

*J. Bell,
Dovetailing Machine,*

No 29,051,

Patented July 10, 1860.

Fig. 2.

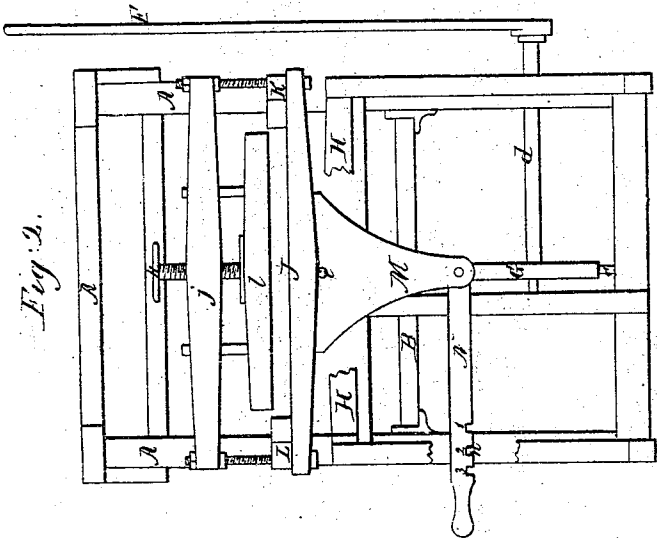


Fig. 4.

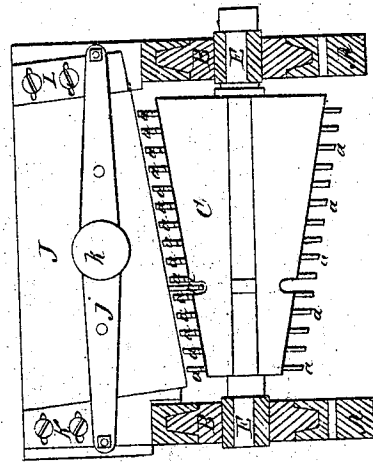
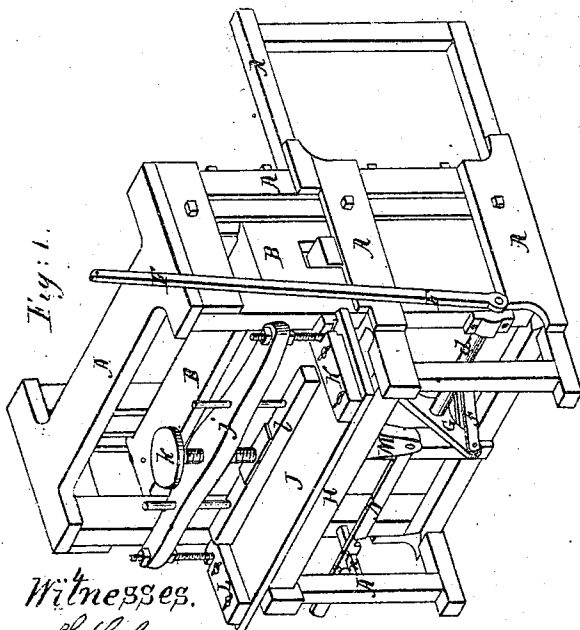


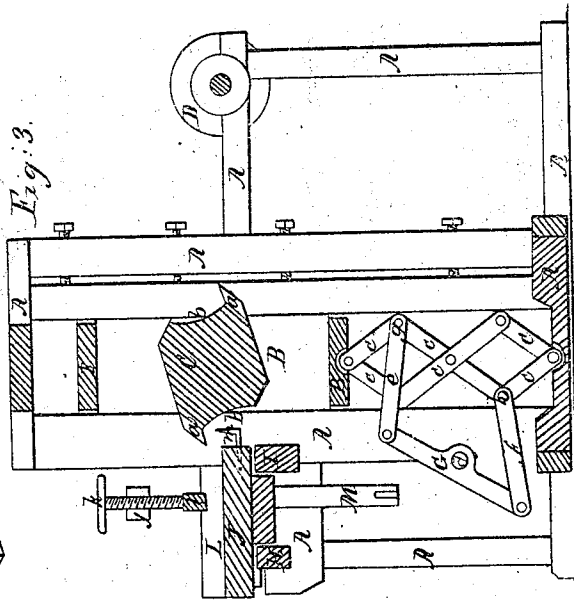
Fig. 1.



Witnesses.

*E. Cohen
J. Hirsch*

Fig. 3.



Inventor.

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UNITED STATES PATENT OFFICE.

JOHN BELL, OF HARLEM, NEW YORK.

METHOD OF OPERATING THE CUTTER IN DOVETAILING-MACHINES.

Specification of Letters Patent No. 29,051, dated July 10, 1860.

