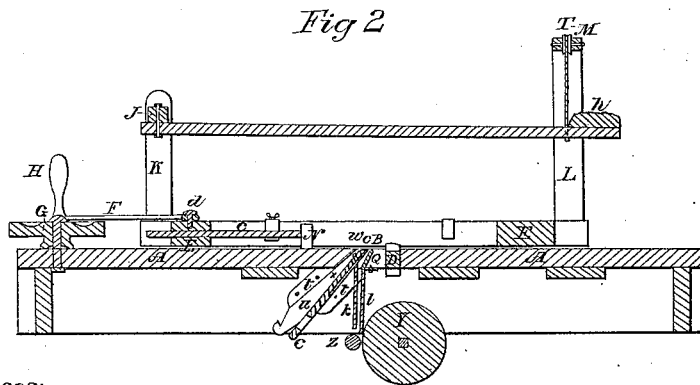
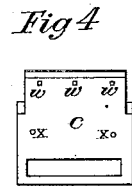
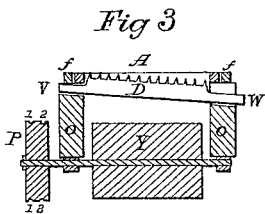
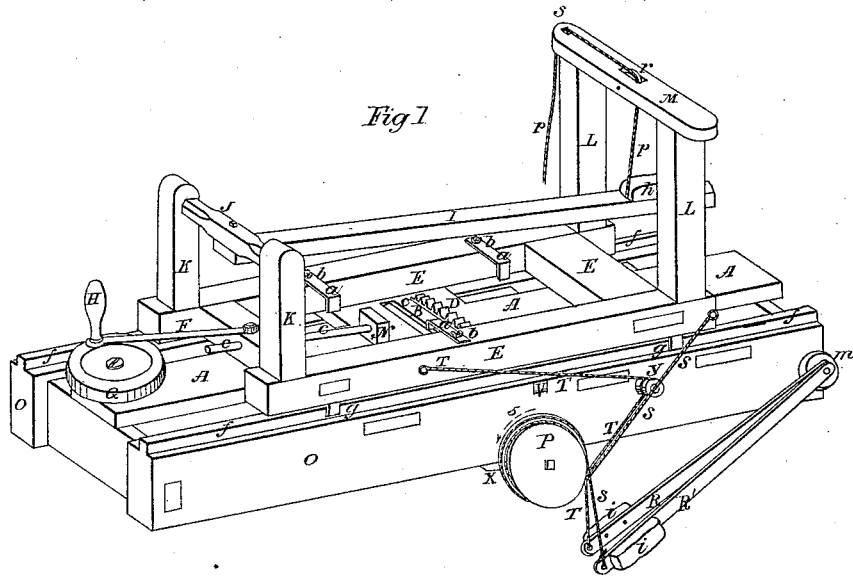


J. K. Mayo,
Making Matches,
N^o 50,833. *Patented Nov. 7, 1865.*



Witnesses:

William H. Clifford,
Barth H. Ingraham

Inventor.

John K. Mayo

UNITED STATES PATENT OFFICE.

JOHN K. MAYO, OF PORTLAND, MAINE.

IMPROVEMENT IN MACHINES FOR CUTTING SCALE-BOARD AND MATCH-SPLINTS.

Specification forming part of Letters Patent No. 50,833, dated November 7, 1865.

To all whom it may concern:

Be it known that I, JOHN K. MAYO, now residing in Portland, in the county of Cumberland and State of Maine, have invented a new and Improved Machine for Cutting Scale-Board; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a view of my improved scale-board cutter; Fig. 2, a section of the same, showing the knife C C, the adjustable iron B, and the rollers Y and Z. Fig. 3 shows a section of the wheel P and roller Y, also the device for cutting match-splints D; Fig. 4, a face view of the knife C C, showing the set-screws *w w w*.

Similar letters indicate like parts in all the figures.

The object of my invention is to produce a machine of an improved description for the cutting of scale-board and match-splints.

My invention consists, first, of the stationary bed-plate, (marked A A A, Fig. 1,) upon which the timber from which the board is to be cut is intended to be placed. This is set upon the fixed frame O.

It consists, secondly, of the movable frame or carriage composed of the parts marked M L L E E E K K J I respectively. This frame when in operation slides upon the track *f f*, or trucks can be employed, if desired. Into the bed-plate before mentioned is set the adjustable knife represented by C C, Fig. 2, in section, a face view at Fig. 4. Grooves for the reception of the knife are made on the interior sides of the frame O O, and may be seen at *t o*, Fig. 2. Further security is given to the knife by the insertion of the wedges, one of which is represented at *u*, Fig. 2, or by any equivalent means. Upon one face of the knife are fitted screws, (shown at *w w w*, Fig. 4, and *w*, Fig. 2,) by means of which the adjustable knife is brought, when desirable, in closer juxtaposition to the iron B, which is also adjustable by the set-screws, one of which is seen at Q, Fig. 2.

By means of these two devices the board can be cut of a uniform thickness throughout, lengthwise of the timber to be cut, even when the grains of the wood change and run in dif-

ferent directions, which is a new improvement, and cannot be effected by any machine now in use.

The bed-plate is also fitted with a set of movable knives, D, Figs. 1, 2, and 3, for cutting match-splints. These score the lumber one way, while the knife before described cuts it the other. This can be brought into operation by raising it in the space indicated at V, Fig. 1.

