

H. WILDE.

STAVE JOINTING MACHINE.

No. 271,009.

Patented Jan. 23, 1883.

Fig. 1.

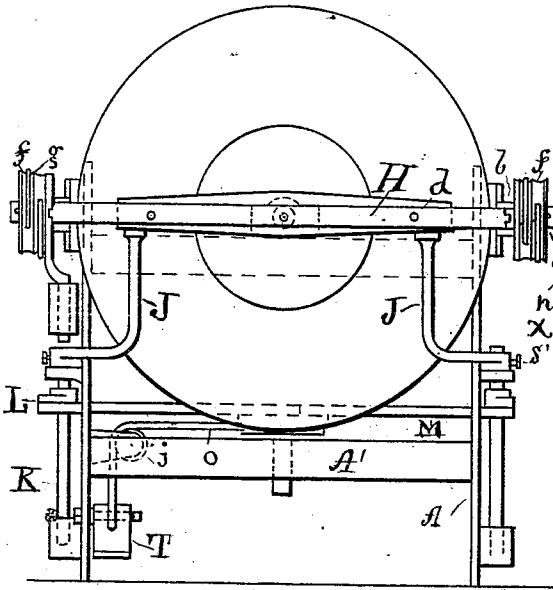


Fig. 2.

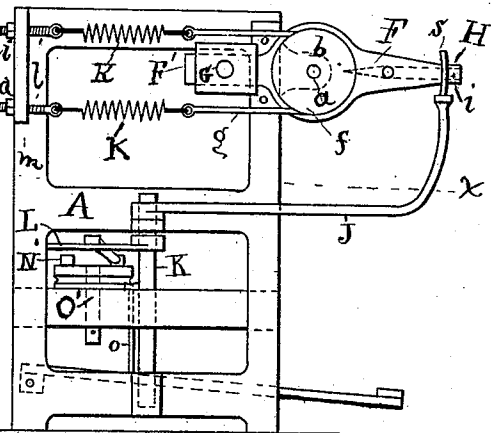


Fig. 3.

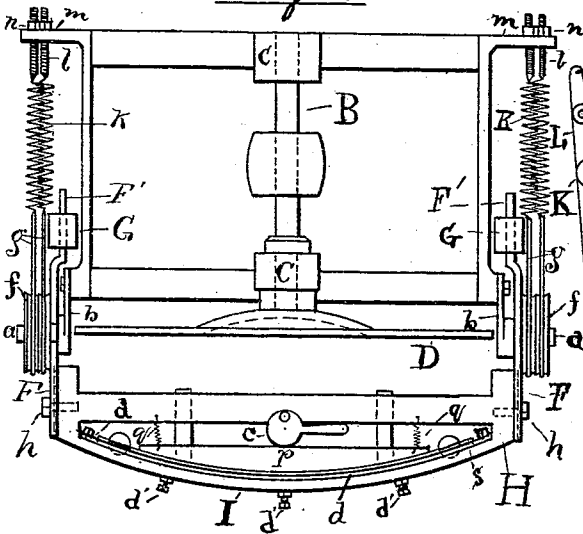
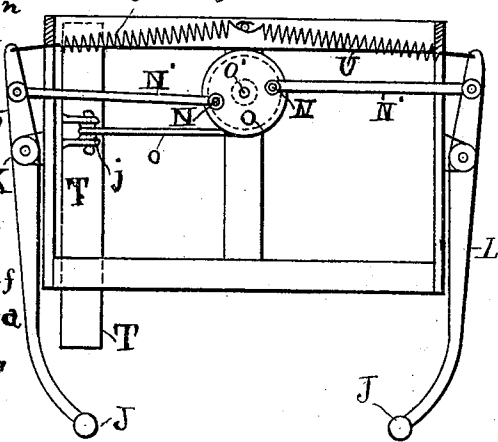


Fig. 4.



Attest.

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Fig. 5.

