No. 48,468. PATENTED JUNE 27, 1865.

P. WERUM.
STAVE MACHINE.

Fig. 1.

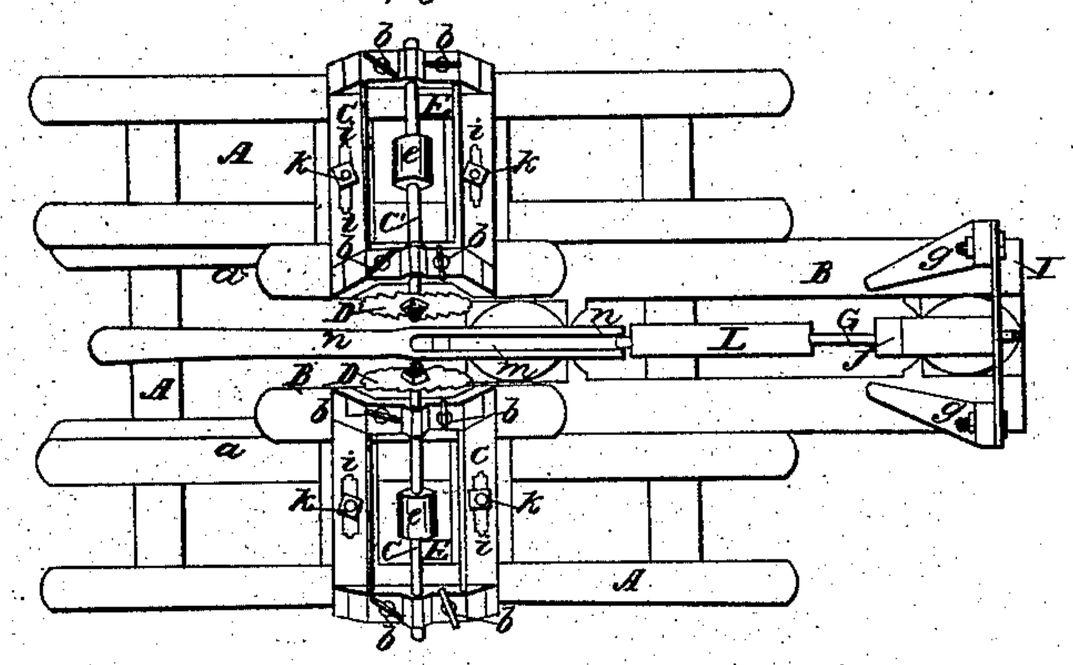


Fig. 2.

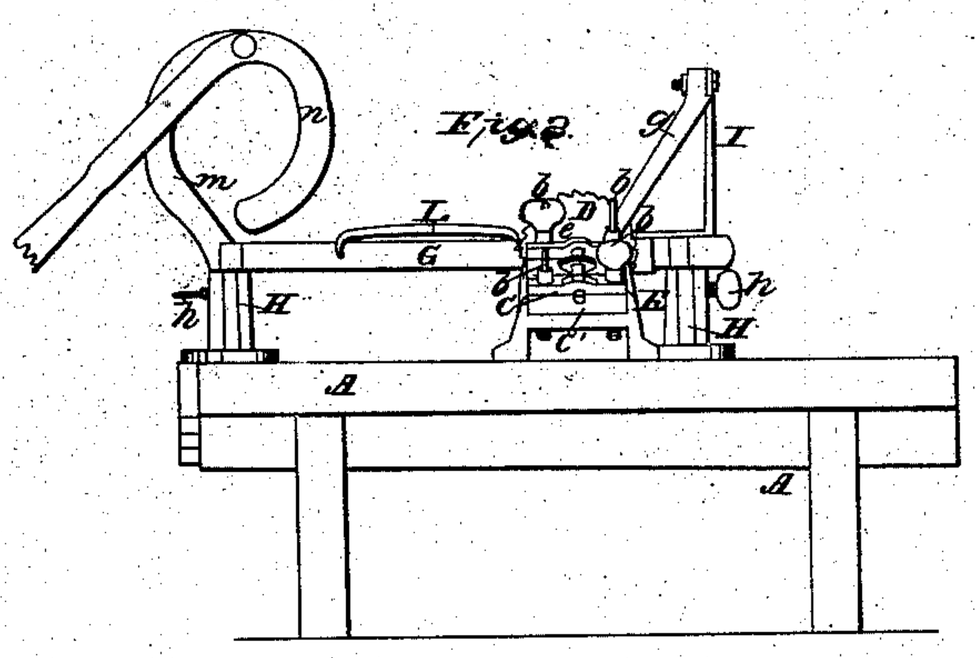
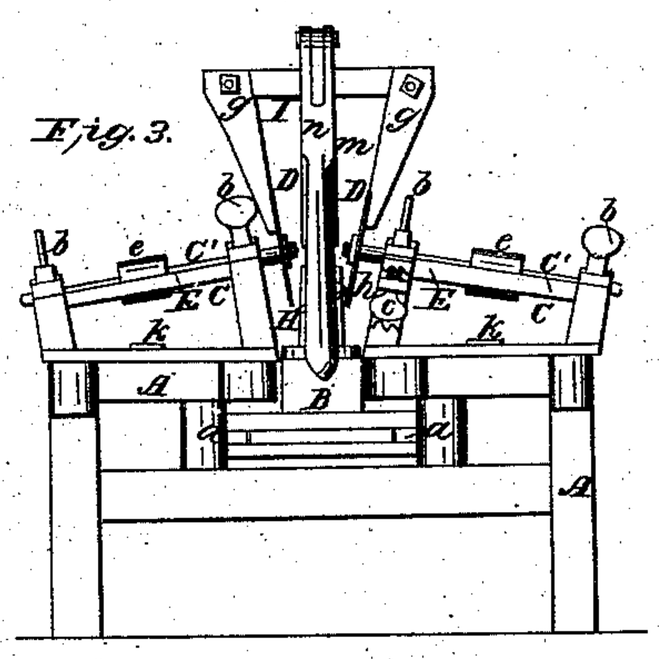


Fig. 3.



