G. R. CRAMER.

Spoke-Throating Machine.

No. 204,801. Patented June 11, 1878.

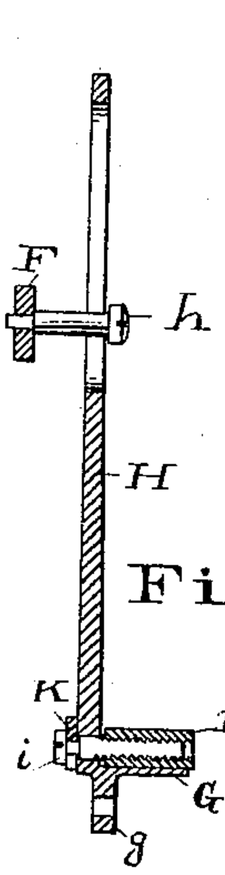

Fig. 2

Fig. 1

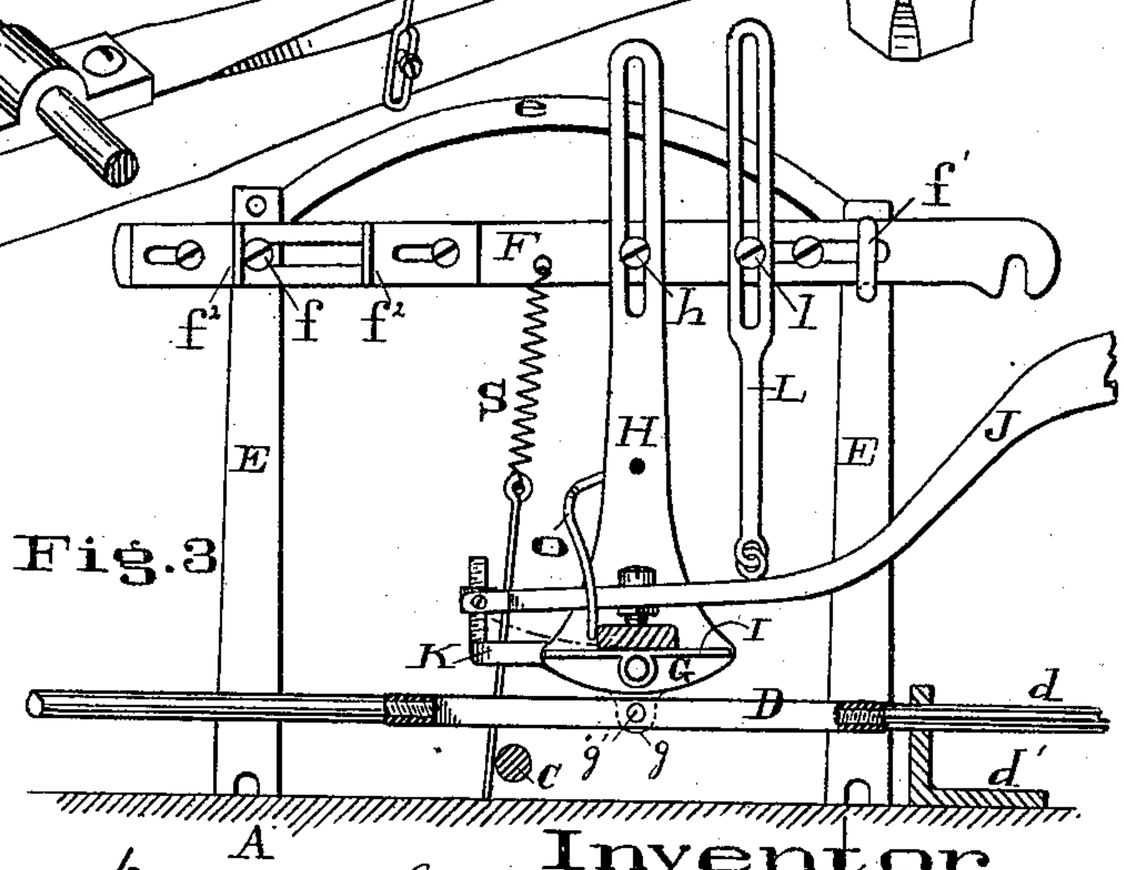

Fig. 3

Attest.

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GEORGE R. CRAMER, OF CINCINNATI, OHIO.

IMPROVEMENT IN SPOKE-THROATING MACHINES.

Specification forming part of Letters Patent No. **204,801**, dated June 11, 1878; application filed May 7, 1878.

