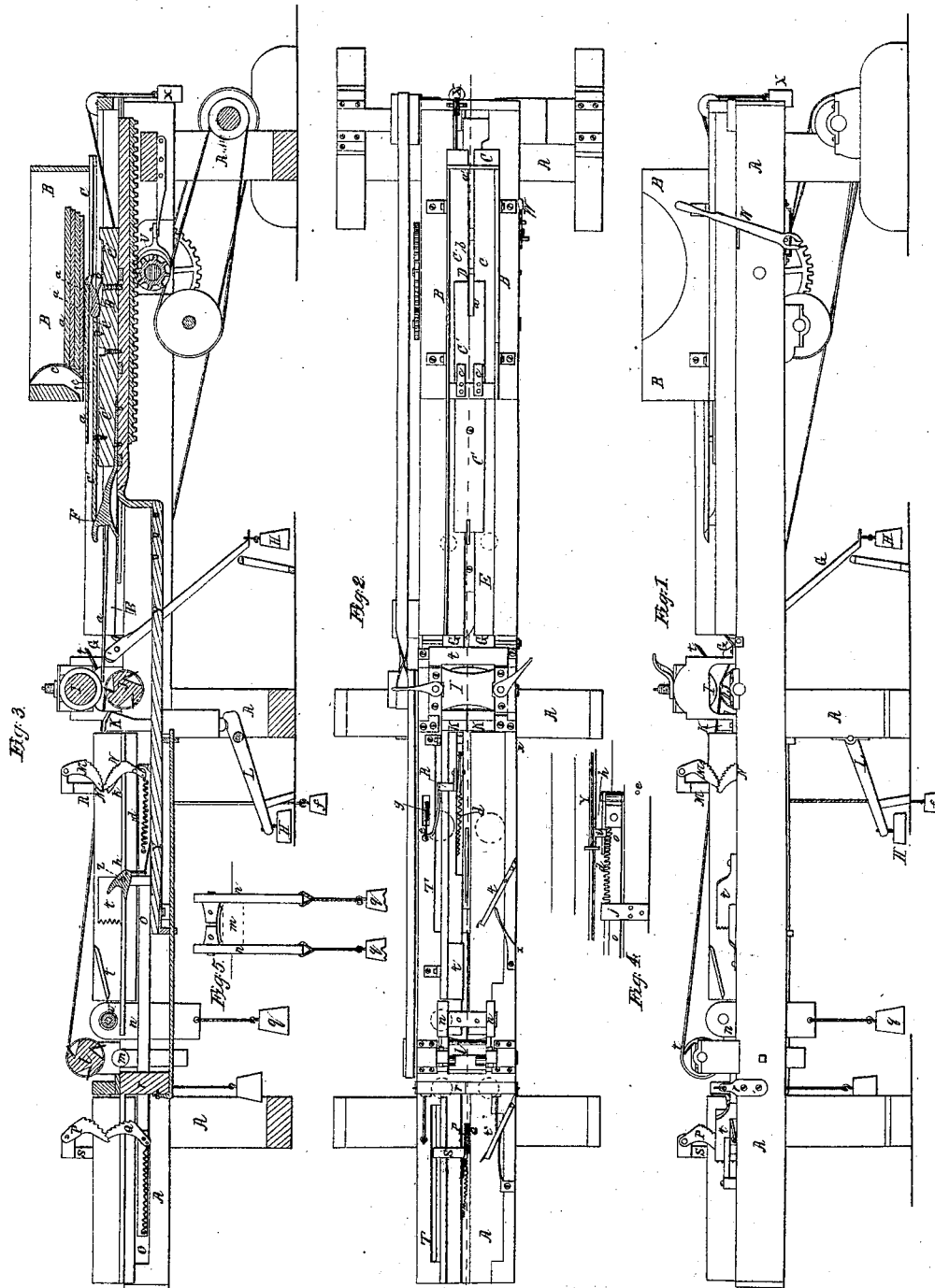


*H. L. a m,*  
*Dressing Staves.*

*N<sup>o</sup> 5,792.*

*Patented Sep. 19, 1848.*



# UNITED STATES PATENT OFFICE.

HERVEY LAW, OF WILMINGTON, NORTH CAROLINA.

## MACHINERY FOR PLANING RIVED STAVES.

Specification of Letters Patent No. 5,792, dated September 19, 1848.

