

G. T. PEARSALL.

Planing Machine.

No. 106,281.

Patented Aug. 9, 1870.

Fig. 1.

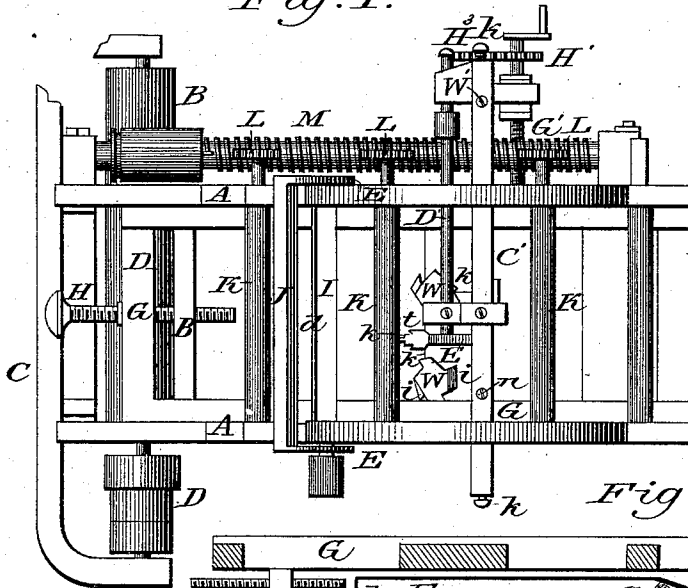


Fig. 2.

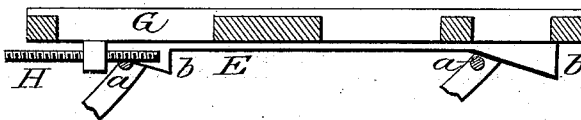
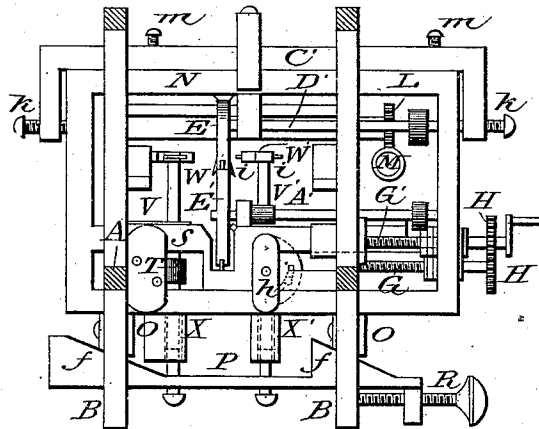


Fig. 3.



Witnesses:

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Inventor:

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per
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United States Patent Office.

GEORGE T. PEARSALL, OF APALACHIN, NEW YORK.

Letters Patent No. 106,281, dated August 9, 1870.

IMPROVEMENT IN PLANING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE T. PEARSALL, of Apalachin, in the county of Tioga and in the State of New York, have invented certain new and useful Improvements in Matching and Planing-Machine; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists—

First, in so constructing a planing and matching-machine that two strips of lumber may be manufactured (that is, plane, tongue, and groove and bead them) at one operation from one original piece without previous splitting.

Second, in the construction and arrangement of a combined chip-breaker and shaving-director, hung concentrically with the planing cutter-head, and helping to hold the stuff at all times close to the cutting-edge of the knives.

Third, in the arrangement of the device for operating the feed-rollers.

Fourth, in the construction and arrangement of four cutter-heads set for tonguing and grooving lumber of different widths, in such a manner that each piece of lumber shall make two strips of tongued and grooved and beaded lumber, of exactly the same width, at one operation.

Fifth, the arrangement of the device whereby the four cutter-heads are simultaneously adjusted to any desired height to dress any thickness of lumber or to keep them out of the way for plain surfacing the whole width of the machine.

Sixth, in the devices for adjusting the top cutter-head vertically and laterally.

Seventh, in hanging the cutter-head, frame, and arbor on the left side of the machine in such a manner that any desired deviation may be made from a vertical position sidewise, and for hanging thereon, in place of the cutter-head, a circular saw for splitting lumber for clapboards or other uses to any desired bevel at the same time it is being planed.

Eighth, in the construction of the cutter-heads with two opposite knives for separating the tongue or making the groove, and two opposite ones for squaring the edge of lumber or reducing the tongue to any desired thickness.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view of the entire machine;

Figure 2 is a longitudinal vertical section of the bed of the machine; and

Figure 3 is an end elevation of the entire machine.

A represents the frame of the machine, resting upon legs, B B, and having, at its front end, a frame, C, O,

which forms bearings for a shaft upon which are pulleys, D D, to run all the different parts of the machine by connecting-belts. These belts I have not deemed it necessary to represent, nor will I mention the same any further, as their arrangement is readily understood.

On the inside of the frame A are pins, *a a*, upon which rest a frame, E, provided, on its under side, with inclined projections, *b b*.

The frame E supports the table or frame G, on which the lumber is placed.

At the front end of the table G is a downward-projecting ear, through which passes a screw, H, which also passes through the end of the frame E.

