

(No Model.)

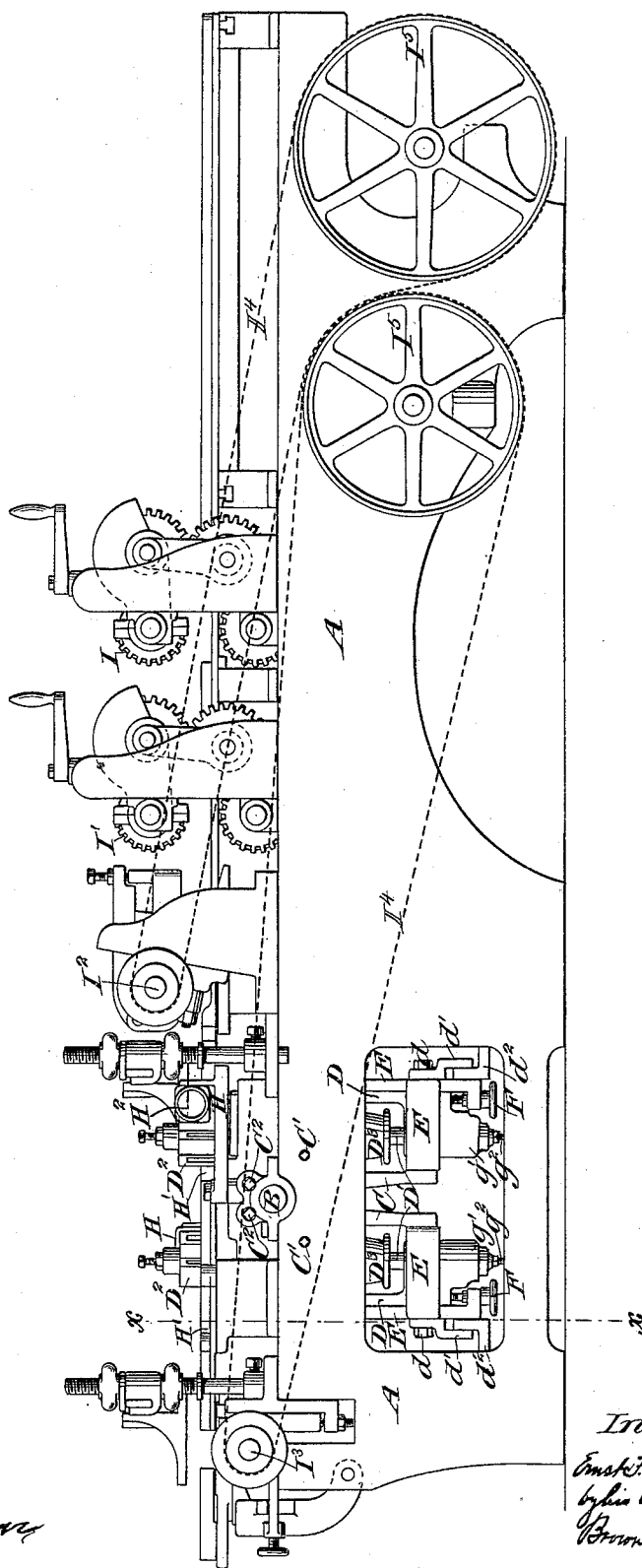
3 Sheets—Sheet 1.

E. F. AUTENRIETH.
PLANING AND MOLDING MACHINE.

No. 405,389.

Patented June 18, 1889.

Fig. 1.



Witnesses:

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Inventor.

