2 Sheets—Sheet 1.

T. H. DELANEY.

MACHINE FOR SAWING SHINGLES.

No. 191,034. Patented May 22, 1877.

Fig. 1.

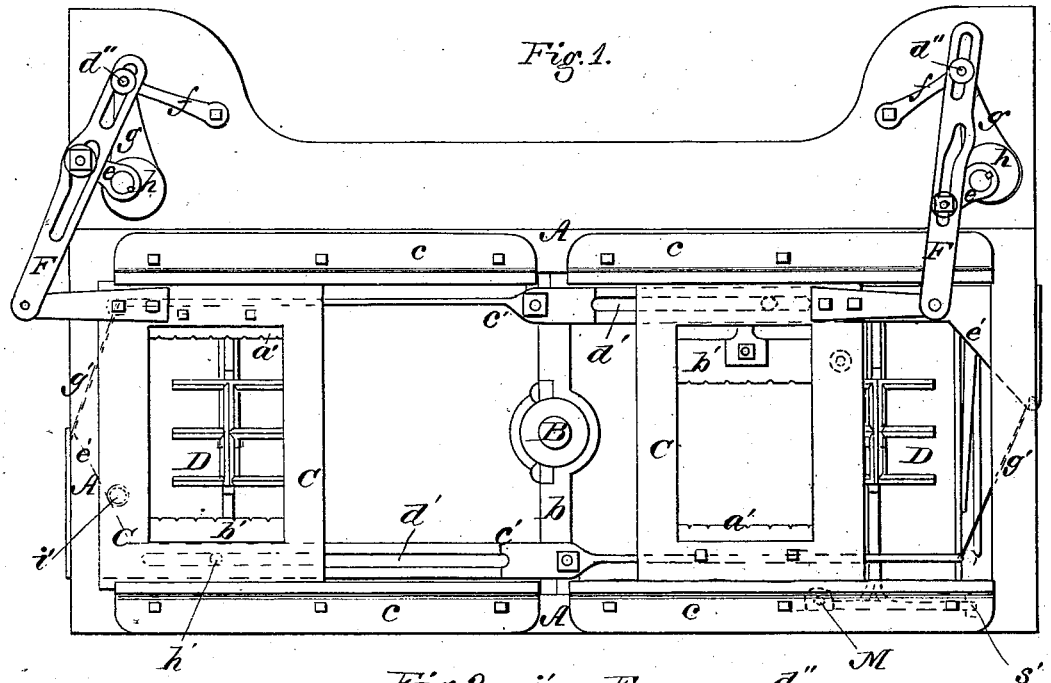


Fig. 2.

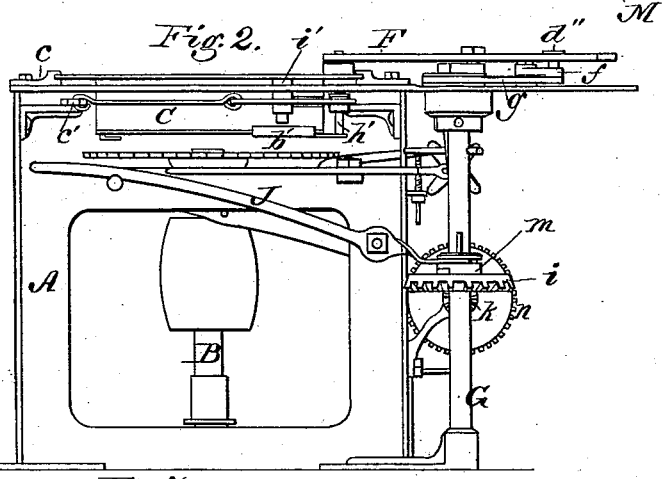
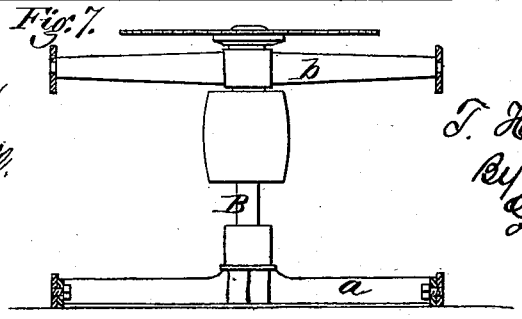


Fig. 7.



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2 Sheets—Sheet 2.

T. H. DELANEY.

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Fig. 3.

