J. J. SPILKER.

Miter-Machine.

No. 212,409. Patented Feb. 18, 1879.

FIG. 1.

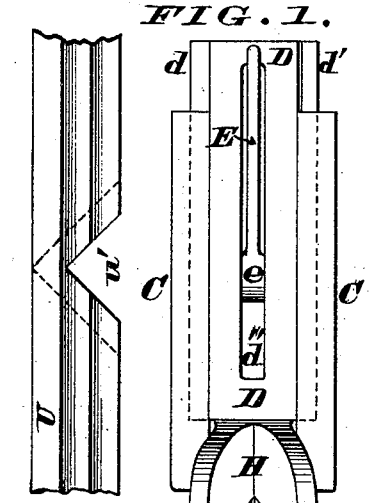


FIG. 6.

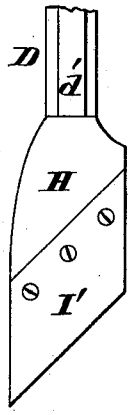


FIG. 2.

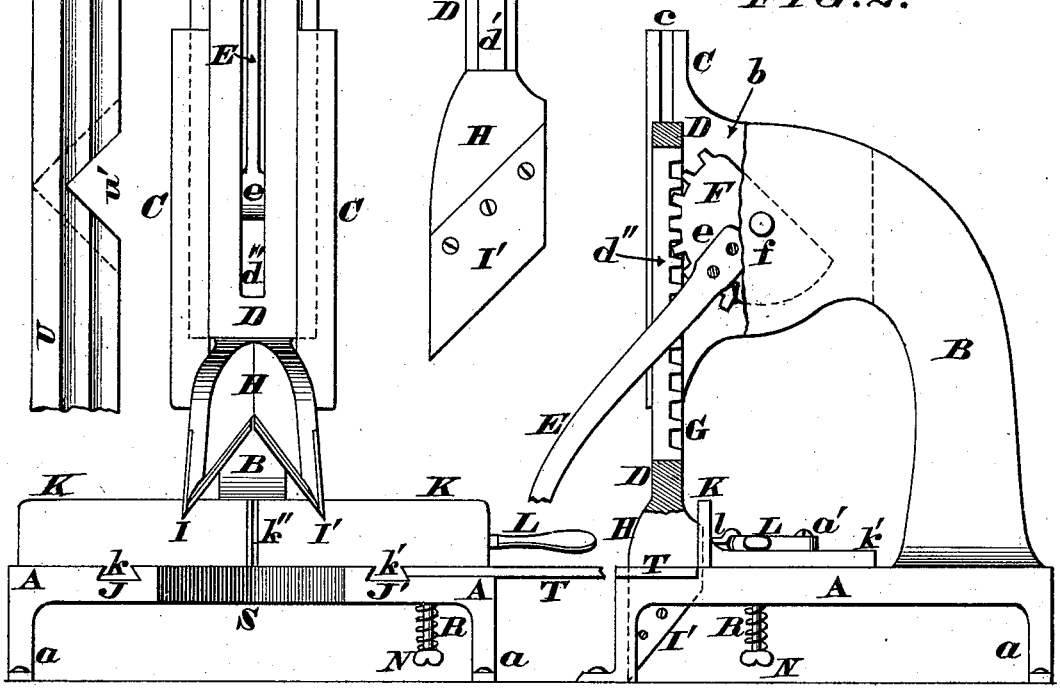


FIG. 3.

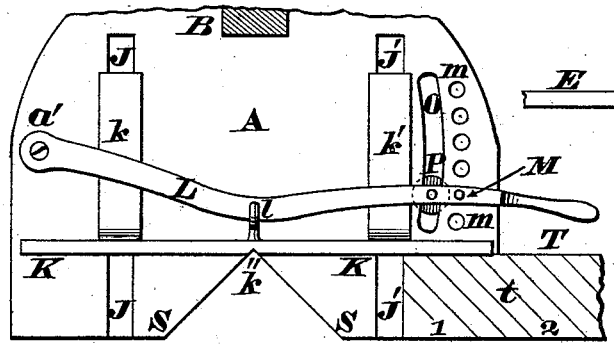


FIG. 4.

