S. Leris,

Making Wooden Screws.

No. 7,264. Patented Apr. 9, 1850.

Fig: 1.

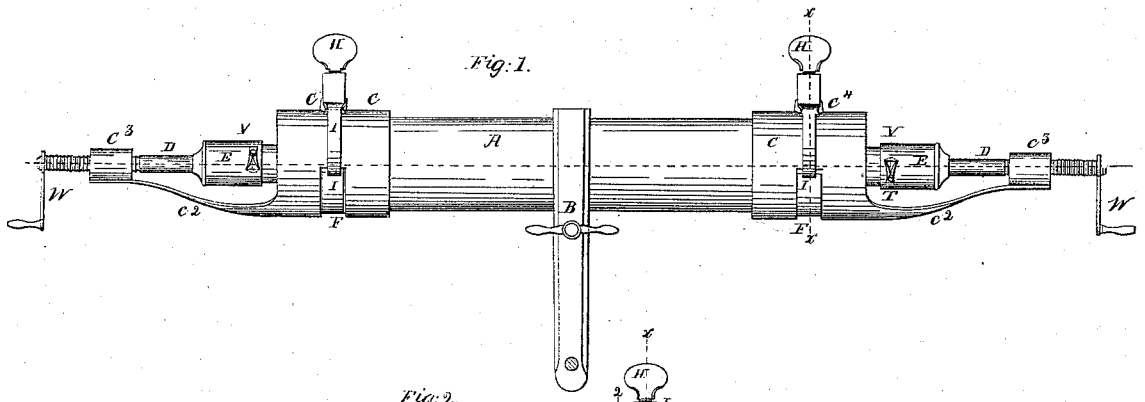

Fig: 2.

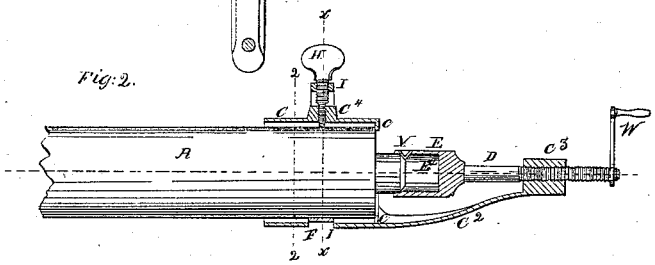

Fig: 3.

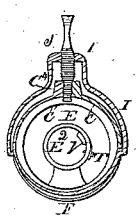

Fig: 4.

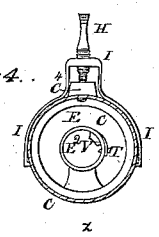

Fig: 10.

Fig: 7.

Fig: 8

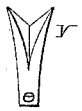

Fig: 5.

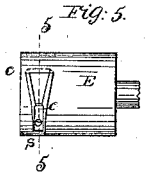

Fig: 6.

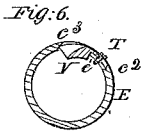

Fig: 9.

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

UNITED STATES PATENT OFFICE.

SPENCER LEWIS, OF TIFFIN, OHIO.

IMPROVEMENT IN MACHINERY FOR CUTTING SCREWS ON THE RAILS OF BEDSTEADS.

Specification forming part of Letters Patent No. **7,264**, dated April 9, 18 .0.

To all whom it may concern:

Be it known that I, SPENCER LEWIS, of the town of Tiffin, in the county of Seneca and State of Ohio, have invented a new and useful Improvement in Tools for Cutting Screws on the Tenons of Bedstead-Rails, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is an elevation showing a bedstead-rail clamped at the middle and a tool secured to each end, one for cutting the right screw and the other the left. Fig. 2 is a longitudinal section on the dotted line *z z* of Fig. 4 of one of the tools, showing its attachment to the rail and manner of cutting the thread, the cutter being in a position to commence the operation. Fig. 3 is a vertical cross-section on the line *x x* of Figs. 1 and 2, showing the cylindrical holder, centering-clasp, and thumb-screw for attaching the tool to the rail and centering the same and the cutter, the point of the thumb-screw and inner periphery of the centering-clasp being in a position to secure the tool to a rail of smaller diameter than the interior diameter of the cylindrical holder. Fig. 4 is a cross-section on the dotted line 2 2 of Fig. 2, showing the inner periphery of the clasp and the point of the screw coincident with the inner periphery of the cylindrical holder in readiness to receive a rail of the same diameter as the bore of the holder; also, a view of the end of the small cylinder containing the V-cutter for cutting the thread on the tenon of the rail. Fig. 5 is an elevation of the cylindrical cutter-head and a part of its shaft, showing the recess or seat in which the V-cutter is secured. Fig. 6 is a section of the same on the dotted line 5 5 of Fig. 5, showing the V-cutter secured in the recess or seat in the cutter-head. Fig. 7 is a perspective view of the V-cutter detached from the head. Fig. 8 is a plan of the same. Fig. 9 is an elevation of the clasp detached from the holder and thumb-screw. Fig. 10 is a plan of the thumb-screw, showing the coarse and fine threads cut thereon for moving the screw and clasp in opposite directions simultaneously and at the same speed, the spaces between the coarse threads being twice as wide as those between the fine threads.