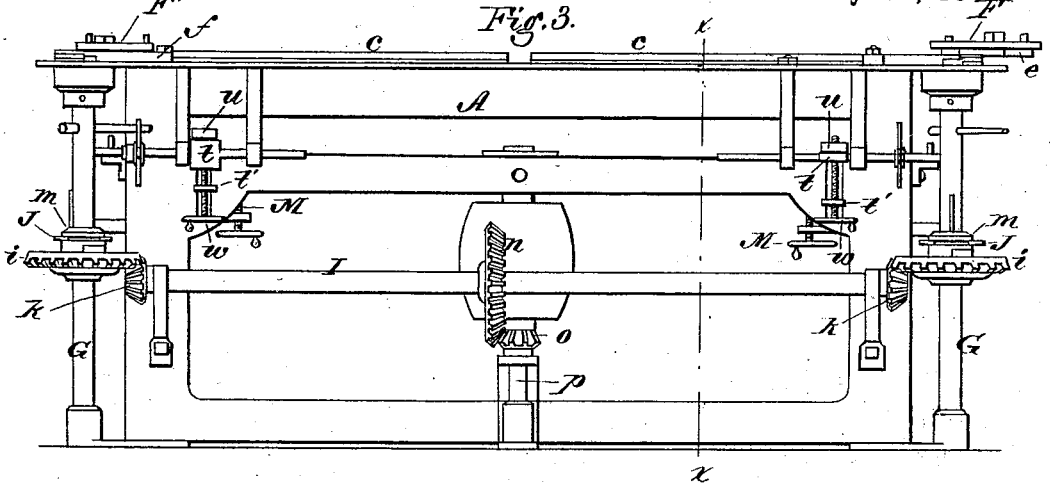


Fig. 4.

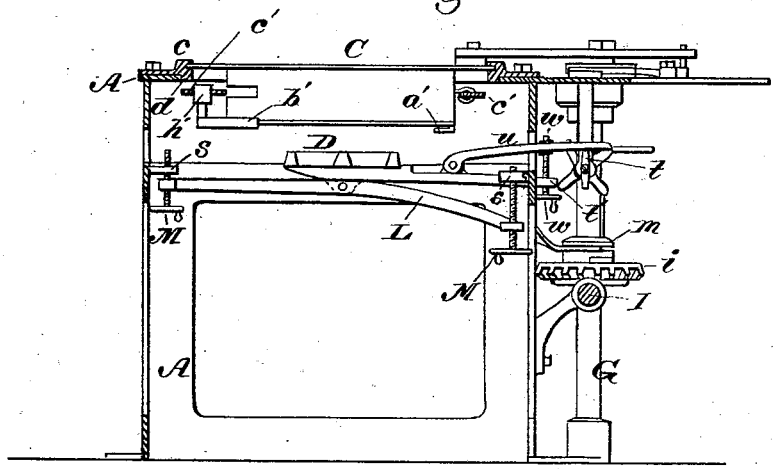


Fig. 6.

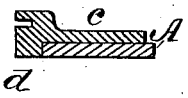
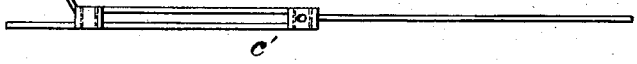


Fig. 5.



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UNITED STATES PATENT OFFICE

THOMAS H. DELANEY, OF ANGELICA, WISCONSIN.

IMPROVEMENT IN MACHINES FOR SAWING SHINGLES.

Specification forming part of Letters Patent No. **191,034**, dated May 22, 1877; application filed December 2, 1875.

To all whom it may concern:

Be it known that I, THOMAS H. DELANEY, of Angelica, in the county of Shawano and State of Wisconsin, have invented certain Improvements in Machines for Sawing Shingles, of which the following is a specification:

My invention relates to that class of machines in which the frame is provided with two sliding carriages, acting alternately to carry the bolts against a horizontal circular saw; and the invention consists in a novel manner of mounting the saw-arbor, in order to prevent it from binding in its bearings when adjusted to true up the saw; in the manner of mounting and supporting the guides which sustain the sliding frames or carriages; in a peculiar arrangement of mechanism for giving the carriages a rapid movement forward and a slow movement backward; in so arranging the two carriages that either may be thrown out of action independently of each other and of the other mechanism by the operators while standing at their posts, and without stopping the machine; in a peculiar manner of sustaining and adjusting the tilting tables on which the bolts are sustained in the carriages; and in a novel arrangement of parts for dogging and undogging the bolts.

Figure 1 represents a top-plan view of my machine; Fig. 2, an end elevation of the same; Fig. 3, a side elevation of the same; Fig. 4, a vertical cross-section of the same on the line *x x*, illustrating the carriage-guides and the manner in which the tables are sustained and adjusted; Fig. 5, a view of one of the bars used for operating the bolt-holding dogs; Fig. 6, an enlarged section, showing the manner in which the carriage-guides are supported; Fig. 7, a sectional view, showing the manner in which the saw-arbor is supported.

