(No Model.) 2 Sheets—Sheet 1.

J. A. BALDWIN.

MACHINE FOR PLANING AND DRESSING SLATS.

No. 458,323. Patented Aug. 25, 1891.

Fig. 2.

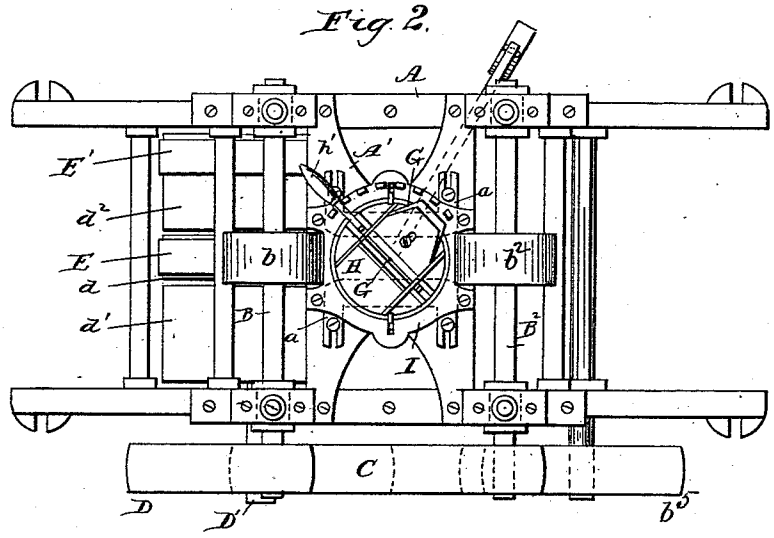
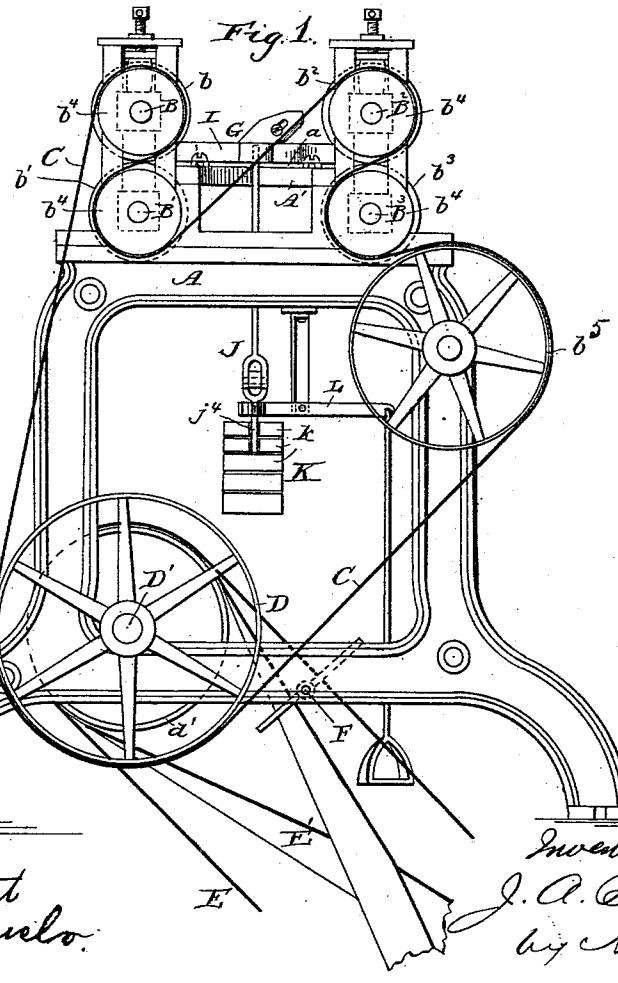


Fig. 1.



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(No Model.) 2 Sheets—Sheet 2

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MACHINE FOR PLANING AND DRESSING SLATS.

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Fig. 3.

