



# UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR CUTTING SCREWS ON BEDSTEAD-RAILS.

Specification forming part of Letters Patent No. 8,019, dated April 1, 1851.

*To all whom it may concern:*

Be it known that we, H. GROSS and W. CAMPBELL, of Tiffin city, in the county of Seneca and State of Ohio, have invented certain Improvements in Apparatus for Cutting Screws in Bedsteads; and we do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known, and of the usual manner of making, modifying, and using the same, reference being had to the accompanying drawings, of which—

Figure 1 is a perspective view of the whole apparatus for cutting screws on the rails; Fig. 2, a view of the cylindrical cutter stock or socket; Fig. 3, a section of the same; Fig. 5, detached views of the V-cutter; Fig. 6, a view of the apparatus for holding and cutting the screw in the post, and Fig. 4 a section of the post-screw cutter.

In manufacturing bedsteads the great difficulty has been to form the joints between the posts and rails so tight that vermin cannot enter and reside in them. For this purpose in bedsteads put together by right-and-left-hand screws on the ends of the rails, (which is found to be the simplest and cheapest way in which bedsteads can be constructed,) it is absolutely necessary that the screws both on the rail and in the posts shall begin and end at the same part of a turn, and it is also necessary that the screws should fit with great exactness. The machinery for these purposes, though constructed in great variety, has hitherto been able to perform its work with only an approximation to perfection.

The design of our invention is to accomplish these purposes in a perfect manner and at the same time be rapid and simple in its operation.

The invention consists, principally, in the mode of securing the V-cutter to its socket and enabling it to withstand the strain without springing off from its work.

In the drawings, *a* is the bed or frame similar to the bed of an ordinary lathe. One of the head-blocks *b* is fixed stationary to the bed and the other *b'* is made to slide to and fro to accommodate different lengths of rails, and is secured in its position by the set-screw *c*, which passes through a slot in the front of

the bed *a*. The other parts of the two head-blocks are similar, except that one is adapted to cut a right and the other a left handed screw and will be described under the same letters.

*d* is an arched standard, through the top of which a screw *e* passes. Below this screw is a hollow sunk in the head-block, which has a vertical mortise in it at this place, in which is inserted a piece *f*, which is more or less elevated by a wedge *g*, inserted in a mortise in the head-block under the piece *f* and is kept from slipping back by a set-screw *h*. The screw *e* and the piece *f'* are for adjusting the position of the tenon and holding it firm while the screw is cutting, the shoulder of the rail-tenon being set up against a shoulder on the head-block, which insures the screw commencing at the right point.

On the back end of the head-block is a standard *i*, through which the screw *k* (having the same pitch of thread as the screw required to be cut) runs. On the end of this screw is a socket or cylindrical head *l*, which is large enough to contain the tenon. Near the end of it is the V-cutter *m*. (See Figs. 2, 3, and 5.)

*n* 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 the recess are shaped to correspond with the sides of the V-cutter which is fitted to them. 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 *p*, into which is screwed a male screw *q*, 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. 3 and 5, and is set in the aforesaid recess or seat in the manner represented in Fig. 3, 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 *n'*, and the tapered end of the shank let into a notch in the cylinder at the small end of

the recess at  $n^2$ , so that as the resistance increases during the operation of cutting the hold of the V-cutter upon the head or socket  $l$  also increases, and when the cutter is properly adjusted and the screw  $q$  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 cutter 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.

A cramp  $r$  is made to receive the post previously bored, and the post is held firmly against one end by the screw  $s$ . The female screw is then cut by turning the handle of the screw  $t$ , which has a cutter on its end which enters the hole in the post and cuts the female screw, always commencing at exactly the same point in each post, which, in connection with the before-described apparatus for

cutting the male screws, insures a perfectly tight-fitting joint and also causes the right and left hand screws on the two ends of the rail to come up to a close joint at the same time.

Having thus fully described our improvements in cutting screws, what we claim as new therein, and which we desire to secure by Letters Patent, is—

The peculiar form and manner of securing the V-cutter to the cylindrical head, as described—that is to say, making the cutter as represented and letting the tapered end of the shank into the recess, bringing the angular shoulder against the cylinder and sustaining the beveled points against the interior beveled surface of the cylinder-head, by which arrangement the instrument during the operation of cutting is forced firmly against the head, the strain upon the confining-screw being thereby greatly reduced and the cutting-tool itself strengthened.

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Witnesses:

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