(No Model.)

# W. D. LEE.

## BOX PLANING MACHINE.

No. 302,006. Patented July 15, 1884.

Fig. 1.




Fig. 3.

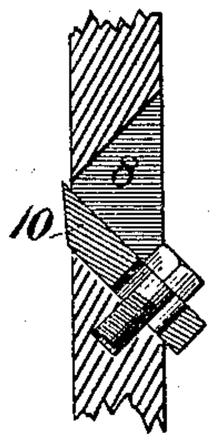
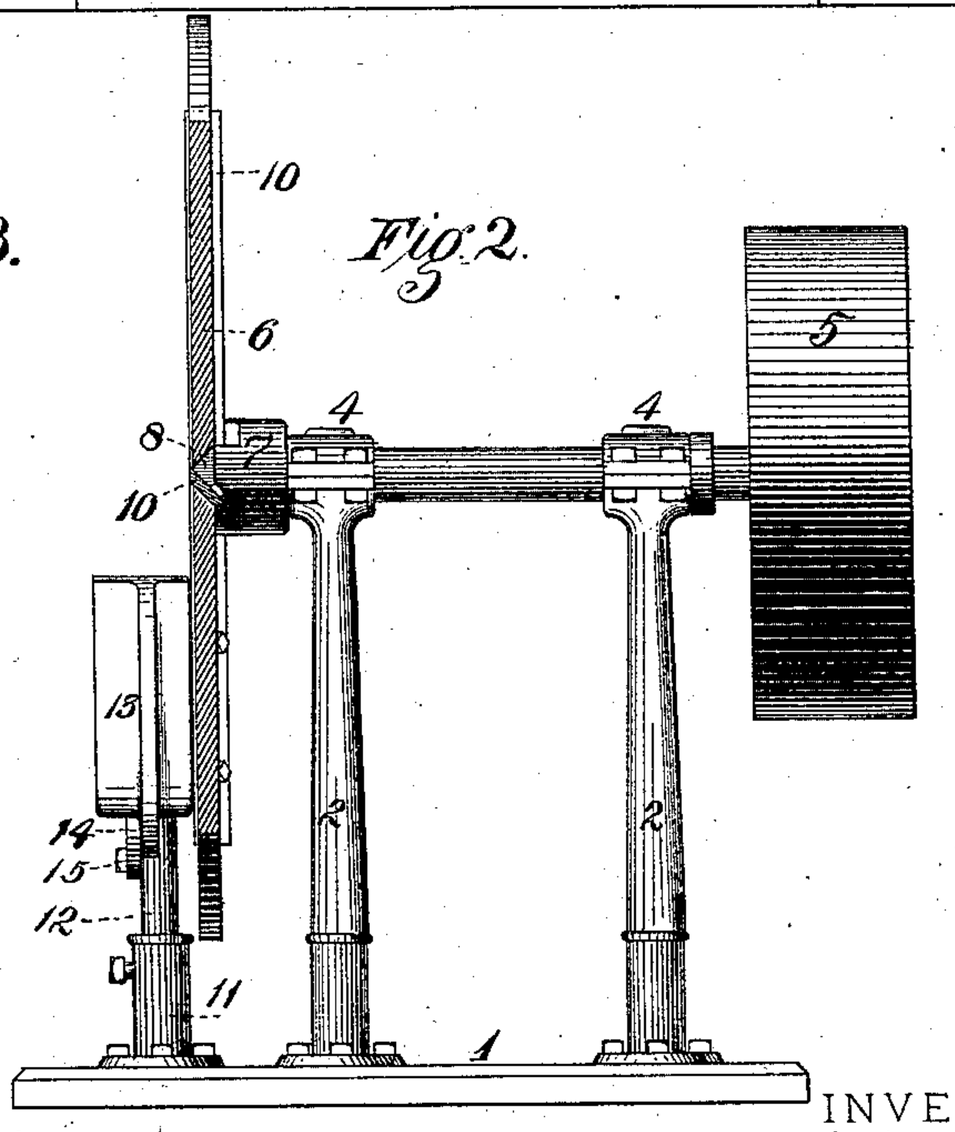



Fig. 2.

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WILLIAM D. LEE, OF PITTSBURG, PENNSYLVANIA.

## BOX-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 302,006, dated July 15, 1884.

Application filed May 17, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM D. LEE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Box-Planing Machines, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view in end elevation of my improved box-planing machine. Fig. 2 is a view in side elevation of the same, the planer-head being shown in section. Fig. 3 is a detail sectional view showing the manner of securing the cutters.

