2 Sheets—Sheet 1.

H. H. MILLER.

Machine for Dressing Staves.

No. 199,730. **Patented Jan. 29, 1878.**

Fig. 1

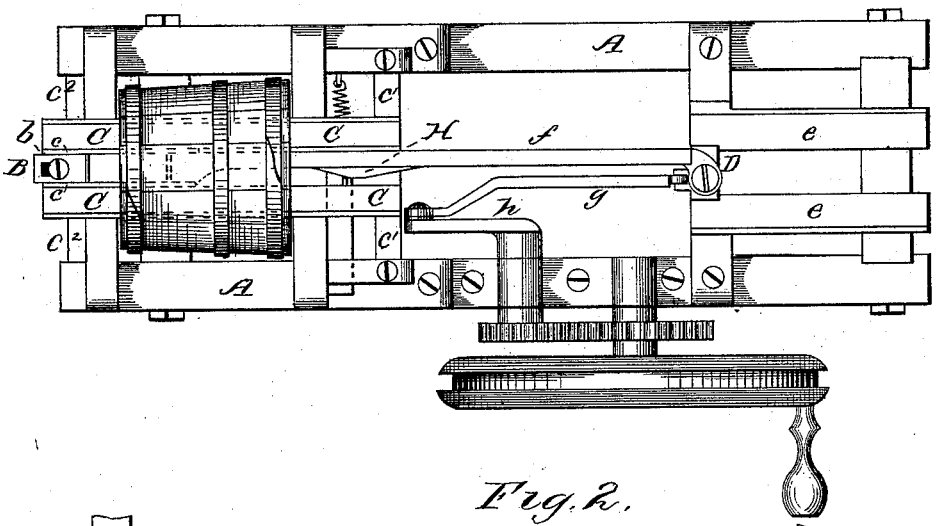


Fig. 2.

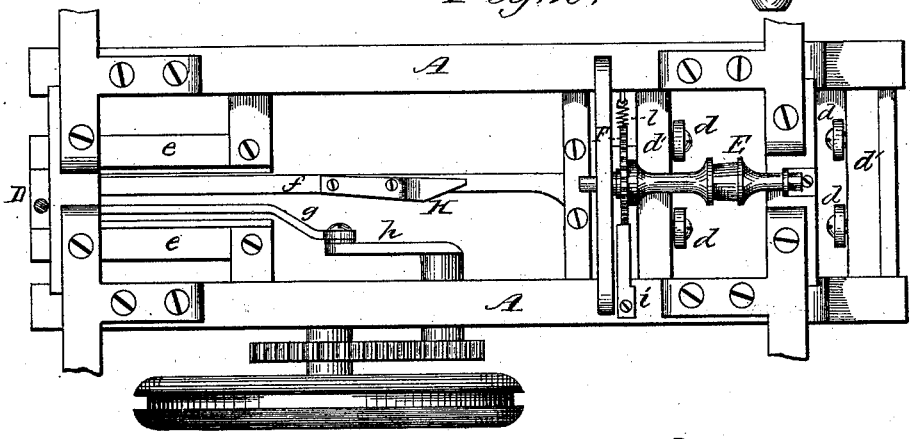
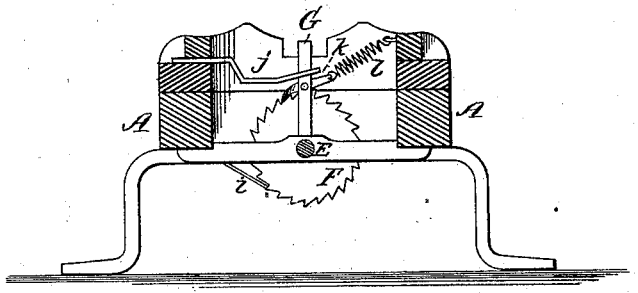


Fig. 3.



WITNESSES

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H. H. MILLER. 2 Sheets—Sheet 2.

Machine for Dressing Staves.

No. 199,730. **Patented Jan. 29, 1878.**

Fig. 4.

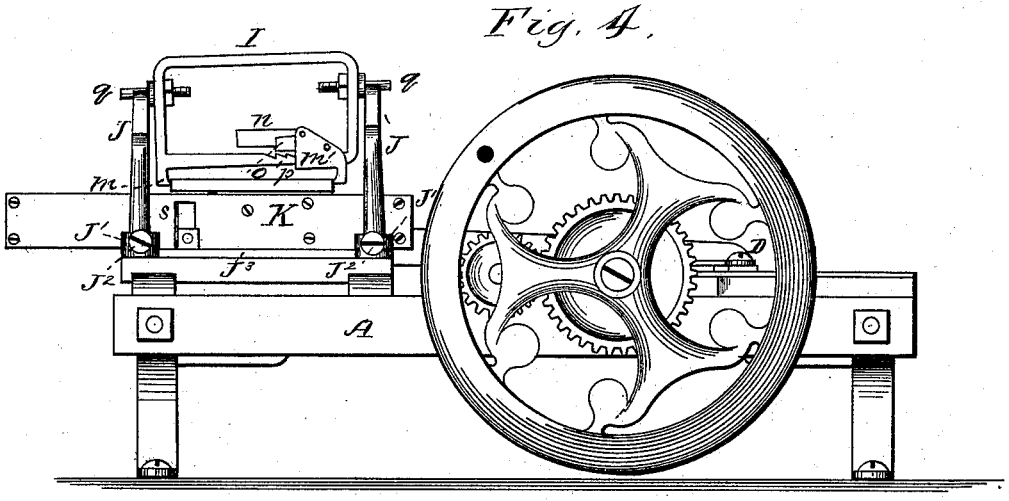


Fig. 5.