To all whom it may concern:

Be it known that I, JOHN BELL, of Harlem, in the county of New York and State of New York, have invented certain new and useful Improvements in Dovetail-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective view of the machine. Fig. 2 represents a side elevation thereof. Fig. 3 represents a vertical section, and Fig. 4 represents a horizontal section of the same.

Similar letters of reference where they occur in the separate figures denote like parts of the machine in all the drawings.

My invention consists in combining with a rotating cutter, a tipping gage table, when either the cutter or the table has also a rising and falling motion, for the purpose of cutting dove-tails.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

A, represents a frame, in which is arranged a movable frame B, that carries a rotating cutter stock C, said cutter stock being driven by a belt or otherwise from the shaft D, which may receive its rotation, from any first moving power. This rotating cutter stock C, is hung on a horizontal journal E and is of a tapering or pyramidal form; its bits or cutters *a* projecting from the corners of the pyramid a distance about equal to the depth of the dove tail. The sides of the pyramid in advance of the bits, are concave as at *b*, so as to make a clearance for the chips.

To the sliding frame B, is connected a series of crossed and pivoted levers *c* known as "lazy tongs," the lower end of said lazy-tongs being attached to the base of the permanent frame A. A rock-shaft *d* properly supported on the frame A, has a lever F, on one of its ends, conveniently arranged, so that the operator may seize and move it; and on this rock-shaft is a cross-head G, to each extremity of which is pivoted a link *e*, *f*, said links extending to, and connected with the opposite pivoted points *g*, *h*, of the

lazy-tongs, so that the vibrating of the lever F, will raise and lower the frame B, and with it the cutting cylinder, cone, or pyramid C.

At the front of the machine—calling that part the front where the attendant stands—there are two cross rails H, I, which are higher at their center than at their ends, and tapering regularly from the center to the ends, both sides of the apex. Upon this high point of the rails, is hung by a rock shaft *i* (Fig. 2) a table J, having upon its ends adjustable gages K, L, and a clamping apparatus composed of a brace *j*, set screw *k*, and presser bar *l*, for holding the stuff to be operated upon firmly to the table or bed, and on the edge of this table next the cutters, there is a gage *m*, to prevent the stuff from being run under the cutters too far. Underneath the table J, there is connected a hanger M, to which a hand lever N, is attached, said hand lever being furnished with a series of notches 1, 2, 3, which when either of them is placed over a bar *n*, will firmly hold the table in a fixed position whether level or tipped. The notch 1 when over the bar *n* inclines or tips the table to the right; the notch 2 when over the bar holds the table horizontal, and the one 3 inclines or tips it to the left.

There are several adjustments on the machine which have not been mentioned, viz: that for setting the movable frame and revolving cutter up to the table and its gages, the adjustment of the clamping apparatus for different thicknesses of stuff; and though these adjustments may not be new as such, they are important to the successful operation of the machine.

I have described and represented my cutters as having a rotary motion, and as having a rising and falling motion to bring them gradually to their work, and the table as having a tilting motion only. It is obvious that the rising and falling motion may be added to the table, and dispensed with in the cutters, and produce precisely the same effect, it being only necessary that the wood or the cutters should pass each other. Nor would it change the result if part of the motion were given to each, instead of the whole to one of these parts, and so long as the cutters passed the end of the wood vertically, or the end of the wood passed the

cutters vertically, I should claim it as my invention, there being no change in principle or result, or in operation.

The operation of this machine is as follows: To make the dovetails, place the board against the guide K, and run it up to the guide *m*, and then clamp it to the table. The cutters C, having been previously raised up, is then let down, and in its revolution 10 cuts out one half of the dove tail. Unclamp, turn the board upside down, and run it against the gage L, and up to the gage *m*, reclamp, and let the cutters again pass through the end of the board, and the dovetails are completed. 15

To make the pins, arrange the board just as above described to cut the dovetail, that is to say against the gages *k*, *m*, tilt the table to the right and let the cutters pass through 20 the end of the board and one half of the pins are thus formed, but instead of turning the board upside down, it is simply shifted against the gages L, *m*, with same side up, the table shifted or tipped to the left, re-

clamp, and allow the cutters to pass through 25 which removes the remaining wood between the pins, and leaves the pins perfect.

I thus with the same rising and falling and rotating cutter, and the same tilting table, and gages cut not only the dovetail, 30 but the pins also. The adjustability of the gages K, L, define the shape or inclination of the dovetail and pin, in connection with the tipping table.

Having thus fully described the nature 35 and object of my invention, what I claim therein as new and desire to secure by Letters Patent is—

The combination of rotating cutters, and a tilting table, when one is made to pass the 40 other vertically in addition to its other movement, substantially as herein described. The object being to cut dovetails on wood as herein stated.

JOHN BELL.

Witnesses:

C. W. VAN VOORHIS,
NELSON CRAWFORD.