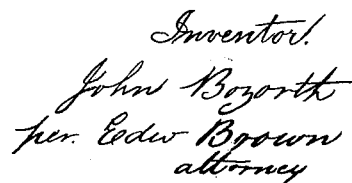


Patented April 1, 1879.



UNITED STATES PATENT OFFICE.

JOHN BOZORTH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR TRIMMING WOODEN BOXES.

Specification forming part of Letters Patent No. **213,734**, dated April 1, 1879; application filed December 10, 1878.

To all whom it may concern:

Be it known that I, JOHN BOZORTH, of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Machines for Trimming Wooden Boxes, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view of the machine. Fig. 2 is a sectional elevation on line *xy*. Figs. 3, 4, 5, and 6 are parts of the plane in detail.

This machine is for dressing or planing off the projecting ends of the boards forming the top, bottom, and sides of wooden boxes. After the boxes are roughly nailed together, the boards project about one-sixteenth of an inch beyond the end. This projecting rough-sawed edge is by my machine planed off flush with the end of the box.

The nature of my invention consists in arranging two planes to run in guides independent of each other, and connecting them to the driving-shaft by cranks on opposite sides, whereby the heavy moving parts balance each other, and a high rate of speed can be maintained.

It also consists in movable gages operated by adjusting-screws; also, in an iron strap which passes around the plane-bit.

A is one of the planes, having wooden cross-bars at the top and bottom, which slide between the guide-bars C. These guide-bars are bolted together, with a paper packing between them, and secured to the frame D.

The pitman or connecting rod E is jointed to the bottom of the plane at *e*². The opposite end passes below the floor N to the crank-pin F. The plane *a*¹ is mounted in a similar manner and connected to the crank-pin F'. These crank-pins are on opposite sides of the shaft *h*, which shaft is carried in the bearing K. The bearing K is forked to receive the driving-pulley L, which is driven by a belt from the pulley M.

The boxes are fed to the machine upon the table P, and to guide them to the proper position against the plane-bit I have guides R *r*', operated sidewise by the screws S S', passing through the fixed nuts S² S³. By these guides,

in conjunction with beveled bits, the cut can be adjusted light or heavy without stopping the machine or changing the knife.

The box is laid on the table on its bottom, and brought against the guide *r*', and pushed against the plane *a*¹. The plane-bit is ground with its cutting-edge on a bevel, as shown in Fig. 6, and is placed with its projecting point next to the guides R *r*'. The face of the plane is considerably wider than the bit, so that the end of the box will come against the face of the plane, as a stop, as soon as the rough edge is planed off.

The beveled edge of the bit cleans off the end of the board at a slight angle without marking the flat end of the box. As soon as one edge is planed off the box is shoved across against the guide R, then turned over upon its side, then shoved across back to plane A, and the operation of trimming one end is completed.

In planes for trimming boxes the bit V² is set into the plane at a more acute angle than is usually common. This makes the wood immediately behind the bit very thin and liable to be pressed out of shape.

To overcome this I make the plane with an iron strap, V. (See Figs. 3, 4, and 5.) The strap is bent to the form of three sides of a rectangle, and passes behind the plane-bit, and between it and the iron facing-plate V¹. The plane-bit is secured by a clamping device consisting of a lever, *a*², pivoted centrally at *a*³ to the strap V. A screw, *a*⁴, passes through this lever, by turning which the bit is clamped at the top and bottom. It can thus be accurately set with great facility. I also cut away or hollow out the middle of the plane, to make all the moving parts as light as possible.

By this construction, and running the planes independently, I avoid the unbalanced momentum due to a gang of planes in a heavy frame. The machine can be run twice as fast and do twice the work of any heretofore in use. The machine is also on a standing balance—of some importance when changing plane-bits.

I claim—

1. In a box-trimming machine, the sliding planes A *a*¹, operated independently by con-

necting-rods E e^1 and crank-pins F F^1 , on opposite sides of the same shaft, combined with the table P and adjustable guides R r^1 and their operating mechanism, substantially as specified.

2. The combination, with a plane, of the strap V, lever a^2 , and set-screw a^4 , the said lever being pivoted to the strap at a^3 , substantially as specified.

3. The combination, with a plane, of the

strap V, lever a^2 , and set-screw a^4 , the said lever being pivoted to the strap at a^3 , and the plane being provided with a bit having a cutting-edge at an angle to the sides of the plane, substantially as specified.

JOHN BOZORTH.

Witnesses:

JOHN F. GRANT,
EDWD. BROWN.