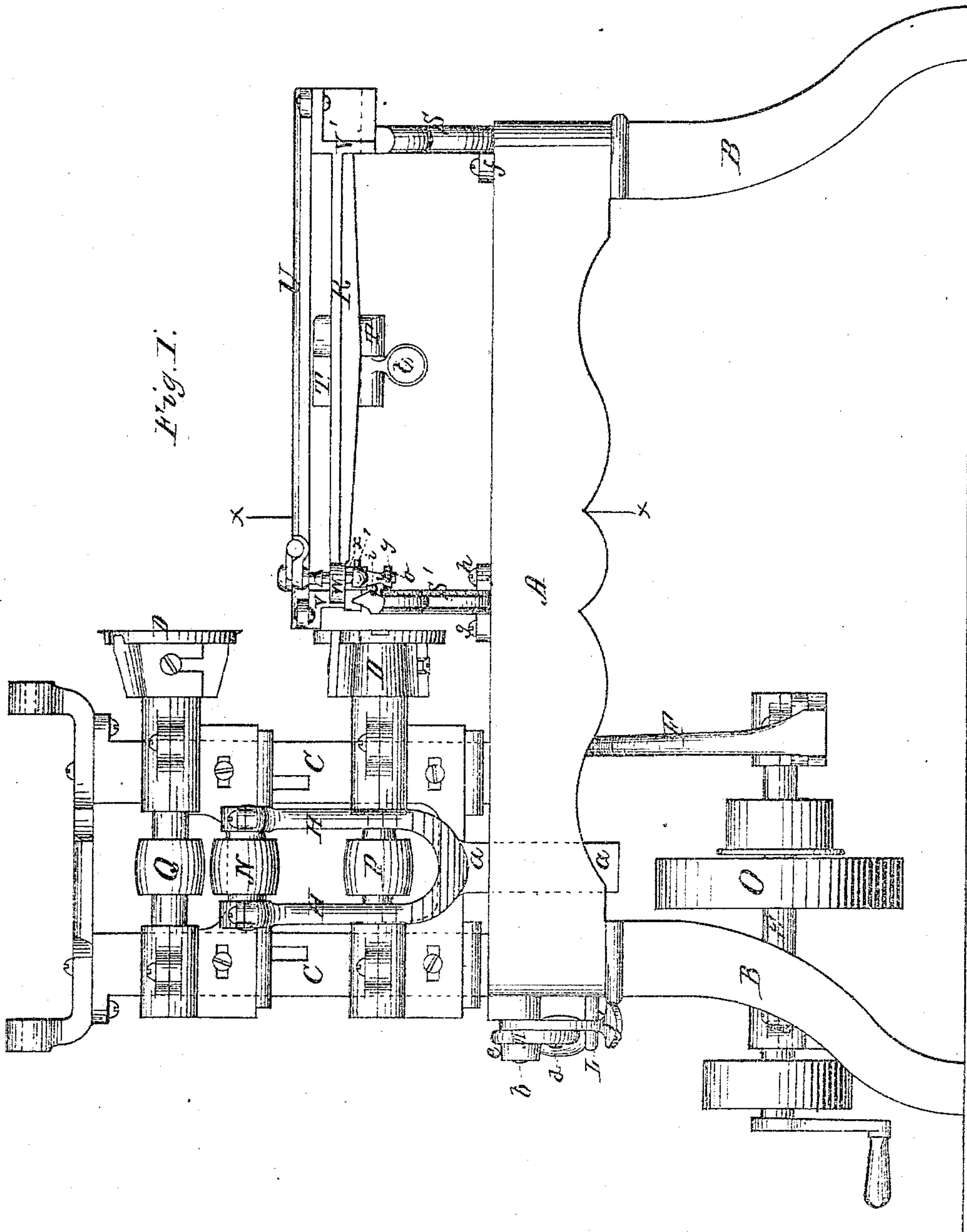


E. W. ROFF.
Tenoning-Machines.

No. 133,724.

Patented Dec. 10, 1872.



Witnesses:

