

E. H. REES.  
TENONING-MACHINE.

No. 170,396.

Patented Nov. 23, 1875.

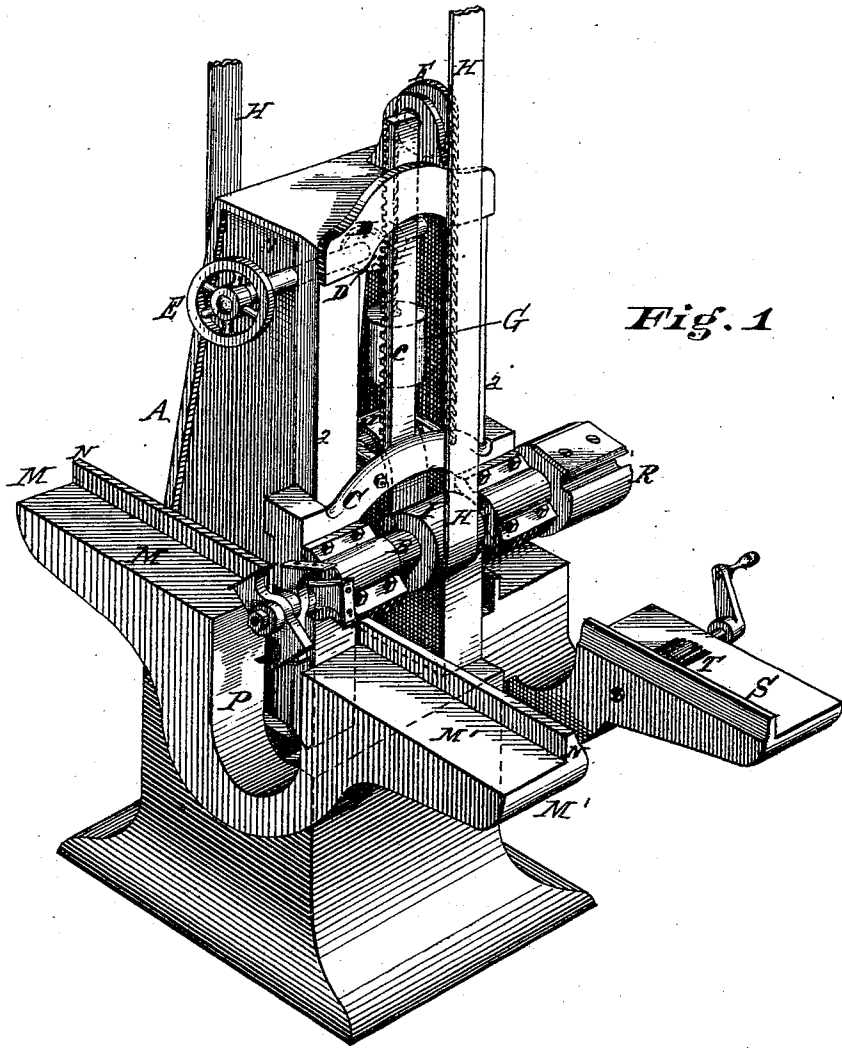


Fig. 1

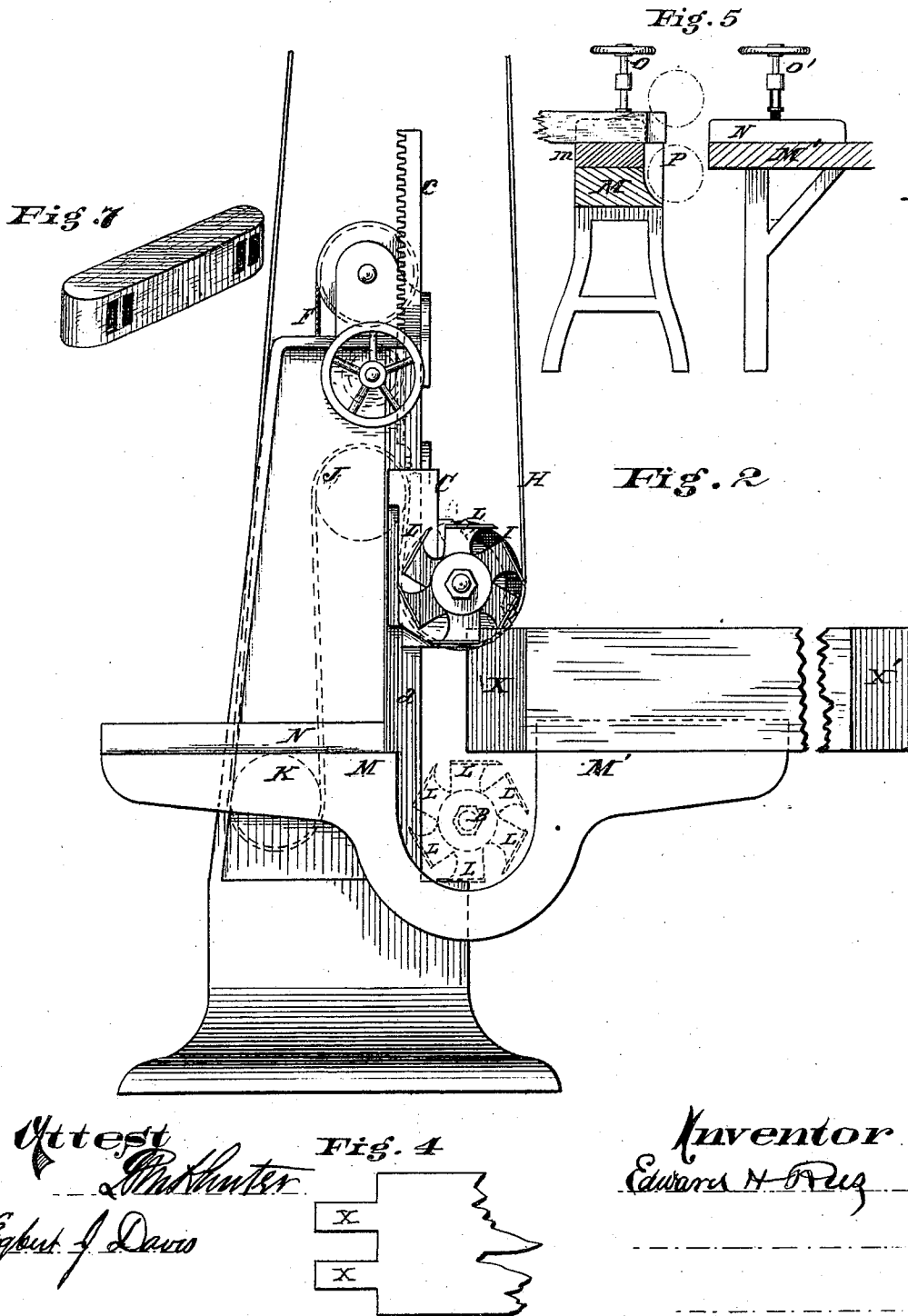
Attest  
*Wm. Hunter*  
Esq. of Davis

Inventor  
*Edward H. Rees*

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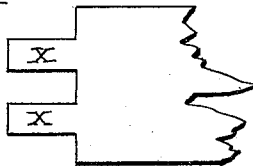
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*Wm. Hunter*  
Exhibit of Davis