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P. WERUM, OF BERLIN, OHIO.

IMPROVEMENT IN STAVE-MACHINES.

Specification forming part of Letters Patent No. **48,468**, dated June 27, 1865.

To all whom it may concern:

Be it known that I, P. WERUM, of Berlin, in the county of Holmes and State of Ohio, have invented certain new and useful Improvements in a Stave-Jointer; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation. Fig. 3 is an end elevation.

Like letters of reference denote like parts in the several views.

My improvement relates to a stave-machine so constructed that staves of any size for kegs or barrels can be made tapering at ends and cut the desired bevel on the sides by one continuous operation.

In the several figures A represents the stationary supporting-frame, suitably constructed to be adapted to the various operating parts.

B is a moving or sliding frame, the side pieces of which are cut or grooved out, so as to fit onto pieces *a* of the stationary frame, on which it slides.

C C are adjustable frames, arranged on the stationary frame in the position represented, that support the rotating saws D in an inclined position. The inner end of the frames is higher than the outside end, and the ends are inclined outward to be at right angles to the shafts C′ of the saws.

The upper part of the frames are formed into a box or bed, into which a rectangular frame, E, fits, the ends of the frames C being underneath and extending upon the sides of the frames E. The frames E can be adjusted vertically in the boxes by means of a screw, *c*, underneath, (seen in Fig. 3,) which, by screwing or unscrewing the inner end of the frames, can be moved up or down, increasing or decreasing the inclination of the saws.

The shafts C′ of the saws are supported and turn in the frames E, there being caps screwed down on the top by thumb-screws *b*, the holes in the caps and journals being so arranged as to be adapted to any inclination into which the shafts may be adjusted.

There are pulleys *e* on the shafts C′, to which the power is connected that operates the saws. The frames C can be moved laterally on the stationary frame, increasing or decreasing the distance between the saws by means of slots *i* (shown in Fig. 1) and screw-bolts *k*, by which the frame can be loosened and moved either way to or from each other and then firmly secured in the desired position. These adjustable frames move in a direction at right angles to the sliding frame or carriage B.

On the sliding frame B is arranged the stave-holder, that consists of a rest, G, supported in socket-standards H, secured to the frame. The rest is connected to the standards H by means of standards extending down from the rest into the sockets, and are held in place by set-screws *h*, by which the rest can be adjusted up or down and held in any desired position. By means of this adjustment various widths of staves can be sawed upon the same radius without changing the position of the saws, for the changing of these to suit various widths of staves involves the necessity for a double adjustment, one for the width and one for the radial line for each saw, making four adjustments.

At one end of the rest G rises a standard, I, upon which is a cross-bar, I′. To each end of this cross-bar I′ is secured by bolts the fingers *g g*, the lower ends of which agree in position with the catch J. The fingers are adjustable, and their proper position is on a line just outside of the line of the saws, and their inclination is the same as shown in Fig. 3. The catch J is attached to the rest G in the position shown in Fig. 1, and its front or catch end is nearly on a line with the lower end of the fingers *g g*. The catch J is narrower than the staves to be sawed, and when the end of the stave is inserted beneath the catch J the outer edges pass under the ends of the fingers *g g*, for the purpose hereinafter described.

L represents an arch or support placed upon the middle of the rest G, for supporting the middle of the stave when it is bent into the proper curve for sawing. At the other end of the rest there is a curved standard, *m*, to which is connected a curved lever, *n*, that is turned on or off the end of the stave.

The manner of operating this machine is as follows: The timber of which the stave is to be made is placed in the holder. One end is put

under the catch J and the other end is bent down over the arch L, when the lever *n* is turned down on it, holding it securely. Thus the timber is bent in the desired form for the stave. The frame B is then moved along, as before stated, bringing the timber between the saws from end to end, which saws it the desired bevel on both sides the whole length and tapering toward the ends.

It will be observed that the higher the timber is carried between the saws the wider will be the stave; and for the same reason the middle of the timber that is to form the bulge of the barrel being curved upward from the ends will be sawed gradually wider or tapering toward the ends in the desired manner. The bevel on the edges of the stave is sawed at the same relative angle at the middle as at the ends, varying according to the increased diameter from the ends to the middle of the barrel. In this way the stave is cut out and shaped from end to end and on the edges in the most perfect manner by one continuous operation.

The saws can be inclined more or less by means of the adjustable frames E and screw-bolts *c*, as before described, and the saws can be adjusted laterally to suit the width of the staves to be cut. The rest G, on which the stave is held, can also be raised or lowered. Thus the machine can readily be adjusted in various ways to saw any sized or shaped staves of any length that may be required for kegs, casks, or barrels.

The fingers *g* come down on the timber of which the stave is to be cut each side of the catch J, so as to prevent the pieces that are sawed off from catching on the saw and being carried round, as it was found they were liable to do, and strike the person operating the machine.

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

The sliding frame B, the adjustable saw-frames C C E E, the adjustable rest G, and arch L, the catch J, fingers *g g*, and curved lever *n*, when these several parts are arranged so as to operate as and for the purpose set forth.

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