*To all whom it may concern:*

Be it known that I, HERVEY LAW, of Wilmington, in the county of New Hanover and State of North Carolina, have invented certain new and useful Improvements in the Apparatus for the Dressing of Staves for Barrels and other Vessels of a Like Description; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which make a part of this specification.

My machine is so constructed as to dress the staves consecutively on both sides, and to adapt itself to any inequality in the piece to be dressed, whether winding or otherwise. The undressed staves are to be placed one upon another in a trough, or hopper, the floor of which is made to traverse back and forth, and is provided with a hook that is borne up by a spring in such manner as to cause it to catch hold of the rear end of the lowermost of the pile of undressed staves, and to carry it forward toward the revolving cutters by which the dressing is to be effected.

In the operation of dressing it is first passed over a revolving cutter wheel, the cutters of which are convex in such degree as to adapt them to the curvature that is to be given to the inner side of the stave. Immediately above this cutter wheel there is a roller against which the stave is borne by means of four weighted levers; by which means it is dressed to an equal thickness as well as rendered concave on its lower side, the weighted levers being so arranged as to bear it up against the roller, irrespective of any inequality in the form of its sides. From this cutter wheel the stave is carried forward, by means of holdfasts of a peculiar construction, and is made to pass under a second cutter wheel, the cutters of which have their edges concave, their form being such as to give to the outer side of the stave that degree of convexity which is required.

In the accompanying drawing Figure 1, is a side view of my machine; Fig. 2 a top view of it, and Fig. 3, a vertical section of it from end to end, through its middle.

A, A, is the frame of the machine. B, B, a trough, or hopper, in which the undressed staves are to be placed one above the other, and from which the lowermost stave is to be taken and carried forward toward the revolving cutter wheels.

a, a, a, represent undressed staves contained within the trough B, B.

C, C, is a stationary floor, upon which the pieces a, a, rest, beneath these is a sliding floor, or follower C', C'; this follower may be made to traverse forward by means of a rack and pinion, and back again by means of a counteracting weight when the rack and pinion are thrown out of gear; the follower, or sliding floor may, however, be moved by an endless chain, instead of by a rack and pinion, or by any of the known modes of effecting such motion. At the rear end of the follower C', there is a latch, or hook D, that is borne up by a spring b, so as to catch hold on the rear end of the lowermost stave, and to carry it forward toward the cutting wheels. This hook passes up through a slot or opening a', a', along the middle of the stationary floor C, C.

From the fore end of the follower the stave falls on to the stationary bed of the machine at E, and at the next advance of the follower it is carried forward by a hook, or dog F, that is attached to said follower, and, of course, traverses back and forth with it; c, c, are spring pieces that prevent the follower from carrying forward from the hopper more than one stave at a time. As the stave is carried forward by the dog F, it passes over the upper ends of two levers G, G, which are weighted at H, and is forced under the roller I, placed immediately above the cutter wheel J, the convex cutters of which dress the interior of the stave, and also reduce it to an equal thickness, the roller I, being adjustable so as to determine said thickness. As the stave enters under this roller it bears upon the upper ends of the levers G, G, and raises the weights H, sufficiently high to cause the stave to bear against the roller, and as the levers make pressure upon it, near its edges, they will adapt themselves to any wind, or twist in the stuff. As the fore end of the stave leaves the roller I, it comes into contact with two other bearing pieces K, K, which are borne up against it by weighted levers L; the pieces K, K, concur with the levers G, G, in pressing the stave against the roller I, until the first dressing is completed.

As the stave passes out from between the roller I, and the cutter wheel J, it enters between two pairs of segmental toothed hold-

fasts, M, and N, the uppermost M, of which being suspended fall upon it by their own gravity, while the lowermost N, are drawn against it by a spiral spring *d*, or by other adequate means. These hold-fasts are attached to an independent sliding rod O, O, as are also similar hold-fasts P, Q, in advance of them; the upper hold-fasts M, and Q, being attached to vertical arms R, and S, that rise from the rod *o*, for the purpose of sustaining them. These vertical arms pass through slots T, T, in the frame of the machine which serve to guide them correctly back and forth. The rod O, is not connected directly with the follower which advances the staves from the trough B, but still moves forward with it, in the following manner.

