J. Decker,

Jointing Staves.

No. 25,603. Patented Sep. 27, 1859.

Fig. 2.

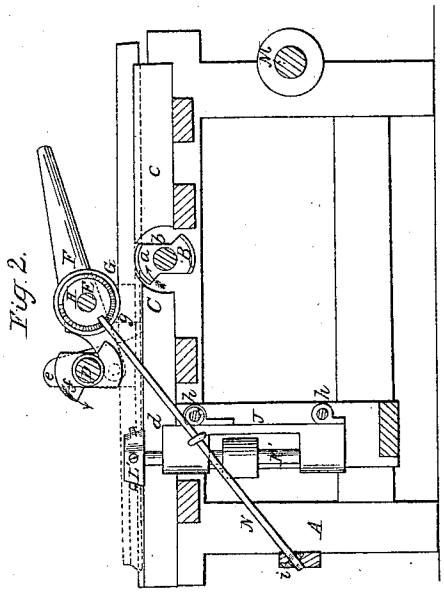


Fig. 3.

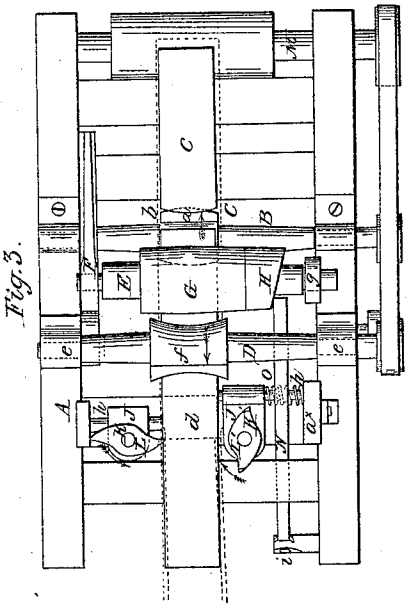


Fig. 1.

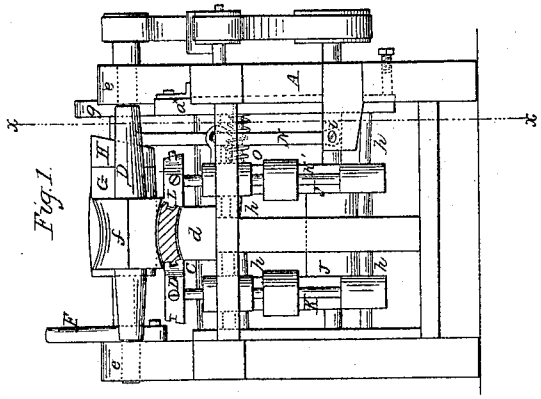
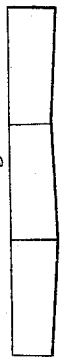


Fig. 4.

Fig. 5.



Witnesses.
John Pearson
G. I. Merriman

Inventor.
James Decker

UNITED STATES PATENT OFFICE.

JAMES DECKER, OF REIDSVILLE, GEORGIA, ASSIGNOR TO HIMSELF AND A. P. McRAE, OF SAME PLACE.

STAVE-MACHINE.

Specification of Letters Patent No. 25,603, dated September 27, 1859.

To all whom it may concern:

Be it known that I, JAMES DECKER, of Reidsville, in the county of Tatnall and State of Georgia, have invented a new and Improved Machine for Making Staves for Pails, Tubs, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is an end view of my invention. Fig. 2, is a side sectional view of ditto taken in the line *x*, *x*, Fig. 1. Fig. 3, is a plan or top view of ditto. Fig. 4, is a detached view of the cam distended or projected in a horizontal plane. Fig. 5, is a diagram showing the manner in which the staves are fed to the machine.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a machine whereby staves for pails, tubs, etc., may be dressed, jointed, tongued and grooved, at one operation and with one and the same device.

The invention consists in the employment or use of concave and convex rotating cutters with a suitable bed-piece, tonguing and grooving cutters and a pressure roller and cam, combined and arranged for joint operation substantially as hereinafter described, whereby the staves may be dressed at both sides and perfectly finished, ready for immediate use as they leave the machine.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a rectangular frame, which may be constructed in any proper way to support the working parts of the machine. On the upper part of the frame A, a shaft B, is placed transversely, said shaft having convex cutters *a*, which rotate in an opening or space *b*, which divides a longitudinal bed-piece C, into two parts *c*, *d*, one of which *c*, has a horizontal surface and the other *d*, a convex surface in the direction of its width. On the frame A, there are placed two uprights *e*, *e*, one at each side. These uprights form bearings for a shaft D, which is parallel with the shaft B, and has concave cutters *f*, attached to it at about its center, said cutters being directly over the part *d*, of the bed-piece C.

