B. Mc Keage,

Jointing Staves,

No. 16,095. Patented Nov. 18, 1856.

Fig. 2.

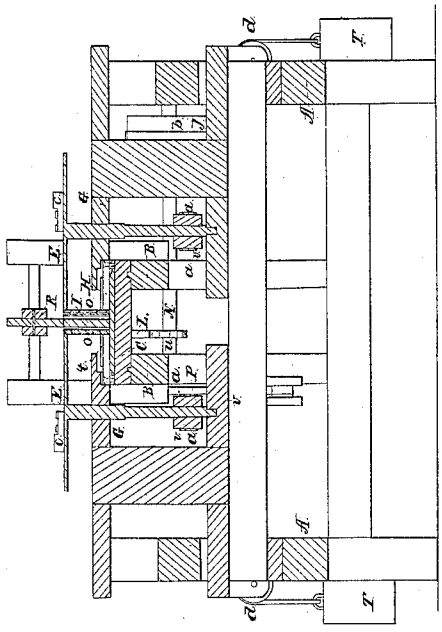


Fig. 3.

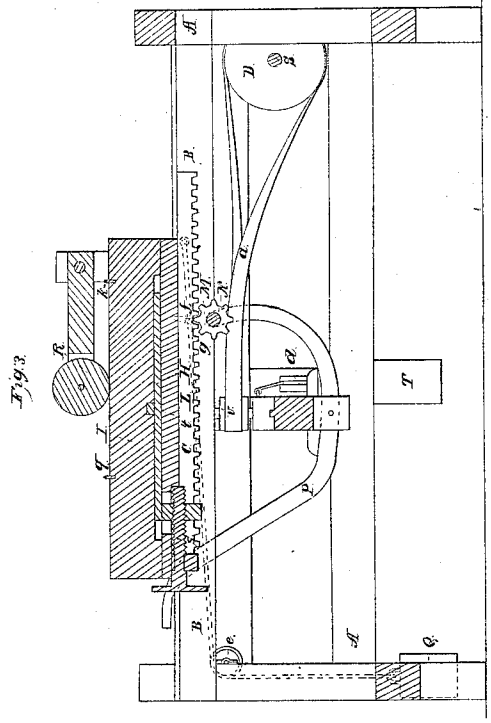


Fig. 5.

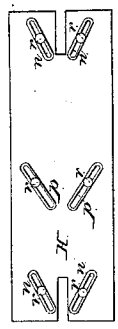


Fig. 4.

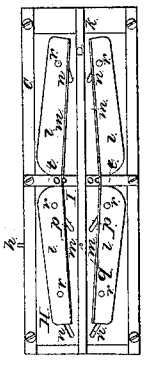
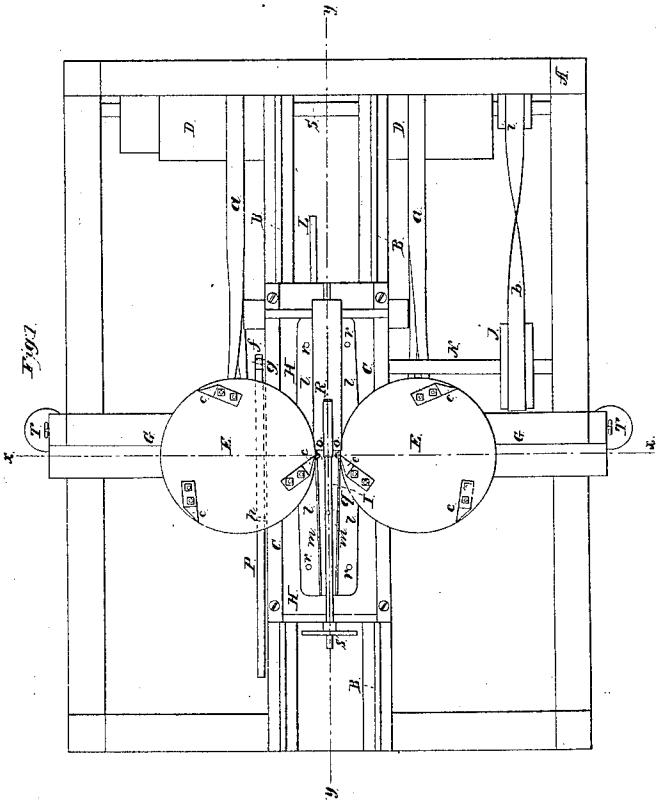


Fig. 7.



UNITED STATES PATENT OFFICE.

B. McKEAGE, OF ACCOTINK, VIRGINIA.

STAVE-JOINTER.

Specification of Letters Patent No. 16,095, dated November 18, 1856.

To all whom it may concern:

Be it known that I, BARNET McKEAGE, of Accotink, in the county of Fairfax and State of Virginia, have invented a new and Improved Machine for Jointing Staves; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, Figure 1 being a top view of the machine; Fig. 2, a vertical section thereof, in the line *x*, *x*, Fig. 1; Fig. 3, a vertical section of the same, in the line *y*, *y*, Fig. 1; Fig. 4, a plan of the device, by which the proper form is given to each stave; Fig. 5, a bottom view of a portion of said device designated by the proper letters.

Like letters designate corresponding parts in all the figures.

I arrange the machinery in a frame A, of any convenient construction. The driving shaft S, is provided with drums D, D, from which bands *a*, *a*, pass to pulleys *v*, *v*, on the spindles of the jointing disks E, E. Said disks are mounted in transverse sliding frames, or carriages, G, G, which are drawn to the work, by a yielding, or elastic, force, such as the weights T, T, attached to cords passing from the opposite carriages over pulleys *d*, *d*, as represented.

