(Model.) 2 Sheets—Sheet 1.

E. BASSETT.

Dovetailing and Lath Machine.

No. 242,423. **Patented June 7, 1881.**

Fig. 1.

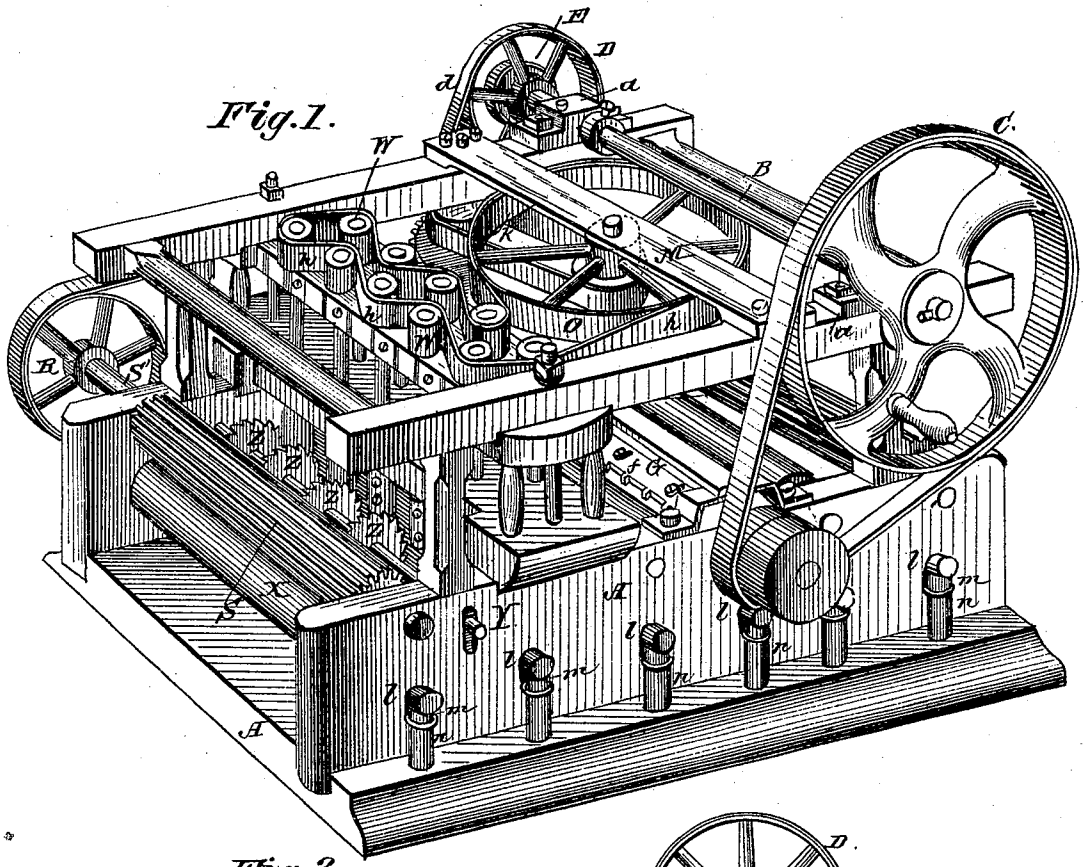
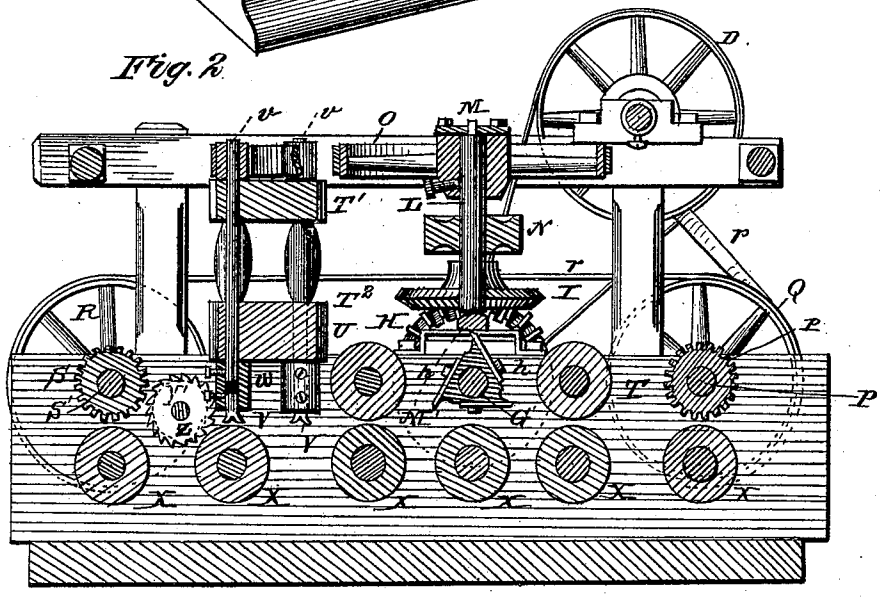


