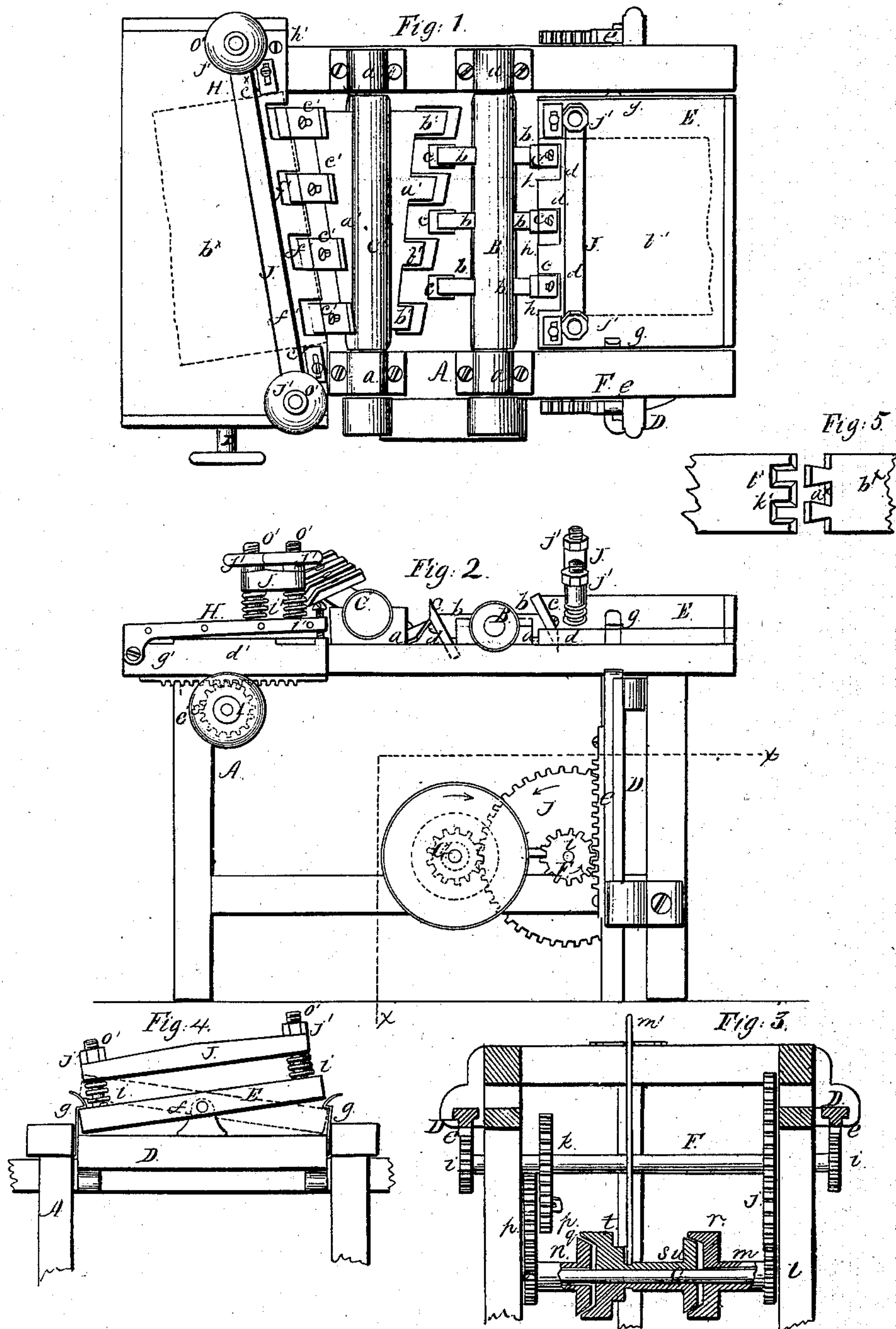


*T. H. Burley,  
Dovetailing Machine,*

*No 26,647,*

*Patented Jan. 3, 1860.*



*Witnesses:*

*Ed. Hughes  
Mont. W. Livingston*

*Inventor.*

*Thomas H. Burley*



# UNITED STATES PATENT OFFICE.

THOMAS H. BURLEY, OF NEW YORK, N. Y.

## DOVETAILING-MACHINE.

Specification of Letters Patent No. 26,647, dated January 3, 1860.

*To all whom it may concern:*

Be it known that I, THOMAS H. BURLEY, of the city, county, and State of New York, have invented a new and Improved Machine for Cutting Dovetails; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a plan or top view of my invention. Fig. 2, is a side sectional view of the same. Fig. 3, is a horizontal section of the framing of the same showing a plan of the feeding device. Fig. 4, is an end view of the same. Fig. 5, is a perspective view of the dove tail joint formed by my invention the joint being disconnected.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a machine for cutting dovetails such as extend entirely through the work and are used for securing together the sides of boxes and similar purposes.

The invention consists in the employment or use of rotary cutters arranged with movable beds on which the work is placed, substantially as hereinafter described, whereby the dovetails may be rapidly and perfectly formed and applied to cheap work, such as common boxes, which could not hitherto be done on account of the expense of forming the dove tails.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, represents a rectangular frame which may be constructed in any proper way to support the working parts of the machine. On the upper part of this frame A, two parallel shafts B, C, are placed, said shafts running in suitable bearings *a*. To one shaft B, a series of arms *b*, are attached radially or at right angles. These arms are of equal length and project from the shaft at opposite points in two rows, as shown plainly in Fig. 1. To the end of each arm a cutter *c*, is attached obliquely. These cutters are of chisel form and are connected to the arms by set screws *d*, which pass through slots in the cutters and admit of the adjustment of the same to compensate for wear. The position of the cutters relatively with their arms *b*, is plainly shown in Fig. 2.