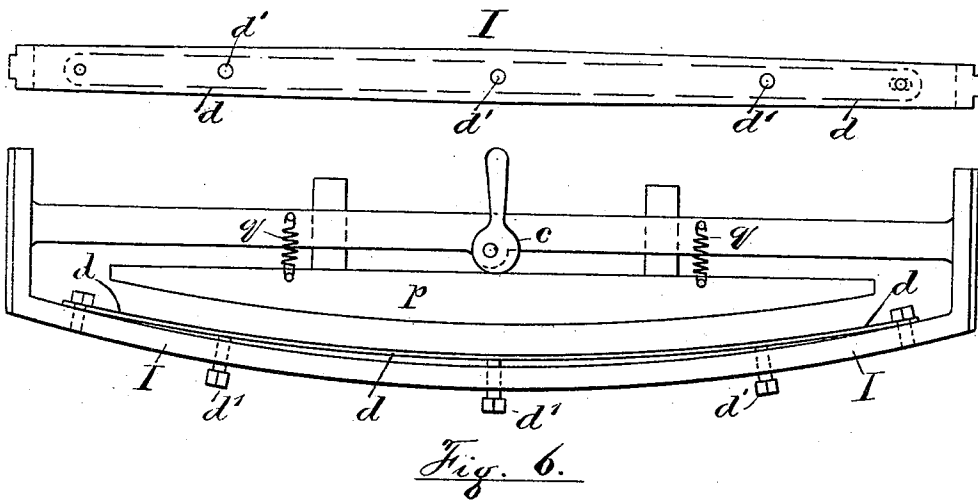


Fig. 6.

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UNITED STATES PATENT OFFICE.

HENRY WILDE, OF NEWARK, NEW JERSEY.

STAVE-JOINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 271,009, dated January 23, 1883.

Application filed July 31, 1882. (No model.)

To all whom it may concern :

Be it known that I, HENRY WILDE, a citizen of the United States, residing in the city of Newark, county of Essex and State of New Jersey, have invented certain new and useful Improvements in Stave-Jointing Machines, fully described and represented in the following specification, and the accompanying drawings, forming a part of the same.

This invention consists in an improvement in the stave-clamp heretofore used with similar machines, in a gage for setting the stave centrally in the clamp, and in the combination, with the said clamp and gage, of mechanism for operating the same.

Figure 1 is a front view of a machine constructed with my improvements, the clamp being shown in its central or balanced position. Fig. 2 is an end view of the machine. Fig. 3 is a plan of the same, and Fig. 4 is a horizontal section on line *x x* in Fig. 2. Figs. 5 and 6 are detached views of my improved stave-clamps on an enlarged scale, Fig. 5 being a front or edge view of the same, and Fig. 6 being a top plan view of the clamp with the follower *p* retracted, ready to insert the stave.

The frame is shown formed of end plates, A, and tie-bars A'. Upon the upper pair of the latter the spindle B is mounted in boxes C. The spindle carries at its forward end, overhanging the frame, the cutter-head D, which in practice is provided with knives and rotated by power, as in other machines of a similar kind.

The stave-clamp I, as shown in the enlarged view in Figs. 5 and 6, is itself constructed, as in other machines, of an outer "former" and an inner "follower," *p*, which is mounted upon a bar inside the clamp and provided with springs *q q* to retract it, and a cam, *c*, to press the follower toward the outer shell or former, which is shaped approximately to fit the convexity of the finished stave *s*. As such convexity varies in barrels having the bilge differently proportioned, I have improved the construction of the clamp by lining it with a flexible metallic plate, *d*, preferably of spring-steel, and providing several set-screws, *d'*, in the follower, by which the plate *d* can be set to any required curve. By making the former of the greatest convexity required, the plate *d* can be secured by bolts at its ends, as shown,

and lesser convexities can be readily produced by the set-screws *d'*. The follower *p* would also be made with the greatest convexity required, and would press chiefly in the middle of the stave when the plate *d* was set out at the center by the screws *d'*; but the elasticity and stiffness of the stave would serve to hold the ends firmly in place when the middle part was pressed hard by the follower.

The clamp and the bar carrying the follower are carried by clamp-arms F mounted upon pivots coincident with the face of the cutter-head D, as in similar machines, the pivots *a a* being formed upon brackets *b b*, secured to the end frames, A, and the clamp being secured by bolts *h* into recesses or rabbets *i*, formed in the inner sides of the arms at their front ends. The arms are formed, beyond the pivots *a*, with extensions F', upon which weights G are secured to balance the clamp I. Being thus balanced, but little force is required to hold the clamp in a central position before the head D, where gages can be most conveniently applied to it, to guide the stave centrally into the clamp and insure an equal cutting of its opposite edges. Such force is secured by the use of compensating-springs *k*, which are secured by adjusting-screws *l* and nuts *n* to lugs *m* upon the rear of the frames A, and connected by cords *g* to the opposite sides of two pulleys, *f f*, attached to the arms F concentric with the pivots *a*. By the nuts *n* upon the tension-screws the springs *k* can be so regulated as to hold the clamp normally in the position shown in Fig. 1. When in this position the cam *c* can be operated and a stave placed in or removed from the clamp with much greater convenience than in other machines wherein the clamp is not thus balanced.