Fig. 2.



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(Model.) 2 Sheets—Sheet 2.

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Fig. 3.

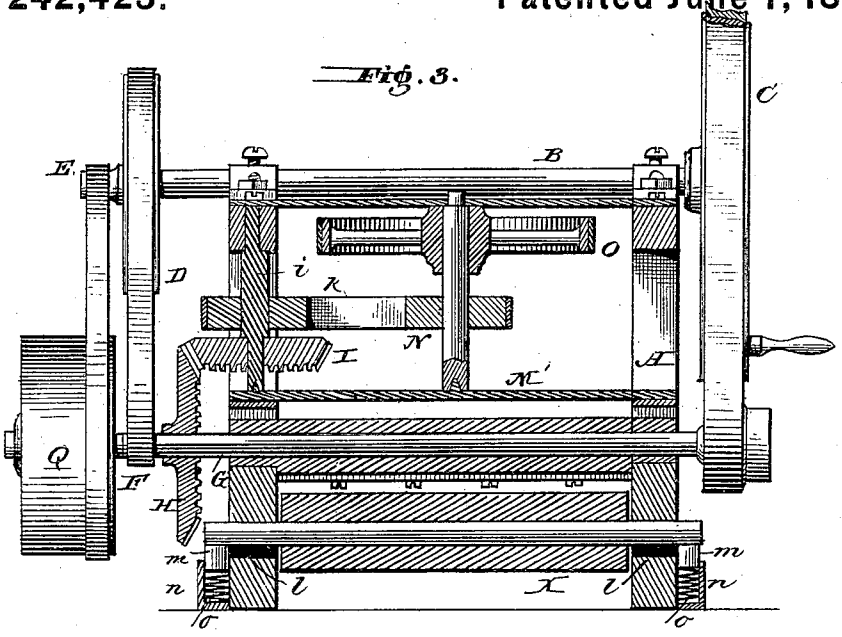


Fig. 4.

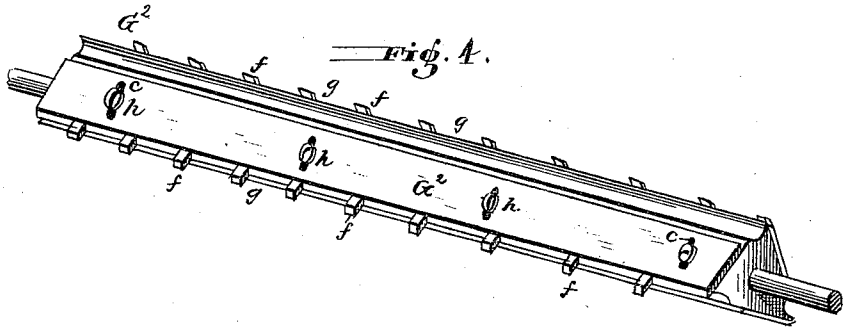


Fig. 5.

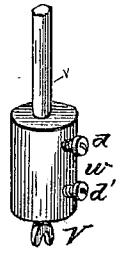
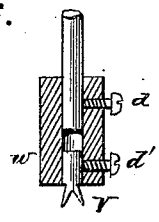


Fig. 6.



