

J. P. Owen,

Making Wooden Screws.

N^o 8,806.

Patented Mar. 16, 1852.

Fig 1.

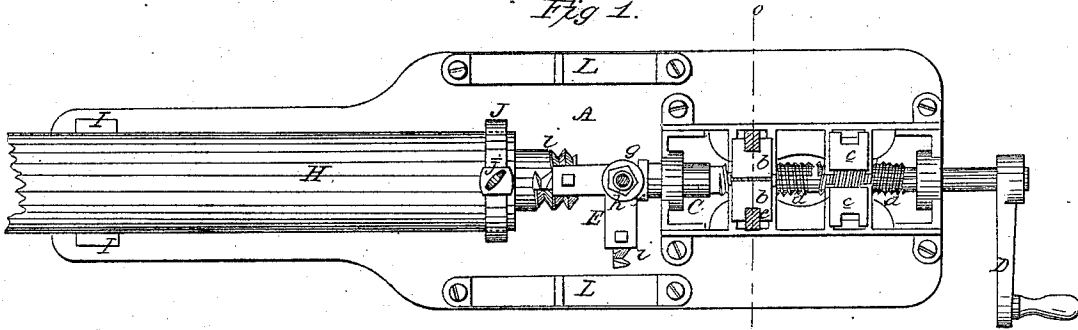


Fig 2.

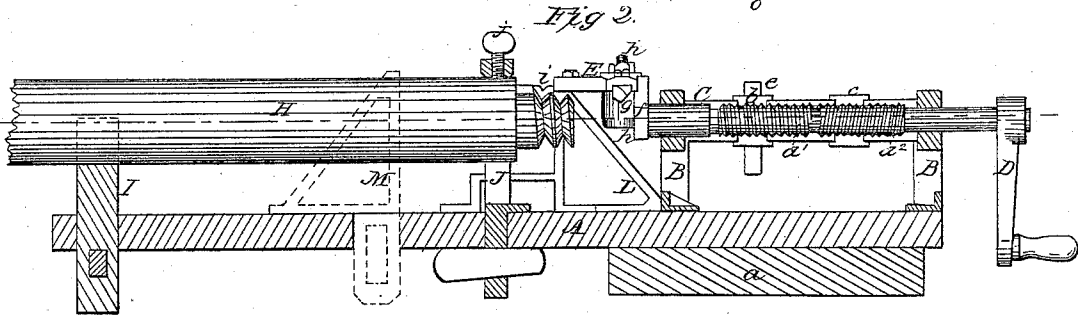


Fig 3.

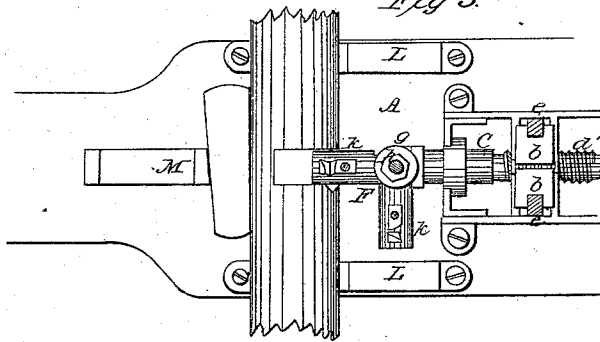


Fig 5.

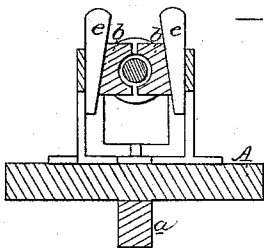


Fig 4.

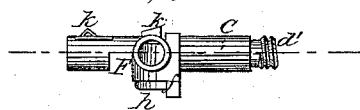


Fig 6.

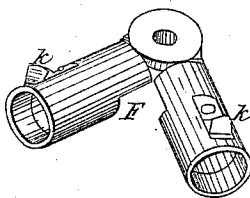
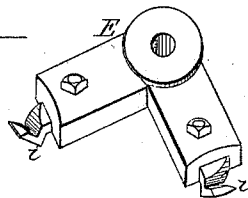


Fig 7.



UNITED STATES PATENT OFFICE.

J. PARSONS OWEN, OF NORWALK, OHIO.

IMPROVEMENT IN MACHINES FOR CUTTING SCREWS ON RAILS AND POSTS OF BEDSTEADS.

Specification forming part of Letters Patent No. 8,806, dated March 16, 1852.

