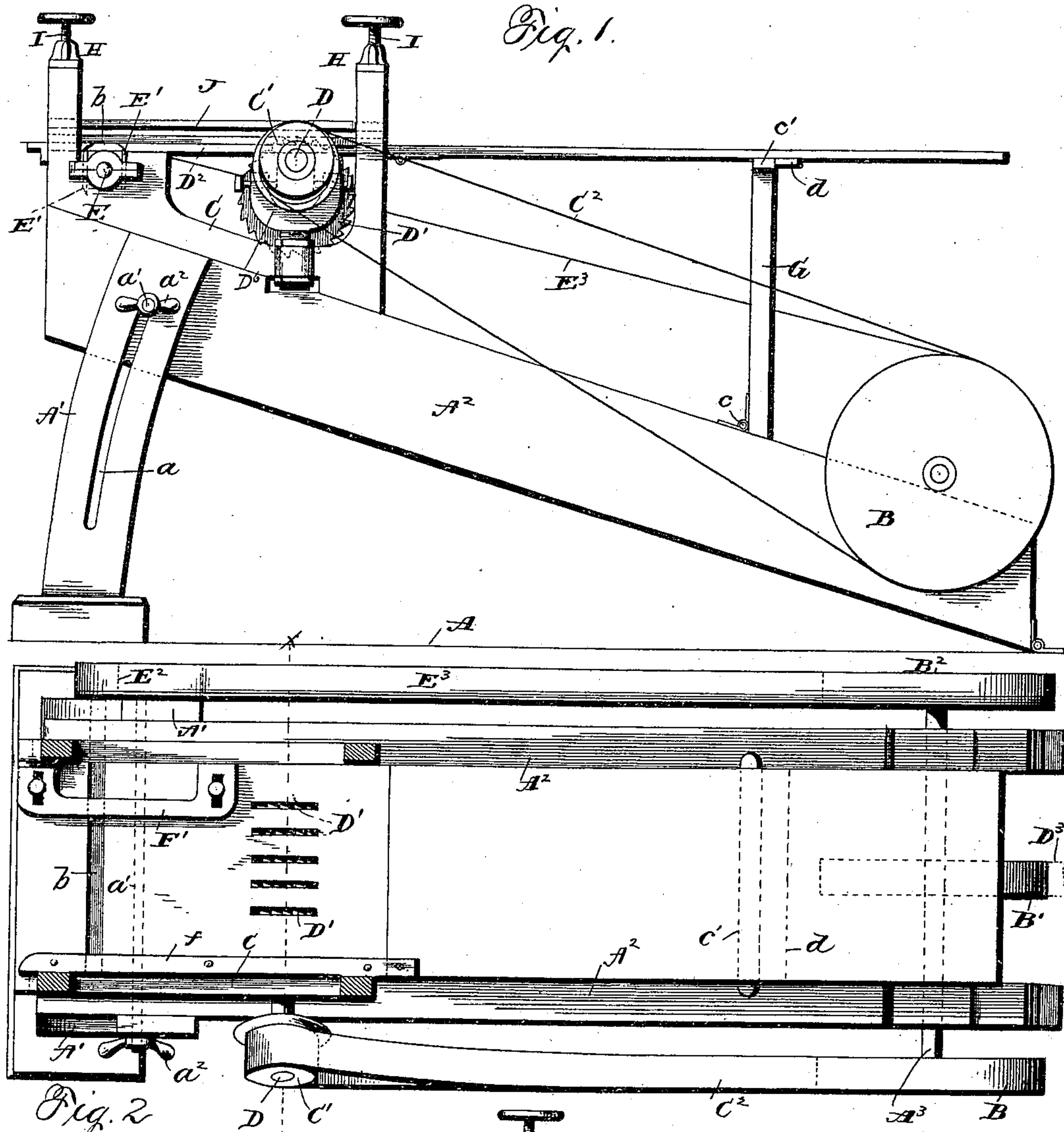


(No Model.)