A represents the rigid main frame of the machine, having its entire top cast in one solid plate; B, the vertical saw-arbor, mounted in the middle of the frame; C C, the sliding carriages, mounted in the ends of the frame for the purpose of carrying the bolts or blocks against the saw; and D D, the tilting tables, mounted in the carriages to support the bolts and change their inclination when drawn back and released by the dogs. The saw-arbor has its lower end mounted in a cross-bar, *a*, and its upper end mounted in a cross-bar or bridge-tree, *b*, the former being adjustable lengthwise of the frame for the purpose of bringing the saw to a true horizontal position, and the latter having its ends mounted in boxes or journal-bearings in the sides of the frame, so that it can rock or tip, in order to prevent the arbor from binding when its foot is moved. This arrangement of the upper bearing so that it can adapt itself to the position of the arbor is a feature of importance, as it admits the free and ready adjustment of the arbor, and at the same time insures a free action of the same in the upper bearing.

The sliding carriages are mounted in, and supported by, guides *c* on the sides of the frame, these guides being constructed in a peculiar manner, and forming one feature of my invention.

Hitherto these guides have generally, if not always, been made of a considerable height or thickness, and bolted at their lower sides to the frame, below the saw, and great difficulty has been experienced, owing to the ease and frequency with which they were forced out of line by splinters crowding between them and the saw.

In order to overcome this evil I make the top of the main frame, as before stated, in a single solid plate, and bolt the carriage-guides *c* directly thereto above the level of the saw, providing the guides, as shown in Figs. 4 and 6, with a lip or shoulder, *d*, fitting down against the inner edge of the frame, so as to take the strain and relieve the bolts in the event of an outward force or pressure being applied to the guides.

By arranging the guides above the saw, providing them with the shoulder, and making the frame in one piece, so that it cannot spring or give, I prevent the displacement or springing of the guides under any circumstances liable to occur in the ordinary course of operations.

In order to economize time and increase the capacity of the machine, I give the carriages a very rapid movement backward from the saw by means of the devices shown in Figs. 1 and 2, in which it will be seen that there is pivoted to each carriage one end of a horizontal vibrating arm, F, which arm is provided

at its outer end with a slot to receive a fulcrum-pin, d'', and at its middle with another slot, to receive the wrist of a crank-arm, e.

The fulcrum-pin d'' is mounted on the end of a swinging arm, f, and is connected by a yoke, g, with an eccentric, h, which latter is mounted diametrically opposite the crank e, but on the same shaft G therewith. As the crank e rotates and plays in the middle slot of arm F it gives the latter a vibratory motion, and causes it to slide the carriage forward and backward. At the same time that the crank is performing its operation the eccentric h is moving the fulcrum-pin d'' inward and outward, carrying it outward away from the crank as the latter moves the carriage forward, so that the carriage will receive a slow and steady movement, and then drawing it inward near the crank as the latter moves the carriage backward, so that the backward movement will be much more rapid than was the advance.

In practice I find it best to proportion the parts about as shown in the drawing, so as to retract the carriage in about one-fourth of the time required for its advance. I also find it advantageous to curve the slot in the vibratory arm in which the crank works, as shown in the drawing, so that although the motion of the crank continues, the motion of the carriage will cease for an instant while it is at the outer end of the frame, and the bolt is released for the purpose of changing its inclination.

By means of the devices shown the desired variable movement is imparted to the carriage, and the action of the machine rendered smooth and easy.

In order to avoid the necessity of stopping the operation of the machine in the event of a single carriage being disabled, I so arrange the driving mechanism that either or both carriages may be thrown out of gear at will.

The cranks e, which operate the carriages, are mounted on the upper ends of vertical shafts G, which are provided with bevel-wheels i, driven by pinions k on the ends of a horizontal shaft, I, extending along the rear side of the frame, as shown in Figs. 2 and 3.

The wheels i are arranged loosely on the shafts and driven by sliding clutches m, held from turning on the shafts by splines thereon. To each clutch there is connected a hand-lever, J, pivoted to the end of the frame, as shown in Fig. 2, so that each attendant, standing at his post by the side of the machine, can, by means of the adjacent lever, throw his carriage out of action without affecting the motion of the saw or the other carriage.

This arrangement of parts, by which the machine is permitted to continue its operation with either carriage alone, I find of great value and convenience, avoiding, as it does, the usual frequent stoppages of the entire machine, and enabling the machine to operate with one carriage at times when, under the ordinary construction, it would stand idle.