To all whom it may concern:

Be it known that I, J. PARSONS OWEN, of Norwalk, in the county of Huron and State of Ohio, have invented certain new and useful Improvements on the Machine for Cutting Screw-Threads on Bedstead Rails and Posts; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan showing a rail under operation. Fig. 2 is a longitudinal section of the same. Fig. 3 is a plan showing a post under operation, the parts of the machine being broken off where a repetition would otherwise occur. Fig. 4 is a detached longitudinal view of one of the reversible cutter-heads connected with the screw-spindle. Fig. 5 is a transverse section taken through the line 00, Fig. 1. Fig. 6 is a perspective view of the mortise cutter-head, and Fig. 7 a similar view of the tenon cutter-head.

The same letters of reference indicate corresponding parts throughout the several figures.

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

A is the bed of the machine, provided longitudinally and centrally on its under face with a tongue or projecting slip *a*, which is intended to fit in a joiner's vise or otherwise serve to hold and steady the machine when in operation.

B is the frame or head-stock, secured to the bed and forming bearings for the spindle or shaft C, also carrying the half-nuts or boxes *b b* and *c c*. The spindle C, which lies longitudinally with the machine, is made to revolve by means of the crank or handle D. It also has a motion in direction of its length, either way, through means of right and left handed screw-threads *d' d''*, either one of which operates at a time through the half-nuts or boxes referred to, the boxes *b b* fitting the thread *d'* and the boxes *c c* the thread *d''*, each pair of boxes being provided with a female thread corresponding to the male thread they fit, and each pair of boxes being made immovable as regards motion in direction of the length of the spindle, but movable transversely thereof and working in slides, so that

either pair may be packed up by the wedges *e e* to gear with the thread they fit or be relieved from contact, according to the motion in a longitudinal direction required to give the spindle, which (where it forms bearings in the head-stock) is made near either end smooth or cylindrical, so as to admit of its not only revolving, but also having the longitudinal travel specified. The inner end of the spindle C is fitted or made with a flange *f*, from which projects a snug *g*, having one of its broad or flat sides in a line centrally with the spindle, whereby the snug itself lies eccentric thereto, as seen more particularly in Fig. 2. To the snug *g*, by a bolt passing there-through, (in a line transversely with the length of the spindle,) is attached either of the reversible cutter-heads E or F, the construction and distinct uses of which are as follows:

The angular cutter-head E is formed of arms lying at or about a right angle toward one another, the union of the arms forming a surface which fits against the outer side of the snug *g*—that is, the side not in a line with the center of the spindle C, as seen more clearly in Fig. 2. A bolt *h*, provided with a nut at its one end, (for tightening up,) passes through the snug and cutter-head thus situated. Projecting from the extremity of either arm, or rather fitted thereto so that they may be removed for repair, is a suitably-beveled V or other shaped cutter *i*, which (either cutter on either arm) has its cutting-edge so directed, and is so eccentrically placed to the center line of the spindle when the arm to which the said cutter is attached lies horizontally, that as the spindle C revolves in an appropriate direction (the suitable boxes *b b* or *c c* being thrown into gear with their respective threads *d'* or *d''*) a thread or screw will be cut upon the tenon of the bedstead-rail, as represented in Figs. 1 and 2, where H is the rail, having the tenon on one of its ends under operation, the rail resting in a bearing-piece I at one end of the machine and in a guide-loop J near the cut, in which it is held and fixed by the clamp-screw *j*. The piece I and loop J are secured to the bed A by wedges from underneath, so that any other sized piece and loop may be substituted according to the diameter of the rail being operated on. The one tenon of the rail thus having had the screw upon it—say

a right-hand thread—the rail is reversed and the opposite tenon (projecting from the other end) submitted to the same operation, as already described; but in order to cut a left-hand thread thereon (which is necessary for the rails turning in one direction to screw up into the posts when fitting them together) the arm of the cutter-head before described as lying horizontally is turned on its bolt *h* to the position before occupied by the other arm at a right angle, or thereabout, with the spindle, which other or second arm being now brought to operate with its cutter directed and shaped so as to cut, say, the necessary left-hand thread, the one pair of boxes *b b* or *cc*, before in gear with their respective screws *d'* or *d''*, are relieved from contact by simply withdrawing the wedges *e e* and sliding back the said half-nuts or boxes. The other pair, before relieved, are then thrown into gear with their thread, (on the spindle,) which, being of appropriate and opposite direction to the adjoining thread, gives the required direction to the screw upon the second tenon.

