Culp & Flaig,

Tenoning Mach.

No. 111,181. Patented Jan. 24. 1871.

fig. 1.

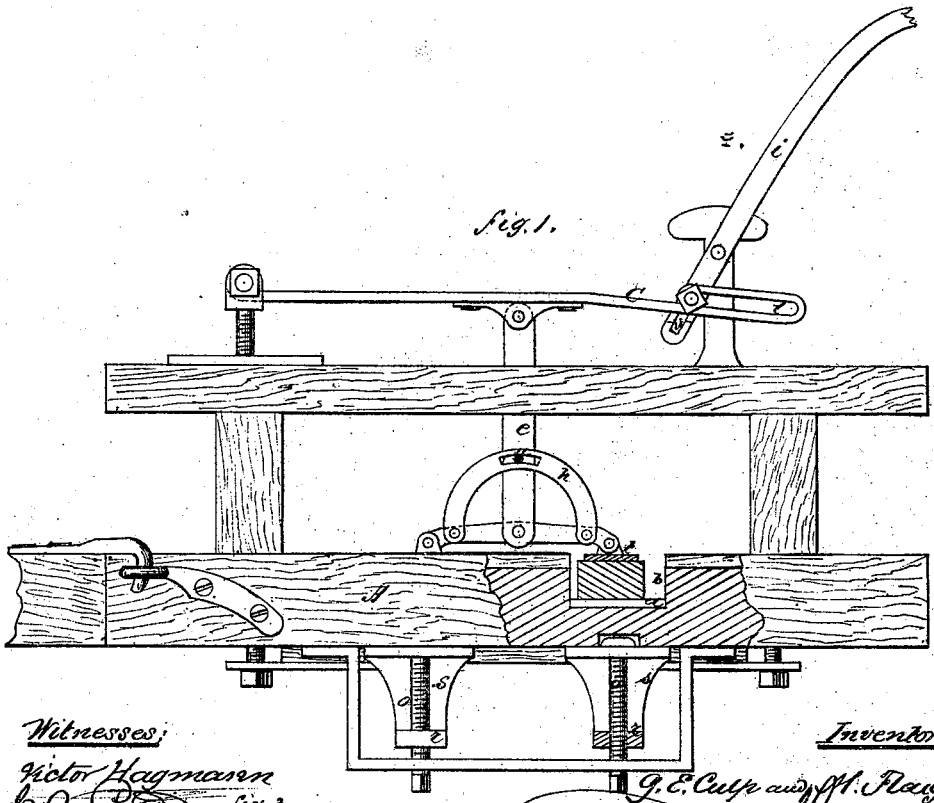

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fig. 3.

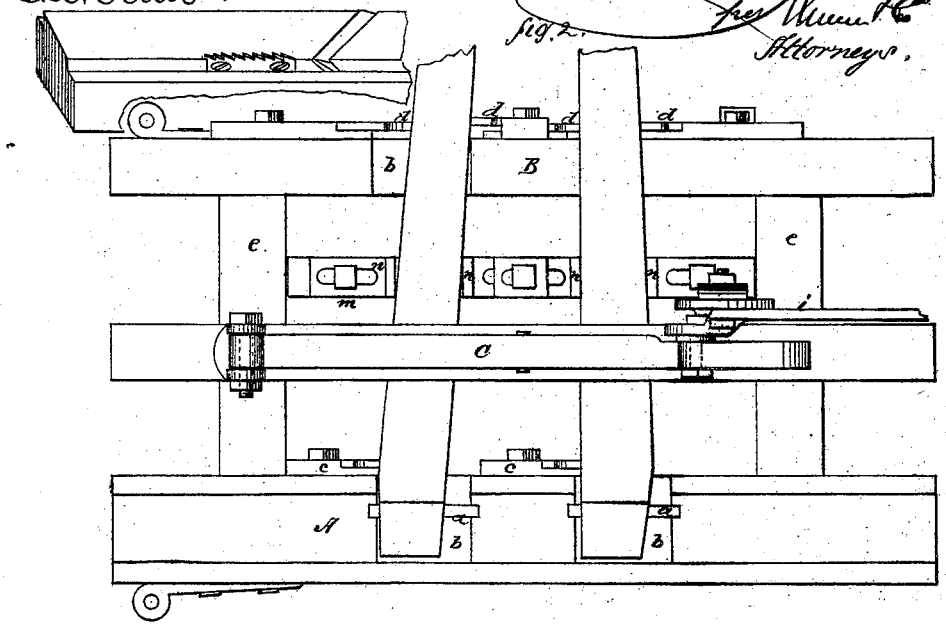

fig. 2.

United States Patent Office.

GODFREY E. CULP AND MATTHEW FLAIG, OF LOCKHAVEN, PENNSYLVANIA.

Letters Patent No. 111,181, dated January 24, 1871.

IMPROVEMENT IN SPOKE-TENONING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, GODFREY E. CULP and MATTHEW FLAIG, of Lockhaven, in the county of Clinton and State of Pennsylvania, have invented a new and improved Spoke-tenoning Machine; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation with a partial section; and

Figure 2 is a plan view.