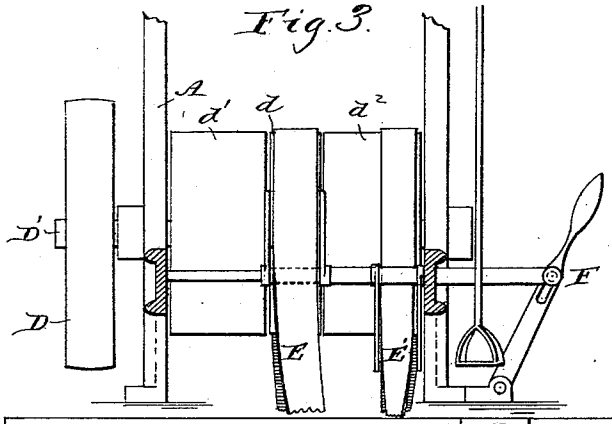


Fig. 4.

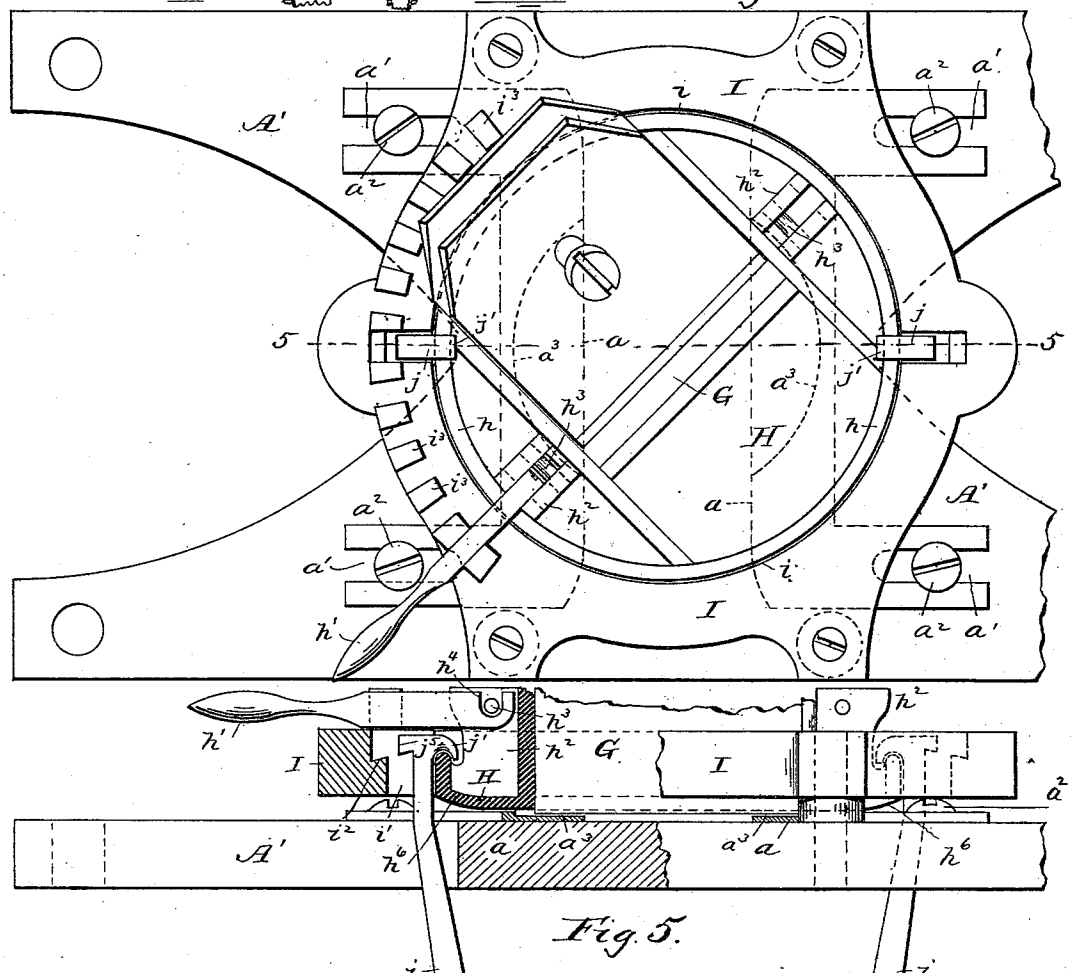
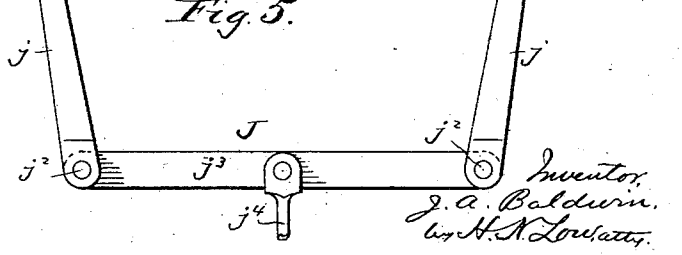


Fig. 5.



