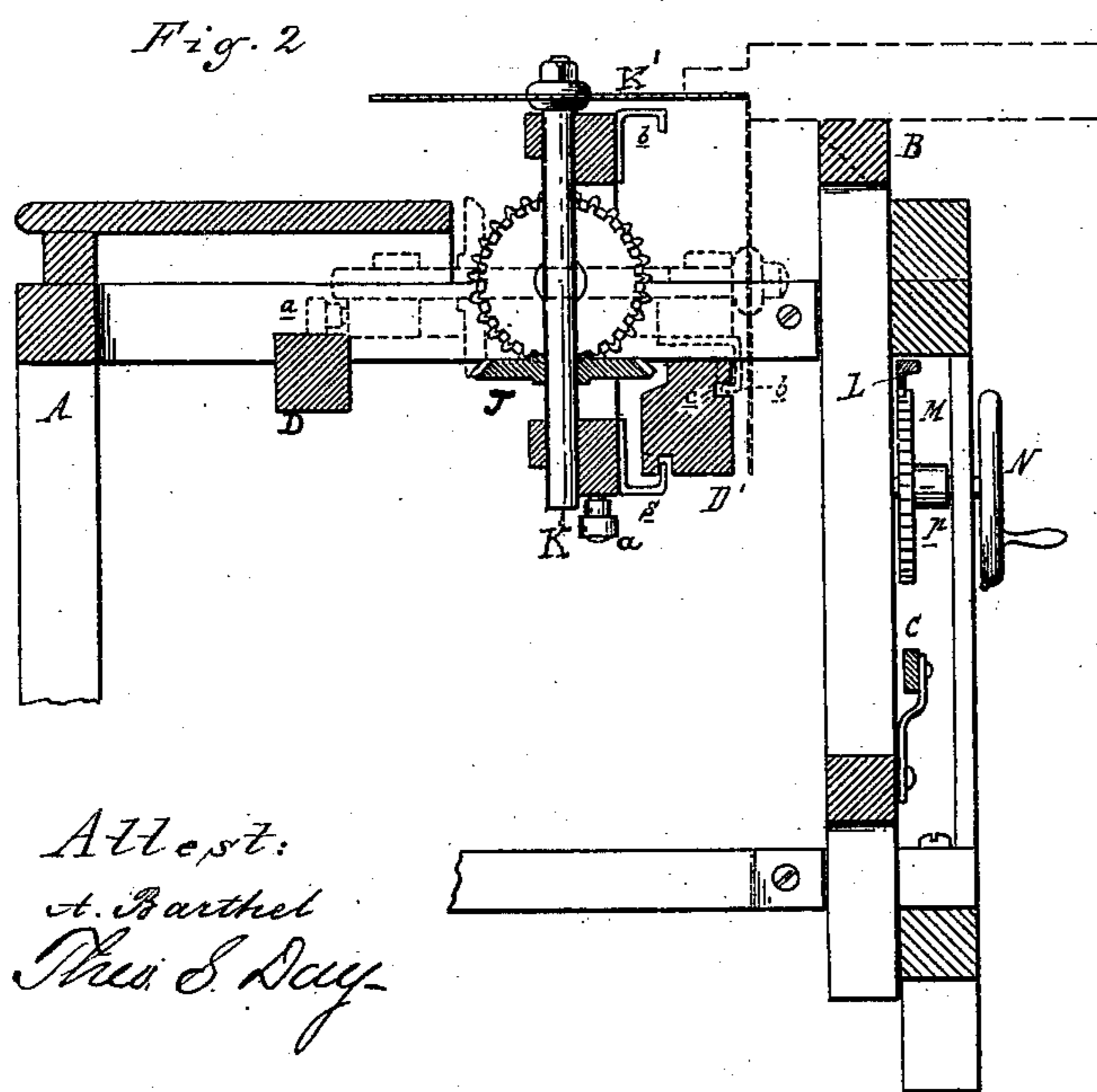