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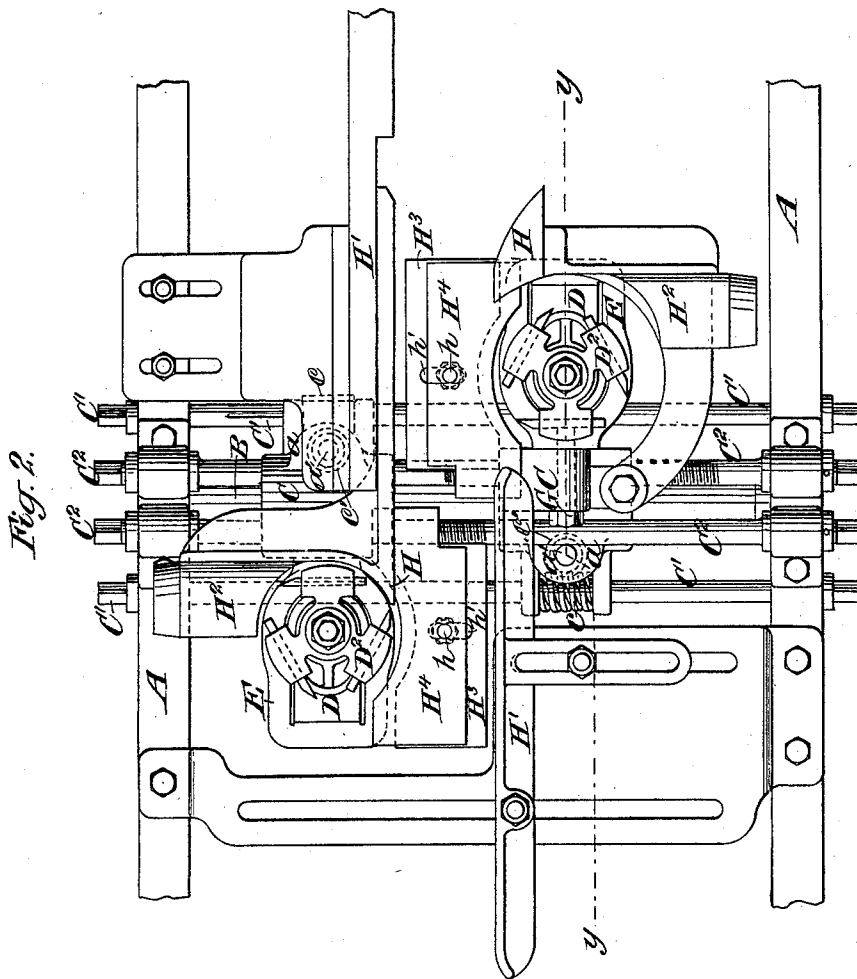
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Patented June 18, 1889.



Witnesses:

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(No Model.)

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Fig. 3.

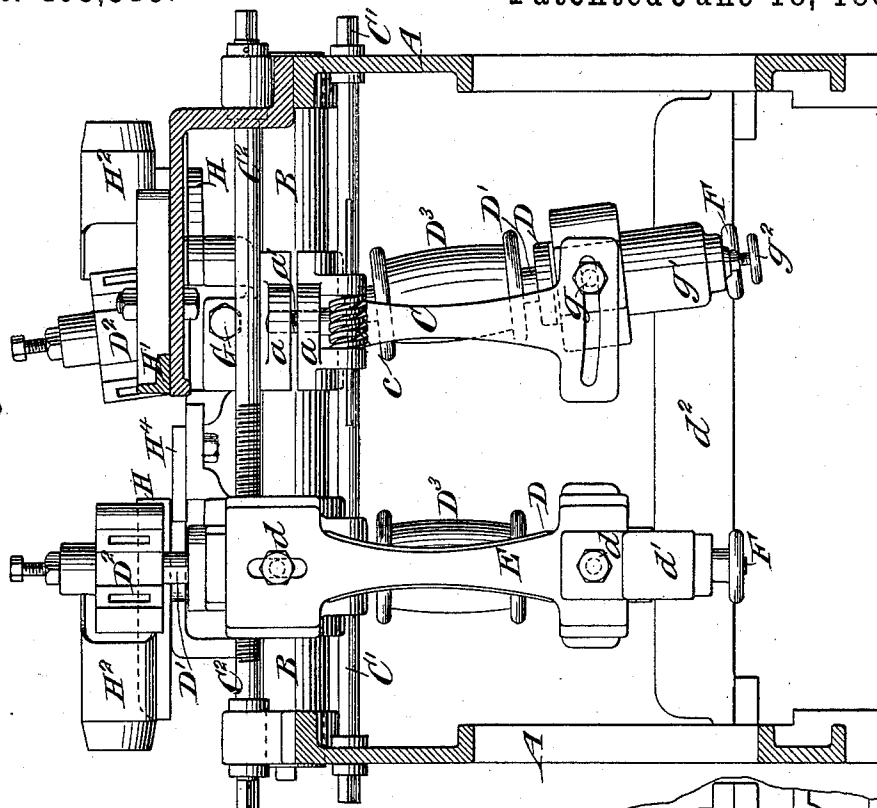
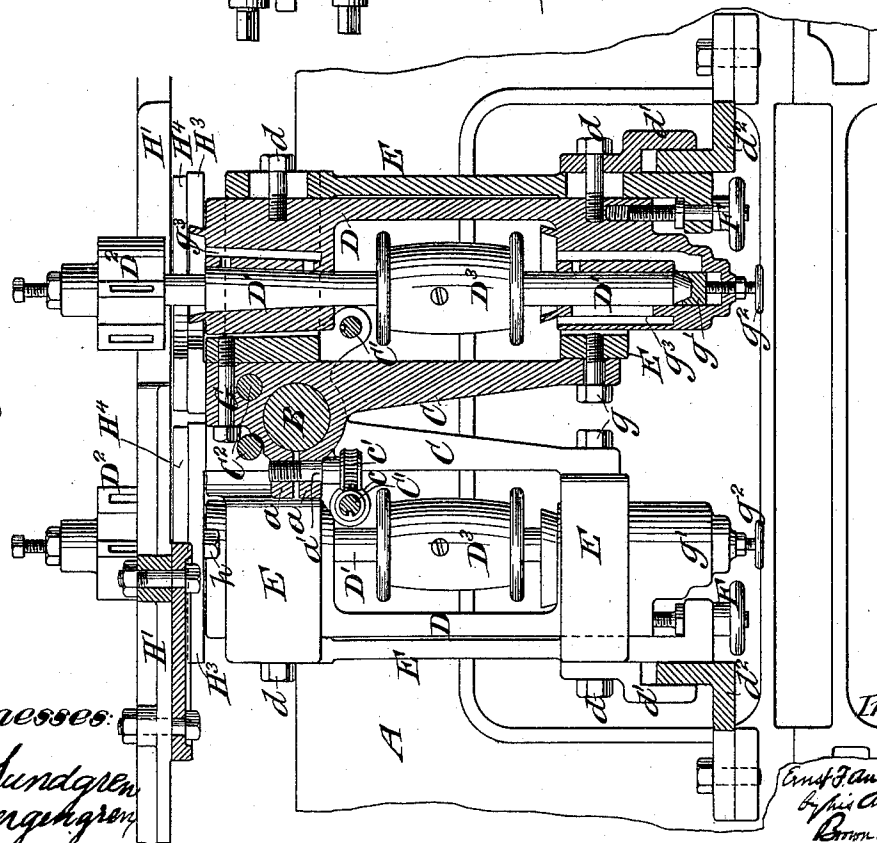