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UNITED STATES PATENT OFFICE.

JUDSON A. BALDWIN, OF BURLINGTON, VERMONT, ASSIGNOR TO THE BURLINGTON BLIND COMPANY, OF SAME PLACE.

MACHINE FOR PLANING AND DRESSING SLATS.

SPECIFICATION forming part of Letters Patent No. 458,323, dated August 25, 1891.

Application filed November 10, 1890. Serial No. 370,916. (No model.)

To all whom it may concern:

Be it known that I, JUDSON A. BALDWIN, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Machine for Planing and Dressing Slats, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

It is the object of my invention to cheapen and improve the dressing of lumber, and especially the planing of long and slender strips or slats, first, by operating upon such strips according to a method hereinafter more particularly set forth, and, second, by providing a planing-machine of novel construction especially adapted for carrying said method into effect and also capable of imparting a perfect finish to lumber in general, notwithstanding irregularities in its grain.

In order to produce a proper finish it is essential that the planer-knife be adjusted to a proper angle with reference to the line of feed and also with reference to the direction of the grain of the stock to be operated upon. I therefore provide for adjusting the knife angularly to any desired position, also for reversing the knife so as to adapt it to be set at the proper angle to plane upon the opposite side and in the opposite direction the stock already planed upon one surface, providing at the same time means for reversing the direction of the feed. I am thus enabled to obviate the necessity, after planing one side, of turning the stock end for end in order to properly finish the opposite side. As such turning of the stock consumes more time than the planing of it and is, especially with long, slender, and exceedingly-flexible strips a difficult and tedious operation, the advantage and economy of my method are apparent.

In order to make my invention more clearly understood I have shown in the accompanying drawings means for carrying the same into practical effect, without thereby intending to limit my invention to the particular embodiment of the invention which, for the sake of illustration, I have set forth.

In said drawings, Figure 1 is an elevation of a planing-machine embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is an end view of the lower portion of the machine, illustrating the reversing mechanism. Fig. 4 is a plan view, on a larger scale, illustrating the means for mounting and adjusting the plane and plane-stock. Fig. 5 is a sectional view on line 5 5 of Fig. 4, with the plane-stock plate turned to bring the slot for the plane transverse to the direction of feed.

Referring to the drawings, A indicates a frame adapted to support the mechanism of a planer, and comprising a bed or platen A′, by which the lumber or stock is supported while it is being operated upon and on which it is kept in proper position by guides *a*. The latter are rounded at their corners to facilitate the introduction of the stock and provided with lateral slots or recesses *a′*, through which pass clamping-screws a^2, engaging the platen and adapted to permit the adjustment of and to secure the guides in an obvious manner.

B, B′, B^2, and B^3 indicate four or any equivalent number of feed-roll shafts mounted in suitable bearings in or on the frame A and having driving-pulleys b^4, around which is passed a belt C, as best seen in Fig. 2. A tightener for this belt is shown at b^5, from which the belt passes to a pulley D on a counter-shaft D′. Upon this latter shaft are mounted a central tight pulley *d* and two loose pulleys *d′* d^2, one at each side of the pulley *d*. Belts E and E′, running or moving in opposite directions, pass around these pulleys and are so engaged and controlled by a belt-shifter F, Fig. 3, that either belt may be caused to run on and drive the pulley *d* and shaft D′ while the other belt is held upon its loose pulley, or both belts may be caused to run upon the loose pulleys *d′* and d^2. The manner in which the belt C and shafts B B′ B^2 B^3 are driven, reversed, or stopped by the above means will be evident. The feed-rolls are mounted upon the latter shafts and are indicated at *b b′* b^2 b^3. These rolls are provided with surfaces proper for firmly holding and feeding the stock, and their shafts are adjust-

able, according to the thickness of the latter, by any suitable means.