J. BRAITHWAITE.  
WOOD WORKING MACHINE.

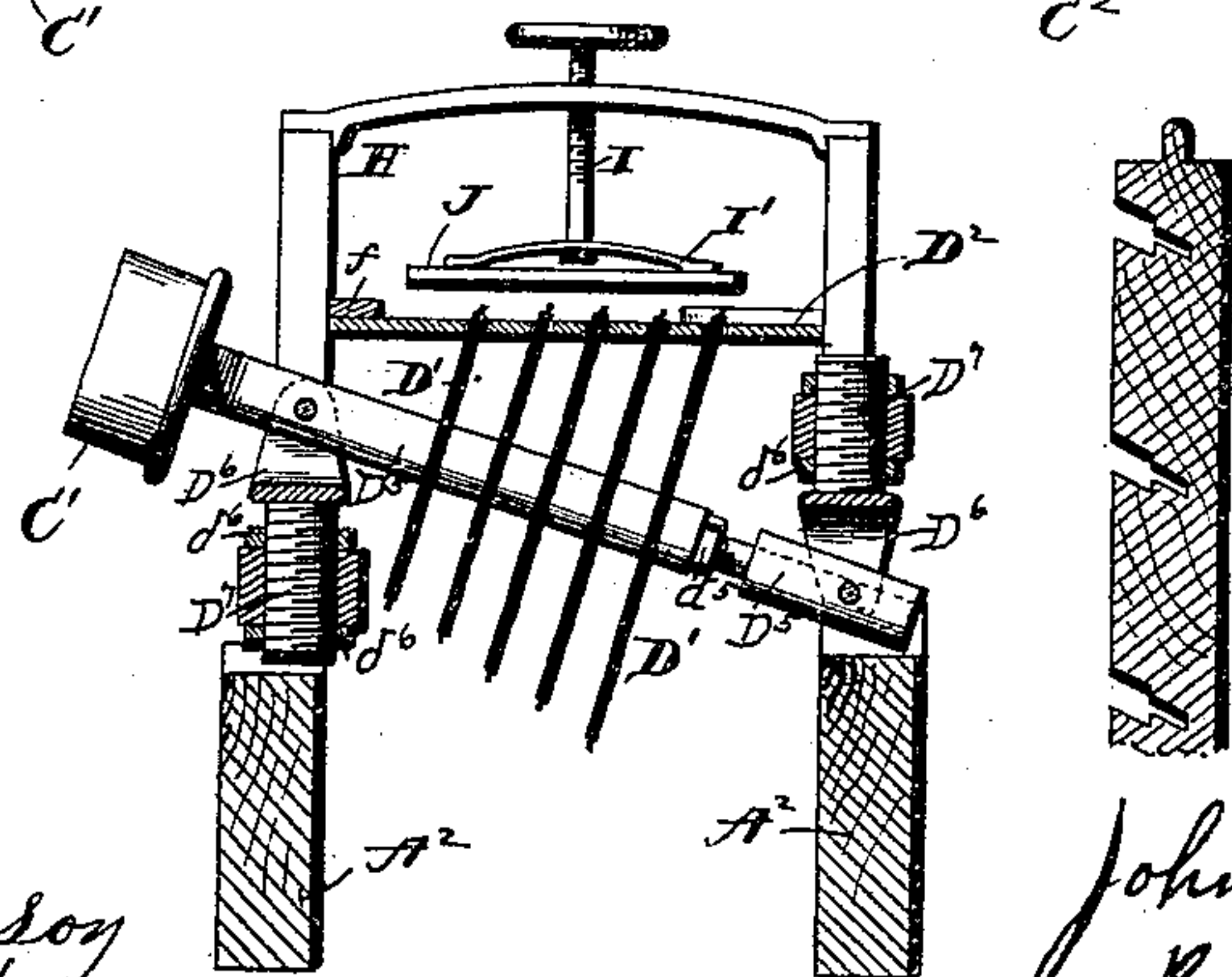
No. 459,809.

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*Fig. 2.*

*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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## WOOD-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,809, dated September 22, 1891.

Application filed August 6, 1890. Serial No. 361,217. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BRAITHWAITE, a citizen of the United States, residing at Canton, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Wood-Working Machines; 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.

This invention relates to certain new and useful improvements in wood-working machines, and more particularly to that class of such devices as are intended to form a plurality of grooves or beads therein and at the same time plane the lumber as it passes through the machine.

The novelty resides in the peculiarities of construction and the combinations, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a top plan with the presser-plate removed. Fig. 3 is a section through line *xx* of Fig. 2.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a support, which may be the floor of the mill in which the machine is employed. Rising from this support are the standards A', which are each provided with a curved slot *a*, and at an opposite point are pivoted or hinged the side bars A<sup>2</sup>, which are designed to support the operating parts and in which is journaled the cross-shaft A<sup>3</sup>, on which are fast the three pulleys B, B', and B<sup>2</sup>, as shown. The other ends of these side bars are designed to be adjusted on the standards A' and for this purpose carry a cross-shaft *a'*, which passes through the ends of

the side bars and through the curved slots in the standards A', and at one end provided with a thumb-nut or other analogous device *a*<sup>2</sup>, by which the parts may be held in their adjusted positions. This permits of the raising or lowering of the frame when desired.

The side bars carry all the operating parts.

