

OSCAR J. PENNELL & GEORGE ZIMMER.

Improvement in Dovetailing Machines.

No. 120,594.

Patented Nov. 7, 1871.

FIG. I.

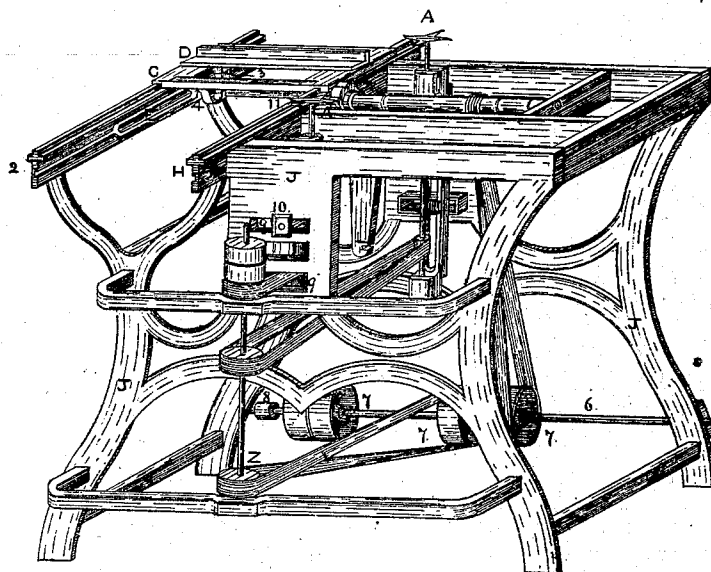


FIG. II.

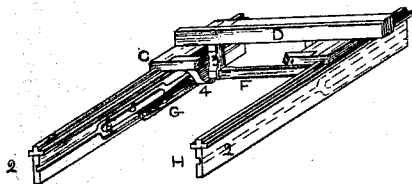


FIG. III.

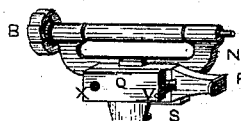


FIG. IV.

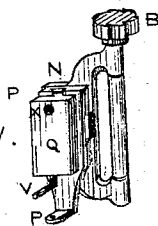
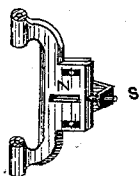


FIG. V.



Witnesses.

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UNITED STATES PATENT OFFICE.

OSCAR J. PENNELL AND GEORGE ZIMMER, OF WILLIAMSPORT, PA.

IMPROVE MENT IN DOVETAILING-MACHINES.

Specification forming part of Letters Patent No. 120,594, dated November 7, 1871.

To all whom it may concern:

Be it known that we, OSCAR J. PENNELL and GEORGE ZIMMER, of the city of Williamsport, county of Lycoming, and State of Pennsylvania, have invented certain Improvements in Dovetailing and Shaping-Machines, of which the following is a specification:

The first part of this invention consists in so combining a dovetailing and shaping-machine with adjustable bearings and reversible carriage, provided with grooved ways, in such manner that a complete and perfect joint can be produced of any desired size at a single operation and with the utmost facility. The second part of the invention consists in the way in which, by means of the peculiar bearings and adjustments, the dovetailing instruments can be depressed while the shaping-machine alone is operated.

Figure 1 is a front view of our entire machine. Fig. 2 is the carriage for the work when reversed. Fig. 3 is the mandrel in position for cutting tenons. Fig. 4 is the mandrel reversed for shaping purposes. Fig. 5 is the bearing for the mandrel.

J denotes the frame of our machine, made sufficiently strong to resist the vibrations of the operating parts, and having a Y-shape at the front part, upon which are placed two rails, 2 2, which are parallel to each other, and so far separated as to accommodate the carriage which is to move thereon. The rails 2 2 are each provided with two grooves or double grooves, as shown at H E, Figs. 1 and 2. The outside rail in its last third and the inner rail in its first third have each a frog, for the purpose of regulating the movement of the carriage while the dovetail and tenon are being cut, each of which are brought into requisition by reversing the carriage, and the frogs are so placed on the rails that the motion of the carriage is not affected or changed until the work has passed the mandrel which is to cut the lower portion of the tenon. On the rails 2 2 is placed the carriage C, the construction of which is so simple that any ordinary mechanic would construct it without further instruction. On the carriage C is put a loose rest, D, upon the under side of which, at each end, are standards 3 3, resting upon a shaft, F, which shaft has its bearings in ears 4 4 firmly attached to the carriage-frame. To the shaft F is attached a slotted lever, G, in which slot is the pin 5,

which pin runs in the grooves H E of the rails 2 2. By changing the location of pin 5 in the slot it will be seen at once that the position of the rest D is changed in corresponding manner, which also changes the shape of the work, as may be desired.

To reverse the carriage, as exhibited in Fig. 2, it is only necessary to draw it entirely from the rails 2 2 at one end and place the carriage upon the rails at the opposite end, and thus complete either the lower sash or rail to be dovetailed, the other having been finished as to its upper part while the carriage was in its former position.

At the bottom of the frame is placed the main shaft 6, having suitable journals securely fastened to the frame, which shaft is provided with three tight pulleys, 7 7 7, and one loose one, 8, to provide for stopping and starting the machine. On the opposite side will be seen the upright shaft z, provided with five pulleys, one of which is loose, for the purposes already indicated. On opposite sides of the frame will be seen solid sides, having in one side two and in the other three slots, the middle slots on the front side being for the purpose of passing the belt through which communicates power taken from the upright shaft z. The other slots 9 9 are for the purpose of sustaining the adjustable arbor-bearings, which arbors are constructed the ordinary way in which all such bearings are usually made, and maintained in the slots by means of a set-screw, as seen at 10. In these arbors are placed, in an upright position, two journals, provided at their upper ends with the cutters A A for making the dovetail. The journals which hold the said cutters can be elevated or depressed at will by simply depressing the adjustable arbors. To one of the cutters A is attached a coping-cutter, 11, for the purpose, as will be at once understood, of perfecting the joint. By moving the arbor-bearings in the slots 9 9 the dovetail is readily changed either in its shape, size, or depth. Between the cutters is placed the mandrel, with its cutter-head B, which is intended to cut the lower part of the tenon as the work is passing on the carriage from one cutter to the other. This mandrel, as shown in Figs. 3 and 5, is adjustable by means of a set-screw at P. The cutter-head B can be drawn away from the work passing upon the carriage or made to approach it, thus making the tenon longer or shorter, as may be de-

sired; and by means of a similar screw, shown at *s* in Figs. 3 and 5, in the collar *N*, Fig. 5, the cutter-head is elevated or depressed, making the tenon of any necessary depth. To the frame *J* is a solid foot, *L*, having a small groove at its lower end, which is intended to receive a latch, *V*, which is attached to the block which sustains the adjustable bearings of the mandrel. When the mandrel is thrown out of action, as seen in Fig. 4, the latch *V* falls into the slot or groove in the foot *L*, and by this means the mandrel is kept in an upright position when used for shaping purposes only, and can be run in either direction by means of cross-belts taken from the pulleys on the shaft *z*, and at the same time the cutters may be depressed and entirely out of the way, while the work of shaping goes on.

We claim as our invention—

1. The carriage, with its loose rest-lever and pin, in combination with the grooved rails, as shown and described.

2. The cutter *B*, adapted, substantially as described, to be turned out of action when combined with the carriage, as and for the purposes set forth.

3. A dovetailing and shaping-machine having the adjustable mandrel and cutters and the carriage with its loose rest, the latter operated by the grooved rails, as described.

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Witnesses:

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