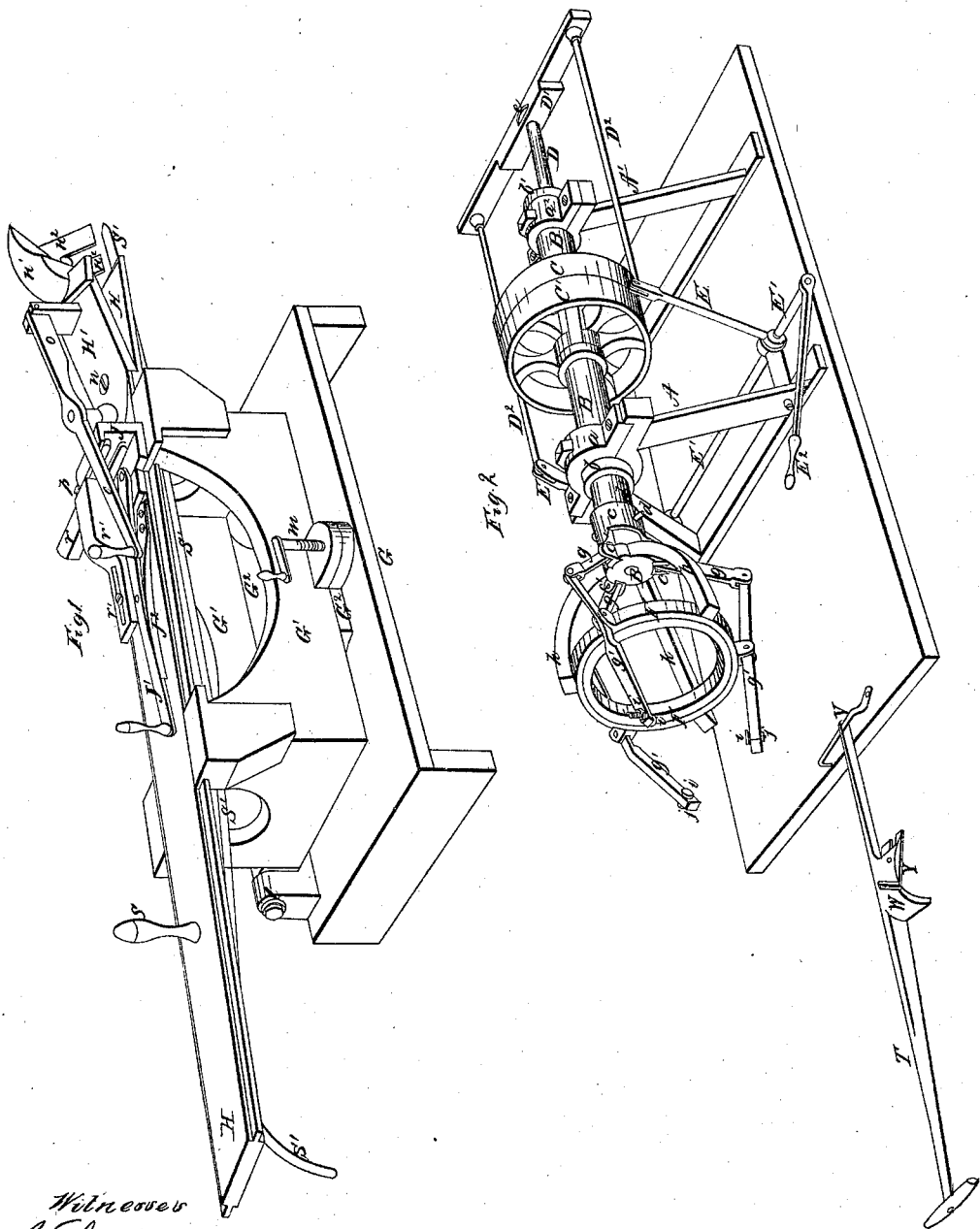


L. Wirthlin, Crossing Staves.

N^o 39,696.

Patented Aug. 25, 1863.



