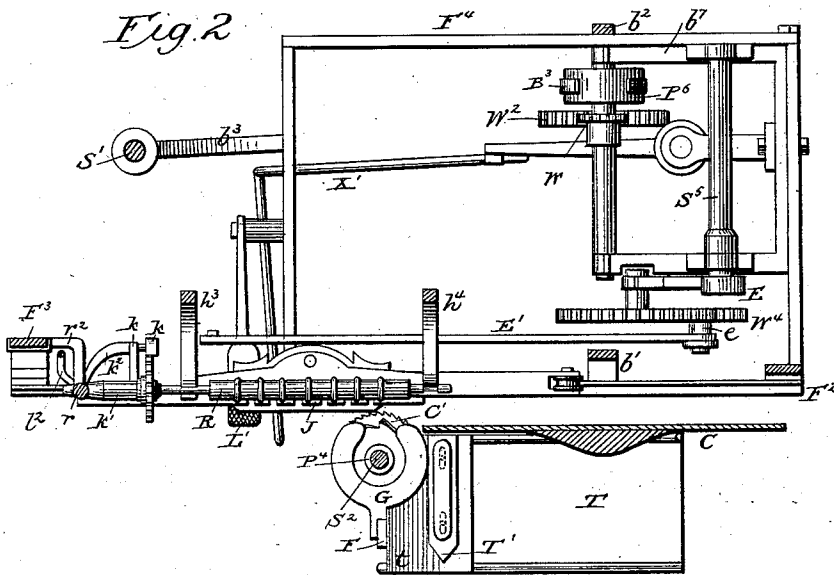


Fig. 2.



Attest

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Inventor.

*Moise Marcoux*  
By his attorney  
*Philip T. Dodge*

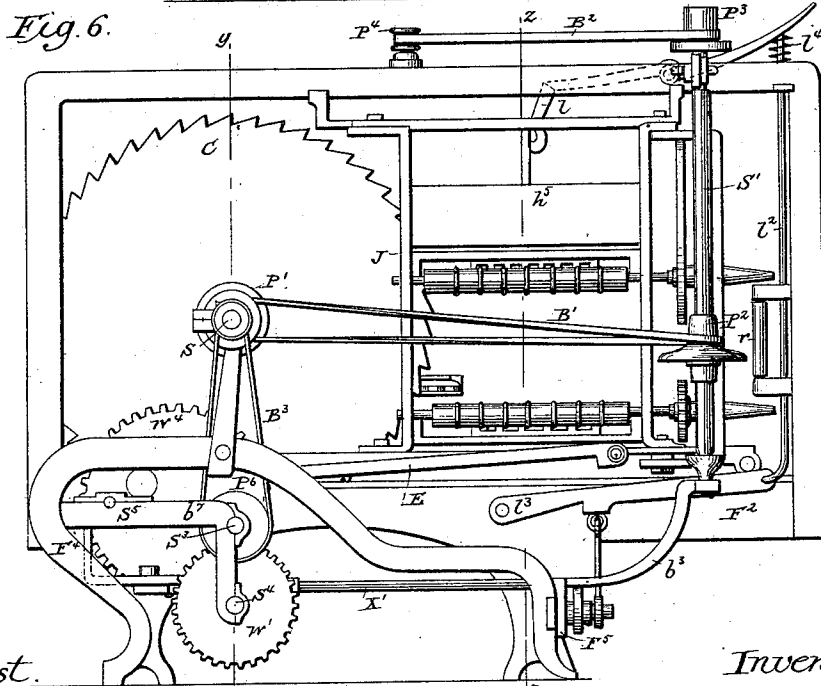
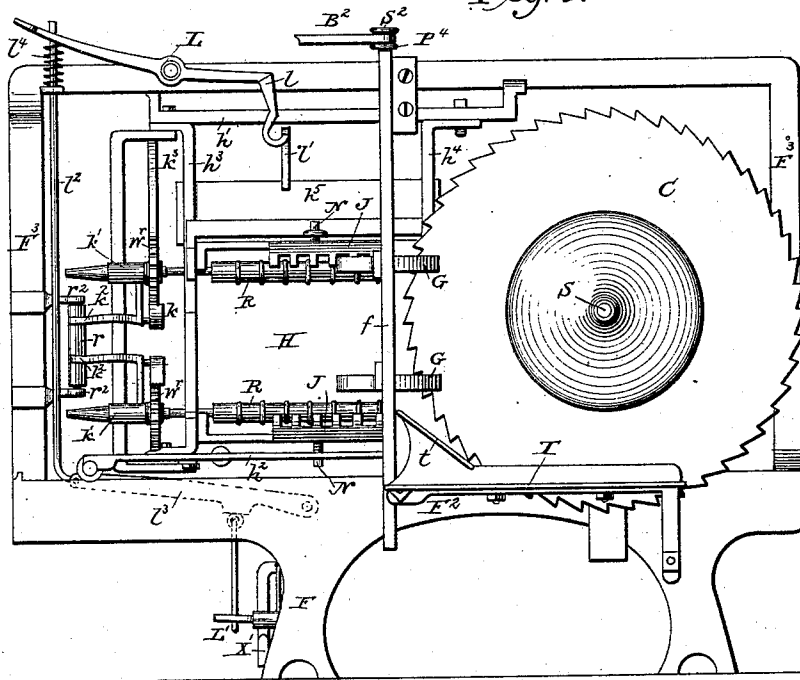


