

(No Model.)

J. HOURIGAN.
WOOD WORKING MACHINE.

No. 347,044.

Patented Aug. 10, 1886.

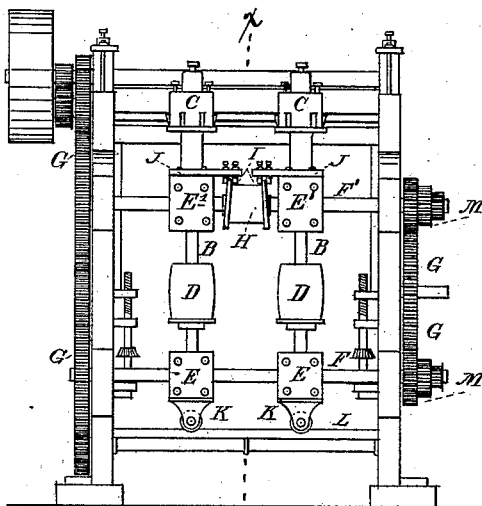


Fig. 1

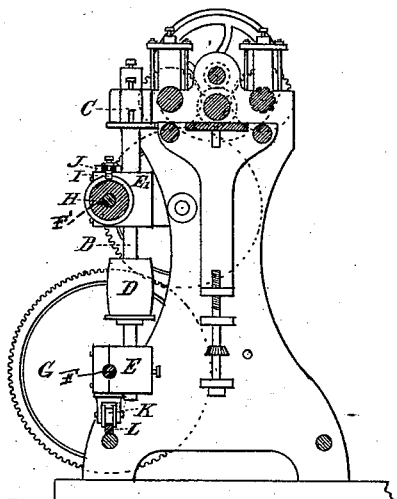


Fig. 2

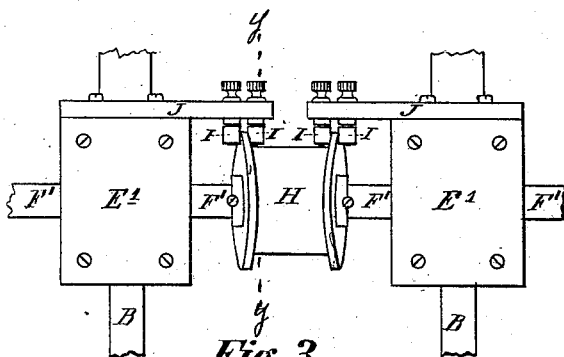


Fig. 3

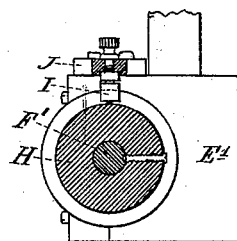


Fig. 4

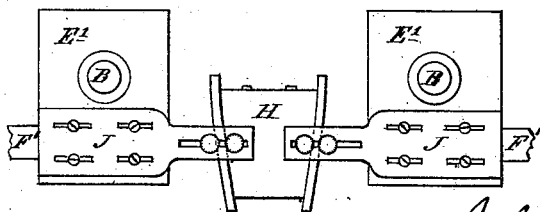


Fig. 5

Witnesses
R. Taylor
O. C. Christian

Inventor
John Hourigan
by *James J. Sheehy*
Attorney

UNITED STATES PATENT OFFICE.

JOHN HOURIGAN, OF GALVESTON, TEXAS.

WOOD-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,044, dated August 10, 1886.

Application filed April 20, 1885. Serial No. 162,876. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOURIGAN, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented certain new and useful Improvements in Wood-Working Machines, of which the following is a description.

My invention relates to improvements in wood-working machines, and is designed to produce a machine for automatically tapering material in either straight or curved lines.

The improvement consists, essentially, in the employment of movable cutters approached or receded by means of a cam or cams, and is adaptable in forming staves and other portions of barrels or other articles in which the parts require a taper in straight or curved lines. As is evident from the following description, the taper may extend entirely through the length of the article, as a board or plank, or may taper from or toward each end, or the edge may be waved or convoluted.

In describing the device, reference is had to the annexed drawings, in which Figure 1 represents a front view of a planer with the improvement attached; Fig. 2, a vertical section through the line *xx* of Fig. 1; Fig. 3, an enlarged detail front view of the cam, with the immediate surrounding mechanism; Fig. 4, a vertical section through *yy* of Fig. 3, and Fig. 5 a plan view of the same.

Journaled in the sides of the machine, near the lower portion thereof, is a transverse shaft, *E*, and above it, also journaled in the sides of the machine, is a similar shaft, *F'*. On the lower shaft are sliding boxes *E*, and on the upper shaft similar boxes, *E'*. On the lower boxes, *E*, are rollers *K*, which travel on a track, *L*.

Passing through each of the upper boxes, *E'*, and stepped or similarly secured in each of the lower boxes, *E*, are vertical shafts *B*, carrying cutter-heads *C* at their upper ends. The shafts or matching-spindles *B* receive motion by means of belts passing around the pulleys *D*, after the manner common to all machines of this class.