In the frame A, and at the outer side of the shaft B, there is placed a vertical frame

D. This frame D, has a vertical rack *e*, at each side of it and on the top of frame D, a tilting bed E, is placed, said bed being fitted on centers *f*, *f*, the outer one being shown in Fig. 4. In consequence of having the bed E, fitted on the centers *f*, *f*, it may be inclined in either direction, as shown in black and red in Fig. 4, and secured in either position by a catch *g*. The front edge of the bed E, is recessed as shown at *h*, Fig. 1, in order to allow the cutters to pass, through and permit the bed to thoroughly support the work while being acted on by the cutters. Into each rack *e*, *e*, of the frame D, a pinion *i*, gears. These pinions are placed on a shaft F, on which are also placed two toothed wheels *j*, *k*, one of which *j*, is considerably larger than the other one *k*, as shown plainly in Fig. 3. Into the large wheel *j*, a pinion *l*, gears, said pinion being on a sleeve *m*, which is placed loosely on a shaft G. On this shaft there is a similar sleeve *n*, with a pinion *o*, on it, the pinion *o*, being connected by a train of wheels *p*, with the smaller wheel *k*, on shaft G. To the inner end of the sleeve *n*, a conical head *q*, attached, and to the inner end of the sleeve *m*, there is secured a socket *r*. On the shaft G, between the head *q*, and the socket *r*, a sleeve *s*, is placed loosely but connected to the shaft by a feather and groove. This sleeve *s*, has a socket *t*, at one end and a conical head *u*, at the other, and by adjusting this sleeve *s*, either sleeve *m*, or *n*, may be connected and made to turn with the shaft G, as desired.

To the shaft C, radial plates *a'*, are attached at two opposite points. These plates have each arms *b'*, at their outer edges, and to each arm *b'*, a cutter *c'*, is attached. The cutters *c'*, are precisely similar to the cutters *c*, on shaft B, but they have a different position relatively with their shaft, the cutters *c'*, being placed in oblique planes as shown clearly in Fig. 2, said position being due to the taper form of the plates *a'*.

On the frame A, and at the outer side of the shaft C, a bed H, is placed. This bed has racks *d'*, attached to its under surface, one at each side, and into these racks pinions *e'*, *e'*, on a shaft I, gears. The inner edge of the bed H, is notched or recessed as shown at *f'*, to allow the cutters *c'* to pass through while acting on the work. The inner edge of the bed H, is oblique and parallel with the planes in which the rows of cutters *c'*, are



placed. The outer part of the bed H, is attached to the racks  $d'$ , by pivots  $g'$ , and through the inner part of the bed H, set screws  $h'$ , pass, in order to adjust the position of the bed as circumstances may require. On each bed E, a clamp bar J, is placed, said bars resting on springs  $i'$ , and having their ends fitted in guides  $o'$ , on which nuts  $j'$ , are fitted.

The operation of the machine is as follows:—In order to cut the "pins"  $k'$  of the dovetail the board  $l'$ , is secured on the bed F, by its clamp bar J, the inner edge of said board being flush with the inner edge of the bed E. The frame D, is lowered to the extent of its downward movement and motion is given the shaft G, by any convenient power. The operator by actuating a lever  $m'$ , and shifting the sleeve  $s$ , connects the sleeve  $m$ , with the shaft G, and the pinion  $l$ , rotates the shaft F, through the medium of the wheel  $j$ . The pinions  $i, i$ , in consequence of gearing into the racks  $e, e$ , of the frame D, elevate said frame and bed E, and the latter is inclined so that the cutters  $c$ , as they rotate and the board  $l'$ , rises will cut the inner edge of the board  $l'$ , and form rectangular recesses with oblique sides, the obliquity of the sides being due to the inclination of the bed. When the recesses are cut, the operator by shifting the sleeve  $s$ , connects the other sleeve  $n$ , and consequently the pinion  $o$ , with the shaft G, and the frame D, and bed E, are fed downward and when fully depressed, the sleeve  $s$ , is again shifted so as to connect the pinion  $l$ , with shaft G. The operator then shifts the position of the bed E, so that it will be inclined in an opposite position and as the bed E, ascends the sides of the recesses in the board  $l'$ ,

acted on by the cutters will be cut in an opposite oblique position with the sides first cut and the pins  $k'$ , will be formed as shown clearly in Fig. 5.

In order to cut the recesses  $a^x$ , of the dovetail that receive the pins  $k'$ , the board  $b^x$ , is secured on the bed H, in an oblique position which is determined by guides  $c^x$ , see Fig. 1. The inner edge of the board  $b^x$ , is adjusted flush with the inner edge of the bed H, and the bed H, as the cutters  $c'$  rotate is fed by turning shaft I, toward said cutters which will cut recesses in the inner edge of board  $b^x$ , said recesses having parallel sides. When the first cut is made the bed H, is moved back, the board  $b^x$ , inverted on bed H, and a succeeding cut made. By this arrangement the recesses are made in dovetail form as shown at  $d^x$ , Fig. 5, to receive the pins  $k'$ .

This machine performs its work rapidly and well and all dovetailing which extends entirely through the work, such as dovetailing for boxes, etc., may be done at a small expense.

I do not claim the rotary cutters  $c'$ , in connection with the horizontally moving bed H, for they or their equivalents have been used; but,

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is,

The employment or use of the rotary cutters  $c$ , in connection with the rising and falling tilting bed E, arranged substantially as and for the purpose set forth.

THOMAS H. BURLEY.

Witnesses:

MONT. M. LIVINGSTON,  
MILT. HUGHES.