# M. MARCOUX.

## SHINGLE SAWING MACHINE.

No. 285,051.

Patented Sept. 18, 1883.



Attest.  
*Sidney P. Hollingworth*  
*Newton Haykoff*

Inventor.  
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*By his attorney,*  
*Philip T. Dodge.*

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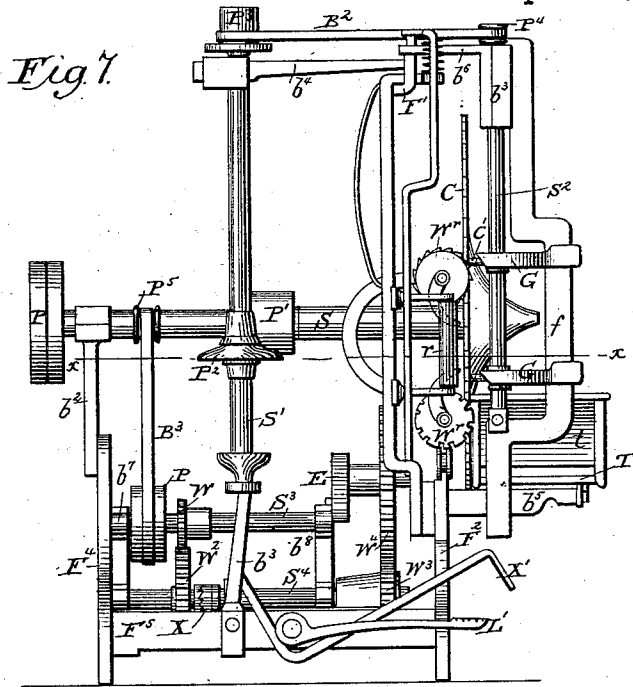


Fig. 7.

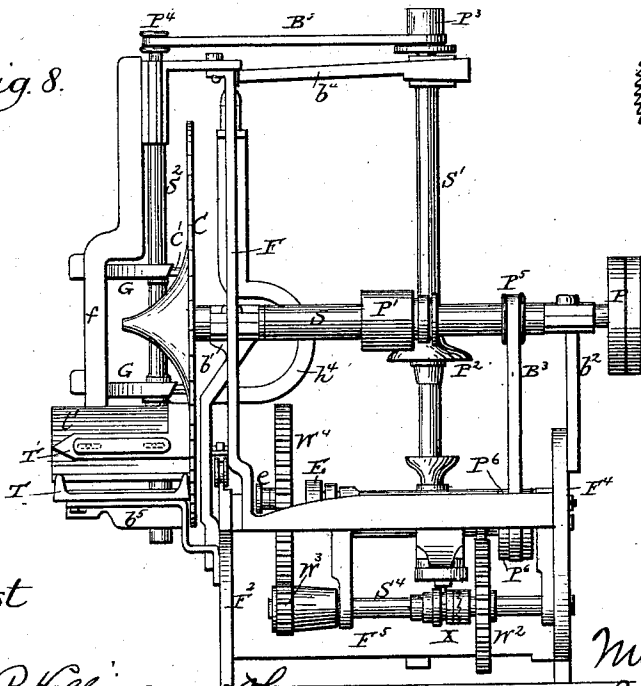


Fig. 8.

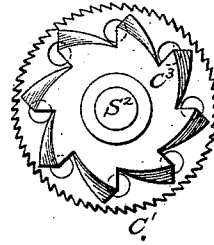


Fig. 9.

Attest

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# UNITED STATES PATENT OFFICE.

MOÏSE MARCOUX, OF ST. EUGÈNE DE GRANTHAM, QUEBEC, CANADA.

