

C. BOPP.

MACHINE FOR TRIMMING BOXES.

No. 188,573.

Patented March 20, 1877.

Fig:1.

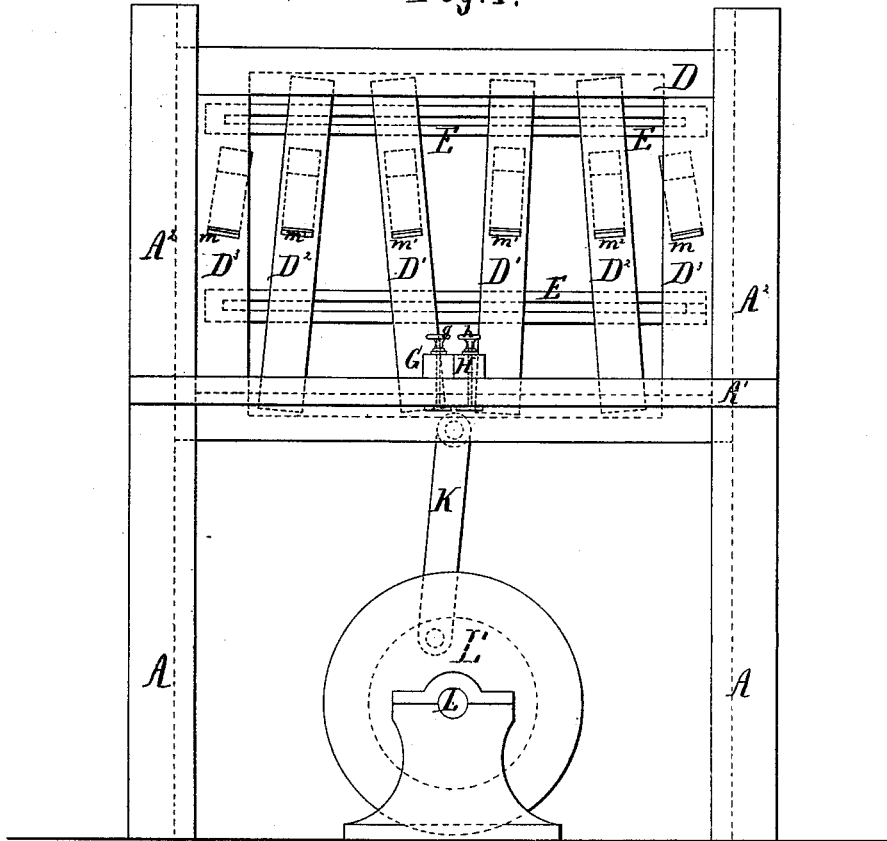
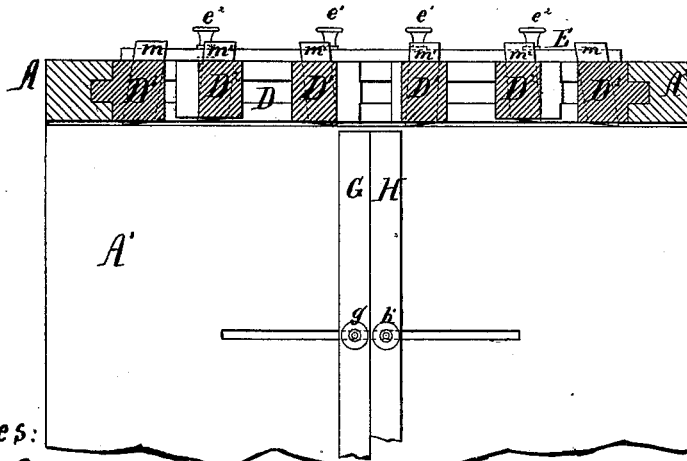


Fig:2.



Witnesses:

Henry Gentner
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Inventor:

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 by his attorney
 H. Stetson

UNITED STATES PATENT OFFICE.

CHRIST BOPP, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND J. H. SWIFT, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR TRIMMING BOXES.

Specification forming part of Letters Patent No. 188,573, dated March 20, 1877; application filed August 2, 1875.

To all whom it may concern:

Be it known that I, CHRIST BOPP, of Brooklyn, Kings county, in the State of New York, have invented certain new and useful Improvements in Machines for Trimming Boxes, of which the following is a specification:

The object of the invention is to conveniently and rapidly plane off the overhanging ends of the pieces of boards forming the top, sides, and bottom of a box. In the manufacture of rectangular wooden boxes for packing, and the like, it is common to use thinner material for the bottom and sides than for the ends, and to nail the bottom, top, and sides upon the ends. The finished boxes show the sides, top, and bottom terminating exactly flush with the outer faces of the end pieces. In practice it is common to attain this condition by setting them a little overhanging, and then planing off the surplus. My improved machine carries planes for this purpose in a vertically-reciprocating sash or frame, the plane-cutters being peculiarly mounted, and adjustable thereon.

