

(No Model.)

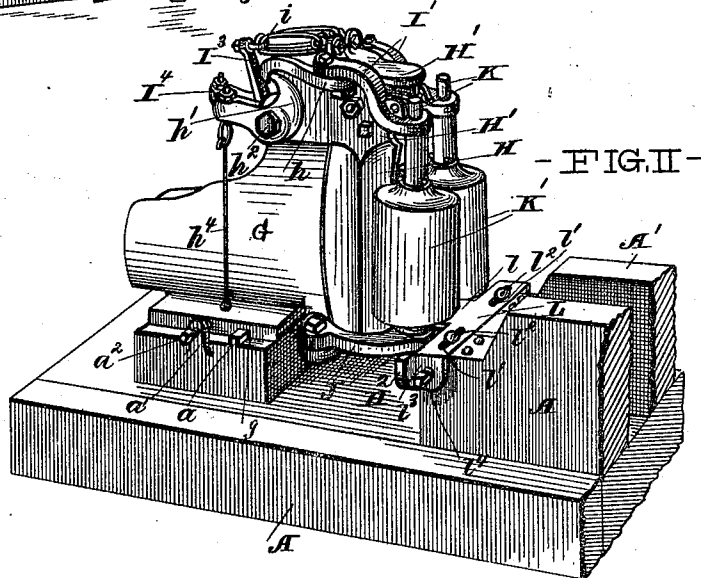
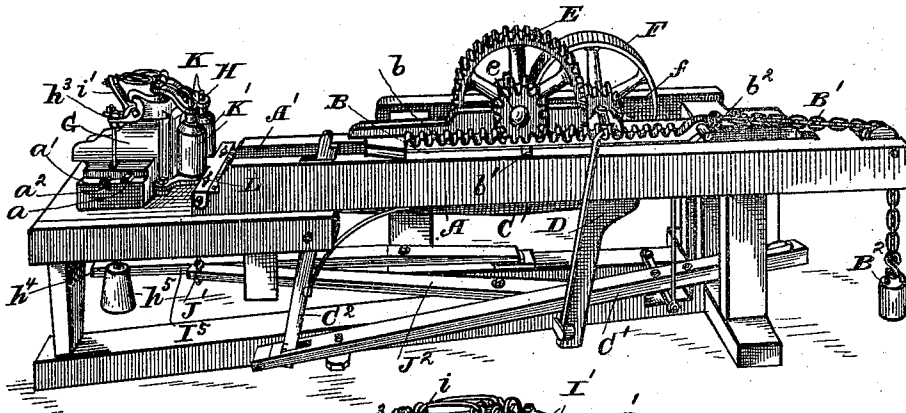
2 Sheets—Sheet 1.

A. M. BENSON.
MACHINE FOR DRESSING RIVED STAVES.

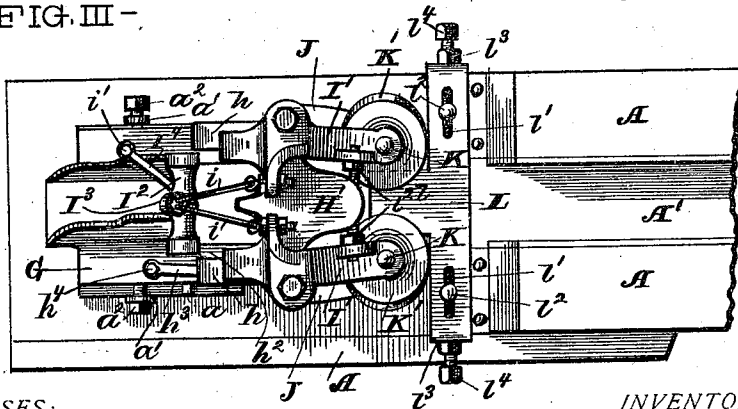
No. 502,271.

Patented Aug. 1, 1893.

- FIG. I -



- FIG. III -



WITNESSES:

