C. F. Beverly,

Making Staves.

No. 1,829. Patented Oct. 16, 1840.

Fig. 1

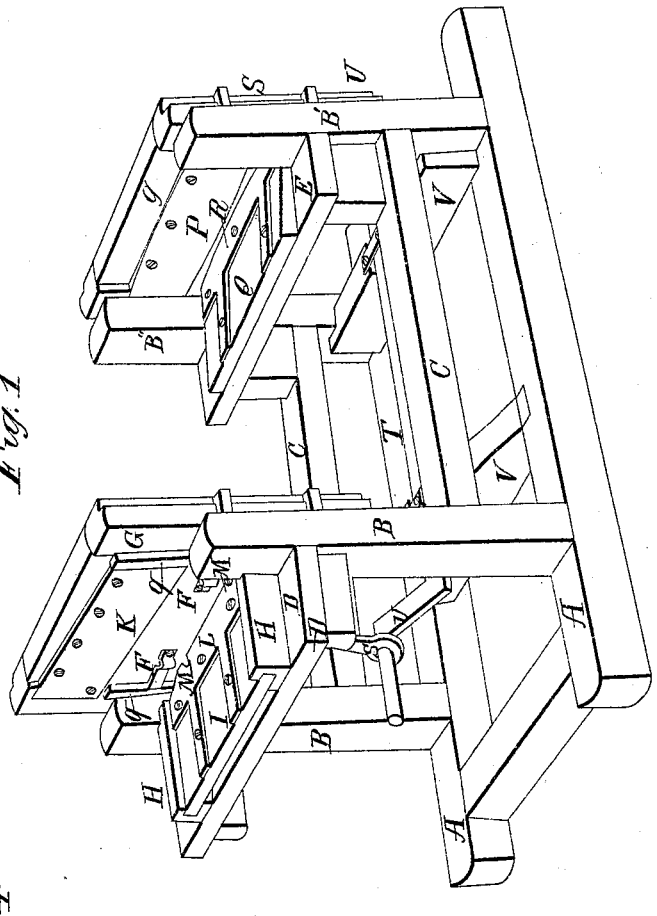


Fig. 3

Fig. 4

Fig. 2

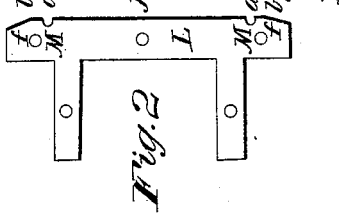
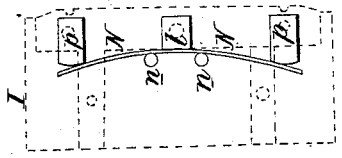


Fig. 5



UNITED STATES PATENT OFFICE.

CHARLES F. BEVERLY, OF SALEM, OHIO.

CROZING AND CHIMING STAVES.

Specification of Letters Patent No. 1,829, dated October 16, 1840.

To all whom it may concern:

Be it known that I, CHARLES F. BEVERLY, of Salem, in the county of Columbiana and State of Ohio, have invented a new and useful machine to croze, chime, cut, and edge staves by the means of knives fixed on vertical reciprocating gates from steamed or boiled or saturated timber; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a perspective view of the machine. Fig. 2 is a plan of the notched iron plate; Fig. 3, one of the crozing and chiming knives; Fig. 4, the other crozing and chiming knife; Fig. 5, the spring for keeping the sliding platform against the gate.

Similar letters refer to similar parts in the figures.

Construct a firm and solid foundation A of timber framed together of sufficient length and breadth; frame into this foundation four upright posts B B B′ B″ two on each of the longitudinal sills of the foundation far enough apart for the purpose required; into which are mortised and tenoned two parallel longitudinal rails C C and between which are placed two stout flat boards D, E, parallel with the cross sills of the foundation A; these tables are to be framed horizontally and are to be of sufficient width to form tables of the requisite size. One edge of the table D is to come flush with the inside or face of the posts B, B, fronting the two remaining posts B′ B″ on the same sills and one edge of the other table E is to come flush with the outside of the posts B′ B″. Then construct two vertical reciprocating gates G, *g*, of wood or metal, or both, and of suitable dimensions which are to run or slide in hooks or grooves or otherwise that are to be attached to or formed on the face of the posts B B next the opposite posts B′ B″ and on the outside of the posts B′ B″. On the face or front of the gate G near the top affix a knife K for cutting the staves from the bolt or block, running across the gate with one end dropped from a horizontal line so as to cause the knife to pass through the timber obliquely. Said knife is to be set out from the face of the gate sufficiently to form the stave to the proper thickness and is to be fastened with bolts or screws passing through the knife into or through the gate at each end and along the back or upper edge; parallel with the lower cutting edge of this knife cut a throat or passage through the gate to let the staves pass out when cut. Then make two knives F, F, for cutting the croze and chime at each end of the stave immediately before it is cut from the block and fix them securely to the gate G below the knife K, one on each side.