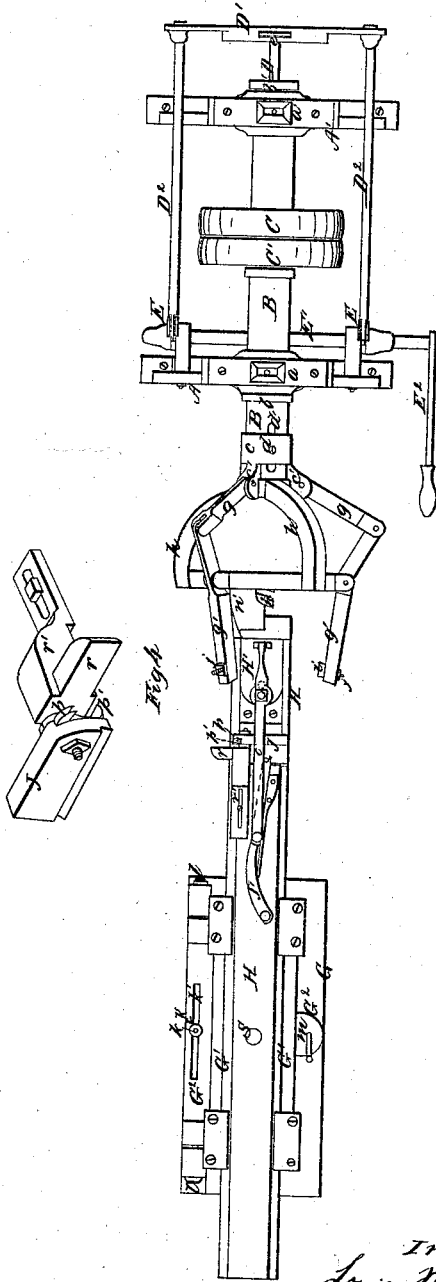
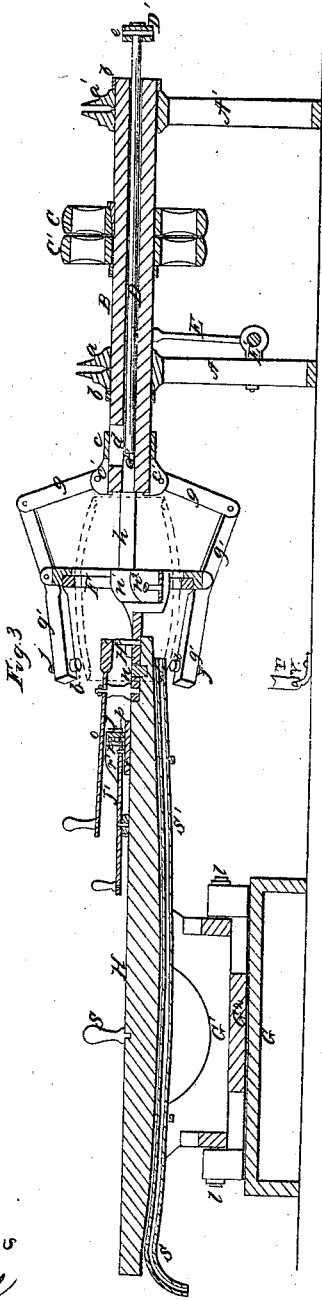
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L. Wirthlin, Crozing Staves.

N^o 39,696.

Patented Aug. 25, 1863.



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UNITED STATES PATENT OFFICE.

LEWIS WIRTHLIN, OF ST. LOUIS MISSOURI.

IMPROVED BARREL-DRESSING MACHINE.

Specification forming part of Letters Patent No. 39,696, dated August 25, 1863.

To all whom it may concern:

Be it known that I, LEWIS WIRTHLIN, of St. Louis, in the county of St. Louis and State of Missouri, have invented certain new and useful improvements in machinery for smoothing the interior surfaces of kegs, barrels, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of that portion of the machine which supports the cutters. Fig. 2 is a perspective view of that portion which clamps and supports the kegs to be turned. Fig. 3, Sheet 2, is a vertical longitudinal section through the center of the machine. Fig. 4, Sheet 2, is a top view of the same; and Fig. 4, Sheet 2, is an enlarged perspective view of the croze-cutting knives, detached from the machine.

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

This invention relates to certain new and useful improvements in machinery for turning, howeling, and crozing casks or other similar kinds of hollow ware by means of which this work can be performed very rapidly and efficiently.

It consists in arranging on one end of a hollow spindle adjustable clamping-levers and a circular bilge-ring, operating as will be hereinafter described, for clamping the casks and giving to them a rotary motion during the operation of turning out the same.

It also consists in arranging and supporting the howeling and crozing knives upon a traveling bed which is mounted upon an adjustable slide-rest, all as will be hereinafter described.

It also consists in combining with the clamping-levers and rotary spindle a pivoted lever carrying a plane-iron fitted within a plane-stock, and adapted to the trimming and evening of the basil-edges of the kegs, as will be hereinafter described.

It finally consists in a blow-tube, combined and traveling with the cutter-bed, for the purpose of blowing the shavings, dust, &c., out of the casks during the operation of the knives, as will be hereinafter described.