Similar letters in the several figures refer to corresponding parts.

A represents a rail for a bedstead, turned in the form of a cylinder, with a round tenon at each end, clamped to a bench or other place by means of a common clamp B.

C is the holder, cast in the form of a cylinder or other form, with a rim *c* around its end next the cutter for the shoulder of the rail to rest against, and an arm C^2, extending from this end to support the box or nut C^3, cast in one piece with the said arm and holder, in which box a female screw is formed to correspond with the thread of a male screw formed on the shaft D of the cutter-head E. An opening or channel F is left in the lower half of the holder to admit the clasp I to move therein toward or from the center during the operation of clasping and unclasping the rail. A protuberance C^4 is cast on the outer convex surface of the cylinder-holder opposite the center of the notch F, in which a female screw is formed to correspond with the fine thread on the smaller portion of the thumb-screw H, employed to center and clamp the holder C and cutting-tool to the rail.

I is the clasp for centering and securing the holder to the rail, and with it the cutter. It is made of metal in a single piece in the form represented in Fig. 9 or other form. It may, however, be made in more than one piece. The portion which moves in the opening F and which bears against the convex surface of the rail is in the form of a segment of a cylinder. The portion which is outside the holder and surrounds a portion of it is made with a female screw J, to correspond with the coarse thread of the screw on the larger diameter of the shaft of the thumb-screw H, (containing the fine thread that turns in the female screw of the cylindrical holder C aforesaid,) for causing the segmental portion of the clasp and the point of the thumb-screw to approach the center of the cylindrical holder simultaneously and at the same speed, by which operation the center of the rail is always held in a line coincident with the axis of the cylindrical cutter-shaft, which is always on a line with the axis of the cylindrical holder, and hence the screw will be cut on the tenon at a uniform distance from its center and from the shoulder.

E is the cylindrical cutter-head, to which the V-cutter for cutting the required screw-thread on the tenon is secured. E^2 is the cy-

lindrical bore in said head, whose diameter is somewhat greater than that of the tenon on the rail, which enters the same during the operation of cutting the screw on said tenon, and whose depth is somewhat greater than the length of the tenon.

e is a recess made in the circumference of the cutter-head, near the end thereof, to receive the V-cutter, the widest portion of said recess extending through to the interior of the head. The sides of this recess are shaped to correspond with the sides of the V-cutter, which is fitted therein. The narrow portion of the recess into which the shank of the V-cutter is fitted does not extend entirely through the cylinder. It contains a female screw S, into which is screwed a male screw T, after being passed through the shank of the V-cutter, which lies in this part of the recess. The V-cutter is made of the best cast-steel in the form represented in Figs. 7 and 8, and is set in the aforesaid recess or seat in the manner represented in Fig. 6, having the two outer points of the cutting end of the V-cutter, which are slightly beveled, resting against the interior surface of the cylindrical head, where it is beveled or sloped outwardly next the wide end of the recess and the butt-end of the V-cutter resting against the cylinder at e' and the tapered end of the shank let into a notch in the cylinder at the small end of the recess at e^2, so that as the resistance increases during the operation of cutting the hold of the V-cutter upon the head E also increases, and when the cutter is properly adjusted and the screw T inserted it is almost impossible for the cutter to leave its seat, however hard the wood may be upon which it is to operate, and yet when it is required to disengage it from the head for sharpening or for any purpose it can be done in a few seconds by simply withdrawing the screw and moving the shank forward and then outward. This is an important part of the invention, for if the cutter fails the entire machine will be valueless. Heretofore this has been the weak point in machinery for cutting screws. The arrangement herein described proves entirely effective. The shaft D, on which the cutter-head is formed, has a double-threaded screw cut on its circumference corresponding with the double thread in the nut or box C^3, and a crank-handle W, by which it is turned.

The operation of this machine is very simple. The rail having been previously turned in the usual manner with round tenons on the ends is clamped or otherwise firmly held. The tools for cutting the screws on the tenons are then secured to the ends of the rails in the manner represented in Fig. 1 by means of the clasp I and thumb-screw H. The crank-handles are then turned a few revolutions, and the required screws are then cut on the tenons. Three turns are generally sufficient to make a screw for an ordinary bedstead. The motion of the crank-handles is then reversed and that of the thumb-screws and the tools removed to another rail, which is treated in a similar manner.

Having thus described the nature of my invention and improvement, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

1. The combination of the adjustive clasp I, screw H, and holder C, for suspending and confining the nut C^3 to the end of the rail and centering the same, so that the axis of the nut shall always be coincident with the center of the rail whether the latter be of large or small diameter, substantially as herein set forth.

2. The peculiar form and manner of securing the V-cutter to the cylindrical head E, as described—that is to say, making the cutter as represented in Fig. 7 and letting the tapered end of the shank into the recess at e^2, bringing the angular shoulder against the cylinder at e', and sustaining the beveled points against the interior beveled surface of the cylinder-head at e^3, by which arrangement the instrument during the operation of cutting is forced firmly against the head E at e' e^2 e^3, the strain upon the confining-screw T being thereby greatly reduced and the cutting-tool itself strengthened.

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

SPENCER LEWIS.

Witnesses:

WM. P. ELLIOT,

LUND WASHINGTON.