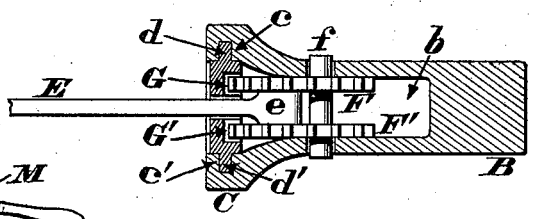


FIG. 5.

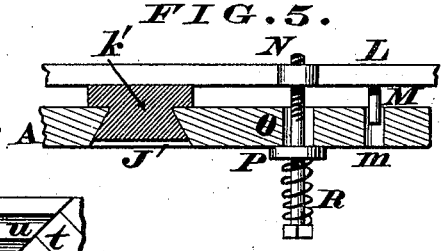
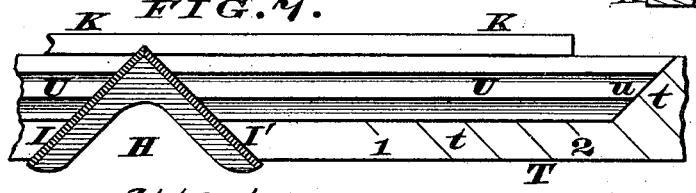


FIG. 7.



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UNITED STATES PATENT OFFICE.

JOHN J. SPILKER, OF CINCINNATI, OHIO.

IMPROVEMENT IN MITER-MACHINES.

Specification forming part of Letters Patent No. **212,409**, dated February 18, 1879; application filed July 18, 1878.

To all whom it may concern:

Be it known that I, JOHN J. SPILKER, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Adjustable Frame-Jointer, of which the following is a specification:

This invention relates to those miter-cutters which employ a pair of vertically-reciprocating knives, placed at right angles to each other, for the purpose of severing the stuff; and my improvement consists in providing such machines with a single guide or fence capable of being readily advanced or retracted by means of a lever that is arranged to be conveniently worked by hand.

The aforesaid fence extends a sufficient distance to the right and left of the knives to insure a firm and correct guide or guard for the rear edge of the molding or other stuff to abut against while said knives or cutters are performing their descending or effective stroke.

Furthermore, said lever is provided with a spring-stop or any other device that will retain said lever securely in any desired position, and at the same time permit its ready unlocking when the fence or guide is to be shifted.

By thus providing a mitering-machine with a single extended fence capable of being advanced and retracted as rapidly as the knives can be operated I am enabled to sever the heaviest moldings by two or more successive strokes of said cutters acting from the front to the rear edge of the stuff, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a front elevation of my improved adjustable frame-jointer, the knives being represented as elevated. Fig. 2 is a partially sectionized side elevation of said implement, the knives being depressed. Fig. 3 is a horizontal section of the same, taken immediately above the shiftable guide. Fig. 4 is a horizontal section taken in the plane of the pinion-shaft. Fig. 5 is an enlarged vertical section of the table, taken in the plane of the lever that operates the aforesaid shiftable guide. Fig. 6 is an enlarged side elevation of one of the knives, and Fig. 7 is a plan, showing a piece of molding in the act of being severed with the knives.

A represents a stout horizontal table or bed-plate, supported upon feet or legs *a*, and provided with a bracket, B, whose neck C is grooved at *c c'* to receive the tongues *d d'* of a vertically-reciprocating slide or carriage, D, which latter has a longitudinal slot, *d''*, through which projects the operating-lever E. The heel *e* of this lever is secured to two similar segmental pinions, F F', mounted upon a shaft, *f*, said shaft being disposed athwart the slot *b* of bracket B, as seen in Fig. 4. These pinions engage, respectively, with racks G G' at the rear of slide D.

Furthermore, the lower end of this slide carries a downwardly-flaring stock, H, to which stock the knives or cutters I I' are secured in any suitable manner. These knives are disposed at right angles to each other, and their cutting-edges are arranged so as to have a shearing action against the molding, as seen in Figs. 1, 2, and 6. Table A is provided with two parallel under-cut grooves, J J', to receive the dovetail-tongues *k k'* of the horizontally-shiftable guide K, which latter is grooved vertically at *k''* to permit the passage of knives I I'. This guide or fence K is carried across table A far enough to afford an extended bearing both to the right and left of cutters I I', in order that the molding or other stuff may be securely maintained in a correct position with reference to said cutters while the latter are making their descending or effective stroke.