Each knife is made of a single piece of metal in the form of the required croze and chime and is secured by screws, bolts or other suitable fastenings at the ends which are extended in the form of flanges for that purpose and the position of said knives is on a horizontal line directly below the knife K and at a suitable distance therefrom to admit cams or wedge shaped blocks between them which are designed, when the gate descends, to push back the table I, hereafter described, and as far apart as the required length between the croze of the stave. Each knife is made of a plate of the best cast steel bent near one end to the figure of the required croze as at *a a* Figs. 3 and 4, then obliquely as at *b b* to the shape of the required chime, then at right angles to the last bend and opposite to the bend for the croze as at *c c*, then bent out on a direct line with the first end to form one of the flanges above mentioned as at *d d*, the said first mentioned end of the plate forming the other flange as at *e e*. The lower edge is then brought to a fine cutting edge.

The edge of the horizontal plate L (hereafter described) next the gate is formed to correspond with the shape of the knives F which are to move in the depressions *f f* and M M therein, while the straight edge *j* of said plate is brought near or against the face of the gates. There must be channels or throats cut through the gate back of these knives for the chips to pass out. Upon and across the width of the table or platform D close to the inside of the posts B affix horizontal parallel side strips H with grooves cut along the inner edges for the sliding platform I to play in; on the upper side of the stationary platform D flush with the front edge thereof and at equal distances from the posts B fix a short block *l* as thick as the part of the side strips H from the lower edge of the groove down to the bottom to keep the sliding platform I from springing or sagging in the center. On the front edge of the platform I on the upper side place the plate of iron L before men-

tioned. So as to protect the edge of the timber when cutting; in the front edge of this iron plate file or cut the depressions M *f* before mentioned for the croze and chime knives to match in as the gate G moves up and down. On the under side of the sliding platform I near each end affix a short block *p* to extend from the front edge back past the back end of the stationary block *l* on the center of platform D, which blocks *p p* on the sliding platform are rounded at the rear ends and serve as bearers for the ends of a spring N that runs lengthwise of and between the platforms, being held to its place by two pins *n n* that pass up through the platform D near to and opposite of the back end of the block *l* in the center of said platform. The sliding platform is held to the face or front of the gate with this spring N until the croze and chime of the stave are cut when it is forced back (by the cams *q q* on the gate G outside of the croze and chime knives and extending from them to knife K in a perpendicular line) and thus protects the lower edge of the timber while the knife is cutting the stave.

The timber to be cut is put on the sliding platform I and as the gate G passes down the knives F F cut the croze and chime and the knife K the stave, but before the knife K passes through the bolt the table I is moved back by the cams *q*, the spring being contracted at the same time and as soon as the knife is again raised the table is moved out again by the extension of said spring.

On the face of the gate *g* near the top affix a knife P for edging the staves running straight or on a horizontal line across the gate back of which cut a throat or passage for the chips to pass through. This knife on the cutting edge should be made convex—that is deepest in the middle and the edge should taper equally toward each end which trims the edge of the stave by an oblique or drawing blow of the knife from the center toward each end. Said knife is to be fastened with bolts or screws at each end and also on a parallel line near the back or upper edge in a similar manner to knife K and should be set out at the ends and come in nearly flush with the front of the gate in the center of the knife lengthwise so as to trim the edge of the stave the most at each end thus form the bulge for the cask or barrel. On the stationary platform E between the upright posts B′ B″ affix a platform Q raised at the edge farthest from the gate *g* so as to form a bevel or inclined plane which makes the joint on the inside and outside of the edge of the stave. On the front edge of the platform on the upper side fasten a strip of iron which should correspond in shape with that of the knife and is to keep the edge of the stave from crumbling or breaking—the stave should be laid flat on the table with the crozed and chimed side up and when dressed on one side should be changed end for end in order to dress the other side.

The gates G, *g*, are to take motion by means of pitmen S attached to a shaft T with a crank U on each end, and running parallel with the length of the machine through the center just above the sill or foundation this shaft runs on bearings near each crank attached to cross braces V and may take its motion by a belt or strap running over a drum or pulley on the shaft. The different parts of the machine should be made to correspond with the size of the stave to be cut.

The block or bolt from which the staves are to be cut may be held against the gate by a lever or otherwise by the hand of the operator or in any convenient mode and should be held firmly against the gate while the table I is receding from it.

What I claim as my invention and improvement is—

The construction of the knives F F as before described for cutting the croze and chime in combination with the depressions and bevels in the plate I corresponding with the said knives F F, all as before described.

CHARLES F. BEVERLY.

Witnesses:
WM. P. ELLIOT,
WM. CORCORAN.