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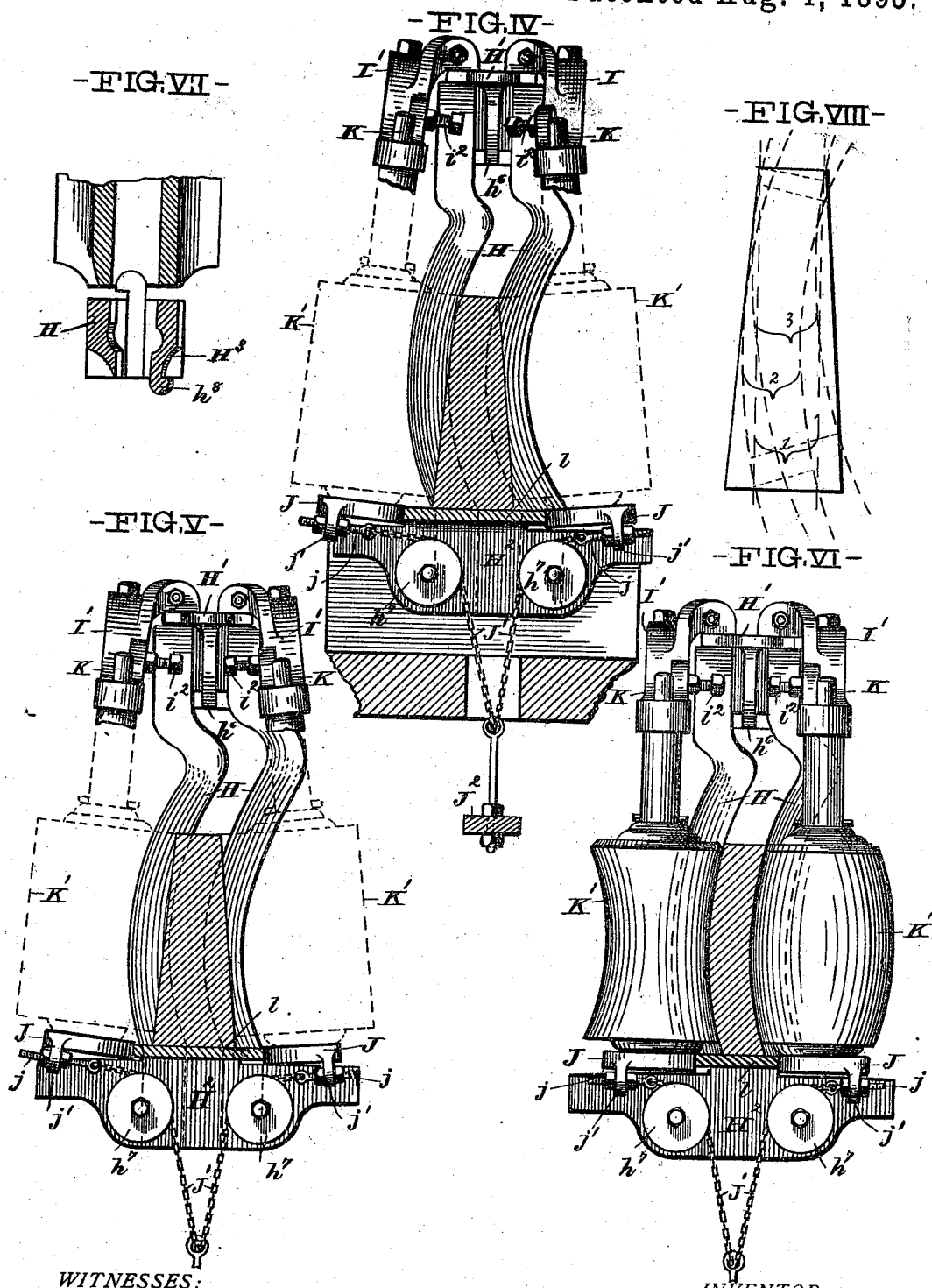
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UNITED STATES PATENT OFFICE.

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MACHINE FOR DRESSING RIVED STAVES.

SPECIFICATION forming part of Letters Patent No. 502,271, dated August 1, 1893.

Application filed December 5, 1892. Serial No. 454,032. (No model.)

To all whom it may concern:

Be it known that I, ARZA M. BENSON, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Machines for Dressing Rived Staves, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail one mechanical form embodying the invention; such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings—Figure I, represents a perspective view of my improved machine for dressing rived staves; Fig. II, a perspective view of the adjustable head; Fig. III, a top plan view of said head and the adjoining portion of the stave trough; Fig. IV, a front elevation of the head, showing the rollers indicated by dotted lines, and showing the stave in section; Fig. V, a similar view of the same parts, illustrating how the stave will be acted upon by considerably curved knives in a machine not provided with my improvement; Fig. VI, a front view of the head provided with rollers adapted for redressing staves; Fig. VII, a horizontal section of the knife and rest for this form of head, and Fig. VIII, a view of the end of the rived stave, illustrating, by dotted lines, the manner in which the stave will be dressed by nearly straight knives; by curved knives in a machine provided with my improvement, and by curved knives in a machine not provided with my improvement.

My present improvements are principally intended for the machine for dressing rived staves for which Letters Patent No. 210,444 were granted to me on the 31st day of December, A. D. 1878.