John Taylor
Arthur L. McIntire

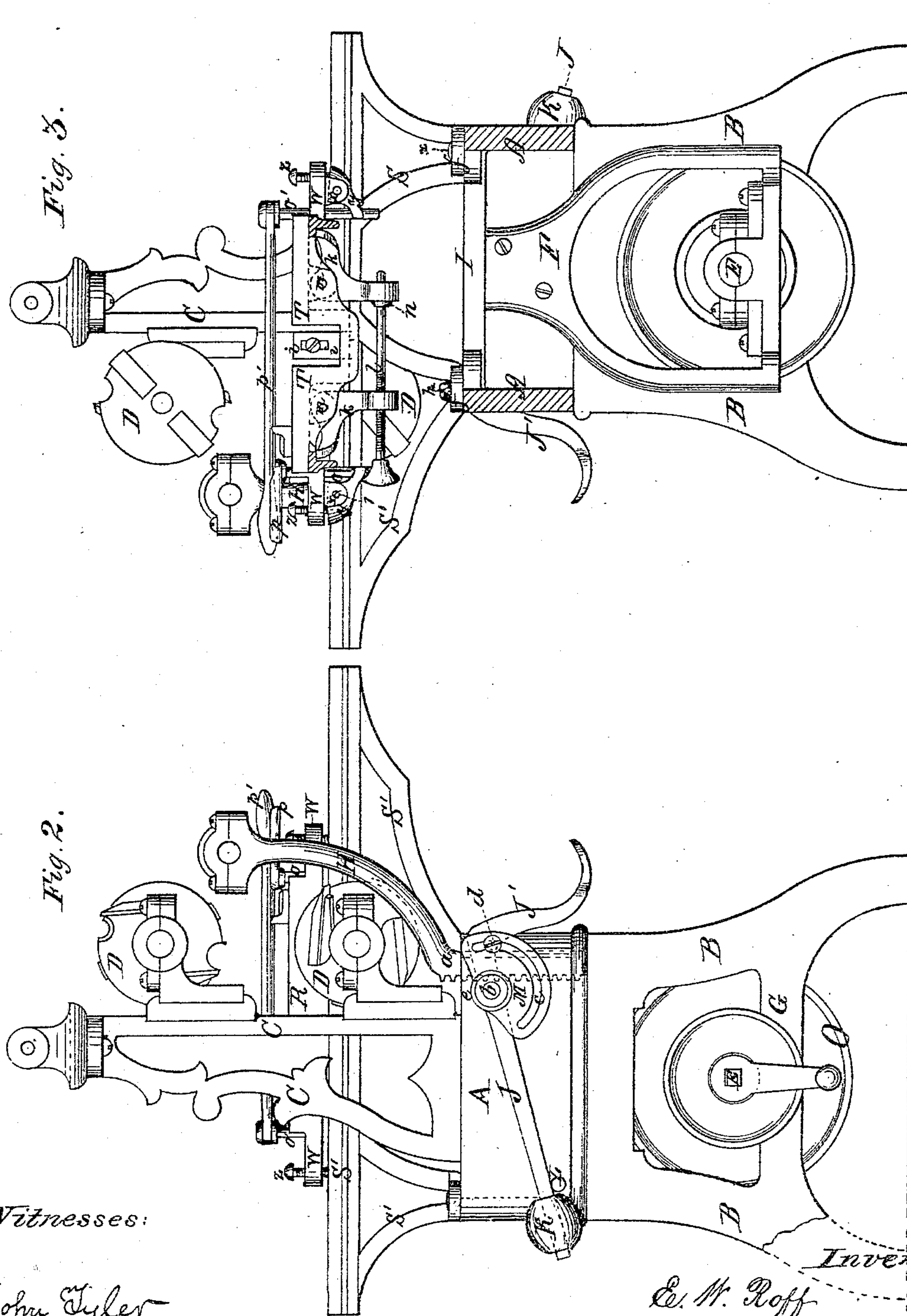
Inventor:

E. W. Roff.
By his atty Wm. C. McIntire

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UNITED STATES PATENT OFFICE.

ERASTUS W. ROFF, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN TENONING-MACHINES.

Specification forming part of Letters Patent No. 133,724, dated December 10, 1872.

To all whom it may concern:

Be it known that I, E. W. ROFF, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Tenoning-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making a part of this application.

My invention relates to that class of wood-working machines known as tenoning-machines; and has for its object to render the various adjustment of the parts in operation more complete, as will be hereinafter more fully set forth.

To enable those skilled to more fully understand the same, I will proceed to describe my invention, referring to the accompanying drawing, in which—

Figure 1 is a front elevation of a tenoning-machine embracing my improvements. Fig. 2 is an end view; and Fig. 3, a vertical cross-section at the line *xx* of Fig. 1.

Similar letters indicate like parts in the several views.

A represents a rectangular frame, supported at either end by supporting-legs B. C is a bracket-frame, upon which are mounted, in suitable bearings, the shafts of the revolving cutter-heads D. These cutter-heads with their shafts are made adjustable in any known way. The driving-shaft E is mounted in suitable bearings arranged upon a stirrup, F, and the cross-brace G of the end support B, and said shaft is provided with the proper pulley or pulleys. An inverted horn-shaped stirrup, H, is dovetailed in the side of the frame, and arranged to move up and down therein, as shown in the drawing. The central portion or extension *a* of this stirrup H is formed with a raked face, which meshes with a pinion on the end of a shaft, *b*, passing through the end of the frame, having one bearing therein, and the other in a cross-piece, I, which also serves as a support for one side of the bracket C and the hanging stirrup F. On the outer end of this shaft *b* there is arranged loosely a lever, which is bent about at right angles, forming the straight arm J and the downwardly-projecting pressure-portion J'. The straight portion J is provided with a sliding weight, K, for obvious reasons, and underneath the weighted

