F. ARBEY.

TENONING AND MORTISING MACHINE.

No. 186,703. Patented Jan. 30. 1877.

Fig: 1.

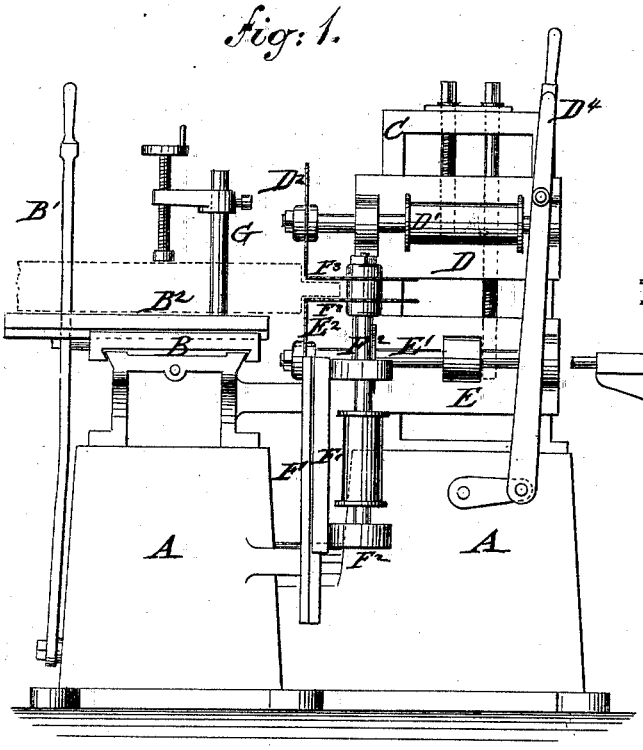


Fig: 2.

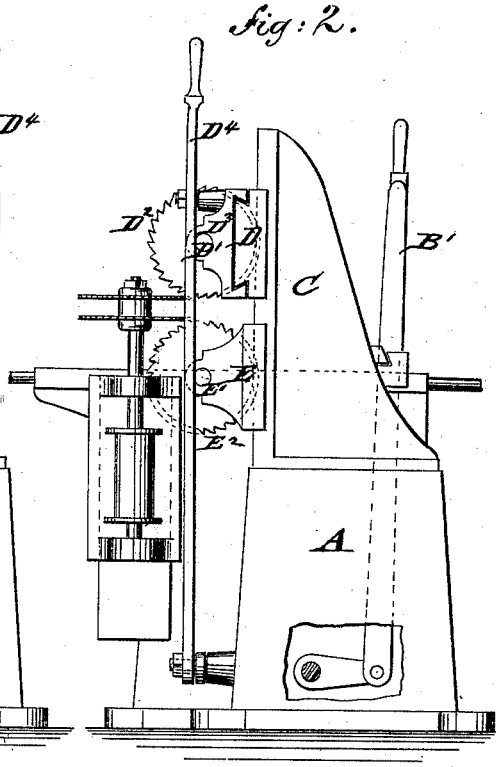
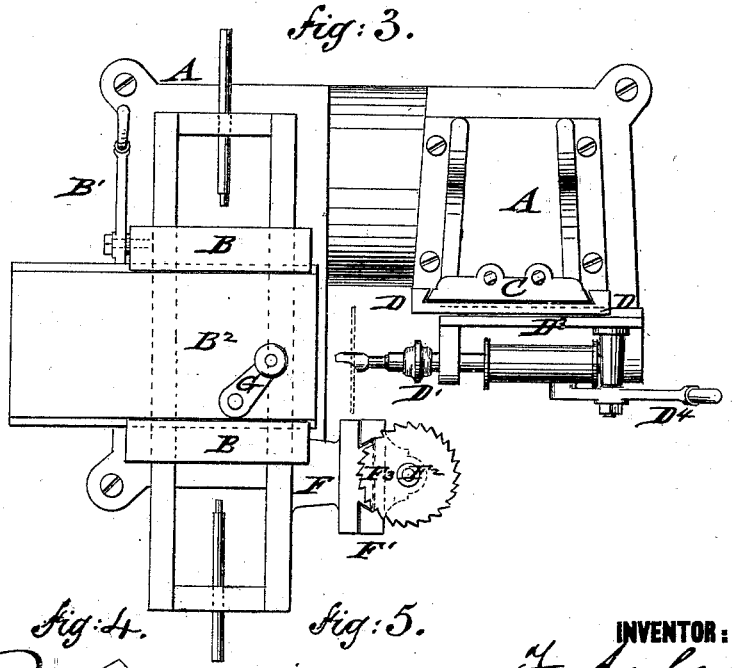


Fig: 3.