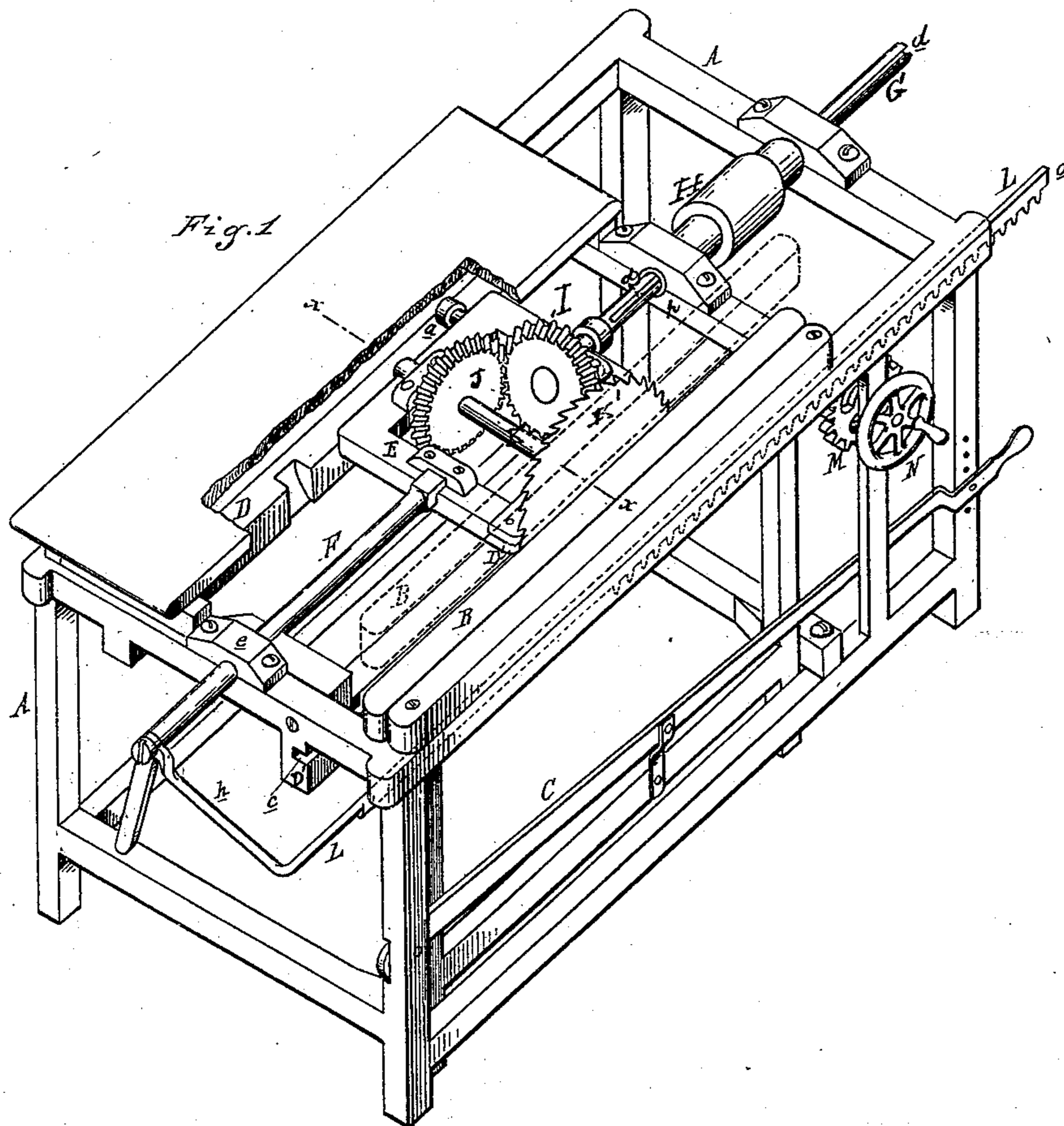


