L. Stevens,

Tenoning Blind Slats.

No. 25,056. Patented Aug. 9, 1859.

Fig: 6.

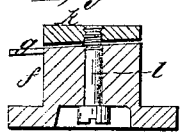


Fig: 4.

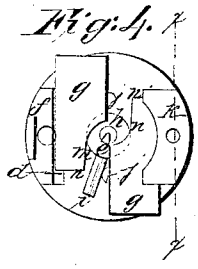


Fig: 5.

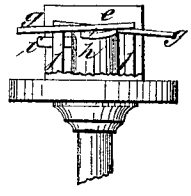


Fig: 1.

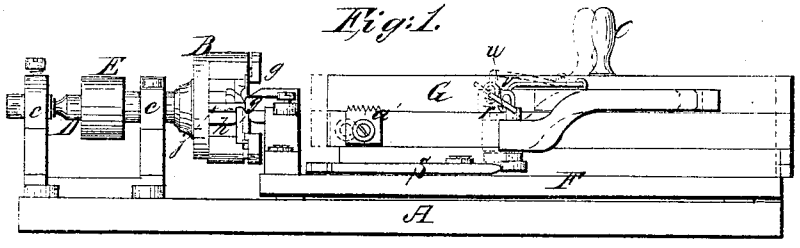


Fig: 2.

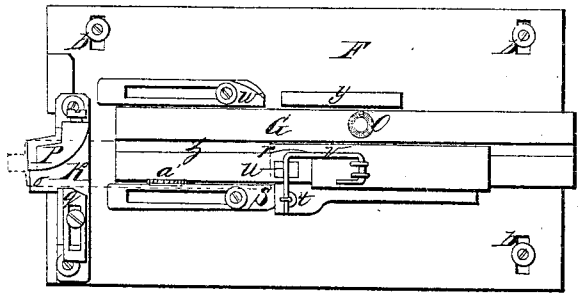
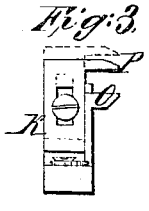


Fig: 3.



Witnesses:
Geo. L. Ives
Levi Gibbs

Inventor:
La Fayette Stevens

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

LA FAYETTE STEVENS, OF ELMIRA, NEW YORK.

MACHINE FOR TENONING BLIND-SLATS.

Specification of Letters Patent No. 25,056, dated August 9, 1859.

To all whom it may concern:

Be it known that I, LA FAYETTE STEVENS, of Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Machines for Tenoning Slats for Blinds; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon,

Figure 1, being a side elevation of the machine; Fig. 2, a plan view of the bed and feeding carriage, detached; Fig. 3, is an elevation of the rest, K; Fig. 4, a front elevation of the cutter head, detached; Fig. 5, is a side elevation of the same, one of the sides being broken away to show the interior; Fig. 6, is a section of the same on the line *x x* of Fig. 4.

Similar letters refer to corresponding parts in all the figures.

As represented in Fig. 1, A is the frame of the machine, B the cutter head, D the shaft, and *c c* the bearings thereof, while E is a band pulley by which the same is driven. The bed, F, is bolted to the frame through the slots *b b* which admit of a lateral movement to adjust the slat to the proper relative position to the cutter head. Ways are provided on the bed for the sliding carriage, G, on which the slat, (shown in dotted lines in Fig. 2,) is placed to be tenoned, the construction and operation of which will be hereafter explained.

My improvements relate, first, to the construction of the cutter head, B, which consists of a disk, having two cheek pieces, *f f*, with grooves to receive the knives *g g*. A hub, *h*, provided with a bore in its center of exactly the size required for the tenon, is attached by being screwed into the center of the disk, so that it may be removed and others, for tenons of different sizes, be inserted in its place as required. A spur, *i*, is inserted through the side to cut off the end of the tenon as it is formed.

A shoulder is formed on one side of the hub at *e* which receives and supports the knife at the junction of its cutting edge with the aperture of the hub, and a stud, *j*, forms an additional support for that edge of the knife-piece, while the opposite side is secured in the groove *d* of the cheek *f*, and firmly held by means of the clamping nut, *k*, and screw *l*, (Fig. 6).