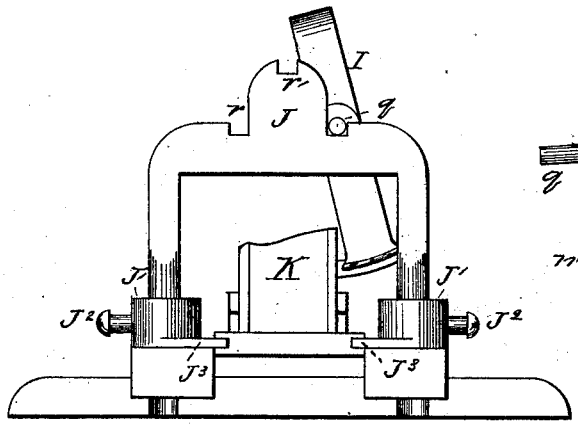
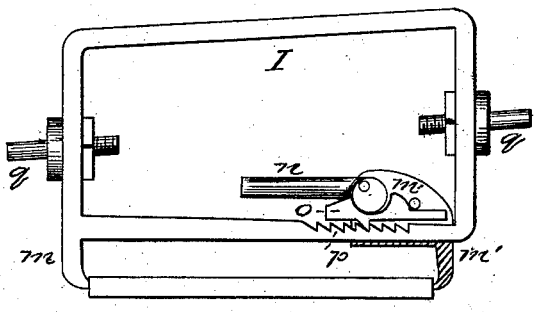


Fig. 6.



WITNESSES

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UNITED STATES PATENT OFFICE.

HORACE H. MILLER, OF LYNDONVILLE, VERMONT.

IMPROVEMENT IN MACHINES FOR DRESSING STAVES.

Specification forming part of Letters Patent No. **199,730**, dated January 29, 1878; application filed October 11, 1877.

To all whom it may concern:

Be it known that I, HORACE H. MILLER, of Lyndonville, in the county of Caledonia and State of Vermont, have invented a new and valuable Improvement in Machines for Dressing Staves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon, and in which—

Figure 1, Sheet 1, is a plan or top view of my improved machine for making cylindrical wooden vessels or receptacles. Fig. 2, same sheet, is an inverted or bottom view thereof. Fig. 3 is a sectional view, showing the mechanism which, in connection with a cam-shaped projection upon the plane-arm, rotates the vessel or receptacle as its staves are being shaved upon the inside. Fig. 4, Sheet 2, is a side view of my machine with the internally-shaving mechanism replaced by the stave-holding device or clamp with which the external surface and edges of a stave are presented to the plane in rounding, tapering, and beveling the staves. Fig. 5 is an end view, and Fig. 6 a side view, of the said stave-holding device or clamp detached from the machine.

Corresponding parts in the several figures are denoted by like letters.

This invention relates to certain improvements in machines for making cylindrical wooden vessels or receptacles; and it consists in planing, in the direction of their lengths, the inner surfaces of the staves of a cylindrical vessel or receptacle rotated by suitable mechanism; secondly, of mechanism for rotating the receptacle or vessel when operated upon internally; thirdly, of a stave-holding device or clamp, for presenting the external surface and edges of a stave to the plane in rounding, tapering, and beveling the same, as will be hereinafter described, and subsequently pointed out in the claims.

In the annexed drawings, A refers to a suitably-constructed frame, upon which the operative parts of the machine are mounted. B refers to the plane, the stock *b* of which is preferably provided with longitudinal grooves to receive flanges *c c* upon the opposite sides of parallel bars or ways C C, secured together and upon cross-pieces c^1 c^2. The forward cross-piece c^1 is pivoted to and between projections or blocks upon the frame A, to permit of the lifting of the rear ends of the ways C C for the adjustment in position of the work or vessel to be operated on by the plane. Frictional rolls *d d* upon axes secured to the opposite sides of cross-pieces *d′ d′* of the frame A afford rests or supports for the receptacle or vessel when in position upon the said frame, as seen in Fig. 1. The plane B *b* is connected to a cross-head, D, sliding between ways *e e* of the frame A by means of an arm or bar, *f*. A crank-arm, *g*, connecting the cross-head D to a crank-shaft, *h*, and gearing or other suitable mechanism and power drives the plane back and forth.