Staves for tight barrels or similar packages are usually formed by riving or radially splitting logs or sticks of wood in such manner, that the staves will all center at the heart of the log or stick, and will have narrower edges

at the heart portion than at the sap portion. A stave rived in this manner is illustrated, in end view, by Fig. VIII of the drawings. In dressing such rived staves it is desirable to cut away as little as possible from the heart portion of the stave, and to do all trimming, required to shape the stave, at the sap portion.

The machine disclosed in my above mentioned patent was constructed to dress staves of one style and size. Whenever it was necessary to change the shape of the knives, the head had to be removed from the machine, and another head,—with other knives, and with the guide rollers and other parts suitably arranged for said knives,—had to be put in the place of the removed head. Such change consumed considerable time, and it was necessary to have on hand a large number of heads if it was desired to use one machine for a variety of shapes and sizes of staves. The necessity for the above mentioned changes in my patented machine, is clearly demonstrated in Figs. V and VIII.

The dotted lines 1, in Fig. VIII, indicate the extent of trimming necessary in making staves for pipes, hogsheads, or similar large packages,—the staves for such work being straight or nearly straight in cross section.

When a machine constructed according to my above mentioned patent, was so adjusted, for cutting such staves, and the knives of such machine should be removed and knives of a greater curve be substituted, the stave would be dressed such as indicated by 2, in Fig. VIII, and such as shown in Fig. V. The curved knives would strike the stave in such manner that the outside of the stave would be dressed into the heart portion as well as into the sap portion; necessitating,—when the stave was finished,—the removal of as much of the heart portion as of the sap portion; which would cause considerable loss of stock, and produce very narrow staves.

The dotted lines 3, in Figs. VIII and IV, illustrate the desirable manner of dressing the stave. The heart edge of the stave is left almost untouched, and all the trimming is done upon the sap portion. This kind of dressing cannot, however, be carried out unless the rollers and knives are set to one side

of the stave trough, through which the stave is forced by the reciprocating rammer of the machine.

The general appearance and the operation of my improved machine are substantially the same as of the machine disclosed by my above mentioned Letters Patent, and the description of the construction and general operation of this, my improved machine, need not be very elaborate, as reference to my patent will clearly set forth such construction and operation. I shall therefore briefly mention the old elements of the machine, without comment as to details or operation of such old elements. The bed frame A, has a longitudinal stave trough, A', in which the stave to be dressed slides; and the rammer B, slides in said trough upon the pivoted bed C. The bed is raised by the foot lever C', which has a trigger, C². The rammer, which has a cogged rack, b, has the chain and weight B' and B², and has the trip b', and the lateral projecting lug, b², which strikes and engages the spring D, which gives the rammer the start for its return stroke. A pinion, e, meshes with the cogged rack, and is secured upon the shaft of the larger cog wheel, E, which meshes with the pinion, f, upon the shaft of the drive pulley F. All of these elements are of substantially the same construction and operate in substantially the same manner as the corresponding parts of my above referred-to, patented machine. The head G,—which in general outlines is substantially like the head of my patented machine,—has a transverse groove, g, in its under side, and has said groove fitting and sliding upon a transverse tongue, a, upon the frame of the machine. Brackets, a', project from the frame, at both sides of the head; and set screws, a², pass through said brackets and bear with their inner ends against the sides of the head. By means of this tongue and groove arrangement, and the set screws, the head may be laterally adjusted relatively to the stave trough. The curved knives H, which dress the staves, are secured, at their upper and lower ends, to blocks H', and H²,—having washers interposed between them to adjust their relative distances. Said blocks have pivotal support in the head to allow them to swing in a horizontal plane. The upper block H' has two rearwardly projecting hooks, h, which are engaged by arms, h', projecting from a rock shaft, h², transversely journaled in the upper portion of the head; and one end of said rock shaft has a rearwardly projecting arm, h³, to the end of which a rod, h⁴, is attached,—said rod having a weight, h⁵, attached to its lower end. Bell-crank arms, I', are pivoted upon the upper block H', and have links, i, connected to their inwardly projecting arms. A rock shaft, I², is journaled in the upper portion of the head and has an upwardly projecting arm, I³, to which said links are attached, and a rearwardly projecting arm, I⁴, to which a rod, i', is attached; said

