

C. J. Weld,

Wood Molding Machine,

No 56,472,

Patented July 17, 1866.

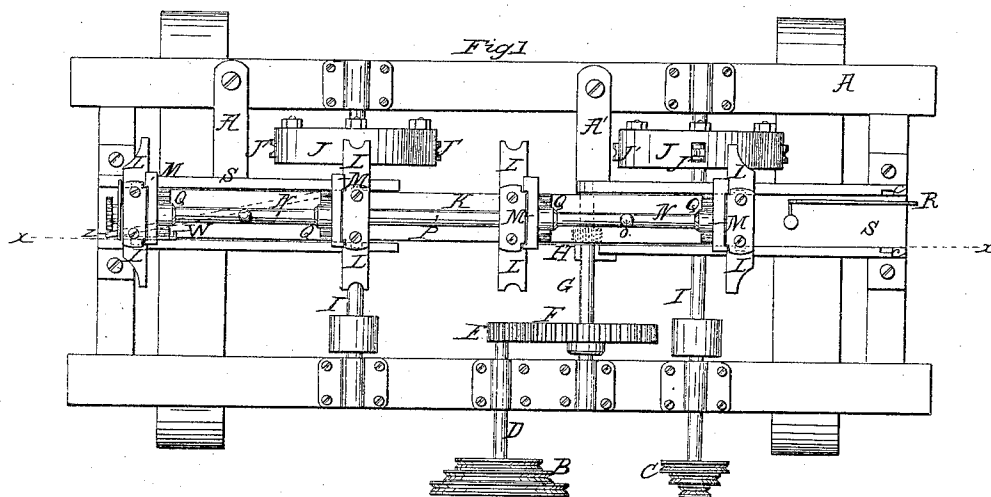
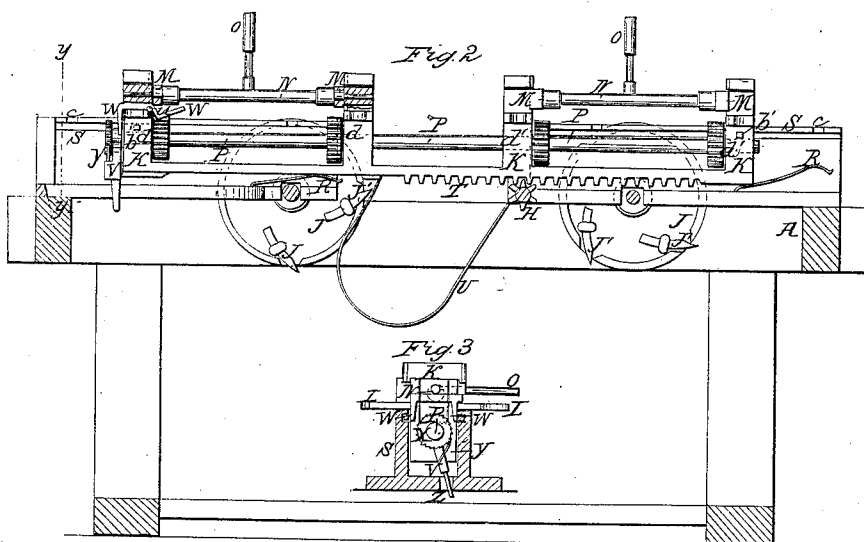


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

CALVIN J. WELD, OF WEST WARDSBOROUGH, VERMONT.

IMPROVEMENT IN MACHINES FOR FLUTING WASH-BOARDS.

Specification forming part of Letters Patent No. 56,472, dated July 17, 1866.

To all whom it may concern:

Be it known that I, CALVIN J. WELD, of West Wardsborough, in the county of Windham and State of Vermont, have invented a new and useful Improvement in Machines for Fluting Wash-Boards; 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan of a machine made according to my invention. Fig. 2 is a vertical longitudinal section in the plane of the line *x*, Fig. 1. Fig. 3 is a transverse section of the carriage-way on the line *y* of Fig. 2. Fig. 4 is a detailed view of one of the cutters.