E is a shaft, journaled in bearings secured to the lower side of the frame A. This shaft drives a belt passing around the vessel or receptacle in position upon the frame, to gradually rotate the receptacle in presenting its staves to the plane as the latter passes back and forth over the same in the direction of their lengths, thus thoroughly and perfectly planing each stave in the vessel. By thus planing the parts no further turning or smoothing thereof is required, ordinarily practiced, in getting a true circle—a great desideratum in connection with butter-tubs, as by having them thus constructed the butter or contents can be readily slipped out in bulk, without breaking or crumbling, for weighing, &c.

The shaft E carries a toothed wheel or ratchet, F, with which engages a pawl or detent, *i*, to avoid reaction of the said wheel.

G is an upright lever, which may be fulcrumed upon the shaft E, and extending up through a slotted plate, *j*, to a point where it will be struck by a cam-shaped plate or projection, H, upon the arm *f* of the plane. To this lever G is pivoted a pawl, *k*, which engages the ratchet or wheel F, and is connected by a spring, *l*, to any convenient point on the frame A.

It will be observed that as the lever G is struck by the cam or projection H upon the plane-arm *f*, the pawl *k* has a limited movement, which pushes the wheel F around a number of teeth, rotating the shaft E and its belt,

which imparts the desired rotary motion to the vessel or cylinder being operated on, to present the unshaven stave to the plane to be planed. This movement of the lever G distends or expands the coiled spring *l;* consequently, when the cam H has passed the said lever, the spring will draw the pawl *k* back to its original position, and return the lever to its normal or vertical position, in readiness again to be struck by the cam. The slotted plate *j*, up through which the lever G passes, limits its rearward movement.

I is a stave-holding device or clamp, consisting of a frame with a stationary jaw, *m*, and a movable jaw, *m'*, between which the intended stave is held, as seen in Figs. 4 and 6. The jaw *m'*, among other ways, is made movable, and manipulated by a cam-lever, *n*, by the raising and depressing of which a toothed plate or dog, *o*, is caused to engage with or become disengaged from serrations or teeth *p* in the lower horizontal bar of the frame. The ends or uprights of the frame are provided with trunnions *q q*, to support it in position.

J J are arched or other suitably-shaped standards, the upper ends of which are provided with two lower sets of sockets, *r*, and an upper set of sockets, *r'*, the purpose of which will presently be explained. The lower ends of these standards pass through eyes or sockets J^1 J^1, within which they are secured and rendered vertically adjustable by adjusting-screws J^2 J^2.

The object of thus constructing the said standards is, as will more fully appear hereinafter, to vary the taper or chamfer to be imparted to the intended stave.

The sockets or eyes J^1 J^1 are preferably cast or formed with connecting-plates J^3 J^3, which may be screwed or otherwise fastened upon a frame adapted to be mounted on the supporting-frame A.

K is a plane, the upper face of which is provided with a concavity and a concaved bit, and its side faces with bits *s*. This plane is secured upon a grooved base or plate, which receives flanges from the socket-connecting plates J^3 J^3, and upon which the plane is shoved back and forth when in position upon the frame A and connected to the operating mechanism.

It will be observed that by placing the trunnions or axes of the device or clamp I in the upper or central set of sockets *r'* of the standards J J, the intended stave, clamped between the jaws of said clamp, will be presented to the concaved bit of the plane K, and be shaved or rounded upon its exterior surface, as the plane is in motion, the frame of the clamp being firmly grasped and moved by the hand in varying the presentation of the stave to the plane to obtain the desired rounding surface therefor.

By placing the trunnions or axes of the clamp in the lower or side sockets *r* of the standards J J, the side edges of the intended stave will be presented to the bits *s* in the side faces of the plane, against which it is held by hand, and receive the required taper and bevel. The shifting or manipulation of the clamp I is performed by hand.

The taper is obtained by so adjusting the standards J J, as to present the wood or stave to the bits *s* in an inclined plane with the longitudinal axis of the plane, and the bevel by presenting the stave or wood to said bits in an inclined plane to the horizontal axis of the plane.

The taper and bevel are varied, as above intimated, by the vertical adjustment of the standards J J, and the trunnions or axes *q q* of the clamp I, its uprights being slotted where the said trunnions pass through them for that purpose—*i. e.*, the varying of the bevel.

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

1. The lever G, having the spring-pawl *k*, in combination with the ratchet or toothed wheel F upon the shaft of the cylinder or vessel rotating belt, and the cam H upon the plane-arm *f*, substantially as and for the purpose set forth.

2. The supports or standards J J, having the sockets *r r'*, in combination with the eyes or sockets J^1 J^1 and set or adjusting screws J^2 J^2, substantially as and for the purpose set forth.

3. The stave-holding device or clamp, consisting of a frame, with axes or trunnions *q q*, stationary and movable jaws *m m'*, and mechanism for operating the movable jaw, substantially as and for the purpose set forth.

4. The stave-holding device or clamp I, in combination with the supports or standards J J, having the upper and lower sets of sockets *r r'*, substantially as and for the purpose specified.

5. The device or clamp I for holding the stave, in combination with the standards or supports J J, having the sockets *r r'*, and the plane K, having upper and side bits, substantially as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

HORACE H. MILLER.

Witnesses:
HUBBARD HASTINGS,
MYRON C. MILLER.