This so far is descriptive of the manner of cutting the screw-threads upon the tenons of the rails as affected by the reversible cutter-head E, the construction and operation of which having been so minutely explained, and the form and action of the cutter-head F for cutting the threads in the mortises or apertures of the bedstead-posts being mainly similar, it will only be necessary to point out the material differences and peculiarities thereof. The cutter-head F is alike reversible and has its cutters *k k* near the extremities of the arms properly directed and shaped for cutting, the one a right and the other a left handed thread. The arms of the cutter-head are somewhat different to E, being made cylindrical and of or about the same diameter as the mortise in the post before the thread is cut, the cutters *k k* projecting from the sides of the arms at or near the extremities, and communicating by opening (either cutter) from the cutting-edge with the interior of the cylindrical body of each arm, (made hollow,) so that the chips formed by the cut will free themselves by working or passing into the body of the arm. The cutters *k k* are secured to the arms by screws for the purpose of removal, as before specified with the tenon-screw cutters. The arm of the cutter-head F, lying horizontal, Figs. 3 and 4, and which forms the cutting-arm, is not eccentric, as was the case with the cutting-arm of the cutter-head E, but lies centrally with the spindle C, as seen more clearly in Fig. 4, so that the arm enters and works in the round mortise of the post which is situated in relation to and on the machine, as shown in Fig. 3, where the post is represented as placed on arms of brackets L L, and packed up to its proper position by wedge from behind acting against the removable upright piece or standard M, (seen in Fig. 3 and by dotted lines in Fig. 2,) it being removed when the rail is having cut the

screw upon its tenons, in the same manner as that the loop J is displaced when the post is being operated upon. The cutter-head F, supplying the place of the cutter-head E, as described, for cutting the screw in the mortise, is, as before observed, reversible and similarly operated, so that the necessary right and left handed threads in the different mortises are cut as either arm of the cutter-head is placed horizontal and the required change specified made in the disposition of the half-nuts or boxes fitting the screws on the spindle C.

The cutter-head F is reduced at the union of its arms, so as to form a flat surface in a line with the center of the arms, whereby and through the eccentricity of the snug *g* the cutting-arm is, as already specified, made to lie centrally with the spindle, the interior surface of the reduced portion of the cutter-head sitting against that face of the snug *g* which is in a line with the center of the spindle, so that the eccentricity of the snug *g* serves to give both cutter-heads their proper position. The cutters *k k* being removable, they may be used for attachment to larger or smaller diameters of cutter-head arms whose size will be dependent upon the diameters of the mortises; but a slight deviation in the diameters of the tenons on the rail does not necessarily require a similar alteration or change in the cutter-head operating them, as a washer or washers may be introduced between the snug *g* and cutter-head, thereby varying the eccentricity or distance from the spindle of the cutters. The flange *f*, it will be noticed, serves for what may be termed the "radial arm" of either cutter-head to fall back against.

It may here further be observed, in conclusion, that the tenons of the rails and mortises of the posts are (before submitting them to the machine described for cutting the screw-threads thereon) similarly prepared as at present—that is, the tenons turned and mortises bored; but in addition to boring the mortise of a diameter equal to the inner diameter of the thread, I purpose, by auger or otherwise, countersinking for a short depth at the mouth a larger aperture or opening equal in diameter to the outer diameter of the thread, so that in screwing up the rails and posts a tight and neat joint will be formed.

The screw-threads cut, as described, upon the tenons and in the mortises will, by reason of the reversible cutter-heads and mode of changing the direction of the threads, be accomplished with great facility and dispatch, while the simplicity of the machine renders its convenience, durability, and economy an important consideration. No spring-catch or loose stop, it will be seen, is necessary (as with reversible cylinders and other similar devices) to hold the cutter-heads when set for producing either direction of thread, as the right-angled formation of the cutter-heads E and F, together with the snug *g* and

flange *f*, form of themselves a steady hold or bearing surface, which acts as a stop consequent upon reversal, as before set forth, and the facility (described) with which the cutter-head *E* may be packed up to suit tenons of various diameters is an advantage not obtainable by reversible cylinders and other screw-cutting arrangements of the kind.

I do not claim of themselves only reversible cutter-heads, as such or equivalent arrangements have long been used, such as reversible cylinders and similar devices; but

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

Constructing the reversible cutter-heads *E*

and *F* of arms placed at right angles to one another and carrying reverse right and left hand cutters *i i* and *k k*, in combination with the eccentric snug *g* and flange *f* of the screw-spindle *C*, for the purposes and advantages specified, all being constructed and operating as shown and described.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

J. PARSONS OWEN.

Witnesses:

WM. P. ELLIOT,

WM. M. SMITH.