WITNESSES:

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Fig: 4.

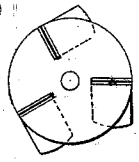
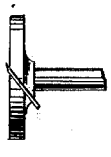


Fig: 5.



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UNITED STATES PATENT OFFICE.

FERDINAND ARBEY, OF PARIS, FRANCE.

IMPROVEMENT IN TENONING AND MORTISING MACHINES.

Specification forming part of Letters Patent No. **186,703**, dated January 30, 1877; application filed November 25, 1876.

To all whom it may concern:

Be it known that I, FERDINAND ARBEY, of Paris, France, have invented an Improvement in Tenoning and Mortising Machines, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a front elevation, Fig. 2 a side elevation, and Fig. 3 a plan view, of my improved machine for tenoning and mortising wood; and Figs. 4 and 5 are detailed front and side views of the planing-knife used in connection with the machine.

Similar letters of reference indicate corresponding parts.

The invention refers to a compact machine, by which, in convenient manner, different wood-working operations may be accomplished, as tenoning, mortising, edge-planing, and sawing, the tenons and mortises being cut of any suitable size and inclination, and the machine readily adjusted and controlled during its operation.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

In the drawing, A represents the supporting bed-frame of my improved tenoning and mortising machine, which frame consists of two main parts—one for guiding the horizontally-sliding table B, the other for supporting, on a vertical guide-frame, C, and on adjustable carriages D and E, the horizontal shafts D^1 and E^1 of the vertical circular saws D^2 and E^2.

To the side of the table-supporting part of bed A is secured a vertical guide-frame, F, with a vertically-sliding carriage, F^1, which supports, in suitable bearings, the vertical saw-shaft F^2, that is provided at the upper end with a double set of horizontal circular saws, F^3.

The distance of the horizontal saws F^3 from each other may be readily adjusted by a suitable clamping device and intermediate sleeve or collar to the thickness of the tenon to be cut, the edge of the wood being first fed to the horizontally-cutting saws, and then to the vertically-cutting saws D^2 and E^2, which cut through the parts at both sides of the tenon, and produce the recesses at both sides of the same.

The vertical saws D^2 and E^2 are adjusted by sliding along the vertical guide-frame C to the thickness of the tenons to be produced the piece of wood being exposed to the action of the tenoning-saws by the motion imparted by a hand-lever, B^1, to the sliding table.

The extent of motion of the sliding table may be controlled in longitudinal direction by suitable stop devices at the ends of the guide-frame of the table, while the work is laterally adjusted to the saws by a laterally-guided part, B^2, of the table, to which, also, the clamping-posts and screws G, for holding the wood tightly on the table, are applied.

The upper saw-shaft D^1 is also capable of lateral motion, in addition to the vertical motion of its carriage, by a horizontally-sliding part, D^3, of the same, operated by a hand-lever, D^4, in similar manner as the table B.

The extent of horizontal motion may be controlled by stop devices, and the horizontally-sliding part D^3 firmly secured in any desired position by a clamping-screw or otherwise, so that the revolving shaft D^1 may also serve, when detaching the circular saw D^2, and applying a mortising-tool, as shown in Fig. 3, for mortising and grooving, the remaining saws being then placed so as to be out of the way.

By applying the planer, (shown in Figs. 4 and 5,) the edges may be smoothly planed off with great facility.

The machine may also be used as a common circular sawing machine.

Tenons and mortises of different angles are produced by placing the saw-bearings on swinging plates of the carriages, and securing the plates by clamp-screws, after giving the required degree of inclination.

Double tenons may also be produced with great facility by sawing the tenons and then mortising the intermediate grooves.

The shafts are revolved by belt-and-pulley connection with the driving-shaft, and the machine may be used, by its compactness and ready adjustability to the different applications, in quick and efficacious manner for the different purposes for which the same is designed.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

The combination of the vertical guide-frame C, the vertically-adjustable carriage D, the horizontally-sliding part D^3, carrying revolving shaft D^1, and the operating-lever D^4, to apply shaft D^1, by change of tools, to mortising and planing operations, substantially as specified.

FERDINAND ARBEY.

Witnesses:
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EUGÈNE L. TOURET.