

C. BOPP.

BOX-TRIMMING MACHINE.

No. 170,046.

Patented Nov. 16, 1875.

Fig. 1

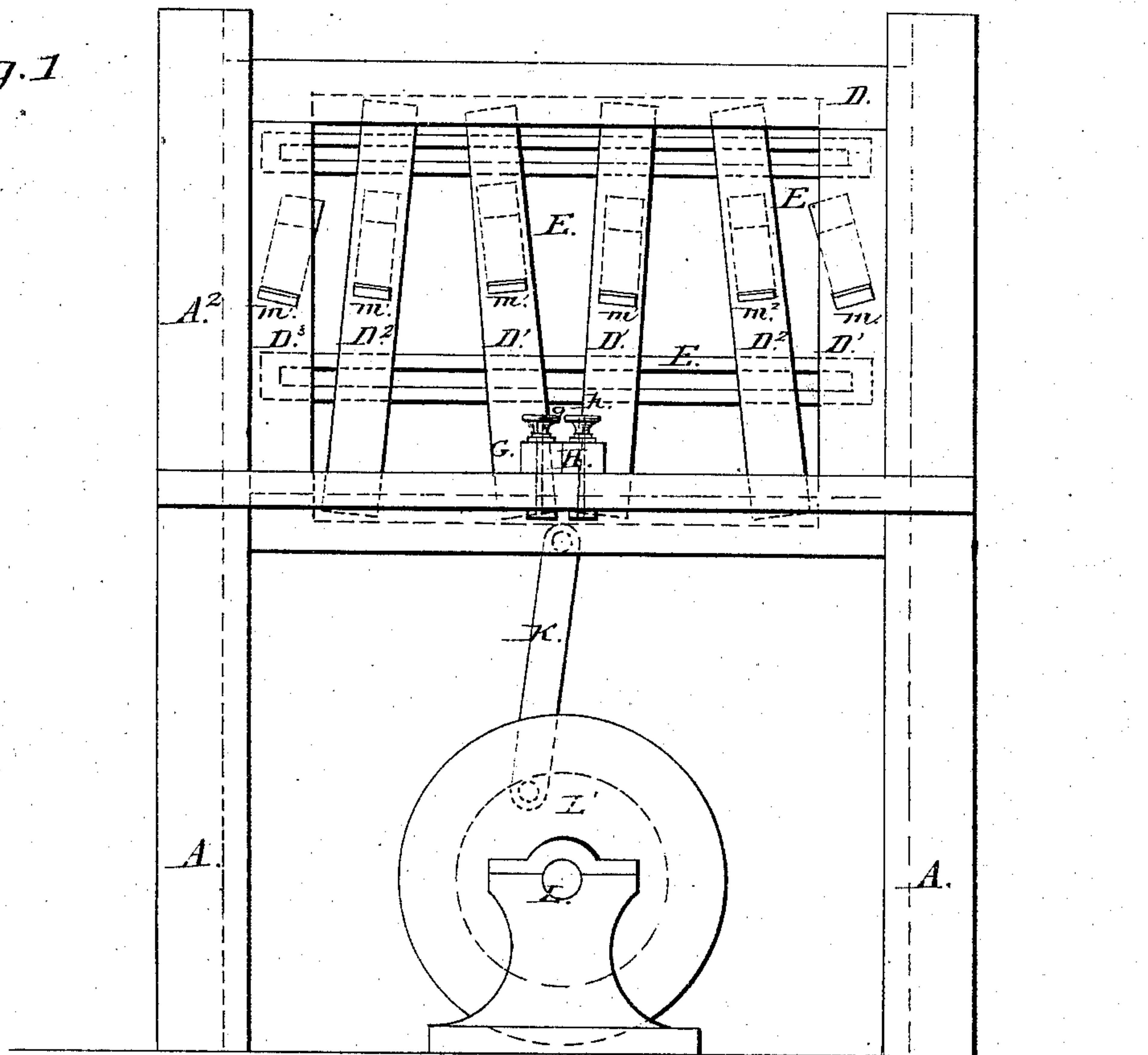
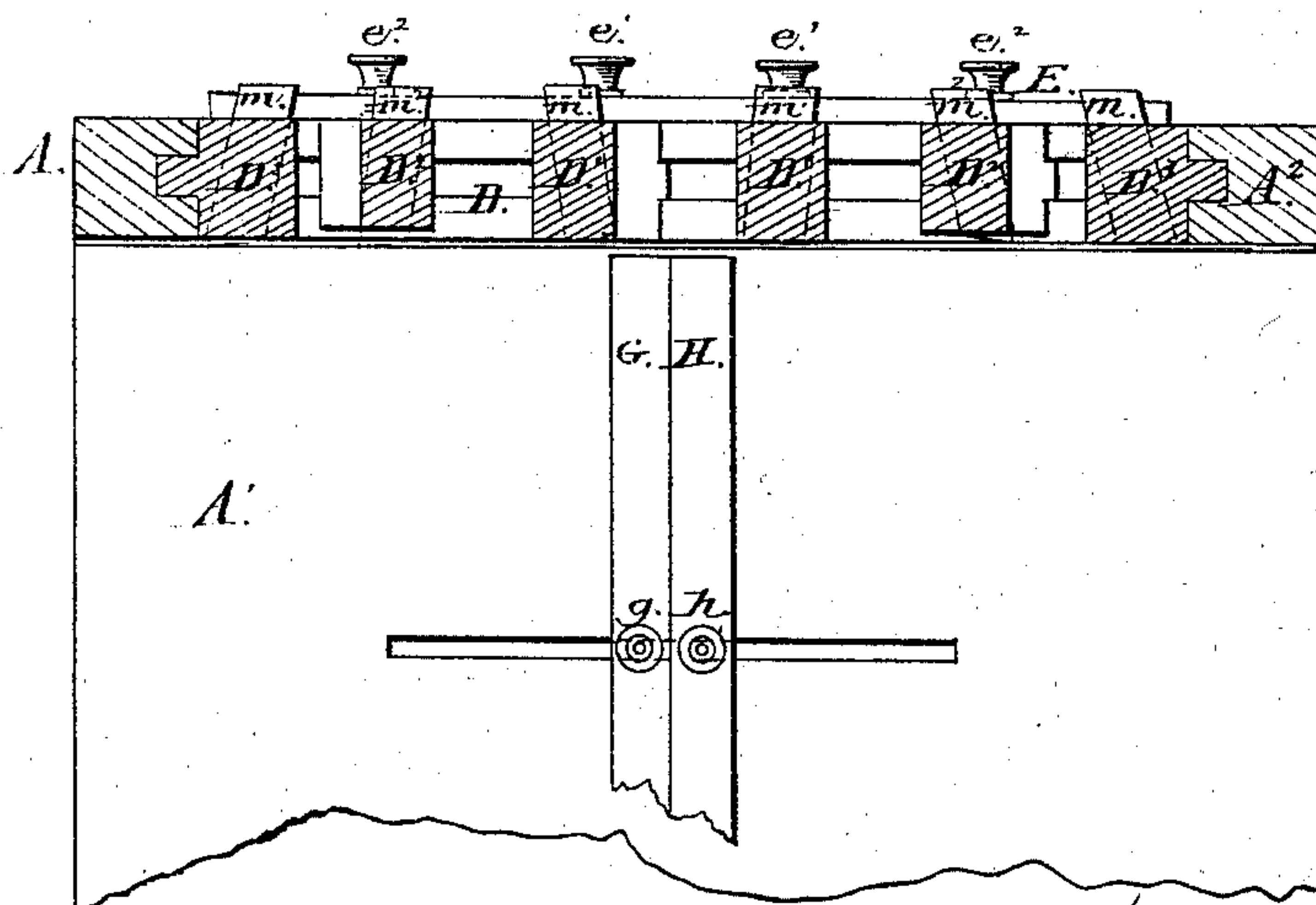