I would here remark that any well-known and suitable feed mechanism may be employed in carrying out my invention in place of that shown.

G is a planer-knife, adjustable angularly relative to the direction of feed and of the grain in the stock to be planed. Preferably, also, the knife is completely reversible, so as to be adapted for properly and perfectly dressing stock fed from the opposite direction. This may be effected by removing the knife, with or without its clamp or holder, reversing it, and replacing it with its edge turned toward the opposite direction, or much more conveniently by mounting the knife and plane-stock so that it may be rotated and turned for the desired number of degrees around an axis concentric with which it is held by a suitable bearing, and this latter construction is that illustrated in the drawings.

Referring especially to Figs. 4 and 5, H is a plate constituting in whole or in part or adapted to receive a plane-stock for the knife G. The latter may be mounted thereon with the usual capacity for adjustment by any well-known means. For instance, the plate H and knife G may constitute in effect an ordinary Bailey plane, (described in Patent No. 72,443 of December 24, 1867,) or an ordinary Bailey or other suitable form of hand-plane may be attached to the plate H, so as to be capable of reversal or greater or less angular adjustment around an axis perpendicular to the platen A′. A suitable bearing is formed for the plate H—as, for instance, by a circular aperture i in a frame I, which latter is mounted upon the main frame A and supported at a proper distance above the platen to admit under it the guides a and the stock to be dressed. The plate H is freely movable vertically as well as rotary in the bearing i, and when stock is not being passed through the machine rests upon the guides a. As the knife-edge projects slightly below the bottom of the plate H the guides a are correspondingly recessed at a^3, so that they will not be encountered by the knife-edge during the adjustment or reversal of the plate.

The platen A′ and plane-stock are constructed to yield away from each other to accommodate the varying thicknesses of the slat to be dressed. This may of course be effected by making either the platen or the plane-stock or both of these parts movable in directions toward and from the slat, and my invention includes either of these variations in construction.

In the machine illustrated the platen is rigid and the plane-stock movable in the bearing i. A suitable pressure device holds the plane-stock with the requisite force against the slat. I have made this device readily detachable to facilitate the removal of the plane-stock and replacement of it with one having a sharper knife or otherwise more desirable for the work in hand. To this end I provide a hanger J, having two pivoted arms $j\,j$, which extend up through slots i' in the frame I and engage by hooks j' with a rim or flange h, formed on the plate H. The lower ends of said arms incline slightly inward and are pivoted at j^2 to the cross-bar j^3 of the hanger. From the middle of the cross-bar depends a rod j^4, adapted to receive a weight K, consisting by preference of a plurality of separate parts k for graduating by their addition or removal the pressure on the plate H.

L is a treadle-lever mounted to engage beneath and adapted to lift slightly the hanger J. When the operator by his foot causes this action of the treadle L, the arms j will be raised from the rim h and, by reason of their inclination, will fall outward in the slots i', thus instantly leaving the plane-stock free to be removed. When the arms j are thus released, they are supported by the engagement of hooks j^5, formed upon the outer faces of their upper ends, with shoulders i^2, formed at the outer ends of slots i'. When it is desired to replace the plane-stock, it is simply necessary to insert it in the bearing i, raise the hanger J by means of the treadle, and then move inwardly the arms j into proper engagement with the rim h of the plane-stock plate. It is intended that the plate H shall be perfectly free to rock or move in any direction as may be required by contour of the surface being planed; and to this end the hooks j' are arranged diametrically opposite each other, the upper edge of the rim h is rounded, and the under faces of the hooks are formed with knife-edges or rounded contours, thus avoiding any rigid confinement of the plate.