end there is a stop-pin, L, which prevents the end of arm J from being depressed too much. Outside of this lever and upon the same shaft is arranged a segmental piece, M, provided with a segmental slot, *c*, through which passes a binding-screw, *d*, into the portion J' of the lever. This segmental piece is provided with a head-piece, *e*, which is squared with or feathered to the shaft *b*, so that the lever may be turned upon the shaft independent of the segmental piece or the reverse when the binding-screw *d* is loosened. It will thus be seen that the distance the stirrup H will be raised by the weighted lever J may be regulated by securing the slotted segment M with varying relation to the lever. The stirrup H is provided with a band-pulley, N, which is forced by the weighted lever in contact with the band that travels from the driving-pulley O over the pulleys P Q on the lower and upper cutter-head shafts, and thus produces the required tightening of the band to operate the same, while the band may be loosened by depressing the portion J' of the lever. Arranged at the other end upon the frame A is a carriage, R, mounted upon two brackets, S S'. The former is rigidly fastened to the frame A by screw-bolts passing through ears *ff*. The latter is pivoted (see *x*, Fig. 3) through an ear at one end to the frame A, and adapted to revolve around said pivot, while the opposite ear of said bracket extends each side of the bracket, one side slotted to slide over a steadying-pin, *g*, and the other provided with a hole to receive a drop locking-pin, *h*. It will, therefore, be seen that when the locking-pin *h* is removed the whole bracket S' may be swiveled around its pivoted end in a direction away from the revolving cutters. The top of bracket S is flat, while the top of bracket S' is V-shaped. The carriage R rests loosely upon the flat face of the bracket S, (and may slide thereon when the other bracket is swiveled,) but is secured against any other than a right line or feed movement to the V-shaped face of the other bracket S' by a vertically-adjustable clamp, *i*, which has its lower end hook-shaped and catching under the notched face of the bracket, (see Figs. 1 and 3,) so that while the carriage may travel in the line of feed, it cannot swing around except with the bracket S', which may be accomplished, as before stated, by withdrawing the

locking-pin *h*. *T* is a slide or gage for regulating the length of the tenon. It slides at right angles to the travel of the carriage and on the face thereof, and is held at any given point above clamps *k k*, which are pivoted in the under side of the slide *T* by pivots *m m*. One end of these clamps is so shaped as to rest against and bite the under side of the rails composing the carriage *R*, (see Fig. 3,) while the other ends are adapted (by a female thread) to receive a right-and-left-hand screw-rod, *l*; or, if preferred, and as shown, only one of the clamps may have a female thread, and only one end of the rod *l* be provided with a male thread, the other end having a collar, *n*, to press against the inside of the opposite elbow. It will, therefore, be readily understood that by turning the screw-rod *l* to the right the lower ends of the clamps are forced outward, causing the upper ends to bite against the under side of the carriage, the slide *T* extending over on top of said carriage, as shown. *U* is a side stop and gage, and is adjustable by means of screw-bolts passing up through slots in the end pieces *V V'* of the carriage. At the front end of the carriage there is cast with the rails *R* two ears, *W*, with downwardly-projecting bearings *x*, between which are pivoted, by a pivot, *1*, elbow-shaped clamps *y*, the upper ends being flat against the under sides of the ears *W*, and being borne against by a depressing-screw, *z*. The other ends are notched to embrace vertical rods *o o'*. The former has a short scooped-out handle, *p*, and the latter, *o'*, has a swinging long handle, *p'*, the end of which is adapted to lie within the scooped or grooved top of the handle *p*. (See dotted lines at Fig. 3.) This long handle *p'* is intended to hold the lumber down onto the carriage, and when pressed down tightly on the same the two handles are secured together by a link, or in any other convenient way. The object of

the elbow-clamp *y* is to hold the rods *o o'* at varying heights, according to the thickness of the lumber to be held down onto the carriage, and be operated upon by the revolving cutter-heads.

The parts of the machine shown and not described are the same in construction and operation as are used in the class of machines to which my invention appertains.

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

1. In combination with the carriage *R*, the brackets *S* and *S'*, the former being fixed to the frame, and having a flat face, and the latter having a *V*-shaped face, and adapted to be swiveled at one end, or held in place, substantially as and for the purposes set forth.

2. In combination with the swiveling bracket *S'*, having a *V*-shaped face, as shown, the hook-shaped clamp *i*, arranged upon the head of the carriage, and adapted to operate as shown and described.

3. In combination with the rails of the carriage *R* and the slide *T*, the elbow-clamps *k k* and screw-rod *l*, constructed and operating substantially as and for the purpose set forth.

4. The combination and arrangement, with the carriage, of the elbow-clamps *y*, screws *z*, rods *o o'*, and handles *p p'*, all constructed and operating as and for the purpose set forth.

5. In combination with the rack *d*, stirrup *H*, and pinioned shaft *b*, the weighted lever *J J'*, and slotted segment *M*, constructed and operating substantially as and for the purpose set forth.

Witness my hand and seal to the foregoing specification.

ERASTUS W. ROFF. [L. S.]

Witnesses:

ALBERT SEARING, Jr.,
JAS. SKIPP.