rod having a spring, I⁵, attached to its lower end by means of which spring the bell-crank arms may have their outer ends drawn together. The outer bell-crank arms have adjusting screws, z², which project inward and bear with their ends against a web, h⁶, upon the upper block H'; and said adjusting screws serve to adjust the degree of proximity of the outer bell-crank arms. Arms, J, are pivoted to the lower block H², and have eye-bolts, j, adjustably secured through lips, j' upon their under sides. Chains, J', are secured to said eye-bolts and are carried over pulleys, h⁷, upon the lower block. The lower ends of said chains are adjustably connected to a strong spring, J², which thus serves to draw the outer ends of said pivoted arms J together. Shafts, K, are movably secured, at their upper and lower ends, in the outer ends of the two sets or pairs of spring-actuated arms; and guide rollers, K', are journaled upon said shafts. A bar, L, is secured,—transversely adjustable in its relation to the guide trough,—in front of the lower pivoted arms, and has a projecting tongue, l, which extends between the ends of said lower pivoted arms. Said bar L is formed with two slots, l', through which pass bolts, l², into the bed frame of the machine; and said slots serve to guide the bar in its adjustment, transversely to the stave trough. The ends of the bar L are bent downward to form ears, l³, through which pass adjusting screws, l⁴, which bear against the sides of the guide trough, so that the bar may be adjusted, transversely to the guide trough, by means of said screws. The tongue l acts as a stop for the lower pivoted arms, and serves to keep the lower ends of the guide rollers K' in their proper position relatively to the knives, when said rollers are drawn together by their spring.

The operation of all of the parts, above described, is the same as in the machine constructed according to my above referred-to patent; with the exception of the operation of the two new features, viz.—the transversely adjustable head and the transversely adjustable bar and tongue. As above set forth, when the knives are changed in the machine from a less curve to a greater curve, the position of the head and knives relative to the stave trough is such, that the stave will be forced between the knives as disclosed by Fig. V. This position will cause the stave to be trimmed at the heart edge as well as at the sap edge, and it is therefore necessary to bring the guide rollers in such position relative to the knives, that they will guide the stave with the upper heart edge directly between the knives, as shown in Fig. IV. To accomplish this adjustment, the eye-bolts of one of the lower pivoted arms is lengthened so as to allow a greater play for said arm, and the bar L is transversely adjusted so as to bring the guide rollers in position to properly guide the stave between the knives. This, however, swings the knives and the rollers to

one side, and would cause the knives to gouge the stave at the end as it passes through the knives; and it is therefore necessary to adjust the head transversely to the stave trough so as to bring the stave dressing mechanism in proper alignment with the stave trough. This can be done with my improved adjustable head; and my machine,—provided with this improved adjustment,—can therefore be used with knives of various curves without the necessity of removing the head and substituting another.

It sometimes becomes necessary to redress staves which are either too rough, or are otherwise unsuitable for use in their present condition. This is especially necessary with staves intended for whisky-barrels, which are expected to have a neat outward finish. As such staves are heavier than oil-barrel staves, an improperly dressed whisky-barrel stave may be redressed for use as an oil-barrel stave.

When I desire to redress staves in my machine, I remove the plane cylindrical rollers and substitute a convex roller to bear against the inner concave side of the stave, and a concave roller to bear against the outer convex side of the stave; and I substitute a rest,—such as illustrated in horizontal section in Fig. VII,—instead of the convex knife. This rest,—which is lettered H³,—is shaped exactly like the knife, with the exception that, beyond the point where the knife edge would be, the stave rest is formed with an outwardly curved bead, h³.

In operation, the stave is forced between the rollers, and knife and rest, in the same manner as when dressing the stave, but the outside, only, will be dressed off; whereby a nice finish for the outside of the stave is attained. The head and transversely adjustable bar are suitably adjusted when this improvement is used, so as to bring the rollers and knife and rest in their proper relative position to the stave trough.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism thus disclosed, pro-

vided the principles of construction set forth respectively in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a machine for dressing rived staves, the combination of a stave trough, dressing knives, and guide rollers for said knives,—two of said elements being adjustable in transverse alignment relatively to the third element, substantially as set forth.

2. In a machine for dressing rived staves, the combination of a stave trough, a head carrying the dressing knives and provided with means for transversely adjusting it relatively to said stave trough, guide rollers pivotally supported upon said head, and a stop for said rollers and between the same,—said stop having means for adjusting it transversely to the stave trough, substantially as set forth.

3. In a machine for dressing rived staves, the combination of the bed frame provided with a transverse tongue, a head carrying the dressing knives and formed with a groove sliding upon said tongue, adjusting screws bearing against the sides of said head, guide rollers pivotally supported from said head, a bar transversely supported upon the frame and provided with a tongue projecting between the pivoted supports for said rollers, and adjusting screws for transversely adjusting said bar upon the frame, substantially as set forth.

4. In a machine for dressing rived staves, a concave curved knife for dressing the outer side of a stave, and a convex curved rest for supporting the inner side of the stave, said rest having an outwardly curved bead projecting beyond the point opposite the knife edge, substantially as set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 2d day of December, A. D. 1892.

ARZA M. BENSON.

Witnesses:

J. B. FAY,
WM. SECHER.