Fig. 4

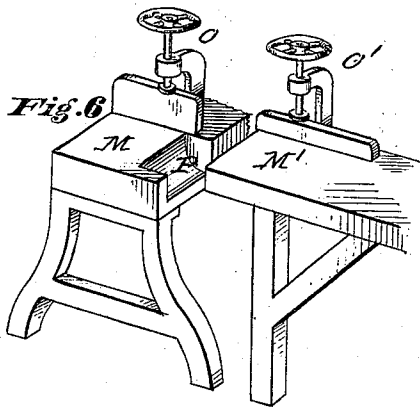


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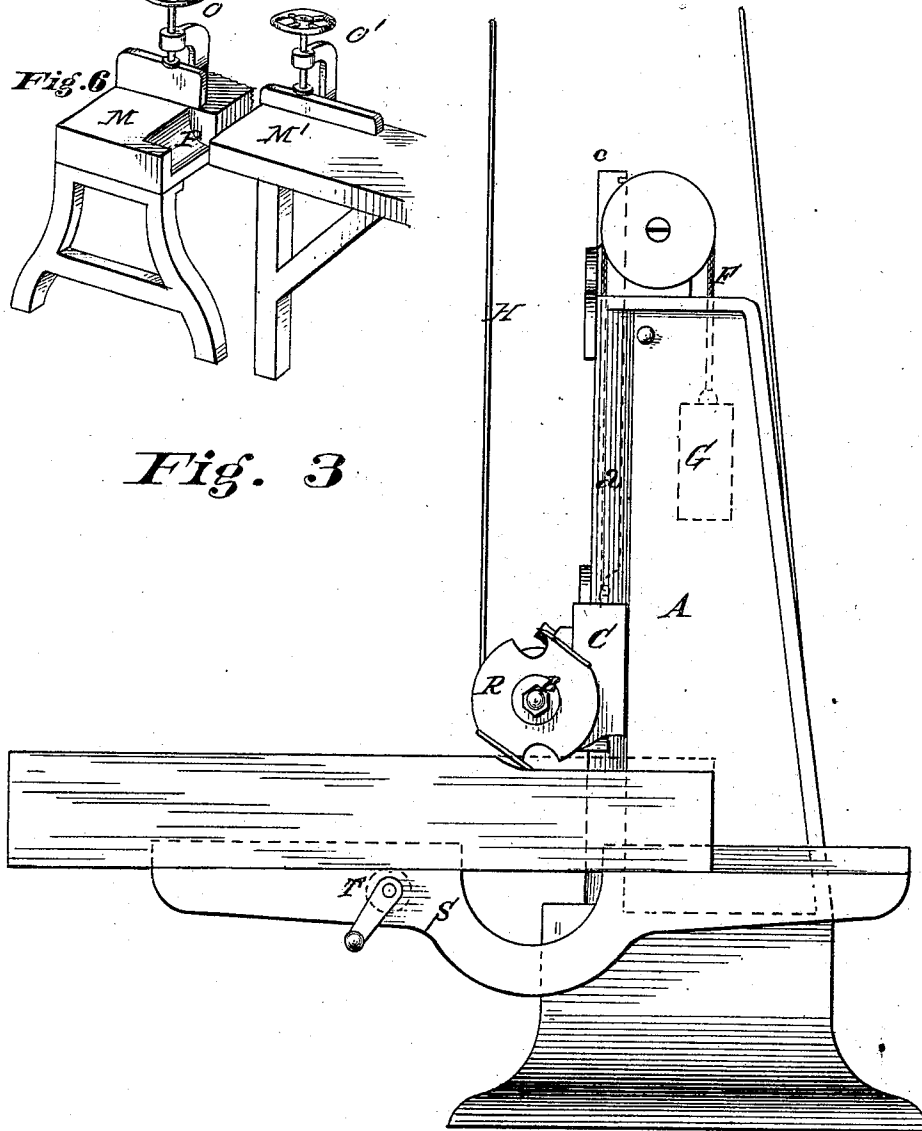
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*Fig. 3*



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# UNITED STATES PATENT OFFICE.

EDWARD H. REES, OF MANSFIELD, ASSIGNOR TO J. A. FAY & CO., OF  
CINCINNATI, OHIO.

## IMPROVEMENT IN TENONING-MACHINES.

Specification forming part of Letters Patent No. **170,396**, dated November 23, 1875; application filed  
December 31, 1873.

*To all whom it may concern:*

Be it known that I, EDWARD H. REES, of Mansfield, Richland county, State of Ohio, have invented a certain new and useful Improvement in Tenoning-Machines, of which the following is a specification:

My invention is designed to enable tenons to be cut upon both ends of a stick or piece of wood without necessitating the turning of the stick end for end in the operation, and is also designed to facilitate the accurate cutting of the tenons by enabling the same side of the stick to rest against the fence or side guide of the table for both cuts; and is also designed to permit the ready reversibility of short stuff to be shaped, tenoned, or gained.

My invention consists in such a construction of the table or tables on which the work to be cut rests, and the peculiar arrangement of the table or tables with relation to the path of the revolving cutters, (which rise and fall in the act of cutting,) that the cutters, in cutting downward, pass below the bottom of the stick in completing the tenons at one end of long stuff, and in the act of rising cut upward and complete the tenons upon the opposite end of the stick—the stick, previous to the last cut, having been simply moved along the table longitudinally to present the other end to the cutters.

My invention further consists in the provision, in connection or combination with said table or tables, of a sliding cutter-frame, in which the cutters overhang, so as to permit (in the operation of tenoning short stuff) the convenient reversibility of the stick, or convenient movement of the stick.