In order to facilitate the adjustment of the edge of the knife G to the proper angle relative to the grain of the strip being planed, the plate H is provided with a handle h', by which the plate may be readily turned upon its axis for a complete or any desired part of a revolution. The inner end of said handle fits neatly between lugs h^2 and engages a pivot bolt or pin h^3, which passes through the lugs, while the outer part of the handle is adapted to fit between a series of lugs or teeth i^3, formed on or secured to the frame I contiguous to the bearing i. When it is desired to change the angle of the knife, it is simply necessary to lift the outer end of the handle, turning it upon the pin h^3, and move the plate H to the desired position. The handle is then dropped between two of the teeth i^3, and the knife will be secured at the proper angle without any confinement of the plane-stock either as to movement toward and from the slat or as to the slight oscillation sometimes necessary to conform to its surface. As a complete reversal of the plate H for the purpose of planing stock fed from the opposite direction would carry the handle h' to the side of the

machine opposite from the operator, I provide for detaching the handle and inserting it between another pair of lugs h^2, diametrically opposite from the first-mentioned pair or elsewhere conveniently situated upon the plate. For this purpose the inner end of the handle is provided with an upwardly-turned open hook h^4, adapted to engage but which may be readily released from either pin h^3 and applied to the other. In order that the slats may enter readily beneath the plate H into whatever position it be turned, its lower edge is rounded or beveled, as indicated at h^6, for the entire circumference of the plate.

The method forming a part of my invention may be carried into effect either by the machine hereinbefore described or by other suitable means. When it is desired to dress lumber by my method, the slats are arranged at one end of a planing-machine, the operator then examining the slats and turning them the right side up (according to their grain) for the initial direction of feed, passes them by the knife. When all of the slats have thus been dressed on one side, it would be necessary, according to the usual practice, in order to properly plane the other to turn the slats not only side for side but end for end, and then pass them through the machine again in the original direction; but by my improved method I avoid the difficult and tedious operation of turning the long and pliable slats end for end and effect a great economy of time and labor, enabling a workman to turn out about double the number of smoothly and perfectly dressed slats. This is accomplished by reversing the position of the plane-knife after the first planing. The operator then repasses the slats, planed upon one side, as above described, by the reversed plane-knife in a direction opposite to that of the first planing. For this second dressing the slats are left in the proper position by the first planing with those ends toward the machine which should be first introduced.

Having thus described my invention, what I claim is—

1. In a planing-machine, the combination, with suitable feeding devices, of a plane-stock and plane having a suitable bearing upon an axis substantially at right angles to the face of the stock and adjustable around its axis to suit different grains in the stock to be planed, substantially as set forth.

2. In a planing-machine, the combination, with suitable feeding devices, of a plane-stock and plane having a suitable bearing upon an axis substantially at right angles to the face of the stock and adjustable around its axis to suit different grains in the stock to be planed, and a platen or bed-plate, one of said latter devices having a yielding motion to accommodate varying thicknesses in the stock, substantially as set forth.

3. In a planing-machine, the combination, with suitable feeding devices, of a plane-stock and plane, the said stock and the same plane being reversible with reference to the direction of feed for the purpose of planing in the opposite direction, and means for reversing the direction of the feeding devices, substantially as set forth.

4. In a planing-machine, the combination, with suitable feeding devices and a frame having a bearing, of a plate mounted and adjustable angularly in said bearing in planes which are horizontal or substantially parallel with the face of the plate and adapted to carry a plane, substantially as set forth.

5. In a planing-machine, the combination, with suitable feeding devices and a frame having a bearing, of a plate mounted loosely in said bearing and adjustable angularly in said bearing and adapted to carry a plane, a hanger engaging said plate, and a weight carried by the hanger, substantially as set forth.

6. In a planing-machine, the combination, with suitable feeding devices and a frame having a bearing, of a plate mounted loosely in said bearing and adjustable angularly in said bearing and adapted to carry a plane, a hanger detachably engaging said plate to permit the ready removal of the latter, and a weight carried by said hanger, substantially as set forth.

7. In a planing-machine, the combination, with suitable feeding devices and a frame having a bearing, of a plate mounted loosely in said bearing and adjustable angularly in said bearing and adapted to carry a plane, a hanger engaging said plate, and a weight carried by the hanger and consisting of a plurality of separate parts for graduating the pressure on the plate, substantially as set forth.

8. In a planing-machine, the combination, with a suitable frame and feeding devices for the lumber, of a loosely-mounted angularly-adjustable plane-stock, said stock being adapted to yield in all directions to accommodate itself to the face of the lumber, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JUDSON A. BALDWIN.

Witnesses:
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H. N. LOW.