Heretofore in the manufacture of boxes it has been necessary either to plane the boards which are to be incorporated in the box prior to nailing them together, or else such planing has to be done by hand after the box has been made; but neither of the above-described methods is capable of producing a smooth and well-finished box, as, if the boards are planed before being put together, it is difficult to always make the boards match along the sides and at the corners, so that while each board will have a smooth and finished surface one of the boards on a side may be higher or lower than the others, and the ends of the boards may project beyond the sides or ends to which they are nailed. When the boards are planed after being formed into a box, it is almost impossible to get a smooth surface, especially when the boards have knots in them, and this method of hand-planing is very expensive and requires considerable time.

The object of my invention is to so construct a machine that a box formed of rough boards may be expeditiously planed on all its sides, thereby enabling the production of a box smooth and finished in appearance not only along its sides, but at the corners also.

Upon a suitable bed, 1, are secured the standards or uprights 2, in the upper ends of which are formed bearings for the shaft 3, said shaft being held in the bearings by the caps 4. On one end of this shaft is secured the belt-pulley 5, and on the opposite end is secured the planer-head 6. This planer-head is a cast-iron disk provided at its center on one side with the socket 7, adapted to fit on the end of the horizontal shaft 3, being held thereon by a key, set-screw, or any other suitable means. In the disk are formed the radial slots 8 and the diametrical slot 9. The sides of these slots are inclined toward each other from the back of the plate or disk, as shown in Fig. 2. Within the slots are detachably secured the cutters 10, having their cutting-edges pointing in the same direction around the plate. The cutters 10 in the diametrical slot 9 are made to meet in the center of the plate, as shown, they being secured on opposite sides of the slot, so the cutting-edges may incline in the proper direction. An important function is effected by arranging two of the cutters in a diametrical slot, as by such a construction two of the cutters can be so arranged with their inner ends in close contact or even slightly overlapping, thereby reducing to a minimum the unplaned portion at the center of the box, as will be readily understood.

On the bed 1, in front of the disk 6, is secured the socket 11, in which is adjustably secured the stem 12, and on top of this stem is pivoted the L-shaped rest or support 13. To the under side of this rest is attached the circularly-slotted plate 14, said plate being arranged to move alongside of the stem 12, and is held in any desired position by the set-screw 15, which passes through the slot in the plate and screws into the stem 12.

In operating the above machine the rest 13 is first adjusted to the proper height, so as to bring the center of the side of the box to be planed in line with the center of the planing-head by raising or lowering the stem in the socket 11. The rest is then set at the proper inclination by means of the plate 14 and set-screw 15. The planer-head is now rotated in the direction indicated by the arrow in Fig. 1 by the belt on the pulley 5, and the operator places a box on the rest with one of its sides resting against the vertical part of the rest, as indicated in dotted lines in Fig. 1. The cutters to the left of the center of the disk in Fig. 1 will in their rotation force the box down against the horizontal part of the rest and against the vertical part thereof, and as the cutters to the right of the center of the disk will tend to raise the part of the box on which they act the box will tend to rotate; but this

rotation is impossible as long as the box is held against the vertical part of the rest by the cutters to the left, as above described. Therefore very little exertion is required on the part of the operator to keep the box in position.

I am aware that planing heads or disks have been provided with three or more radial slots, which converge at the center of the disk; but in such a construction it is impossible to so arrange the cutters in such a manner as to enable any one of the cutters to act at the center of the disk, nor has such a construction been necessary, as such planer-disks have been employed on surfaces hollow or recessed at the center, such as barrels and other similar articles.

I claim herein as my invention—

1. A planer-head provided with radial and diametrical slots, and having cutters secured within said slots, the cutters in the diametrical slots having their inner ends in contact, substantially as described.

2. In a box-planing machine, a planer-head having radial and diametrical cutters secured therein, in combination with an L-shaped box-support located in front of the planer-head, substantially as set forth.

3. In a box-planing machine, a planer-head having radial and diametrical cutters secured therein, in combination with an L-shaped box-support located in front of the planer-head and adjustable angularly and vertically, substantially as set forth.

4. In a box-planing machine, a planer-head having radial and diametrical cutters secured therein, in combination with a box-support located in front of the planer-head, and constructed to hold the box as against rotary movement, substantially as set set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM D. LEE.

Witnesses:
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