## SHINGLE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 285,051, dated September 18, 1883.

Application filed February 15, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, MOÏSE MARCOUX, of St. Eugène de Grantham, in the Province of Quebec, Canada, have invented certain new and useful Improvements on Automatic Shingle-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to machines for cutting shingles; and my improvements are of such a nature that a rough block of the width of the shingle may be cut up into finished shingles having beveled ends automatically.

Figure 1 is a top view of my improved machine. Fig. 2 is a horizontal section on line *x x*. Fig. 3 is a cross-section on line *y y*. Fig. 4 is a cross-section on line *z z*. Fig. 5 is a front elevation. Fig. 6 is a back elevation. Figs. 7 and 8 are end elevations. Fig. 9 is a detail view of the small circular incision saw and cutters combined.

F<sup>1</sup> F<sup>2</sup> F<sup>3</sup> are the front parts of the framing; F<sup>4</sup>, the rear frame, and F<sup>5</sup> F<sup>6</sup> the cross-rails connecting the front and back, which latter are provided with suitable feet to afford the required elevation.

S is the main shaft and saw-spindle, journaled in suitable bearing supported by brackets *b<sup>1</sup> b<sup>2</sup>*, secured to the frame-pieces F<sup>2</sup> F<sup>4</sup>. This shaft carries at the rear end the driving-pulley P, and at the front the circular slicing-saw C, the latter overhanging the front bearing. A pulley, P', gives motion by half-twisted belt B' to the vertical spindle S', upon which a suitable flange-pulley, P<sup>2</sup>, is mounted. The spindle S' is journaled in a suitable foot-step supported by a bracket, *b<sup>3</sup>*, secured to the cross-rail F<sup>5</sup>, and a bearing supported by a bracket, *b<sup>4</sup>*, secured to the top frame-piece, F<sup>1</sup>, and carries at the top a flange-pulley, P<sup>3</sup>, which drives the cutter-spindle S<sup>2</sup> by means of a belt, B<sup>2</sup>, on the pulley P<sup>4</sup>. The vertical spindle S<sup>2</sup> is placed close to the forward edge and in front of the circular saw C, and is journaled in a step and a long bearing secured to a stiffening-bar, *f*, which is supported by brackets *b<sup>5</sup> b<sup>6</sup>*, bolted to F<sup>1</sup> and F<sup>2</sup>, respectively. Upon this spindle are secured two small finely-serrated circular incisor saw-blades, C', at a distance from each other equal to the length of the shingle to be produced, and each combined

with a chamfer cutter-head, C<sup>2</sup> and C<sup>3</sup>, for cutting the bevel edges simultaneously with the incisors-saws C' cutting the shingle to length and before the shingle is sliced from the block by the slicer C. The cutter-heads C<sup>2</sup> C<sup>3</sup>, being placed, respectively, under the upper and over the lower blades C', differ from each other only by being right and left handed. They resemble circular saws of considerable thickness, and have coarse undercut teeth beveled in cross-section to produce a cutting-edge slanting forward from the face, touching the saw in the direction in which they are intended to cut and backward toward the center, so as to produce the necessary bevel or chamfer and to cut the grain of the wood diagonally. These cutters are placed tight against the blades C', and as the cutting waste or sawdust travels toward the latter they are provided with a series of holes, each corresponding to a space between two teeth in the cutters, so as to afford a free passage to the aberrations. The combined circular blades and cutters are cased in suitable guards, G, secured to the bar *f*.

A table, T, is provided in front of the slicing-saw C, which receives the shingles as they are separated from the block. Upon an inclined portion, *t*, a slide, T', adjustable by means of slots through which pass bolts or studs, as indicated by dotted lines in Figs. 1, 2, 8, and 9, may be kept set close to the face of the blade. The block from which the shingles are to be cut is held in a carriage, H, mounted between the frame-pieces F<sup>1</sup> F<sup>2</sup>. The carriage consists of a frame the upper bar, *h<sup>1</sup>*, of which is constructed with guides to slide on the frame-piece F, while the lower bar, *h<sup>2</sup>*, is provided with grooved casters to run upon the bottom rail, F<sup>2</sup>. The bars *h<sup>1</sup> h<sup>2</sup>* are connected by two upright bars, *h<sup>3</sup> h<sup>4</sup>*, to which the jaws are attached. These consist each of a feed-roller, R, fluted or otherwise prepared, and having a ratchet-wheel, W<sup>1</sup>, mounted at one end, the teeth of which are pitched to correspond to an alternate thick and thin end of a shingle, and the wheels are so mounted upon the overhanging end of the rollers that a narrow space on one wheel is opposite a wide space on the other. These ratchet-wheels are each moved by a pawl, *k*, pivoted to a radial arm, K, which is centered on the roller by