Supported by the side bars near the end thereof farthest from their hinge is a frame C, near the center of which, journaled in suitable bearings thereon, is the inclined saw-arbor D, on which are a plurality of circular cutters D', with their cutting-surfaces so arranged as to cut a beveled slot or groove, with the center of said groove cut deeper than the sides for the purpose of weakening the board and preventing its warping when the wet plaster is put on, and also to form an extra key or clinch for the mortar, the object of cutting a beveled groove of uniform width being so that the mortar will be more readily forced into the groove, and the same pressure is given uniformly, thus preventing the mortar from becoming loose. These cutters are of gradually-diminishing size, as shown, and work through slots provided therefor in the feed-table or support D<sup>2</sup>, supported in the frame C above the saw-arbor.

C' is a pulley on the saw-arbor, which derives its motion through the medium of the belt C<sup>2</sup>, passing around the same and around the pulley B on the shaft A<sup>3</sup>.

Motion is imparted to the shaft A<sup>3</sup> from any suitable source through the medium of the endless belt or band D<sup>3</sup>, passing around the pulley B' on said shaft.

At the end of the frame C farthest from the hinge or pivot of the side bars there is journaled a cross-shaft E, which carries a plurality of planer-knives E', which serve to plane the board, a suitable opening *b* being provided in the table D<sup>2</sup> for this purpose. The shaft of this planer has a pulley E<sup>2</sup>, which derives its motion through the medium of the endless belt or band E<sup>3</sup> from the pulley B<sup>2</sup> on the shaft A<sup>3</sup>.

While the arrangement of belts and pulleys as shown is the preferred disposition of these parts, yet it is to be understood that such arrangement is not essential to the working of the other parts of the device, as they



may be differently arranged, counter-shafts or overhead shafting being employed where more convenient.

The feed-table is provided upon its upper face with a fixed guide *f* at one side and at the other side with an adjustable guide *F'* for guiding boards of different widths. The feed-table is formed in sections, one fixed and the other hinged or pivoted thereto, so as to be let down when desired. To support this hinged portion when up, I provide the swinging support *G*, hinged at its lower end, as at *c*, to the side bars and at its upper end carrying a cross-bar *c'*, designed to engage when up behind a cross-cleat *d* on the under side of the said hinged portion near its free end.

*H* are the cross-bars of the frame *C* at its upper side. *I* are screw-threaded shafts tapped through these cross-bars and at their lower ends held in the spring-bars *I'*, secured at their ends to the upper face of the presser-plate *J*, which is thus suspended from the said shafts. The adjustment of these shafts raises and lowers this presser-plate to accommodate different thicknesses of boards and serves to keep the lumber to its work. This style of presser is preferable to springs or rollers, for the reason that it can be set down close and hold the boards firm, while rolls are inclined to roll all the chips from the planer and matcher that fall on the boards, and this mars the boards and also gives an uneven tension to the springs.

At the right of Fig. 3 I have shown a piece of board showing the form of groove produced by my machine.

The operation is simple and will be readily understood, and as it is similar in all respects to prior devices of this character, the novelty residing solely in the details of construction, a description of the operation is not deemed necessary.

In order to enable me to readily adjust the inclination of the saw-arbor, so as to change the inclination of the channels or grooves in the material being operated upon, I have devised the means shown in Figs. 1 and 3,

wherein the saw-arbor *D* is shown as surrounded by a sleeve *D<sup>5</sup>*, which is separated, as shown, and the one portion held by a nut *d<sup>5</sup>*, which engages a thread on the saw-arbor, the end of the arbor carrying the pulley *C'*, and the saws being arranged to work through openings in the sleeve, as seen. The sleeve is separated to permit the saws to revolve or to form a series of sleeves or spacers between the saws. The end portions of the sleeve are pivotally held in yokes *D<sup>6</sup>*, which are held by screws *D<sup>7</sup>*, which are tapped through portions of the frame and extend in opposite directions, as seen in Fig. 3, being provided with jam-nuts *d<sup>6</sup>*, as seen in the same figure, by which they may be adjusted up or down, as may be desired. Either end may be adjusted independent of the other, or both ends may be adjusted simultaneously.

What I claim as new is—

1. The combination, with the standards *A'*, having curved slots, and the hinged side bars, of the cross-shaft *a'*, passed through the side bars and working in said curved slots, the thumb-nut *a<sup>2</sup>* on the outer end of said shaft, the frame *C*, carried by the side bars at the end farthest from their hinge, the cutters carried on said frame, the swinging support *G*, hinged on the side bars, and the sectional feed-table, the pivoted portion of which carries a cross-bar *d*, all substantially as shown and described.

2. The combination, with the frame *C* and the inclined arbor having screw-threaded portion of the separated sleeve around the same, the nut *d<sup>5</sup>* on the threaded portion of the arbor and bearing against the end of one portion of the sleeve, the reversely-arranged screws *D<sup>7</sup>*, holding said yokes and tapped through the frame *C*, and the jam-nuts *d<sup>6</sup>* on said screws upon opposite sides of the frame through which the said screws pass, substantially as shown and described.

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Witnesses:

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