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UNITED STATES PATENT OFFICE.

EBENEZER BASSETT, OF RICE LAKE, WISCONSIN.

DOVETAILING AND LATH MACHINE.

SPECIFICATION forming part of Letters Patent No. 242,423, dated June 7, 1881.

Application filed March 2, 1881. (Model.)

To all whom it may concern:

Be it known that I, EBENEZER BASSETT, of Rice Lake, in the county of Barron and State of Wisconsin, have invented certain new and useful Improvements in Machines for Dovetailing Lumber; and I do hereby declare that the following is a full, clear, and exact description of the invention, 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, which form a part of this specification, and in which—

Figure 1 is a perspective view of the complete machine. Fig. 2 is a longitudinal vertical section. Fig. 3 is a transverse vertical section through the bit-frame. Fig. 4 is a perspective view of the rotary cutter-head, showing its adjustable cutter-blades. Fig. 5 is a perspective view of one of the dovetailing-bits detached from the machine, and Fig. 6 is a longitudinal section of the same.

Similar letters of reference indicate corresponding parts in all the figures.

My invention contemplates certain improvements in machines for dovetailing lumber, to be used in place of the ordinary lath for sheathing purposes on the inside and outside of buildings.

To this end it consists in the detailed construction and combination of parts, as hereinafter set forth, to adapt the machine to dovetail grooves lengthwise in lumber varying in thickness from three-fourths to one and a half inch, and in width from eighteen inches and less, said parallel grooves to be from, say three-eighths to one-half inch in depth, about one-half-inch wide across the top of the kerf, and about three-fourths of an inch wide at the bottom of the groove. The machine is further provided with a set of saws for ripping the lumber after it has been dovetailed into slats varying from four to six inches in width, to adapt it to be used as sheathing in the same manner and for the same purposes for which lath is now ordinarily used.

In the accompanying two sheets of drawings, A represents the frame of my machine, which is made of cast-iron.

At one end of the frame is journaled in boxes *a a* of approved pattern a shaft, B, which has a loose wheel, C, at one end, and two fixed pulleys, D E, at the opposite end. The loose wheel C may, however, be dispensed with, and the power applied direct to the shaft of the rotary cutter, as hereinafter set forth.

From the inner fixed pulley, D, a belt, *d*, passes down to and around a small pulley, F, which is keyed upon the outer end of the shaft G′ of the rotary cutter, said shaft having its bearings in boxes suitably arranged in frame A. Shaft G′ is further provided with a miter-wheel, H, which gears with a miter-wheel, I, mounted upon a vertical shaft, *i*, in one side of the frame. Shaft *i* has a pulley, K, around which passes a belt, *k*, imparting (when the machine is in operation) a rotary motion to a shaft, L, which is mounted between boxes in the cross-bars M M′ of frame A, and is provided with a small pulley, N, and a large pulley, O, the belt *k* passing around the pulleys K and N.

P is the first feed-roller of the machine, the shaft P′ of which has a pulley, Q, with a cross-belt, *p*, passing around the small pulley E at the outer end of shaft B. Another belt, *r*, passes from pulley Q to the pulley R of the shaft S′ of the last feed-roller, S, which is journaled in the opposite end of the machine in the same horizontal plane as roller P. The pulleys Q and R being of equal diameter, it follows that their respective shafts and feed-rolls will rotate with equal velocity.

Between the two feed-rolls P and S, and in the same horizontal plane, are mounted the guide-rollers T U, one on each side of the cutter-head G, with their bearings or journal-boxes in the sides of frame A. The cutter-head G is composed of a head or body which is triangular in cross-section, as shown in the drawings, which is mounted rigidly upon a central longitudinal shaft, G′, so as to rotate with it. On each of the three sides or faces of this central core or body G is affixed adjustably a cutter, G^2, composed of a steel-plate gummed to form teeth or chisels *g*, placed about two inches apart, measuring from center to center, and each tooth of a width corresponding to the width which the kerf is to have in which the dovetail is to be formed—usually about one-half inch. If preferred, however, the teeth may be made separately and inserted into their plates in the same manner substantially as detachable saw-teeth.

