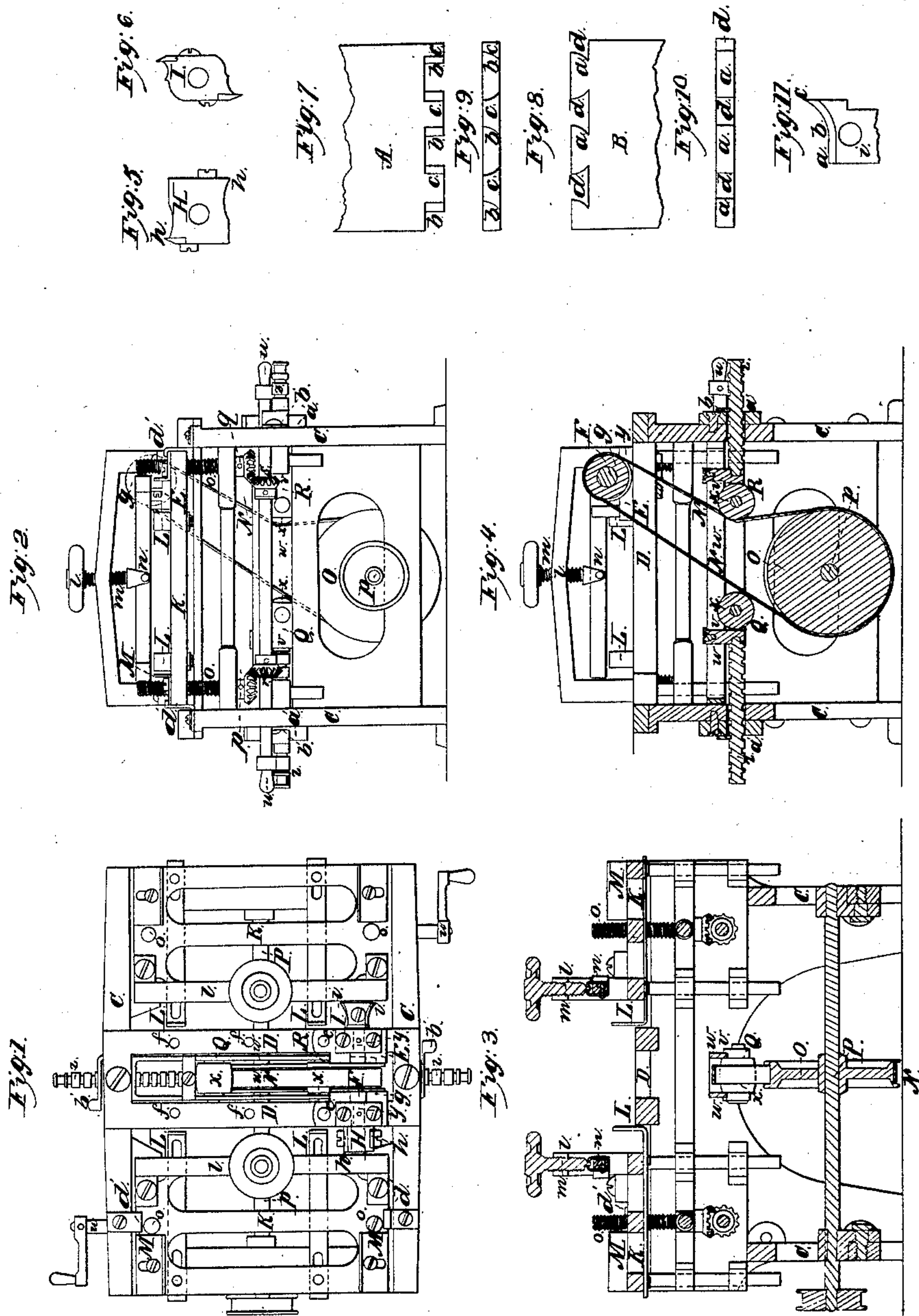


W. E. Sibley,
Dovetailing Machine,

No. 45,351,

Patented Dec. 6, 1864.



Witnesses:
W. P. Hale
J. F. Luman

Inventor:
Willard E. Sibley
per his attorney
R. H. E. da.

UNITED STATES PATENT OFFICE.

WILLARD E. SIBLEY, OF WESTON, MASSACHUSETTS.

IMPROVEMENT IN DOVETAILING-MACHINES.

Specification forming part of Letters Patent No. 45,351, dated December 6, 1864.

To all whom it may concern:

Be it known that I, WILLARD E. SIBLEY, of Weston, in the county of Middlesex and State of Massachusetts, have made a new and useful invention having reference to Dovetailing Wood; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 an end elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section, of a dovetailing-machine provided with my invention. Figs. 5 and 6 are end views of the rotary dovetailing-wheels or cutter-stocks and cutters of such machine. Figs. 7 and 8 are face views of the fellow dovetails as made by the machine, while Figs. 9 and 10 are edge views of such fellow dovetails.

The two pieces of wood A B lock together at right angles to one another, the dovetails *a a* of the piece B entering the recesses *b b b* of the piece A. At the same time the dovetails *c c c* of the piece A enter the recesses *d d* of the piece B. The sides of the said dovetails and recesses are arcs of circles instead of being planes.