Similar letters of reference indicate like parts.

The object of this invention is to provide mechanical means for fluting wash-boards; and it consists, among other things, in a novel construction of devices for feeding the boards to the cutters; also, in raising the carriage when it is moved back, so as to keep the boards from interfering with the knives; also, in the holders that keep the boards in proper position while their flutes are being cut; also, in the construction of the knives or cutters that produce the flutes of the boards.

The letter A designates the frame which supports the mechanism hereinafter described.

The power that drives the machine is applied through a pulley, B, that is made conical, and has several belt-grooves, in order that it may be turned at a higher or lower speed. It is fixed on the outer end of a shaft, D, which has a bearing on one side of the frame, the inner end of the shaft having a driving-pinion, E, that gears with a large gear-wheel, F, whose inner end has a spur-wheel, H, that engages a rack, T, formed on the under side of the reciprocating carriage K.

The carriage K travels lengthwise of the frame in independent guide-boxes S S, which are separated by an open space at the middle of the frame, which space is spanned by the carriage, whether it is at one or the other end of its reciprocation.

The cutter-shafts I I revolve in boxes placed on the top of the frame A, passing beneath or through cuts made in the bottoms of the carriage-boxes S S, and said shafts are driven by bands or other convenient devices, one of the shafts being in this example provided with a conical pulley, C, placed in line with the conical pulley on the driving-shaft D; but its sides are made to taper in the reverse direction.

The cutters are mounted in circular boxes fixed on shafts I I, respectively, between the carriage-boxes S S and one side of the main frame.

Fig. 4 is a detailed view of the back of one of the cutters J', showing the groove which divides it into two parts.

The faces or front sides of the cutters in sharpening them are ground to a level on a flat stone, and the form of the cutters is thereby preserved as they are worn away.

The cutting-edges project through the rims of the boxes at suitable places on the circumference thereof, and are adjusted in any suitable way.

The carriage-boxes S S have vertical sides, on which the arms L of the carriage rest when the carriage is moved toward the right by the spur-wheel H. The said vertical sides have grooves on the inside near their tops, in order to receive lugs *b b'*, which project from each side of the carriage near its ends, and serve to guide the carriage, and also to prevent it from rising, so as to take its rack out of engagement with the spur-wheel. In the bottom of each of the boxes S, at their right-hand ends, is a spring, R, which bears upward against the under side of the carriage. These springs consequently tend to press the lugs *b b'* against the upper sides of the grooves in which they run, and when the carriage arrives at the end of its movement toward the right the lugs come opposite incisions C, made in the upper sides of their grooves, and are allowed to rise through them, the carriage being then allowed to yield to the tension of the springs R. This action of the springs places the lugs *b* of the carriage level with the top of the sides of the boxes S, and so soon as they are thus raised through the incisions C the carriage is moved back toward the left by the tension of a spring,

U, one end of which is hooked into a recess on the bottom of the carriage, and the other end is fast to the bottom of the right-hand box S, said spring being so applied to these parts as to reach across the interval between the boxes S, its bow extending downward, as shown in Fig. 2.

The incisions C are made at each end of each box S, and the lengths of the boxes, the length of the carriage, and the location of the incisions are arranged so that the carriage can be raised or lowered, as described, at the completion of each of its movements.

The letter P designates the feeding-shaft, which extends the whole length of the carriage, having four corrugated feed-wheels or rollers fixed permanently thereon. These wheels are placed on the shaft next to the posts *d d'* of the carriage, which posts furnish bearings for the shaft, being arranged, respectively, against the opposite faces of said posts, whereby they come beneath holders M, consisting of rectangular blocks placed, respectively, on and near the ends of the rocking camshafts N N, each of which has a handle, O, by which the operator rocks said shafts, the ends of the shafts having bearings in the posts *d d'* directly above the feed-rolls, and the holders being kept in place next the posts by means of hubs on the shafts. Those portions of the ends of the shafts which pass through the holders have eccentrics on them, by means of which the holders are raised and lowered with respect to the feed-rolls, and consequently are made to hold firmly any articles, such as blanks for wash-boards, which are placed between them, or to release them, according to the direction in which the shafts N are turned.