The sliding frame or carriage before mentioned, resting and running upon the track *g*, is fitted with dogs *a a a*, Fig. 1, attached to the sides E E, and the adjustable dog *c n* adaptable to the different lengths of the timber from which the board is to be cut. By means of these appliances the timber is fixed in the proper place for cutting. It is further prevented from springing up by the weight *h* on the beam I, which can be raised and lowered by the rope and pulley P *r*. Motion is imparted to the sliding frame from the wheel G, which is connected with the frame by the pitman F, attached to the wheel.

The range of the sliding frame can be regulated by the distance from the axis at which the crank is attached to the wheel.

Steam, water, or any motive power can be used in connection with my invention.

At the points T' and *g'* on the beam E of the sliding frame, Fig. 1, are inserted pins, to which are fastened the bands S and T, which, passing over and under the pivot *y*, encircle the wheel P, and are again attached to the loaded arms R R. The object of this contrivance is to impart to the axis of the wheel P the motion of the sliding frame, so as to cause the wheel to revolve always in the direction of the arrow 5. Each of the bands T S is conducted underneath the wheel P, occupying the grooves 1 2, Fig. 3, respectively, and as the band S passes directly to the wheel P, and the band T is deflected into the same course by the pulley Y, the effect of pulling upon either of the bands is to revolve the wheel P in the same direction. As the band S is tightened by the motion of the carriage E to the right, the band winds upon the drum P and the weighted lever R' rises, and at the same time the band T is being slackened, and so slips upon the drum P, allowing the weighted arm R to descend. On the return-motion of the car-

riage E to the left, making the effective stroke, the band T revolves the drum P, and raises the weighted lever R, while the band S slips on the drum and the weighted lever R' falls.

Upon the axis, and between the sides of the fixed frame, is placed the cylinder Y, Figs. 2 and 3, to which is imparted the rotary motion of the wheel before mentioned. Between this and the small roller Z the scale-board, after being cut and falling between the plates *k* and *l*, is thrown out by the motion of the rollers. The object of this device is to straighten the board, which would otherwise be left curved and crooked after passing from the knife. Thus the same degree of velocity is communicated to the rollers as the sliding frame receives from the motive wheel, and the same motion of the machine by which the board is cut straightens the board after it passes from the knife.

Beneath the rollers may be attached an inclined table, so as further to bend the board in a direction contrary to the curvature it receives in being cut, and thereby eradicate any tendency to curl which may not be overcome by the passage between the rollers Y Z.

The operation of my improved machine is as follows: The timber to be cut, being placed on the stationary bed-plate and grasped by the dogs *a a a*, and between the end of the sliding frame and the adjustable dog N, is then caused to slide backward and forward over the knife by application of power to the motive wheel G, so that motion is given to the timber to be cut, while the knife remains fixed and stationary. The action of the sliding frame is, by means of the bands and loaded arms, communicated to the roller, the effect of which is that every motion of the sliding frame by which a board is cut from the timber also corrects the curvature which the board has received in cutting. By my method of cutting the board can be manufactured much thinner than by the ordinary methods, and is therefore much more useful for a variety of purposes. In consequence of the fixedness of the knife effected by the set-screws and the adjustable iron on the opposite side of the board from the knife, the movement of the timber to be cut and the firmness with which the timber is held—viz., by its own weight, the dogs, and the weight on the beam I—scale-board can be manufactured by my machine when the grain of the wood changes, as, for example, curves upward or downward. In this case in machines as before constructed the knife will follow the curves of the grain, but in my invention will cut the board independent of the grain of a uniform and unvarying thickness throughout. Thus timber can be cut in my machine which would be practically useless in others.

In consequence of the numerous thicknesses, the board cut by my machine is applicable to a variety of dissimilar and useful purposes. The board produced by my machine is adapted to linings of a variety of articles, such as trunks, wardrobes, &c. It is also suited for tanks, dry-docks, for roofing of buildings, and for ship and boat building. The board can be cut in sheets, of a size limited only by the dimensions of the timber, and from the article so produced portions can be sawed, as use may require.

Inasmuch as by my machine the board is cut of a perfect evenness, irrespective of the grain of the wood, by combining any desirable number of layers of the board so cut with the grains of each successive layer running at right angles to the previous one, a very tough and flexible article is produced, which can be applied with usefulness and economy to the construction of boats and a number of other purposes.

In machines which cut across the grain, although the board is produced of an equal thickness, still it is an inferior article and cannot be employed in the manner I have described, because in the way of cutting the strength, toughness, and adhesiveness of the grains of the board is very much impaired.

Board can be cut by my machine twice as fast as by any machine now in use.

I construct my improved machine substantially in the manner described, fitted with the bed-plate of wood or metal, so constructed as to operate with as little friction as possible. Into the bed-plate are set the knives described, so arranged that they can be removed and replaced at pleasure. The motive wheel can be located at a greater distance from the machine, if desired, and separate from it, and can be driven by any power adequate to the purpose.

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

1. The arrangement, in the reciprocating frame, of the dogs N *a a* and weighted pressure-bar I, substantially as described.

2. The arrangement of the stationary knife C, throat-piece B, deflecting-plates *k l*, and rollers Y Z, substantially as described.

3. The arrangement of the sliding frame E, straps T S, pulley Y, drum P, and weighted levers R R', substantially as and for the purpose described.

4. In combination with the subject-matter of the second claim, the vertically-adjustable slitting-knife D, as and for the purpose described.

J. K. MAYO.

Witnesses:

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