The peculiar device by which the staves are properly jointed, and in which my invention consists, is arranged in a frame, or carriage, C, having a reciprocating movement between the jointing disks E, E, upon ways B, B.

An automatic action may be given to the carriage, by the following arrangement:—The carriage has on its under side a rack L, gearing into a pinion M, on a shaft N, which is caused to revolve by means of a band *b*, passing from a pulley *i*, on the driving shaft S, to a pulley *j*, on said shaft N. By this means, the carriage C, is moved up to the work. One end of the shaft N, is supported by a lever P, which is itself supported only by a catch *f*, on the end above said shaft, holding upon a pin *g*, that projects from the frame A. Another pin, or projection *h*, is attached to the side of the carriage C, and so arranged that, as soon as the carriage has advanced far enough, it will strike the catch *f*, and disengage it from the pin *g*. The end of the shaft N, will then fall sufficiently to disengage the pinion M, from the rack L. A weight Q, attached to a cord extending from the carriage over a pulley *e*, (as shown in Fig. 3,) or any equivalent device, serves to draw back the carriage C, ready for jointing the succeeding stave. The catch *f*, is again raised to the pin *g*, by depressing the other end of the lever P.

The frame, or carriage, C, is provided with a sliding plate H, to which any required extent of longitudinal motion is given by means of a screw *s*, as shown in the drawings, or by any other equivalent, or suitable contrivance. In this plate is formed a pair of oblique slots *n*, *n*, at each end, and another pair *p*, *p*, near the middle, all inclining in one direction as shown in Fig. 5. In these slots slide pins *r*, *r*, which are secured to the lower sides of pattern blocks *l*, *l*, *l*, *l*. Pattern plates *m*, *m*, *m*, *m*, rise vertically from the blocks *l*, *l*, *l*, *l*, substantially as represented, the two adjacent ones on each side being hinged together at *o*. A fixed cross-piece *t*, prevents the pattern-blocks from moving endwise, but allows them free motion sidewise. Each block *l*, and its plate *m*, may be made in a single piece, if preferred.

The slots *n*, *n*, *n*, *n*, are all arranged at the same angle to the longitudinal, central line of the carriage, and such as to spread or separate, the pattern plates *m*, *m*, *m*, *m*, as much as desired, with a given extent of movement communicated to the plate H, in which the slots are formed. And the angle given to the slots *p*, *p*, is just enough greater than that given to the slots *n*, *n*, *n*, *n*, to cause the inner, or contiguous, ends of the pattern plates to recede faster than the outer, or extreme, ends thereof, in exactly the proper ratio, to give the desired bulge to the staves of any width. This is readily determined, when constructing the machine, being simply a matter of measurement.

If the machine is designed to joint staves of different degrees of bulge, the slots *p*, *p*, should be made in separate pieces, and jointed to said plate H, at the inner ends, and made adjustable thereon at the outer ends.

To give the quarter bulge to the stave, the pattern plates *m*, *m*, *m*, *m*, may be curved slightly from end to end, to a degree corresponding with the curve usually given to the staves. From the center of the carriage C, rises a support I, for the staves, which are laid thereon, their edges also

resting on the edges of the pattern plates *m*, *m*, *m*, *m*. They are held in place by the dogs *k*, and *q;* and by a heavy roller, or wheel, R, the weight of which presses upon the staves and holds them down upon the carriage.

The operation of the device is obviously as follows: When a stave is placed upon the carriage, the screw *s*, is turned till the pattern plates *m*, *m*, *m*, *m*, are in the proper position to form a stave as wide as can be made. The carriage C, is then set in motion; and as it is moved along, the pattern plates *m*, *m*, *m*, *m*, move in contact with the edges of the jointing disks E, E, or against suitable projections on their carriages G, G, and thus separate said disks by their wedge action, till one half the length the stave is jointed. During the last half of the motion of the carriage, the pattern plates *m*, *m*, taper together, and thus leave the jointing disks to approach gradually, by means of the weights T, T, or the equivalent device employed. The obvious result is that the cutters *c*, *c*, of the jointing disks, dress the staves to the exact form presented by the pattern plates *m*, *m*, *m*, *m*.

The pattern plates, being jointed together at *o*, *o*, only one pair of slots *p*, *p*, is required. If they were not jointed together, another pair of slots *p*, *p*, would be required for the pattern blocks *l*, *l*, represented without them.

Instead of a pair of patterns, on each side, jointed together, as above described, I contemplate, if preferable, to employ only one plate on each side to guide the jointing disks, till one half of each stave is jointed, and then by any suitable contrivance to cause the patterns to recede while the staves continue on, and thus cause the same pattern plates, to serve for both ends of the stave.

Tub staves, and others for vessels of similar form, require only two pattern plates and one motion thereof, because the width increases the whole distance from one end to the other.

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

The device herein described for automatically jointing staves of different widths, to the proper bulge, consisting essentially of the pattern plates *m*, *m*, *m*, *m*, and the guiding slots *n*, *n*, and *p*, *p*, or their equivalents, respectively set at such different angles, as to separate the two ends of said pattern plates unequally, and exactly in proportion to the bulge required, arranged and operating substantially as specified.

The above specification of my improved machine for jointing staves signed by me this nineteenth day of September, 1846.

B. McKEAGE.

Witnesses:
J. S. Brown,
Fred. Mattys.