The horizontal shaft I is provided at its middle with a bevel-wheel, n, and is driven by a pinion, o, on the upper end of a vertical shaft, p, which is provided with a pulley and driven by a band from another pulley on the saw-arbor.

Another feature of my invention is the manner of supporting and adjusting the tilting tables, which receive the bolts or blocks when they are released by the dogs, and change their inclination before the dogs again take hold.

Each table is pivoted at its middle upon a cross-bar, L, the ends of which are sustained by two hand-screws, M, bearing in lugs S on the frame A, and by a direct bearing on the frame at the point s', as shown in Figs. 1 and 4, so that by turning the screws M the table may be raised, lowered, and leveled as required.

As usual in this class of machines, the table D is provided at one end with an arm, bearing upon a cam, t, which imparts to the table the required canting or tipping movement. Unlike the arms now in use, however, my arms are made of two parts, t' and u, the former being attached rigidly, and the latter hinged, to the table, and the two being connected by a hand-screw, w, as clearly shown in Fig. 4. The cam t acts against the hinged portion u, as shown, so that by turning the screw w, and changing the inclination at which the arm stands to the table, the inclination of the latter may be varied as required.

By the adjustment of the screws M the thickness of the shingles may be increased or diminished, and by the adjustment of the screws w their taper may be varied as desired.

For making ordinary changes in the thickness it will be sufficient to turn one of the screws M, so that the attendant, standing at the rear side of the machine, where the screw w is also located, can make both adjustments of the table without the danger of coming in contact with the saw.

By my arrangement of parts I render the machine, as regards the tables, both cheaper and simpler than those now in use, and at the same time enable the attendant to make the adjustments quickly, safely, and without stopping the machine.

For the purpose of holding the bolts or blocks as they are carried to the saw, I provide each carriage, as usual, with a fixed dog, a', and a sliding dog, b', at opposite ends. The sliding dogs of the two carriages are arranged, it will be seen, on opposite sides of the machine. Lengthwise in each side of the frame I mount a bar, c', pivoted near its middle, having one end made elastic, and the other end provided with a straight slot, d', and with an inclined shoulder, e', at its extremity, as clearly shown in Fig. 1. The two bars c' have their spring ends arranged at opposite ends of the machine, and their pivots nearer the slotted than the spring ends; and, as shown in Fig. 1, the spring end of each bar is con-

nected with the rigid slotted end of the other by a link or rod, g', the result of this arrangement being that the springs tend constantly to draw the slotted ends of the bars inward toward the middle of the machine.

To each of the movable dogs b' there is attached a roller or stud, h', moving in the slotted end of the adjacent bar c'; and to the side of the carriage there is attached a stud or roller, i', to act against the inclined shoulder of the bar.

As each carriage completes its outward or backward movement the roller i', acting against the inclined shoulder e', forces the end of the bar c' outward, causing it to draw back the sliding dog, and thereby release the bolt or block, which will fall upon the tilting table D. As the carriage moves forward, the roller i' releases the bar, which is immediately thrown forward by the spring, so as to engage the dog with the bolt again.

While it is preferred to connect the ends of the two bars by the link, as shown, the connection may be omitted, and the spring ends of the bars connected to the frame.

Having thus described my invention, what I claim is—

1. In a shingle-machine, a saw-arbor, B, having its lower end mounted in an adjustable bar, a, and its upper end mounted in a rocking bar, b, as shown.

2. In combination with the main frame, having its top cast in a single continuous piece, the shouldered carriage-guides c, applied to the top of the frame, with their shoulders d bearing against the inside of the same, as shown, whereby a solid unyielding support is provided for the carriages.

3. In combination with the sliding carriage C, the slotted vibrating arm F, crank e, eccentric h, eccentric yoke g, and swinging arm f, provided with the pivot pin or stud d''.

4. The combination, substantially as shown and described, of a sliding carriage, a crank and slotted arm for moving said carriage, and an eccentric arranged to move the fulcrum of the arm to and from the axis of the crank, for the purpose of advancing the carriage rapidly and retracting it rapidly.

5. The combination of the driving-shaft I, provided with the pinions k, the carriage-operating shafts G, provided with the loose wheels i and clutches m, and the two hand-levers J, arranged as shown, so that either carriage may be thrown out of action at will by the operator, standing at his post, without stopping the machine.

6. In combination with the cam t, the tipping table D, provided with the rigid arm t' and hinged arm u, connected by the screw w, as shown.

7. In combination with the sliding carriage D, provided with the studs i', and the sliding dogs b', provided with the studs h', the pivoted bars c', provided with the spring ends, slots d', and inclines e', and connected with each other by links g'.

THOMAS H. DELANEY.

Witnesses:
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H. J. HOWARD.