Fig. 4.



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UNITED STATES PATENT OFFICE.

ERNST F. AUTENRIETH, OF NEW YORK, ASSIGNOR TO THE GLEN COVE
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PLANING AND MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,389, dated June 18, 1889.

Application filed December 12, 1888. Serial No. 293,338. (No model.)

To all whom it may concern:

Be it known that I, ERNST F. AUTENRIETH, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Planing and Molding Machines, of which the following is a specification.

My improvement relates to that class of machines in which boards are surfaced and at the same time are planed upon their side edges so as to form tongues and grooves thereon or any other desired cutting.

I shall only describe such parts of a planing and molding machine as are essential to an understanding of my improvement.

In the accompanying drawings, Figure 1 is a side elevation of a planing-machine embodying my improvement. Fig. 2 is a plan or top view of a portion of the machine, showing the side cutter-heads and their appurtenances. Fig. 3 is a vertical transverse section taken on the plane of the line *x x*, Fig. 1. Fig. 4 is a longitudinal section taken on the line *y y*, Fig. 2. Figs. 2, 3, and 4 illustrate similar parts and are on a larger scale than Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A designates the frame of the machine.

B designates a bar constituting a support, extending between and rigidly secured near its ends to the side portions of the frame A. Upon this support are mounted cutter-legs C. These cutter-legs serve to support spindle-frames D. Mounted in the spindle-frames D are spindles D'. The spindles D' carry at their upper ends side cutter-heads D². The spindles D' rotate in the spindle-frames D, and are driven by belts passing around pulleys D³, mounted on said spindles in the usual or any desired manner.

The cutter-legs C are secured to the support B by means of clamping-jaws *a*, formed, as here shown, integral with said cutter-legs. Screws *a'*, engaging the jaws *a*, serve when rotated in one direction to clamp the jaws firmly about the support B. As a means for rotating said screws to either tighten or loosen the jaws, I have shown shafts C' provided with worms *c*, which worms engage worm-

wheels *c'* upon the lower ends of the screws *a'*.

It will be observed that the shafts C' extend beyond the frame A of the machine upon both sides of the latter. I have shown them as provided with squared ends, whereby they may be rotated to cause clamping or loosening of the jaws *a*. This arrangement facilitates the clamping or loosening of the jaws, because it may all be done from either side of the machine. When the clamping-jaws *a* have been loosened, the cutter-legs C may be moved along upon the support B, toward and from each other, so as to adjust them. Their movement in such directions is effected by means of screws C², engaging tapped holes in the cutter-legs C, near the upper ends of the latter. These shafts likewise extend to the outside of the frame A upon both sides of the machine and their outer ends are adjacent to the outer ends of the shafts C'. The loosening and tightening of the gripper-jaws and the adjustment of the cutter-legs can therefore all be accomplished from either side of the machine.