means of a loose sleeve,  $k'$ , and drawn rearwardly by the spring  $k^3$ , the radial arm K being provided with a cam-finger,  $k^2$ , which on each return passage of the carriage comes in contact with a roller,  $r$ , or equivalent, journaled in two brackets,  $r'$  and  $r^2$ , longitudinally adjustable in the upright frame-piece  $F^3$ . In this action the cams  $k^2$  are pushed forward against the pressure of the springs  $k^3$ , the sleeves  $k'$  turning loose on the rollers, the pawls  $k$  catching a tooth of the ratchet-wheels  $W^r$ , turning them and the feed-rollers R forward, thus feeding the block forward a distance corresponding to the pitch of the ratchet-wheels, which will be a narrow one at one end and a wide one at the other end, forming a thick and a thin end of the shingle, the order being reversed at the next movement. If the thickness of the shingle is to be increased or decreased, ratchet-wheels of corresponding pitch are provided to replace those in use, and the traverse of the cams may be altered by moving the brackets  $r'$   $r^2$  in or out. When the block has become so far reduced in thickness that the rollers R cease their grip upon it, the slab drops upon the claw-bars J in front of the roller, when another cut may be taken from the block and the residue removed as waste or adjusted by hand for one or more further cuts. When the feed-rollers deliver the slab on the claw-bars J, the upper jaw, being constructed of a heavy cross-bar,  $h^5$ , to which the feed-roller and claw-bar are attached, descends to take up the extra space between the claw-bars arising from the teeth of the latter not coming level with the surface of the rollers R. For this purpose the bar  $h^5$  is mounted in slots in the upright pieces  $h^3$   $h^4$ , to allow the necessary room for play, and also for a variation in the length of the blocks, and it is made sufficiently heavy to keep the block in place by its own weight.

To steady the feed-rollers R and take up the wear in their journals, the claw-bars J have their ends turned up against the necks of the rollers to form half-bearings, and are kept in their position by a central set-screw, N, passing through a suitable screw-hole or nut, forming part of the rail  $h^2$  and  $h^5$ , respectively.

To raise the upper jaw for removing waste and chucking a new block, the following foot motion is provided: On the upper frame-piece,  $F^r$ , a double lever, L, is pivoted, from one end of which an open hook,  $l$ , is suspended, which engages a hook or equivalent,  $l'$ , secured to the cross-bar  $h^5$  of the upper jaw, each time the carriage returns. To the other end of the lever L is hooked a draw-rod,  $l^2$ , connecting it with the lever  $F^2$ , pivoted to the lower frame-piece,  $F^2$ , and from this a link is suspended to connect it with the treadle  $L'$ , pivoted to the frame-piece  $F^5$ . A spring,  $l^3$ , is employed to keep the hook  $l$  down in its lowest position, and consequently the treadle  $L'$  in its highest. When the carriage is in its rearmost position and the hook  $l$  has engaged the hook  $l'$ , the

treadle may be depressed by the foot, thereby raising the upper jaw. When the pressure on the treadle is relinquished, the upper jaw will descend by its own weight and engage the block which has been inserted.

The carriage receives a reciprocating movement with a quick return, which movement may be thrown out of gear and stopped during the operation of chucking a new block, without stopping the whole machine. This movement is as follows: The main shaft or saw-spindle S drives a secondary shaft,  $S^2$ , by means of a belt,  $B^3$ , over pulleys  $P^3$   $P^6$ . The shaft  $S^2$  is journaled in bearings supported by brackets  $b^r$   $b^s$ , secured to the frame-piece  $F^6$ , and carries a pinion,  $W^r$ , gearing into a wheel,  $W^2$ , which runs loose on a shaft,  $S^4$ , and driving the latter by means of a clutch-box, X, feathered to the said shaft, and connected in the usual manner to a clutch-lever,  $X'$ , extended, cropped, and terminated in the immediate vicinity of the treadle  $L'$ , the end being hooked, so that it can be operated by the foot, either by pushing or pulling. The shaft  $S^4$  carries another pinion,  $W^3$ , at the end overhanging the bearing, and gearing into a spur-wheel,  $W^4$ , which is pivoted eccentrically to a lever, E, centered upon a spindle or shaft,  $S^3$ , thus allowing the wheel  $W^4$  to remain in gear with the pinion  $W^3$  by permitting its eccentric center to rise and fall with the lever. A crank-pin,  $e$ , is secured to the wheel  $W^4$ , to which the connecting-rod or pitman  $E'$  is journaled, its other end being pivoted to the carriage-piece  $h^2$ . When the clutch X is drawn forward, it comes out of gear with the wheel  $W^2$ , when it ceases to drive the shaft  $S^4$ , which then remains stationary, and with it the wheels  $W^3$  and  $W^4$ , and also the carriage H.

