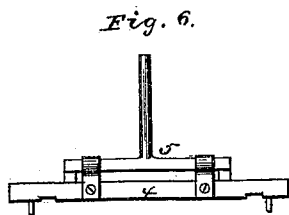
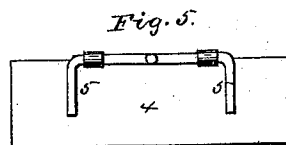
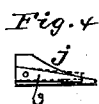
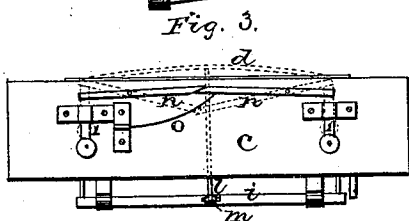
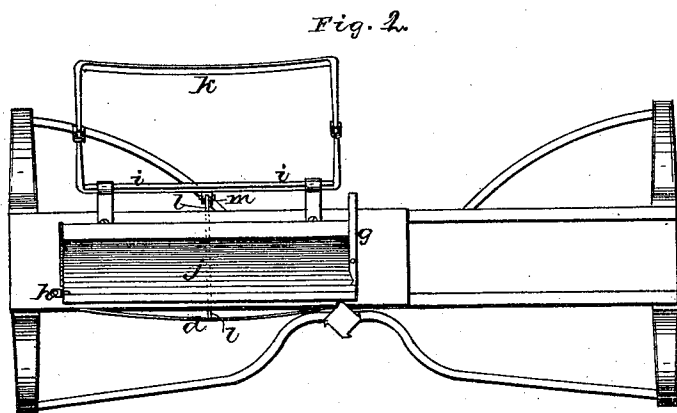
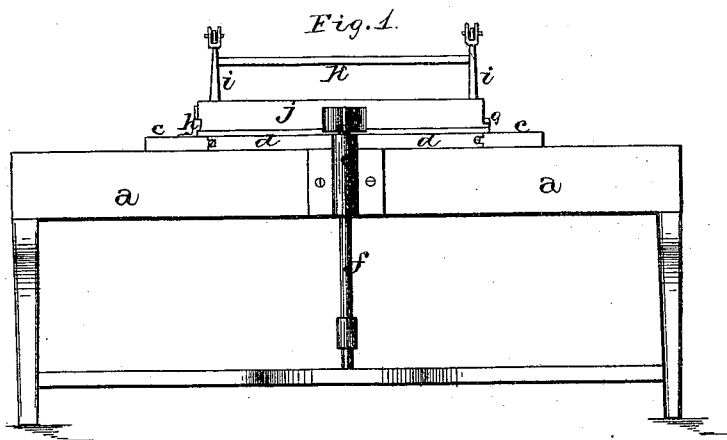


T. M. DOUGLASS.

MACHINES FOR JOINTING STAVES.

No. 179,404.

Patented July 4, 1876.



WITNESSES.

Wm. Garner
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per
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UNITED STATES PATENT OFFICE.

THOMAS M. DOUGLASS, OF HARPERSFIELD, NEW YORK.

IMPROVEMENT IN MACHINES FOR JOINTING STAVES.

Specification forming part of Letters Patent No. 179,404, dated July 4, 1876; application filed May 23, 1876.

To all whom it may concern:

Be it known that I, THOMAS M. DOUGLASS, of Harpersfield, in the county of Delaware and State of New York, have invented certain new and useful Improvements in Machines for Jointing Staves; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in stave-machines; and it consists in the arrangement and combination of parts, that will be more fully explained hereinafter, whereby heads and staves can be jointed in an expeditious and cheap manner.

The accompanying drawings represent my invention.

a represents a suitable frame-work, of any desired size, shape, or construction, and which has the revolving cutter-head *b* projecting above it, on the side farthest away from the workman. Moving back and forth upon this frame is the carriage *c*, upon the edge of which, next to the four-bladed cutter-head, is attached the flat spring *d*, which can be bowed outward, as shown, and, while so bowed, presses against the sleeve or bearing *e* of the cutter-head shaft *f*, and gradually presses the carriage back from, and as gradually allows it to again approach, the cutter. The carriage, in this movement, describes the same curve that is formed by the spring, and thereby causes the stave, which is held by the lever *g* and dog *h* on the concave surface *j*, to have its edge cut in a similar form as the carriage is moved past the cutter. The staves lying upon the concave surface *j* not only have their edges thus jointed, but the proper bevel given to them, so that they will fit nicely when brought together. Secured to the side of the carriage, away from the cutter, is the rocking-lever *i*, which has each of its ends turned upward, and the handle or bar *k* pivoted to them. To the lower side of this lever is pivoted the lever *l*, by means of the short arm *m*. The lever *l* passes through the under side of the carriage, and is forced forward by the rocking of the lever *i*,

so as to press the spring outward, as already described. Pivoted to the under side of this carriage are the two levers *n n*, which have their inner ends beveled together, and which are returned to position again, after being moved, by the spring *o*. Pressing against the outer ends of these two levers are the two sliding bars *1*, which have friction-rollers pivoted upon their ends for bearing against the inner side of the flange on the top of the frame. As the spring *d* is bowed outward, pushing the carriage away from the cutter, the bars *1* are pressed inward against the levers *n n*, thus causing them to move inward against the spring *o*. As the pressure of the spring *d* becomes greater or less, according to the circle or curve described, so the pressure becomes greater or less on the bars *1* and spring *o*, and as the pressure gradually becomes less the force of the spring *o* forces the carriage back to its position again. Upon the end of the concave surface *j* is a suitable spring, *3*, which throws the stave off as soon as it is released by the lever *g*. After the edges of the staves have been shaped the concave surface is removed from the carriage, and the table *4*, having the double-spurred lever *5* pivoted to it, is placed upon the carriage in its stead. This lever clamps the head or stave upon the table, and holds it firmly, while the carriage is slid past the cutter, for the purpose of jointing the stave or head.

If preferred, the spring may be bowed inward instead of outward.

The great advantage of this spring is that the wider the stave is which is to be jointed the farther the spring is forced outward by the bar *k* and the more the stave is curved. When this spring is not acted upon it has a very slight inward curve, which is just sufficient to form the proper joint for the head or stave.

I am aware that two jointed guide-rods have been used in a similar manner to my spring for shaping the staves, and this I disclaim. The rods, however, are capable of being bowed outwardly only, while a spring can be bowed both outward and inward.

Having thus described my invention, I claim—

1. The combination of the levers *n n*, spring

o, and bars 1, for forcing the carriage back toward the cutter after it has been moved by the spring *d*, substantially as set forth.

2. The combination of the handle or bar *k*, rocking-lever *i*, lever *l*, and spring *d*, whereby the spring is bowed, so as to form a guide for the carriage *c* as it slides past the cutter-head, substantially as shown.

3. In combination with the concave surface *j*, the dog *h*, lever *g*, and spring 3, for throwing the stave from the concave surface when released, substantially as set forth.

4. The bars 1, having friction-rollers on their ends, in combination with the rods *n*, spring *o*, carriage *c*, spring *d*, rocking lever *i*, and operating-lever *l*, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 12th day of May, 1876.

THOMAS M. DOUGLASS. [L. S.]

Witnesses:

JOHN BELL,

JOHN C. McNURDY.