To enable others skilled in the art to make

and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, A A' represent two upright supports for the journal-boxes *a a'*, in which the horizontal hollow spindle B has its bearings. This spindle is driven with a very rapid motion by means of a belt which passes around the fixed belt-wheel C, and when it is desired to stop this motion the belt is shifted on the loose wheel C. The hollow spindle B has two collars, *b b'*, secured to it outside of the journal-boxes *a a'*, for the purpose of preventing any longitudinal play of this shaft.

D is a rod which passes through the axis of the spindle B, and is connected at its "forward" end to the collar *c* of a sliding hub, *c'*, by means of a pin, *d*, which passes diametrically through an oblong slot, *d'*, made through the spindle B, as shown in Fig. 4. The opposite end of rod D has a circular flange, *e*, formed on it, which works or has its bearings in a horizontal transverse cross-head, D', to the extreme ends of which rods D² D² are connected, which project same distance forward and are connected at these forward ends to the upright rods E E by pivot-joints. Rods E E project up from a transverse rock shaft, E', which is mounted in suitable bearings and operated by means of the hand-lever E², Figs. 2 and 4.

The reciprocating hub C' slides in grooves which are formed in an enlargement on the end of the spindle B, and to the ears of this hub—three in number—are pivoted the radial arms *g g g* to the outer ends of which the bent clamping-levers *g' g' g'* are respectively pivoted. Each one of these levers *g'* has its fulcrum on the circumference of a bilge-ring, F, which is supported by the curved arms *h h h*, which are fixed to the end of the spindle B, as shown in Fig. 2. This bilge-ring is sustained in front of the forward end of spindle B, and its axis coincides with the axis of this spindle.

On the extreme forward ends of the curved clamping-arms *g' g' g'* are adjustable blocks *i i i*, which bear upon and clamp the keg in its place within the clamping apparatus. These blocks *i* are made adjustable by means of the screws and nuts *j j j*, and by this adjustment the kegs can be properly centered in the lathe.

This portion of the machine is intended for clamping, centering, and rotating the kegs during the operation of the knives upon them; and it will be seen that by moving the hand-lever E^2 upward the rod D will be pushed backward in a direction with its length, which will pull back the collar c and hub c' , and with it the ends of the arms $g g g$, thus expanding the forward ends of the levers $g' g' g'$, and putting them in a condition to receive a keg. By reversing the movement of the hand-lever E^2 the levers $g' g' g'$ will be forced toward each other, and in this way a keg may be confined within them and firmly held while it is being operated upon by the knives, as will be hereinafter described.

Fig. 1 is a perspective view of that portion of the machine which contains and supports the cutters for howeling and crozing the kegs, in which G represents the base or bed upon which the adjustable slide-rest G' is supported and attached, and C^2 is the false bed, which is connected to the bed G by means of a screw-bolt, k , projecting up from the bed and through a longitudinal slot, k' , said bolt receiving on its upper end a confining-nut, k^2 . The slide-rest G' is connected at one side to this false bed by means of longitudinal and horizontal pivot-joints $l l$, which allow the opposite side of this slide-rest to be raised or depressed, and the vertical adjusting-screw m is for this purpose.

H is a long sliding bed upon the forward end of which the cutters are supported. The movement of this slide H is in a longitudinal direction, and it is connected to the slide-rest G' by grooves and tenons, as shown in Figs. 1 and 4. On the forward end of this sliding bed H a plate, H' , is pivoted at n , and on the outer vibrating end of this plate a convex-faced knife-stock, n' , is secured, if desirable, in such a manner that it can be removed at pleasure. This stock n' receives a curved-edge knife, n^2 , which can be adjusted like a common plane-iron, for removing a thick or thin shaving.

The plate H' is vibrated and the knife n^2 is held up to its work by means of a lever-handle, o , which projects backward a sufficient distance to allow the operator to adjust the plate and knife-stock, when the same are within the kegs. Behind the pivoted knife-carrying plate H' , and confined down on the sliding bed H by dovetail grooves and tenons, is a transversely-sliding block, J , which is operated by means of the lever J' . The perpendicularly-projecting portion of this block J carries a peculiarly-shaped cutter or cutters, consisting of a bifurcated knife, p , having two vertically-cutting edges, as shown in Fig. 5, which are the upper cutters, and also a flat rounded-edge knife, p' , which is the lower cutter or gouge. These knives are in the same vertical plane and are intended for crozing the kegs. The bifurcated knife p marks the width of the groove or croze, and the lower knife, p' , gouges out the wood and forms the groove in the keg.