Pivoted to bed-plate A at *a'* is a lever, L, having a link, *l*, wherewith it is coupled to the shiftable guide K. Depending from this lever, and near the free end of the same, is a stop, M, adapted to enter either one of the perforations or pits *m*. Engaging with this lever is a screw, N, that traverses a slot, O, of the table, said screw being provided with a spring, R, that bears against the washer P. The object of this spring is to retain stop M securely within either of the apertures *m*, while at the same time it permits the ready lifting of lever L when it is desired to swing the latter either to the front or to the rear of the machine.

S is a V-shaped cove at the front of table A to permit the passage of stock H and its knives I I'. Applied to the front of the table, and preferably to the right of said cove S, is a scale or gage, T, whose graduations *t* are parallel with cutter I', as more clearly seen in Fig. 7.

My implement is operated in the following manner: Guide K is first properly adjusted and securely maintained in position by engaging stop M with the appropriate aperture, and the molding U is then held against said guide with the back or rabbeted side of the stuff resting upon table A. Lever E is then depressed, thereby forcing the knife I through said molding, so as to cut its end off obliquely, or at an angle of forty-five degrees, as shown at *u* in Fig. 7, after which act said lever is elevated. The molding is then shifted to the right until its end *u* is brought to the proper mark on scale T, when lever E is again depressed, and the stuff is now severed by the shearing action of both of the knives I I′, the portion of stuff removed being carried down with said knives through the cove S. Lever E is again elevated, the molding once more shifted to the proper mark of scale T, and the operation of mitering the stuff is repeated.

The above is a description of the operation of my implement in jointing light stuff; but as the machine has been designed more especially for cutting heavy moldings, which have heretofore been severed exclusively with saws, I will now explain this comparatively more complex action of the implement.

To miter moldings of from three to six inches across the face, the guide K is first shifted toward bracket B, so as to allow the knives I I′ to cut only about half-way through the molding from front to rear of the same, as seen at *w*′ in the diagram to the left of Fig. 1. This partial severance of the molding having been effected, the knives are elevated, and the guide is then shifted toward the front of table A. These knives are at once again depressed, so as to cut through the remaining portion of the molding, as indicated by dotted lines in the aforesaid diagram, and by thus making two or three successive cuts at each joint the widest stuff can be severed in a few moments. As the knives cut shearingly from front to the back of the molding no splintering of the facing composition occurs, and the frames are at once ready for nailing at the corners.

In adjusting the guide it is only necessary to elevate slightly the free end of lever L, so as to disengage stop or pin M from aperture *m*, and then swing said lever to the proper position and lock it there by allowing said stop to engage with another one of the apertures, the spring R insuring the retention of stop M, and effectually preventing any accidental shifting of said guide K.

My implement obviates the use of saws and planes for mitering moldings, it saves considerable time, and insures a closer and smoother joint.

Lever E may be operated with a treadle, and in some cases said lever may be coupled to slide D in such a manner as to permit the segmental pinions and racks being dispensed with.

The graduations *t* being arranged parallel with knife I′ renders the scale T perfectly accurate for moldings of any width, which accurate measurement would not result if said graduations were arranged in any other manner.

I am aware it is not new to provide mitering-machines with a pair of adjustable fences, one for each knife, which fences are secured in position with slotted slides, set-screws, &c., and therefore my claim is limited to the fence when arranged to afford a sufficiently-extended bearing for the molding, both to the right and left of the cutters, and capable of being rapidly advanced and retracted, in order that said knives may sever the stuff with two or more successive strokes acting from the front to the rear edge of the latter, as previously explained.

I claim as my invention—

1. The combination of grooved table A J J′, bracket B C *c c*′, slide D *d d*′ *d*″ G G′, lever E, pinions F F′, knives I I′, shiftable guide K *k k*′, and lever L, substantially as herein described, and for the purpose set forth.

2. In combination with grooved table A J J′, shiftable guide K *k k*′, and lever *a*′ L *l*, the stop M, apertures *m*, screw N, slot O, and spring R, substantially as herein described, and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

JOHN J. SPILKER.

Witnesses:
JAMES H. LAYMAN,
L. H. BOND.