Each of the boxes *E'* carries a longitudinally-adjustable plate, *J*, which plates project over the edge of the box, one toward the other, as shown, and having the projecting end slotted. From the under side of said plates project

friction-rollers *I*, held adjustably to the plates by means of thumb-nuts or similar devices.

On the shaft *F'*, between the boxes *E'*, is secured a cam, *H*, having flanges at each end set at an angle to the plane of revolution, so that at one point they are nearer one to the other than at the other side. The flanges are of such size as to rest between the rollers *I* on each plate *J*.

It is readily evident that as the cam revolves the flanges operating between the rollers will cause the boxes *E'*, and hence the boxes *E*, with the shafts *B* and cutters *C*, to alternately approach and recede, or, in other words, to reciprocate on the shafts *F* and *F'*.

By means of gears *G* the shaft *F'* may be driven at a speed relative to that of the feed-rolls that it will make part of or a complete revolution, or more than one revolution, while the material to be treated is being passed through the machine.

The boxes *E* and *E'* form guiding-bearings for the matcher-spindles, while the rollers *K* and track *L* prevent wear on the shafts or boxes.

If the distance between the flanges on the cam be at the greatest point of separation one inch more than at the least point of separation, then the entire travel of each cutter will be one-half inch.

If a piece of lumber be passed through the machine while the cam is making one revolution, the sides thereof will each be beveled longitudinally one-half inch, thus making one end one inch narrower than the other. By a change in the form of the flanges on the cams the edges of the material may be given a wavy shape or a curve outward or inward through the length. By increasing the revolution of the cam to two turns to the length of the material the said material may be beveled from the center toward the edges, or from the edges toward the center, either in straight or curved lines, the latter case necessitating a change in the form of the flanges on the cam.

By means of the adjustable plates and rollers the distance between the cutters may be varied at will, and made thereby to cut wide or narrow lumber within certain limits. It is also evident that if one flange be of one shape, and the other of another shape, the cutters may be made to operate irregularly in their relation one to the other. It is also evident

that one cutter may be reciprocated, the other rotated only, by using but one flange on the cam.

The construction may be varied—as, for instance, the flanges may be dispensed with and the cam similarly grooved, using but one roller on each plate. The flanges, though, are the preferable form, from the fact that they may be made separate from the cam-body and secured thereto, thus making the change from one style of flange to another easily accomplished.

I claim—

1. In a wood-working machine, rotating cutters which reciprocate bodily in a straight line and an intermedially-placed cam imparting said reciprocative movement to cutters, in combination with means for connecting said cam and cutters, substantially as and for the purposes specified.

2. In a wood-working machine, rotating cutters which reciprocate bodily in a straight line and a cam intermedially thereof and engaging in suitable bearings on the cutter-shaft, whereby the straight reciprocative movement is imparted to the cutters, substantially as and for the purposes specified.

3. In a wood-working machine, rotative cutters and an intermedially-placed cam provided with flanges which engage with suitable bearings on the cutter-shafts and impart a reciprocative movement thereto, substantially as and for the purpose specified.

4. In a wood-working machine, a reciprocative rotating cutter, a guiding-box forming a supporting-bearing for the cutter-shaft, and a cam mounted on a shaft upon which the guiding-box travels, said cam imparting a reciprocative movement to the box and cutter-shaft, substantially as and for the purpose specified.

5. In a wood-working machine, a cutter mounted on a rotating shaft, a guiding-box for said shaft, a plate adjustably secured to said box and provided with adjustable projections, a shaft passing through said box at an angle to the cutter-shaft, and a cam mounted on the shaft and engaging with the said projections to reciprocate the box and cutter-shaft, substantially as and for the purpose specified.

6. In a wood-working machine, cutters mounted on suitable rotating shafts, boxes forming guiding-supports for said cutter-shafts, a cam provided with flanges, and a shaft for the cam passing through the boxes, said cam imparting a relative and simultaneous reciprocation to the boxes and cutter-shafts, substantially as and for the purpose specified.

7. In a wood-working machine, rotative reciprocating cutters having bearings for their shafts consisting of boxes guided upon shafts having bearings in the machine-frame, one of the boxes being at the base of the cutter-shaft and provided with a roller which travels on a track, substantially as and for the purpose specified.

8. A wood-working machine provided with rotative cutters, journal-boxes for the same, guiding-shafts for the boxes having bearings in the machine-frame, adjustable plates with projections secured to the boxes, a cam imparting a reciprocation to the boxes by engaging with the said projections on the plates, and a train of gearing imparting rotation to the cam relative to the speed of the feed of the machine, substantially as and for the purpose specified.

JOHN HOURIGAN.

Witnesses:

N. J. CLAYTON,
P. L. RABBITT.