The right-angular projection r is a gage-block, and it being attached to an adjustable block, r' , can be set backward or forward, according to the distance it is desired to form the croze from the edges of the kegs.

The spring J^2 , which presses upon the lever J' , is intended to keep the crozing-knives back and out of the way until it is desired they should operate, then the lever J' is pulled outward, and these knives are brought up to their work and controlled by the operator.

The perpendicular handle S , which projects from the upper side of the sliding bed H , is used in giving the longitudinal movement to this bed, and the long tube S' , which is shown in Figs. 1 and 3, extending from end to end of this bed H and beneath it, is intended for conducting a blast of air from a suitable blowing-machine into the kegs during the operation of the howeling-knife, for the purpose of blowing out the shavings, dust, &c., from the same to allow the operator to properly inspect the work.

In Fig. 2 I have shown attached to the floor upon which the clamping apparatus is supported a long lever, T , having a T -handle on its upper end. This lever is attached to the floor at a suitable point beneath the clamping-arms by means of a swivel-joint, V , and has applied to it a plane-stock, W , containing a shaving-knife, Y . The object of this knife is to true and even the edges of the staves, and this completes the work of the machine.

The swivel attachment V allows the lever T to be moved out of the way during the operation of howeling and crozing the kegs, and then to be brought up to the position shown in red lines, Fig. 2, to perform its work when the howeling-knife is removed from the keg.

The operation of my machine is as follows: A cask or keg, properly hooped, is introduced within the bilge ring F and adjusted therein. The levers $g' g' g'$ are now made to grasp, hold, and center this keg by depressing the arm E^2 , as above described, and, thus confined, the keg is rapidly rotated by giving motion to the spindle B . The operator now takes hold of the handle S with his left hand, and, with the other hand on the handle of lever o , he moves the slide H toward the rotating keg and introduces the howeling-knife into it. He then moves the knife n^2 up to the work, and controls the operation of smoothing the inside surface of the keg with his right hand. During this operation the shavings and dust are blown away by means of the blast-pipe S' , which directs a current of air into the keg, as above described. When the work of smoothing the inside of the keg is completed, and the gage-block r is brought up so as to touch the edge of the keg, the crozing-cutters $p p'$ are brought into action, and the keg is crozed. The slide H is now withdrawn from the keg, and the trimming-knife Y is used by pressing it against the basil-edge of the keg, thus cutting the edges of the staves even, and completing the operation of the machine.

In practice it will be found best to trim the ends of the kegs before they are smoothed or planed out, then the proper gage for the croze can be more easily obtained.

From this description it will be seen that the operator can have perfect control over the smoothing-knife, and that he can adapt it to cut and smooth the surface of the bilged or swelled portions of the kegs, of whatever curve they may be made.

The machine does not require the removal of one and the introduction of new parts to adapt it to kegs which vary in size or shape, but every part of my machine is adaptable to all kinds, shapes, and sizes of barrels, kegs, or casks without any change or tedious manipulation.

The pitch or inclination of the howeling-knife can be adjusted and varied by means of the setting-screw *m*, and the slide-rest, together with all its parts, may be set farther back or moved nearer to the clamping apparatus by simply loosening the nut on the screw-bolt *k*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The adjustable clamping-levers *g g'* and bilge-ring *F*, in combination with the spindle *B*, substantially as and for the purposes described.

2. The longitudinally-adjustable rod *D*,

cross-head *D'*, arms *D² D² E E*, rock-shaft *E'*, and hand-lever *E²*, combined with the hollow spindle *B* and adjustable clamping-levers, substantially as and for the purposes described.

3. The adjustable blocks *i i i*, applied to the clamps *g' g' g'*, substantially as described.

4. The combination of howeling-knife *n²* with a pivoted plate, *H'*, and a slide, *H*, substantially as described.

5. The combination of crozing-knives *p p'* with a transversely-sliding block, *J*, and lever-handle *J'*, and slide *H*, substantially as described.

6. The combination of sliding bed *H*, pivoted slide-rest *G'*, and false bed *G²*, all operating substantially as described.

7. Combining with the sliding bed *H* and howeling-knife *n²* a blast-pipe, *S'*, arranged and operating substantially as and for the purposes described.

8. The gage-block *r*, in combination with the crozing-knives *p p'* and the sliding bed *H*, substantially as described.

9. In a machine for howeling kegs, &c., making the howeling-knife both longitudinally and transversely adjustable, substantially as and for the purposes described.

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Witnesses:

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