Figure 1 is a perspective view of the preferred construction of tenoning-machine embodying my invention. Fig. 2 is an elevation of one side of the machine. Fig. 3 is an elevation of the opposite side. Fig. 4 is a plan of a stick of wood with tenons cut on one end. Fig. 5 is a section of a modification in the construction of the tables. Fig. 6 is a perspective view of the modification shown in Fig. 5. Fig. 7 is a perspective view of a piece of timber with rounded end, such as is usually mortised to receive the tenoned sticks, the machine

being adapted, in addition to cutting tenons, to round up the ends of such work.

A is the frame of the machine which supports the slide that carries the cutter-spindle B. The frame A has dovetailed ways *a* formed upon it, upon which the cutter-slide C fits and moves in a vertical path, the slide having a rack, *c*, secured to it, into which the pinion D of the hand-wheel shaft E fits or meshes. By this device the slide C, with its spindle B, may be raised or lowered sufficient to carry the cutters above and below the stuff to be cut. The weight of the slide and cutter-spindle, with accompanying cutter-heads, may be balanced by straps F and weight G. The cutters may be driven by belt H, which passes under the spindle-pulley I, over the idler-pulley J, on slide C, and under idler-pulley K, on the frame A, this arrangement of pulleys and belting permitting the vertical movement of slide C without affecting the tension of the belt. Upon the end of the spindle designed for tenoning suitable cutters L are secured in the usual manner, the number being determined by the number of tenons required to be formed on the stick. The table upon which long stuff to be tenoned is supported is divided into two parts, M M', so as to be properly capable of formation in one or two parts or pieces, or formation in one piece, and in either case properly designated as a "table" or "tables." These tables may or may not be of the same height, depending upon whether the machine is designed wholly for cutting tenons on both ends of long stuff, or designed for the additional purpose of cutting short work, as Fig. 7, which is conveniently reversible. When used for cutting such work as Fig. 7, in addition to tenoning long stuff, it is desirable that the table M' (see Figs. 5 and 6) shall be removable, and that there be no side obstructions to prevent the easy reversibility of short stuff; and it is also desirable that the remaining table shall be lower than when used for tenoning, and to this end the cutters L are constructed to overhang, as shown, in contradistinction to cutters revolving between side housings; and the table M for this use may be made, as clearly shown in Figs. 5 and 6, with its face proper

lower than the face of M', a loose piece, *m*, being used on table M when the tables are required to be of even height for tenoning. When the machine is designed mainly for tenoning both ends of long beams or sticks of wood, the tables M M' are, preferably, of even height, as shown in Figs. 1 and 2. Both tables are provided with side guides or fences N, against which the side of the stick to be tenoned is kept in contact, clamps O O' (see Figs. 5 and 6) being used to firmly hold the stick in place.

In the operation of tenoning long stuff on the machine (when the cutters are set to cut in the direction shown, and the slide is up) the stick to be cut is placed on the table M', and the slide is then moved down, so as to carry the cutters entirely through the stick to the position shown in dotted lines in Fig. 2, the cutters then being below the stick, and occupying a position in the "gap" P, or open space between the tables. The stick is then released from the clamp O' and shoved along the table until it rests on table M, and when clamped in position for the cutting of the tenons on the opposite end of the stick the slide is raised, and in so raising the tenons are cut on this end. Thus both the tenons X and those X' upon the opposite end have been cut without the stick having been turned end for end. The

fence N being in line the stick is gaged by the same face, and the tenons at both ends are therefore the same distance from the face of the stick in contact with the fences—a very important consideration, as no adjustment side-wise is required in cutting the tenons. On the opposite end of spindle B a hewing cutter-head, R, is secured, and a table, S, located, upon which stuff to be dressed down or hewn may be placed, a corrugated or toothed feed-roller, T, being journaled in the table, by which the stuff may be fed to the cutter. A guide or fence, V, is also used on this table. This feed-roller T may or may not be fitted to bearings, which have springs to permit of the roller adapting itself to the stick.

I claim—

The combination, substantially as before set forth, of two tables, with a rotating cutter adapted to be reciprocated between said tables in the manner stated, so that it may cut through the stuff from either side.

In testimony of which invention I hereunto set my hand.

EDWARD H. REES.

Witnesses:

FRANK MILLWARD,  
EGBERT J. DAVIS.