To set the stave centrally in the clamp so that both edges may be equally shaved, I provide two gages, J, consisting of horizontal arms attached to upright spindles K, which are mounted upon the plates A near the front of the frame. The spindle K is operated by springs and a treadle, in such manner that the gages are normally held away from the clamp, but may be brought immediately under it by a pressure of the foot.

The springs *u* are attached by one end to the rear tie-bar, A', and by the other to arms L, which are adjustably secured by set-screws

upon the lower part of the spindles K, thus drawing the gage-arms J outward away from the clamp.

The treadle T is mounted upon the lower
5 part of the frame in front, and is connected by a cord, *o*, passing over a guide-roller, *j*, with a grooved pulley, O, mounted upon an upright spindle, O', in the middle of the frame. Upon
10 the upper side of the pulley, which is made of a solid disk, are two pins, N, at opposite sides of the center, and links N' connect these pins with ears formed upon the inner sides of the arms L. The movement of the treadle thus
15 rotates the pulley or cranked disk O, and thrusts the lever-arms outward, at the pleasure of the operator, to throw the gages J into their working position. When thus located in front of the head D, beneath the clamp I, they support the two ends of the stave as it lies in the
20 clamp before using the cam *c*, and secure a parallel position of the stave with reference to the edges of the clamp. When the gages are automatically retracted by the tension of the springs *u*, the operator can turn the clamp toward the top or bottom of the cutter-head, as
25 usual, and shave off either edge of the stave by pressing the clamp toward the head D by his hands, the springs *k k* resisting such movements, and thus securing a firmer grip for his
30 hands than if the weight of the clamp lay loosely in his hands in the usual manner. After one edge of the stave has been trimmed, the tension of the strained spring *k* assists very materially in overcoming the inertia of
35 the heavy clamp, and aids the operator in transferring the clamp and stave quickly to the opposite position to shave the other edge of the same. The tension of the spring last strained then aids in throwing the clamp to
40 its central position, ready for the removal of the finished stave and the replacing of it with another to be similarly treated, the foot being applied to the treadle and the gages being drawn beneath the clamp before inserting the
45 fresh stave.

From the above it will be seen that the object of the counter-balance G and springs *k k* is to facilitate the gaging and the manipulation of the stave before the cutter-head, while
50 the introduction of the spring-lining *d* into the body of the clamp secures a perfect correspondence between the shape of the stave while in the clamp and in the barrel for which it is intended, the set-screws *d' d'* being used to produce
55 the desired curvature in the flexible spring or

plate *d*, and the stave making a more perfect joint in the barrel when thus held during the shaving or jointing of its edges.

Having thus shown the function of the parts described, I do not claim the construction referred to herein as old, nor the precise construction of the new parts; but

I claim my improvement, as follows:

1. The combination, with the clamp I, provided with follower *p*, operated as described,
60 of the flexible lining-plate *d*, provided with adjusting-screws for adapting it to hold staves of different curvatures, substantially as and for the purpose set forth.

2. The combination and arrangement of the
70 cutter-head D, and pivoted clamp I, with removable gages J J, and means for operating such gages, substantially as and for the purpose described.

3. The combination, with the pivoted gages
75 J, arranged in relation to the cutter-head D and clamp I as described, of the retracting-springs *u u*, the treadle T, and suitable connections from the treadle to arms L upon shafts K, carrying the gages J J, all arranged and
80 operated as described.

4. The combination, with a pivoted clamp arranged in relation to the cutter-head D, as described, of opposed and adjustable springs
85 *k k*, arranged and operated to sustain the clamp in front of the head D, substantially as and for the purpose set forth.

5. In a stave-jointing machine, the combination, with the clamp I, mounted upon arms
90 F F', and pivots *a a*, as described, of the counterbalance-weights G G, affixed to the arms F', the pulleys *f f*, affixed to the arms concentric with the pivots *a a*, and the springs
95 *k k*, provided with means for adjusting their tension, and with suitable connections to the pulleys *f f*, substantially as and for the purpose set forth.

6. The combination of the clamp with the arms F, in the manner described, the clamp being fitted to the arms by projections and recesses
100 *i*, and secured thereto by bolts *h*, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY WILDE.

Witnesses:

THOS. S. CRANE,
HENRY F. GOKEN.