In order to conveniently arrange the cutter-heads, I so mount the cutter-legs C upon the single support B that they will support and secure the spindle-frames D, and consequently the spindles D' and cutter-heads D², upon opposite sides of the support B. The cutter-heads when thus supported will be at an angle to the width of the machine relatively to each other. This arrangement is effective, because it provides a means for adjusting the cutter-heads toward each other to a greater extent than could be the case if the cutter-heads were arranged in line with each other in the direction of the width of the machine, for as the cutter-heads cannot be brought so close together in my arrangement as to contact during their rotation very much narrower pieces of boards may be cut upon their side edges, and cutters may be used adapted to cut different patterns upon opposite edges of the boards, the conformation of which would be such that they would contact if the cutter-heads were arranged in line. By this arrangement, also, I avoid the use of two separate supports for the cutter-heads and their coacting parts.

Another feature of my invention consists in the fact that I may adjust the spindle-frames D, and consequently the spindles and cutter-heads, both vertically and at an angle to a vertical plane. The spindle-frames D, I have shown as supported in frames E, which latter frames are in turn supported by the cutter-legs C. The means for supporting the spindle-frames and the frames E consist of clamping-screws d , which screws extend through vertical slots in the frames E and engage tapped holes in the spindle-frames D. The lower of the clamping-screws d also extends through a clamp d' , which clamp is constructed to grip a plate d^2 , rigidly secured to the frame A of the machine and extending between the side portions thereof.

F designates adjusting-screws adapted to rotate in suitable apertures in the lower portions of the frames E, but prevented from longitudinal movement therein. These adjusting-screws engage tapped holes in the lower portions of the spindle-frames D. When the clamping-screws d have been withdrawn, the adjusting-screws F may be rotated to cause the bodily-vertical movement of the spindle-frames D, and consequently of the spindles D' and cutter-heads D². In order to accomplish the angular or inclined adjustment of the cutter-heads, the spindle-frames D and the frames E are swung upon pivots G, extending through the upper portions of the cutter-legs and engaging the frames E.

I have shown set-screws g extending through curved slots in the lower portions of the cutter-legs C and engaging tapped holes in the frames E. When the set-screws g have been loosened, the lower portions of the spindle-frames D may be grasped by hand and swung upon the pivot-pins G. By then tightening the set-screws g the whole may be secured in the inclined position to which they have been adjusted. By this adjustment of the cutter-heads angular or other desired cuts may be made upon the board being operated upon.

By loosening the pulleys D³ the spindles D' may be readily withdrawn from the spindle-frames D, and by withdrawing the set-screws d and properly rotating the adjusting-screws F the spindle-frames, together with the spindles, may be readily withdrawn from the frames E, thus avoiding readjustment of the frames E when the spindle-frames are replaced.

I have shown the spindles D' as stepped at their lower ends in step-bearings g' , adapted to be moved upwardly and downwardly by adjusting-screws g^2 . The spindles themselves have tapering upper portions and approximately cylindrical lower portions, which portions constitute the bearings for the journals. The journal-boxes may be of well-known construction and comprise passages g^3 , by which the journals may be lubricated.

Co-operating with the side cutter-heads are chip-breakers H, which may be of the ordinary construction. Guides H', adjustable in the usual or any desired manner, guide the material to and from the cutter-heads. The chip-breakers H are mounted upon the upper ends of the cutter-legs C and carry shaving-hoods H²; also rigidly mounted upon the upper portions of the cutter-legs are plates H³. Above the plates H³ and adjustable thereon in the direction of the width of the machine are platen-plates H⁴. The adjustment of the platen-plates is accomplished by means of set-screws h , working in slots h' in the plates H³. The chip-breakers rest upon the adjustable platen-plates H⁴ when the machine is in operation, and in whatever position said platen-plate may be adjusted the chip-breaker will always be above it. The adjustability of the platen-plates is for the purpose of accommodating cutter-heads of different sizes.

The boards to be planed first pass between the usual presser-rollers I I', thence beneath an upper surfacer I², and after passing beyond the side cutter-heads pass above a surfacer I³. These presser-rollers and surfacers are of a well-known type and do not require further description. The surfacers may be driven by belts I⁴, receiving motion from driving-pulleys I⁵.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a planing and molding machine, the combination, with a main frame, of a side cutter-head, a spindle upon which said side cutter-head is mounted, a spindle-frame in which said spindle is mounted, and another frame separate from said spindle-frame and supported from the main frame, to which the spindle-frame is detachably secured, substantially as specified.

2. In a planing and molding machine, the combination, with a side cutter-head, of a spindle upon which said cutter-head is mounted, a spindle-frame pivotally hung, so that it may be swung to adjust the cutter-head at an angle or incline, a clamping device for securing the same in such angular or inclined position, and an adjusting-screw for imparting a vertical adjustment to the spindle-frame, substantially as specified.

3. In a planing and molding machine, the combination, with a single support, of cutter-legs mounted on said support, clamping-jaws upon said cutter-legs for securing the cutter-legs to the support, screws for operating said jaws, worm-wheels upon said screws, and worms engaging the worm-wheels to rotate the screws, substantially as specified.

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Witnesses:

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ARTHUR H. GAMBLIN.