In the drawings, C denotes the frame of the machine. Resting on and extending across the frame A at its middle is a rectangular frame, D, which serves to support the cutter-mandrel puppet E in any of its positions. The said puppet is so adapted to the frame D as to be capable of being slid thereon and moved from one end to the other of it. The puppet is fixed in place in any of its positions on the frame by means of pins *e e*, which, to fix it in place, are inserted in holes *f f f*, made in the frame D, and in others made in the puppet E. The said puppet E sustains in boxes *y y* a mandrel, F, which is not only provided with a driving-pulley, *g*, but has two dovetailing-wheels, H I, applied to it, one of them being at each of its opposite ends. The wheel H is intended to form each recess *b*, as well as the entering dovetails *c c c* of the piece of wood or stuff A. The cutter-wheel I, by the rotation of the mandrel, is to form or make each of the recesses *d d d* of the piece of stuff B, and as a consequence it makes the dovetails *a a* of such piece B. Each dovetailing-wheel has one or more cutters applied to its body. Those of the wheel H (and which are shown at *h h*) are simply chisels with straight cutting-

edges arranged parallel to the axis of the mandrel. Each cutter *i* of the wheel I has a curved cutting-edge which is an arc of a circle of a radius equal to that of the circular path formed by the revolution of the cutting-edge of each cutter *h*. Each of the cutters *i* may, however, have its cutting-edge shaped as shown in Fig. 11—that is, from *a* to *b* it may be straight and parallel to the axis of the mandrel, while from *b* to *c* it should be curved to the arc of a circle. When the cutters *i i* are so made—that is, as shown in Fig. 11—the cutting-wheel I will be adapted to cut dovetails in stuff of different thicknesses. In connection with such dovetailing-wheel a frame or stuff-carrier, K, is employed. It supports and holds the stuff while the dovetails are in the act of being formed in it, and is to be provided with mechanism by which it may be raised vertically, so as to cause such wheel while revolving to descend into the stuff; or, in other words, the stuff to ascend or rise upward while being cut. To each of the carriers K there is an arch, *l*, provided with a screw, *m*, which at its foot is connected with a clamp-bar, *n*, such serving to fix the piece of wood to the carrier.

There are two elevating-screws, *o o*, to each stuff-carrier K, such screws being revolved simultaneously by means of four bevel-gears, *p q r s*, one of which is fixed on each screw, the others being fixed on a horizontal and cranked shaft, *t*, the whole being as shown in the drawings. By laying hold of and turning the crank *u* of the said shaft the stuff-carrier will be forced either upward or downward, as occasion may require.

There are two adjustable gages, L L, to each carrier K, these gages being formed as shown in Figs. 1 and 3. They are affixed to the bottom surface of their carrier by clamp-screws which go through slots made in the gages. These gages serve as stops to regulate the distance of the wood beyond the inner edges of the stuff-carriers, in order that the dovetailing-wheels may cut into the stuff the proper depth to form the dovetails. Moreover, to each stuff-carrier there are one or more adjustable lateral gages, M M, they being formed and arranged as shown in the drawings. These latter gages condense the stuff on its opposite sides and adjust it relatively to the holes of the frame D.

An endless belt, N, works around the pul-

ley *g* of the mandrel, and also around a wheel, *O*, fixed on the driving-shaft *P*, the whole being arranged within the frame of the machine in manner as represented in the drawings.

Two belt-tighteners, *Q R*, are disposed on opposite sides of the belt *N*, as shown in Fig. 4. Each of these belt-tighteners consists of a slider, *v*, supported on horizontal rails *w w*, and carrying a friction-roller, *x*, to rest against the belt. A rod, *z*, having a series of annular grooves formed transversely in and around it, extends from each slider, and goes through a box, *a'*, fastened to the frame *C*. There is a latch, *b'*, to each grooved rod *z*, such latch being formed and arranged as shown in the drawings. These belt-tighteners serve to tighten the belt *N* on its pulleys in any of the positions of the puppet in its supporting-frame.

In operating this machine after a piece of board may have been applied to each of its stuff-carriers, we have only to put the cutter-mandrel in revolution, and to elevate each stuff-carrier, so as to cause its dovetailing-wheel to cut into and enter the piece of stuff. The wheel *I* is to pass entirely through the wood in such manner as to form a recess, *d*, (see Figs. 9 and 10,) therein; but the other wheel—viz., *H*—which makes a counter-recess, *b*, (see Figs. 7 and 9,) goes in one side, but partially through the wood, and is estopped from cutting therein when its stuff-carrier may have been raised high enough to be arrested in its movement by two stops, *d' d'*, which extend upward from the upper part of the frame *C* and project over the stuff-carrier.

The advantage of my improved dovetailing

wheels and machine with respect to many, if not all, other kinds of mechanism for making dovetails is that each of the stuff-carriers, while co-operating with the wheels in producing the dovetails, has only a vertical movement. It does require to be subsequently tipped to insure the proper form of the dovetail and its adjacent recess; and, furthermore, the wheels work transversely into the wood or stuff, and not longitudinally into it; or, in other words, the stuff-carriers move at right angles to the mandrel, and not in directions longitudinal of it.

By having two belt-tightening mechanisms arranged with respect to the driving-belt, as specified, such driving-belt can be made to act on more of the periphery of each pulley, and especially that of the smaller, than it can when but one of such tighteners is employed; consequently with the two belt-tighteners a material advantage is gained.

I claim—

The above-described improved dovetailing-machine, or arrangement of the mandrel carrying the cutter-tools or adjustable supports, the belt-tighteners, and the devices for holding them in place, the carriers with their gages and stops, and the shafts and gear that operate the rising and falling of the stuff-carriers, when constructed and operating substantially as described.

WILLARD E. SIBLEY.

Witnesses:

R. H. EDDY,
F. P. HALE, Jr.