It will be observed that with this machine finished shingles may be produced from a rough block cut to the exact width of the shingles required.

The machine being set in motion, the reciprocating movement of the carriage H is stopped when at its rearmost position by pulling forward the end of the lever  $X'$ . The treadle  $L'$  is then depressed with the foot, the upper jaw in the carriage being thereby raised and a block inserted end up, and as far back as practicable, between the feed-rollers R. When the pressure on the treadle L is relinquished, the upper jaw of the carriage descends, and the roller grips the block, which is thus held securely in position. The lever  $X'$  is now pushed back, and the carriage moves toward and past the combined crosscut-saws and chamfer-cutters  $C'$   $C^2$   $C^3$ , and also the slicers C, when a slice is taken off. The carriage then returns quickly, and when arriving at its rearmost position the cams  $k^2$  come in contact with the roller  $r$ , which presses the former outward, thus moving the ratchet-wheels  $W^r$ , and with them the feed-rollers R, so that the movement of the upper and lower rollers will correspond to the thickness of the shingle at these places, respectively.

The carriage then makes another forward movement, when the small circular saws, C', make a crosscut incision, the cutters C<sup>2</sup> C<sup>3</sup> cutting the bevel or chamfer ends of the shingle, while the large saw, C, finally severs the slice from the block, which drops as a finished shingle upon the table T, whence it may be removed at pleasure. The carriage then makes its quick return-stroke, the block being again fed forward, this time more at that end where the thin end of the last shingle has come off before, and less where the thick end has been, and the machine continues to run thus until the block becomes so thin that the feed-rollers lose their hold upon it, when it drops upon the claw-bars J, the upper jaw dropping correspondingly. Another slice is now severed from the remaining slab, and when the carriage returns again the remainder may be allowed to drop out and be replaced by a new block, in the manner before described.

I claim as my invention—

1. In a shingle-machine, the combination of a circular slicing-saw adapted, as described, to remove shingles from the bolt, two widely-separated saws at substantially right angles to and in advance of the slicing-saw, to determine the length of the shingles, and two beveling or chamfering heads located against the inner surfaces of the primary saws, substantially as described, whereby the production of shingles with beveled ends is secured.

2. In a shingle-machine, the combination, with a circular slicing-saw to remove the shingles from the bolt, of a reciprocating carriage to sustain the bolt and present the same to the saw, and the two rotary cutter-heads arranged, substantially as described, in advance of the saw in position to chamfer or bevel the ends of the bolt, whereby the ends of the bolt are chamfered previous to the removal of each shingle, and the production of shingles with beveled ends secured.

3. In a shingle-machine, the combination of a perforated circular saw, C', and the beveling or chamfering head C'', constructed substantially as described, and secured against the side face of the saw.

4. A carriage, H, mounted in the main frame F' F<sup>2</sup>, and consisting of upper and lower runners, h' h<sup>2</sup>, the latter provided with grooved casters, the said runners connected by uprights h<sup>3</sup> h<sup>4</sup>, carrying-jaws consisting of fixed claw-bars J, and journaled feed-rollers R, provided with ratchet-wheels W<sup>1</sup>, which are actuated by pawls k, pivoted to radial arms K, which are centered on the rollers by sleeves k', and the arms K, provided with cam-fingers k<sup>2</sup>, which come in contact with the roller r, the latter being held in brackets r' r<sup>2</sup>, adjustable in the frame F<sup>3</sup>, the upper jaw being heavy and movable in slots in the frame-pieces h<sup>3</sup> h<sup>4</sup>.

5. In a shingle-machine, in combination with the reciprocating carriage, the driving mechanism consisting of the driving-pinion W<sup>3</sup>, the gear W<sup>4</sup>, in engagement therewith, mounted eccentrically on the swinging arm E, and the pitman E', connecting said eccentric gear with the carriage, whereby the carriage is given a more rapid movement in one direction than in the other.

6. In a shingle-machine, the combination, with a perforated saw arranged to cut the end of the shingle, of a chamfering-head applied to its side face, said head being constructed with coarse undercut saw-teeth inclined forward in the peculiar form and manner described and shown.

Signed at St. Hyacinthe this 13th day of January, 1883.

MOÏSE MARCOUX.

In presence of—

I. MORIN,  
J. M. CHARBONNAULT.