The pinion U, which engages with the rack V, is to be driven by any adequate power, but the rack is of such length only as is necessary to advance the stave from the trough B, and to carry it toward the cutters. The pinion has a clutch box on its shaft which may be unclutched by means of the lever W, at the end of every vibration forward, the unclutching and clutching may be effected by the attendant, or mechanically by the aid of projecting pins or buttons, in a manner well known, the clutch box being of the ordinary construction. The follower is then drawn back by the counteracting weight X, preparatory to the advancing of another stave, for which purpose the pinion is again clutched. To the follower C, C, is attached a sliding rod Y, Y, which, of course, moves back and forth with it. This rod carries a second dog, or hook Z, which like the dog F, is to advance the stave toward a cutter wheel Z, the hook or dog Z, is hung on a pivot allowing it to be depressed should it in its retreat be brought into contact with a stave that is passing over it.

When the rod Y, Y, advances, it pushes forward the rod O, O, that carries the hold-fasts, by means of a latch that temporarily connects the rods O, and Y. When the latch that carries the rod O, forward is lifted, said rod, with its hold-fasts is made to slide back by means of a cord *e*, that has a weight *f*, attached to it, the cord passing over a pulley *g*, Fig. 2. In Fig. 4 I have shown that part of the underside of the machine where the latch and its appendages are situated, say between the points *x*, *x*, of Fig. 2. A latch *h*, is affixed to the rod O, O, and this falls on to the catch piece *i*, attached to the rod Y, Y; when the rod Y, Y, advances the rod O, O, with its hold-fasts, will necessarily be carried with it, but when the taper end of the latch comes into contact with a piece *p* attached to the frame of the machine, it will be lifted, and the rod O, O, will be drawn back by the weight *f*,

and the hold-fasts be made to take a new hold on the staves which they are to carry forward; the teeth on them being so formed as to allow them to pass back readily, but to lay hold on the stave when it is to be advanced.

After a stave has cleared the first cutter wheel it is deposited on the bed of the machine forward of it, as at *k*, *k*, and it is to be then advanced toward the second cutter wheel, which is furnished with concave cutters. This wheel has below it a roller *m*, upon which the concave dressed side of the stave is to be borne down. An upright sliding piece *n*, passes freely through mortises on each side of the frame, each of which sliding pieces carries a pressure roller *o*, that bears on the outer edges of the stave *p*, (Fig. 5), as it passes under the cutters, the slides being drawn down by weights *g*; Fig. 5, is a transverse view of the slides *n*, and their appendages. On the opposite side of the cutter wheel there may be like slides and pressure rollers; these are not shown in the drawing, it having been proposed to make another arrangement, as at *r*, for the same purpose, but that described is preferred. By means of the rollers *o*, *o*, the staves will be kept in contact with the roller *m*, notwithstanding any twist that may be in them.

The staves, it will be seen, are not to be carried entirely through so as to free them from the cutters by the follower, but are by it left embraced between the rollers, whence they are to be taken by the hold-fasts; the staves are not dependent therefore for their forward motion upon one of them being made to push another forward but are carried on independently of the follower, it being necessary that they should have free play to enable them to adapt themselves to the inequalities of form in split stuff; which end, under my arrangement, is effectually attained, the stave being lifted from the floor, and suspended as it were in the air, while being dressed. To prevent any injurious deviation of the stave from its course as it passes along the machine, guide pieces *t*, *t*, *t*, may be placed at different parts of its course.

What I claim as new and desire to secure by Letters Patent is not the general manner of pressing the materials to be cut, away from the cutters and against the bearing supports, the same thing having often and long since been done by others,—but I claim—

In combination with the cutter, rest and follower or any well known mechanical equivalent thereof the separate supporting levers, G, G, and L, L, acted on by weights H, H, one lever acting on each edge of the stave, to produce separate and independent pressures near the two edges holding it

firmly against a single fixed piece or rest immediately opposite to the cutters but permitting all other parts of the stave however crooked, twisted or variable in thickness to  
5 pass free from constraint and at full liberty to take whatever movements lateral and vertical, its crooks and windings may require, whereby the dressing is allowed to follow the bendings and windings of the stave  
10 without cutting across the grain of the timber; and in combination with the parts above claimed, I also claim the segmental hold fasts M, N, and P Q, acting to draw

the stave from between the cutter wheel J and roller I and thereby prevent the irregular thinning away of its extremities; not intending in this claim to confine myself to the exact arrangement of parts herein described but to vary the same at pleasure while I attain the same ends by means substantially the same. 15 20

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Witnesses:

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A. STEINMEKERS.