The knife consists of a thin flat plate of steel, with a concave cutting edge *m* formed upon one side. The groove in the cheek piece is made oblique to the face of the cutter head, so that the knife is held in an inclined position, the point *n*, at which the cutting commences, being the highest, and gradually descending to *c*, where the tenon is formed. This gives the necessary bevel to the shoulder of the slat, and also renders it self-feeding in a measure, the tendency being to draw the slat into the mandrel constantly. As the tenon is formed by the cutter it enters the hollow hub, which holds it from vibrating or becoming unsteady under the force of the cutting, and also serves to smooth and finish the tenon, its edges being made sharp for the purpose.

A great advantage lies in the use of a flat knife, and adjusting it to the proper cutting position by means of the inclined groove and shoulder of the cheek and hub. Hitherto knives for this purpose have had to be filed, by a slow and tedious process, to a suitable bevel for giving the required slope to the shoulders of the tenon, and also to act with a spiral cut, which rendered them expensive to make, and this form was soon lost by the wear from their use, and had to be often restored by the same process. These difficulties are obviated in my method, and the knife is of the simplest construction, requiring only to be ground to an edge in the concave portion. Wearing away does not affect its form, and it may be worn down to the smallest piece that can be held, and answer equally well, the only care necessary to observe being to replace it so that the side termination of the edge corresponds exactly with the shoulder *e* of the hub. Two knives are provided; though only one is in use at the same time, but the two serve to balance the head, and when one becomes dull the other can be made to replace it in a moment's time. A throat for the escape of the chips is formed by beveling off the hub underneath the cutter which opens into the space between the hub and cheek, which is so ample that it can never clog.

The rest, K, consists of a fixed jaw *o* on which the under side of the slat rests, and a movable jaw *p*, which lies upon the upper side of the slat, one on the right, the other on the left of the center or tenon. Both present smooth edges near to the operating cutter, against which it cuts with a shear stroke, acting on *o* in a descending, and *p*

in an ascending direction, as the head revolves. This insures a smooth shoulder by preventing the wood from being torn or split by the knife. *p* is adjustable by means of a set screw, to slats of different thickness, and a gage, *q*, keeps them from moving laterally from the proper position.

The slat being laid on the carriage, as shown in Fig. 2, the operator moves it forward by the handle O, presenting the end to the cutter head, which instantly forms the tenon. The opposite end of the slat, being square, rests against a projecting stop, *r*, on the carriage. A gage S, is provided on one side of the carriage, against which the gravitating stop-bolt, *t*, strikes and stops the further feeding of the slat. The slat is then reversed on the carriage, and brought back until the shoulder strikes the stop *r*, by which the tenon strikes the inclined plate, *u*, on the arm, *v*, and by sliding under it, raises the stop bolt, *t*, high enough to allow it to pass over the gage, S, without striking. By this means the gage, *w*, on the opposite side of the carriage is brought into use, and stops it when the slat is reduced to the right length by striking the piece *y*. It is immaterial how long the slats are sawed, as the cutter head continues to cut until the gage stops the motion of the carriage, reducing them all to a perfect uniformity of length.

A groove, *z*, on the slat-bed is designed to receive any chips that may accidentally fall there, and prevent them being in the way. A tooth-plate, *a'*, holds the slat to the carriage and prevents the cutter head from drawing it in when the carriage backs, as it has a tendency to do from its self-feeding action, produced by the inclined position of the knife, which is sufficient to draw the slat in until entirely devoured.

In my patent of March 28th, 1857, for a machine for the same purpose, much is said about its adaptation to forming slats for the "climax blind" in which one tenon is shorter than the other. This is equally adapted to accomplishing the same thing, as by placing the stop gage, *w*, farther back the last tenon can be shortened at will.

What I claim as my invention and desire to secure by Letters Patent, is—

1. Constructing the cutter head with grooved cheeks *f* clamping nuts, K, and bearing studs *j*, whereby the plane cutter knives, *g*, are held in an oblique position with the plane of rotation, with the cutting edge of the operating one terminating in conjunction with that of the hollow hub *h*, and shoulder *e*, arranged and operating substantially as and for the purposes set forth.

2. I also claim the combination and arrangement of the rest K, with stationary and movable upper and lower jaws, *o*, *p*, and gage, *q*, substantially in the manner and for the purpose described.

3. I further claim the arrangement of devices for gaging the length of the slat, consisting of the automatic stop bolt *t* as operated by inclined plane *u* and lever *v*, to cause the carriage to stop alternately at the fixed stop gages S and *w* substantially as herein described.

LA FAYETTE STEVENS.

Witnesses:

GEO. L. DAVIS,

LEVI GIBBS.