(No Model.)

H. MOLBY.  
Tenoning Machine.

No. 236,060.

**Patented Dec. 28, 1880.**



Attest:  
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# UNITED STATES PATENT OFFICE.

HORACE MOLBY, OF DAVISBURG, MICHIGAN.

## TENONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 236,060, dated December 28, 1880.

Application filed May 27, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE MOLBY, of Davisburg, Oakland county, Michigan, have invented an Improvement in Tenoning-Machines, of which the following is a specification.

The nature of this invention relates to certain new and useful improvements in the construction and arrangement of a sawing-machine the primary use of which is the cutting of tenons; and the invention consists in the peculiar construction and arrangement of the various parts, all as more fully hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view of my improved machine. Fig. 2 is a vertical cross-section on line *x x*.

In the drawings which form a part of this specification, A represents a suitable frame, in one side of which is arranged the vertically-adjustable table or frame B, said adjustment being obtained through the means of the lever C, as shown.

D D' represent ways, upon which the saw-carriage E travels, a friction-roller, *a*, at the rear side of the carriage resting upon the top of the way D, while a hook-guide, *b*, upon the front of such carriage travels in a channel, *c*, in the way D', the whole supporting and guiding the carriage in its horizontal position.

F is a shaft journaled in a proper bearing, *e*, at one end of the frame, the inner end of said shaft being rigidly secured to the saw-carriage. The main or driving shaft G is journaled in a proper box upon the opposite end of the carriage, passes through the hub of a pulley, H, and is journaled in suitable bearings upon or in the frame. The shaft G has a groove or channel, *d*, cut in it almost its entire length, and a stud projecting inwardly from the pulley H engaging with such channel imparts a rotary motion to the shaft when the pulley is rotated.

To the inner end of the shaft G is secured a bevel-gear, I, which meshes with a similar gear, J, secured upon the saw-arbor K, which is properly journaled upon the carriage and carries the saw K'.

L represents a rod provided with an arm, *h*, upon one end, said arm being pivotally connected to the outer end of the shaft F. The

opposite end of this rod L terminates in a rack-bar, *o*, which engages with a gear-wheel, M, properly secured upon a shaft, *p*, journaled in the frame A, said shaft being operated by the hand-wheel N.

To cut the tenon on a stick of timber I first mark off the size of tenon desired, and place the end of the timber upon the table B, which I adjust by means of the lever, so that the saw will cut the depth desired to form the shoulder of the tenon, the timber being secured upon the table in any convenient manner, its opposite end being supported upon a proper horse. I then cause the saw, through the connections hereinbefore described, to travel toward the opposite end of the frame, the saw passing under the timber and cutting the shoulder of the tenon upon that side, the operation being repeated to cut the opposite shoulder. After this is done the saw-carriage is advanced to the extreme left of the frame, where the friction-wheel *a* and hook-guide *b* are coincident with recesses in their respective ways. By then partially rotating the shaft F the carriage and saw are compelled to assume the position shown in Fig. 2, the hook-guide *s* engaging with a channel in the bottom of the way D'. By repeating the operations described for cutting the shoulder of the tenon the remaining or end cut may be made, thus forming a tenon upon the end of the timber, which will be perfectly true in every particular.

What I claim as my invention is—

1. A saw-carriage capable of being reciprocated and adapted to be rotated on its longitudinal axis by mechanism substantially as described, whereby the saw may be adjusted to run either in a vertical or horizontal plane, substantially as described, and for the purpose set forth.

2. A reciprocating saw-carriage adapted to be rotated on its longitudinal axis by mechanism substantially as specified, in combination with a vertically-adjustable table, B, for determining the depth of cut, substantially as described.

3. A circular saw mounted in bearings adapted to be adjusted to run either in a vertical or horizontal plane by mechanism substantially as described, in combination with a

vertically-adjustable table, substantially as set forth.

4. A circular saw capable of reciprocation and adjustment vertically and horizontally, in  
5 combination with the shaft F, rod L, gear M, and hand-wheel N, substantially as set forth.

5. The combination, with the saw-carriage E, having the friction-roll *a*, hooks *b* s, and

shaft F, of the recessed ways D D', rod L, having racks *o*, cog-gear M, and hand-wheel N, 10 substantially as described, and for the purpose set forth.

HORACE MOLBY.

Witnesses:

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