The box, in being planed, is supported upon a table, which extends up so close to the plane of the cutting-edges as to save the wood from splitting off as each cutter terminates its work, and is leaving the edges of its board.

Boxes of which the depth is exactly equal to the width do not require all my adjustments. Most boxes are wider than their depth, like boot and shoe boxes. All these require peculiar provisions to allow the dressing of the entire end at two operations.

To dress the end of a box, I lay the box upon a table, with one corner against a gage set on the table, and push the box forward on the table until the end is dressed by the plane-irons. One plane runs close to the gage, and dresses the board which is upright at that position. The other plane-iron is at a proper distance therefrom to dress the opposite side of the end. Then turning the box quarter over, so that it lies upon another face, and again pressing it over against the gage, and presenting the same end to the cutters while the plane-iron nearly opposite the gage is in position to dress one edge, it will be found that,

with the raisin-box or the shoe-box, the other plane-iron will come in the wrong position.

I provide three plane-irons. One is always used. The others are set at different distances therefrom, and are used alternately, according to the position in which the box is presented.

I make the machine double, and allow two workmen to operate at the same table at the same time.

The drawings represent what I consider the best means of carrying out the invention, in which Figure 1 is a front elevation, and Fig. 2 a top view, with the sash and guides in section.

Referring to the drawing, A is the fixed frame-work. A¹ is a horizontal bench or rigid table forming a part thereof, and extending quite up to the line of the cutters. A² are vertical guides, adapted to firmly support and guide a stout rectangular frame or sash, D, of cast-iron or other suitable material, which carries tools D¹ D² D³, somewhat analogous to ordinary carpenter's planes, but mounted in a nearly vertical position, and set at each end in a deep groove extending along the interior of the sash D. Each plane carries a plane-iron set in a cavity extending through it.

Some of the planes may be adjusted outward and inward from the central line, and may be set in any required position by means of hand-screws e¹ e², &c., extending through stout slotted cross-bars E, fixed on the back face of the sash D. G H are cross-bars serving as gages. They are secured in any desired position on the table A¹ by means of hand-screws g h, standing in a slot in the table, as represented. K is a link or pitman, connecting the sash D to the crank L' on the shaft L. This crank-shaft L is turned by a steam-engine or other suitable power, either directly or through the intervention of belts or gearing. A plane-iron is mounted in each of the adjustable planes D¹ D², &c., and also in the upright side bars of the framing or sash D. The plane-irons in the latter are marked m, and are set in oblique positions to the line of their motion by being held in oblique holes or throats, as indicated. The other plane-irons m¹ m² are mounted in throats in their respect-

ive planes, which extend directly across such planes, and are therefore easier of construction and of adjustment. The proper inclination of the cutting-edges of these latter is obtained by inclining the whole body of the planes $D^1 D^2$, &c. The inclination of either or all may be varied, in practice, to get the best effect.

It is important that the wood be planed off by a drawing cut, and that the face of the cutting-edge shall be a little away from the center of the end of the box being treated.

Thus, if the plane-irons, in removing the surplus or overhanging material of the boards around the end, carry their work a little too far, and commence to plane the material of the end itself, they will only remove a little of the edge, and will leave the surface treated in a smooth condition, and leave the edge of the planing-work beveled at a sufficiently gradual inclination.

The double form of the machine I attach importance to; but some of the advantages of the invention may be realized by a single machine—that is to say, a sash, D, which is only about half the width here represented, and with a single gage.

By making the machine double I not only obtain the effect of two smaller machines with only one set of driving-gear, but also am able to dress the very large boxes which are occasionally required; and when used double, one side may be used with large boxes, which extend more than half the width, and the remaining portion of the table utilized for the smaller ones.

To use my machine the undressed boxes are taken one by one by the attendants, and placed on the table A^1 with one end presented

to the plane-irons, and with one corner thereof against the gage-bar H. In this position the projecting ends of the boards are planed off by the irons $m^2 m$. Then the box is drawn back a little toward the attendant and turned quarter over, and again thrust forward. Now the projecting ends of the boards are dressed by the plane-irons $m^2 m^1$, and that end of the box being now completely dressed, the box is turned and the other end subjected to similar treatment. Another attendant may, in the meantime, be operating on boxes of the same or different size or form, on the opposite side of a machine, pressing the corners of the boxes against the gage G.

Experiments indicate that my machine will make one man's labor some two or three fold as effective as heretofore in this branch of labor.

The plane D^1 should be set a very little back of the planes on each side thereof, so that it will not act on the end of the box when the planes on each side are working on their respective edges.

I claim as my invention—

1. The sash D, carrying planes $D^1 D^2 D^3$, and plane-irons $m m^1 m^2$, in combination with the table A^1 and gages G H, as and for the purpose herein specified.

2. In combination with the table A^1 and reciprocating sash D, the duplicate sets of cutters and duplicate gages G H, as and for the purposes herein specified.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

CHRIST BOPP.

Witnesses:

CHAS. C. STETSON,
J. K. OULAHAN.