E, is a shaft which is placed on the frame A. One end of this shaft has its bearings in an upright *g*, on the frame and the opposite end has its bearing in a lever F, attached to one of the uprights *e*. On the shaft E, at about its center there is a cylindrical hub or projection G, to one end of which a cam H, is attached, said cam being formed of a hollow cylinder secured to one end of the hub or projection and having its outer projecting edge formed obliquely, as shown in Fig. 3, and forming if divided and distended a convex edge, as shown in Fig. 4. The hub or projection G, is just in front of the concave cutters *f*, and over the part *d*, of the bed-piece C.

In the back part of the frame A, two uprights J, J, are placed. These uprights are fitted on inclined guide rods *h*, *h*, which are slightly inclined from horizontal lines as shown clearly in Fig. 1.

In the uprights J, J, vertical shafts K, K′, are placed, one in each, and on the upper end of shaft K, a cutter head L, is placed provided with cutters for cutting the tongue and on the shaft K′, a cutter head L′ is placed provided with cutters for cutting the groove, a tongue being cut at one edge and a groove in the other edge of each stave. The shafts K, K′, may be rotated by belts from the driving shaft M, and the shafts B, D, may be rotated by a single belt from said driving shaft.

The upright J, in which the shaft K′, is placed is attached to a lever N, the lower end of which is secured in the frame A, by a fulcrum pin *i*, the upper and opposite end bearing against the cam H. On the upper inclined guide rod *h*, of the upright J, of shaft K′, a spiral spring V, is placed, said spring having a tendency to keep the cutter head L′, pressed toward the bedpiece C, or toward the edge of the stave, and the upper end of lever N, against cam H.

The operation is as follows:—The bolts or stuff from which the staves are sawed are got out of proper dimensions, and motion being given the driving shaft M, by any convenient power, the shafts B, D, K, K′, are rotated in the direction indicated by the arrows. The bolts are placed on the bed-piece C, the portion *c*, of it and the hub G, pressed down on the bolt so that the hub may be rotated by friction as the bolt is fed along on the bed-piece and between the two convex and concave cutters *a*, *f*. The cut-

ters *a*, *f*, it will be seen dress the inner and outer surfaces of the bolts in concave and convex form, as shown in Fig. 1, the stave being shown in red. The stave passes between the cutter heads L, L′, which tongue and groove its edges. One cutter head L′, being moved laterally by the action of the cam H, which is rotated in consequence of the hub G, being pressed on the upper surface of the stave by hand weights or any proper means. The cam H, during one revolution moves the cutter head L′, and consequently the shaft K′, and upright J, outward and inward the length of their movement, and as the staves for pails, tubs, etc, have one taper only from their top to their bottom ends two staves are fed through the machine at each revolution of the cam H, and the staves are fed through alternately bottom and top end foremost, see Fig. 5. By this arrangement the staves are dressed at both sides, jointed and tongued and grooved, the lateral movement of the cutter head L′, compensating for the taper of the stave, the cam H, being made to actuate said cutter in accordance with the taper. The rods *h*, *h*, of the upright J, of the movable shaft K, may be adjusted in a more or less inclined position by having their outer ends fitted in a vertical adjustable bar a^x, in the frame A.

I do not claim the convex and concave cutters *a*, *f*, for dressing simultaneously both sides of a stave, nor do I claim broadly and separately the tonguing and grooving cutters for they have been previously used for operating on boards, flooring plank, etc; but having thus described my invention,

What I do claim as new and desire to secure by Letters Patent, is,

The combination and arrangement of the convex and concave cutters *a*, *f*, bed-piece C, tonguing and grooving cutters in the heads L, L′, and the cam H, attached to the pressure hub or roller G, and lever N, connected with said cam and the shaft K′, of cutter head L′, substantially as and for the purpose set forth.

JAMES DECKER.

Witnesses:
G. I. MERRIMAN,
JOHN PEARSON.