Fig. 2



Witnesses:
 Edw. W. Dunn
 Alfred H. Dunn

Inventor:
 Christ Bopp
 by his attorney
 Thomas L. Stetson

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN BOX-TRIMMING MACHINES.

Specification forming part of Letters Patent No. 170,046, dated November 16, 1875; application filed October 27, 1875.

To all whom it may concern:

Be it known that I, CHRIST BOPP, of Greenpoint, Brooklyn, Kings county, in the State of New York, have invented certain new and useful Improvements in Box-Trimming Machines, 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 board. In the manufacture of rectangular wooden boxes for packing, and the like, it is common to use thinner material for the bottoms and the sides than for the ends, and to nail the bottoms and the sides upon the ends. The finished boxes show the sides and bottoms 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 vertical reciprocating gate or frame-piece, the plane-cutters being peculiarly mounted and adjustable therein. 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 edge of its board.

Boxes in which the depth is exactly equal to the width do not require all my adjustments. Most boxes are wider than their depth, like raisin-boxes, or less wide 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-iron 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 a 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. For convenience I make the machine double, and allow two workmen to operate upon the same table at the same time.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a front elevation of my machine. Fig. 2 is a top view of the same, with the sash and its guides in section.

Similar letters of reference indicate like parts in all the figures.

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 gate or rectangular frame, D, of cast-iron or other suitable material, which carries tools D¹ D² D³, somewhat analogous to ordinary carpenters' planes, but mounted in a nearly vertical position, and set at each end in a deep groove extending along the interior of the frame or sash D. Each plane carries a plane-iron set in a cavity extending through it. Each 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 frame or 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 frame or 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 suitable 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 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 $m^1 m^2$, are mounted in throats in their respective planes, which extend directly across such planes, and are therefore easier of construction and 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, as required in practice to get the best effect. It is important that the wood be planed off by a "drawing" cut, and that the draft or inclination of the cutting-edge shall be away from the center of the end of the box being treated. Thus, if the plane-irons, in removing the surplus from overhanging material of the boards around the end, should 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 esteem preferable; but some of the advantages of the invention may be realized by a single machine—that is to say, by a sash, D, which is only about half the width here represented, and with a single one of the gages G or H.

To use my machine the undressed boxes are taken one by one by the attendant, and placed on the table A, 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 over, and the other end is subjected to a similar double treatment. Another attendant may, in the meantime, be operating on boxes of the same or of a different size and form, pressing the corners of his boxes against his 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 the work. 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 slotted bars E and the adjusting-screws $e^1 e^2$, in combination with the sash D and adjustable planes $D^1 D^2$, as and for the purposes specified.

2. The adjustable planes $D^1 D^2$, in inclined positions in the sash D, with irons $m^1 m^2$ at right angles in said planes, as and for the purposes specified.

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

CHRIST BOPP.

Witnesses:

PHILLIPS ABBOTT,
CHAS. C. STETSON.