This invention consists in the construction of an apparatus for holding spokes down while the plane is operating on them;

Also in the construction of a guide-way for the plane to run in, such guide-way having recesses for the spokes to rest in, and adjustable supports for regulating the position of the spokes while the plane is forming tenons on them, and the construction of an auxiliary beam placed at a convenient distance from the guide-way and provided with side clamps for holding the smaller ends of the spokes;

Also in the combination with such guide-way and auxiliary beam of a brace placed between the same, and provided with clamps, and designed for preventing the spokes from springing under the vertical clamping apparatus.

In the drawing—

D is the frame of the machine.

A is the guide-way for the plane, placed preferably at one side of the frame-work.

B is the auxiliary beam, placed at the opposite side of the frame-work.

b are the transverse recesses for the reception of the spokes, cut in both the guide-way and beam B.

a are the supports, placed lengthwise of the recesses *b*, in suitable slots, and resting on the heads of vertical screw-bolts, *o*, which extend downward through arms, *r*, projecting horizontally from vertical standands, *s*, extending downward from the under side of the guide-way A, so that, on the application of a wrench to the screw-bolts, the supports *a* may be raised or lowered in the recesses *b* to suit different thicknesses of spoke.

To the outside of beam B are attached, by set-screws, slotted clamps, *d*, which may be advanced lengthwise of the beam against the sides of the spokes, or drawn backward to accommodate wider spokes.

To the inside of the guideway A are attached, by set-screws, slotted plates, *c*, one to each recess, which may be moved lengthwise of the guide-way for the purpose of regulating the inclination of the spoke to the guide-way according as the slant of the shoulder should be which is to be formed on the spoke.

These particulars having been attended to, by a movement of the lever *i* to the right the plate C is lowered, through the action of the pin protruding from the lever into the slot *e;* and this movement depresses the holder *e*, in which is pivoted the semi-circular clamping-frame *h*, slotted in the middle of its bow for purposes of adjustment, and provided with feet *t*, which are forced down on the spoke by the aforesaid movement of the lever *i*, and firmly hold it without at the same time indenting its surface.

The plane is then run through the guide-way and across the spoke, as many times as may be necessary to form the tenon on one side.

A scale is inscribed, at the side of the right recess, transversely of the bottom of the guid-way, to assist the operator in determining the length of the tenon.

In the recesses *b*, at the right, each spoke is placed first, and after the tenon has been cut on one side the same spoke is transferred to the recesses *b*, at the left, and turned over so that the shoulder just formed may abut against the inner side of the support *a* in the left recess, and insure the formation of a shoulder on the upper side of the spoke with the same slant as that already formed.

At the same time a fresh spoke is placed in the recesses at the right, both spokes being held at the same time by the semicircular clamp-frame *h*, with one foot *t* on each, the set-screw *u* being turned outward so as to leave the frame free to adjust itself to both spokes at once.

When only one spoke is in the machine, the frame *h* is clamped to the holder *e* in such manner as to confine that one.

The spring-lever C is jointed to the top of the bolt *v*, which, being exteriorly threaded, may be turned up or down so as to give the lever a fulcrum of a height proportioned to the thickness of the spoke or other article under operation.

The movement of the lever *i* to the right or left immediately clamps or unclamps the spoke with the greatest ease.

To prevent the pressing apparatus from springing the spokes, a brace, *m*, is placed lengthwise between the guide-way and side beam, which brace is supported by screw-bolts passing through its ends and mounted in the cross-bars E E of the frame, so as to be vertically adjustable to the same extent with the supporting plates *a*, and provided with slotted plates, *n*, attached by set-screws to the top of the brace, for clamping the sides of the spokes in the same manner as the plates *d*. This brace and its plates also serve to support spokes too short to rest both upon the guide-way A and the side beam B.

The lever *i* has, near its lower end, a slot, *w*, through

which the bolt passes that slides in the slot *e*. By raising or lowering the lever C in the slot *w*, the leverage of the lever *i* is varied so that it presses the clamp-frame *h* downward with more or less force.

Having thus described our invention,

What we claim as new, and desire to secure by Letters Patent, is—

1. The spring-plate C, hanging holder *e*, clamp-frame *h*, feet *t*, and lever *i*, pivoted in a suitable standard, and provided with a pin working in the slot *l* of the spring-plate, when all these parts are constructed, arranged, and operating as described.

2. The guide-way A provided with the transverse recesses *b* and adjustable supports *a*, the side-beam B, also provided with transverse recesses *b* and with adjustable side-clamps *d*, and the spring-plate C, hanging holder *e*, clamp-frame *h*, and lever *i*, when all these parts are constructed to operate as described.

3. The adjustable brace *m* provided with sliding clamps *n*, the recessed guide-way A provided with the adjustable supports *a*, and the recessed side-beam B provided with the side-clamps *d*, when all these parts are combined and arranged as described.

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