The bottom of the left-hand box S has an oblique slot, as shown at Z in Figs. 1 and 3, which guides the finger V of a feeding-pawl, Y, that extends downward from the left-hand end of the feeding-shaft. The pawl Y engages the teeth of a ratchet-wheel fixed on said shaft, and turns it when the carriage is moving backward toward the left-hand end of the machine, because then the finger V is moved by the sides of the slot from one side of said box S to the other. When the carriage is moved forward by the spur-wheel H the finger V is moved back to the opposite side of said box, the pawl Y, which is carried with it, slipping over the teeth of the ratchet.

The blank wash-boards to be fluted or grooved are placed on the feeding-rollers beneath the holders M, which are forced down upon the blanks by means of the eccentrics on the shafts N, so as to hold them firmly. The ends of the blanks are supported by cross-bars L, that extend laterally from the sides of each post *d d'*, said bars assisting the holders to keep the blanks in place. When the carriage is being moved past the revolving cut-

ters the blanks are acted upon by the cutters, which in this example are so shaped as to form a bead at each passage of the carriage through the guiding-boxes S. When the carriage has reached the limit of its forward movement it is lifted by the springs R R high enough to bring the lugs *b b'* above the boxes S S, and consequently to raise the blanks above the reach of the cutters, when the tension that has been made meanwhile on the spring U by the advance of the carriage is exerted to drive the carriage back to the left end of the machine, the holders M being raised off the blanks to allow the feed to take place at the same time through the agency of the slot and pawl-arm above mentioned. The carriage is arrested in its backward movement by stops W W, which hang down behind the end of the carriage and come in contact with shoulders formed on the rail of the box at the left-hand end of the machine, so as to stop the carriage before the lugs *b b'* reach those recesses, C, through which they must drop in order to bring the carriage down again to the proper position for making its forward movement. The stops are attached to a lever, W', which is turned up against the under side of the adjacent holder M, said lever being pivoted at *a* to the side of that post, *d*, past which it is extended. The stops are lifted above the said shoulders by the descent of that holder which is above the lever W', said holder being borne down when the operator turns the proper shaft N, in order to seize the blank after it has been fed to the cutters for a fresh cut, and the lever W' being thereby turned on its fulcrum *a*, so as to raise the stops W and allow the spring U to force the carriage along still farther, until the lugs *b b'* reach the recesses or slots *c*, when the carriage falls to its lowest position, and its rack again becomes engaged by the spur-wheel.

It will be observed that by this construction several wash-boards can be fluted at the same time, according to the number of revolving cutters used and the number of holding divisions made in the carriage; but I have here shown means for operating only two blanks at a time.

The knives have a flat face, while their backs are grooved to produce a bead on the wash-boards. In order to sharpen the knives it is only necessary to grind their flat faces on a flat stone, when their grooved and prominent parts will be sharpened, so as to preserve the required form so long as the end of the groove is not reached.

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

1. The feeding-arm V, attached to the feeding-shaft P, in combination with the slot Z, in which it moves for feeding the blanks for a new cut during the return movement of the carriage, substantially as described.

2. The springs R R, for lifting the carriage out of gear at the end of its forward movement, in combination with the lugs *b b'* and slots or recesses O in the top rail of the boxes S S, substantially as described.

3. The combination of the springs R R, for lifting the carriage, with the spring U, for effecting its return movement, substantially as described.

4. The stop-lever W', with its stops W, made and operated as shown, in combination with the adjacent holder M, substantially as described.

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Witnesses:

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