Whether made in one part with the plate or as detachable teeth, each tooth should have a projecting spur, *f*, at each end, as shown in Fig. 4, to cut down below and on each side of the tooth proper, and thus make the cut or kerf formed by the tooth with clean edges, at the same time preventing slivering of the lumber operated upon.

Each cutter-plate is made adjustable upon the core or body G by means of set-screws *h*, inserted through oblong slots *e* in the cutter-plates G^2, so that the depth of the kerfs may be regulated by adjusting the plates upon their respective faces of the cutter head or body G.

T′ T^2 is the bit-frame, which is mounted adjustably and removably between the sides of the main frame A, back of the rotary cutter and guide-roller U. In this frame are journaled the dovetailing-bits V, each one of which is secured adjustably and removably to the lower end of its arbor *v* by means of a sleeve, *w*, held upon the end of the arbor by a set-screw, *d*, and into the lower end of which is inserted the bit V, held in place by another set-screw, *d′*, as shown more clearly in Fig. 6 of the drawings.

At the upper end of each of the arbors *v* is a pulley, W, and, as will be seen by reference to Fig. 1 of the drawings, the bits with their arbors and pulleys are arranged in two rows, those of one row alternating with those of the other. One bit is placed exactly opposite to and in a line with each circumferential set of teeth on the cutter G, the arrangement of the bits in two rows, as described, being for the double purpose of providing room for their respective pulleys W and bit-sleeves *w* and affording a convenient means of operating the bits by a band or belt, *h*, which passes around the large horizontal pulley O, and in zigzag around the bit-pulley W, as shown in Fig. 1.

In the bottom of the frame is journaled a set or series of rollers, X, the journals of which are inserted through oblong boxes *l* in frame A, and rest upon bearings *m*, working in sockets *n*, into which are inserted rubber or spiral springs *o*, thus affording yielding bearings for rollers X. One of these yielding rollers is placed underneath each of the feed-rolls P S and guide-rolls T U, one below the rotary cutter and one below the bits. By this arrangement of the yielding bottom rollers relative to the upper rollers, bits, and cutter the depth of the grooves cut in the lumber will be uniform irrespective of the thickness of the lumber.

Back of the dovetailing-bits in the rear end of the machine is journaled a saw-arbor, Y, upon which is mounted a set or series of small circular saws, Z. The saw-arbor Y has a driving-pulley, Y′, which may be conveniently driven by a cross-belt from a pulley mounted on the outer end of the shaft G′ of the rotary cutter. The saw-arbor, with its saws, should be removable, or vertically adjustable in the frame of the machine, so that the saws may be placed out of the way if it is desired to pass the lumber out without ripping, and the saws should also be adjustable upon the arbor, so that the width of the ripped sheathing may be regulated at will by adjusting the distance between the saws. These saws are placed, when in use, between the dovetailing-bits, so as to rip the lumber longitudinally through the middle line of a groove, leaving each piece of sheathing with one-half groove on each side.

The dovetailed sheathing produced on this machine will be found greatly superior to the lath ordinarily used for building purposes, saving both material and labor, and holding the plaster firmly on the wall.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for dovetailing lumber, the combination of the yielding bottom rolls, X, feed-rolls P S, guide-rolls T U, rotary cutter G, having adjustable toothed cutter-blades G^2, detachable bit-frame T′ T^2, bits V, secured adjustably upon arbors mounted vertically in said frame and having driving-pulleys W, and suitably-constructed mechanism for operating the said rolls, cutter, and bits, substantially as and for the purpose herein shown and specified.

2. The combination of the cutter-shaft G′, having pulley F and miter-wheel H, shaft *i*, mounted vertically in frame A, and having miter-wheel I meshing with wheel H, and pulley K, driving-band *k*, vertical shaft L, having pulleys N and O, driving-band *h*, and dovetailing-bits V, arranged alternately in two vertical rows, and provided with the driving-pulleys W, substantially as and for the purpose herein shown and described.

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

EBENEZER BASSETT.

Witnesses:
GEO. H. BARWISE, Jr.,
GEO. H. BARKER.