By means of this screw the frame E is moved endwise, so as to bring the inclined projections *b b* higher up or lower down on the pins *a a*, and thereby raising or lowering the table G, so as to adjust it for any thickness of lumber.

I represents the cutter-head, extending at a suitable point across the frame A, and provided with the planing-knives *d d*.

This cutter-head is provided with journals which pass through the frame, and upon which is hung a bar, J, by means of ears, *e e*, extending from the ends of said bar, and through which the journals pass.

The bar J rests upon the frame, the lumber passing under the same before coming in contact with the cutting-edge of the knives *d d*. It is slightly concave on the side toward the cutter-head, and acts as a chip-breaker and directs the shavings upward and away from the cutters, at the same time as it helps to keep the stuff at all times close to the cutting-edge of the knives.

Across the frame A are a suitable number of feed-rollers, K K, which have their bearings in the sides of the frame, and are operated by means of the endless screw M, revolving in bearings on the left side of the frame, and turning cog-wheels, L L, upon the ends of the journals of the rollers K. The lumber, passing under and against the rollers K K, is fed forward toward the cutter, the endless screw making the strongest and easiest feed.

Through suitable guide-bars or ways in the frame A is placed a frame, N, of rectangular shape, as shown in fig. 3, which frame rests upon two blocks, O O, moving up and down within the guides mentioned.

The supporting blocks O O rest upon inclined projections, *f f*, on a horizontal bar, P, which is moved to either side by a screw, R, as shown.

By turning the screw R the frame N is raised or lowered at will, and, as said frame supports all the four cutter-heads, as will be presently described, they are all adjusted simultaneously to any desired height, so as to dress any thickness of lumber or to drop out of the way for plain surfacing the whole width of the machine. By this means the machine is always ready to do either kind of work.

In the frame N, a suitable distance above the bot-

tom bar of the frame, is placed a bar, S, connected with the bottom bar near the center, and having a slot in the said connection, as shown in fig. 2.

Between the bottom bar of the frame N and the bar S, on each side of the central connection, is placed a block, T, which supports the bearings for the upright shafts V V', upon the upper ends of which are the cutter-heads W W'. The knives on these cutter-heads are so arranged as to cut the grooves and plane the edges on both sides of the lumber.

The frame X', which forms the bearings for arbor or shaft V', on the left side of the machine, is hung on a pivot on the block T on that side, and secured in position by a set-screw, h, working in a slot on the frame, as shown. By this arrangement any desired deviation from a vertical position may be made, and in place of this cutter-head a circular saw may be hung thereon for splitting lumber for clapboards or other uses, to any desired bevel, at the same time it is being planed.

The frame X, which forms bearings for the shaft V, on the right side of the machine, is, by a bent bar, y, held to the frame A in such a manner that it cannot be moved sidewise when the frame N is moved sidewise, but will move up and down with said frame N.

Above the bar S, in suitable bearings, is placed a horizontal shaft, A', having, on its inner end, the cutter-head B', which moves in the slot mentioned in the bar S.

On top of the frame N is laid a bar, C', having its ends turned down along the sides of the frame N for a suitable distance.

From this bar C', in suitable bearings, is suspended another horizontal shaft, D', upon the inner end of which is the cutter-head E', corresponding with the cutter-head B', below.

The cutter-head E' is adjusted laterally by means of the set-screws k k, at the turned-down ends of the bar C', to keep it in line with the bottom cutter-head B', and it is also adjusted vertically by means of the set-screws m m, on top, to alter the thickness of the tongue, as desired.

The cutter-heads are set for tonguing and grooving lumber of different widths by means of the two screws

G' G', of the same pitch, geared by the two spur-wheels H' H'.

One of these screws operates the frame N, carrying with it the cutter-heads W' B' E', while the other operates the cutter-head W' alone, thus always setting the cutter-heads so that they shall make two strips of tongued and grooved and beaded lumber of exactly the same width at one operation from one piece of lumber without previous sawing.

The cutter-heads have two opposite knives, i i, for separating the tongue or making the groove, and two opposite ones, k k, for squaring the edge of the lumber or reducing the tongue to any desired thickness.

In addition, the head E' has knives, t t, for beading.

It will be observed that by machine as constructed, two strips of lumber are planed, tongued, and grooved, and beaded at one operation from one original piece without previous splitting.

Having thus fully described my invention,

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

1. The chip-breaker and shaving-director J, hung concentrically with the planing cutter-head I, substantially as and for the purposes herein set forth.

2. The combination of the frame N, cutter-head frame X', screws G' G', and spur-wheels H' H', constructed and arranged as described, for setting the cutter-heads so as to tongue and groove lumber of different widths, substantially as herein set forth.

3. The combination of the frame N, blocks O O, bar P, with inclines f f, and the screw R, for adjusting the four cutter-heads simultaneously to any desired height, substantially as and for the purposes herein set forth.

4. The bar C', having turned-down ends and provided with set-screws k k and m m, for adjusting the cutter-head E', both vertically and laterally, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand this 13th day of June, 1870.

Witnesses:

GEORGE T. PEARSALL.

H. S. BEAN,

GEORGE W. LILLIE.