To all whom it may concern:

Be it known that I, GEORGE R. CRAMER, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Machines for Throating Spokes, of which the following is a specification:

The object of this invention is to provide a convenient means of holding and feeding the spoke over the revolving cutters, and automatically change the relation of the rocking bed to the cutter, so as to cut the throat tapering, (thinner at the front than at the rear edge;) and also to provide convenient means of adjusting the machine to adapt it to the various sizes and shapes of spokes.

The invention consists, first, in connecting the bed, which gives a rocking motion to the spoke as it passes over the cutter, to a sliding bar located above it, which bar, as its position is changed after cutting one side of the spoke, so changes the relation of the rocking bed to the cutter that the opposite side of the spoke will receive a reverse bevel; second, in connecting the sliding bar and operating lever or handle by a link, so that, when the bed is drawn back to cut the opposite side of the spoke, the sliding bar will at the same time be brought to the proper position; third, in pivoting the handle or operating-lever to the rocking bed, so as to control the action of the sliding bar and insure a uniform pressure upon the spoke; fourth, in making the sliding bar extensible, and providing it with adjustable stops, to adapt the machine to cut different bevels; fifth, in making the bed-plate adjustable parallel with the cutter-mandrel, to regulate the length of shoulder.

In the accompanying drawing, in which similar letters of reference indicate like parts, Figure 1 is a perspective view of a throating-machine embodying my invention. Fig. 2 is a vertical transverse section through the center of the rocking bed and the arm which connects it with the sliding bar, showing the screw by which the bed-plate is adjusted. Fig. 3 is a longitudinal vertical section, taken through the shafts which support and guide the sliding carriage. This view shows an elevation of the sliding bar, its supporting-frame, and the rocking bed. In this figure the sliding bar is shown changed from the position shown in Fig. 1, so as to dress the opposite side of the spoke.

A is the frame of the machine, upon which is mounted the counter-shaft B, cutter-mandrel C, and sliding carriage D with its guide-shafts *d* and their bearings *d'*. These are constructed and arranged in the manner now usually employed in machines of this class. The slotted standards E E are let into grooves in the rear frame-piece, and secured by screws which pass through their slots and enter the frame, and are braced at the top by a cross-piece, *e*. Projecting from the front of these standards are two stud pins or guides, *f* and f^1, to support and guide the sliding bar F. This sliding bar, which is the device for changing the center of the rocking bed, is composed of two parts, secured together by a tightening-screw passing through a longitudinal slot in one part and tapped into the other, so that it may be extended or shortened at will. One end of the bar is secured to the standard E by a pin, *f*, which passes through a slot in the bar. The horizontal play of the bar is limited by the stops f^2, which are adjustable toward or from each other to permit the bar to have more or less play. The purpose of these adjustable stops, in connection with the extensible bar, is to regulate the machine to cut any bevel desired upon the spoke. The opposite end of the sliding bar is supported upon the pin f^1, which enters a notch in this end of the bar to hold the bar while one side of the spoke is dressed.

The rocking bed G is hinged to the sliding carriage D by a pin, *g'*, which passes through the frame of the carriage, and a lug, *g*, Fig. 3, which projects down from the rocking bed and enters a slot in the carriage-frame beneath.

H is a slotted arm, permanently secured to the rocking bed G, and, projecting up, is linked to the sliding bar F by a stud-pin, *h*, passing through its slot.

I is a sliding plate resting upon bed G. It has a boss projecting down from its under side, entering a corresponding depression in the bed. The boss is threaded to receive the screw *i*, by which the plate is adjusted with relation to the cutter. The screw *i* passes

through arm H, and has a groove cut into its shank near the head. A notched portion of arm K enters this groove and prevents the screw from moving longitudinally while permitting it to revolve freely to carry the bed out or in to regulate the length of shoulder.

The arm K is secured at the back of the rocking bed to the link H, and is curved to bring its end, which carries a screw-pin, in a line with the vertical center of the rocking bed. To this screw-pin is attached by a swivel-joint the operating lever or handle J. A link, L, connects the handle and sliding bar F. This link is slotted to receive the stud-pin *l*, which pin also acts as one of the tightening-screws for adjusting the extensible bar. The purpose of the link L is to throw the bar F up at the same time the spoke is taken out to be turned over for the second cut, and release its notch from pin f^1 preparatory to changing the position of the bar. The spiral spring S, distended from bar F to the frame of the machine, keeps the bar F down to its place.

N is a cam-plate, secured to the inner face of the frame. It is slotted from beneath up to allow it to pass over mandrel C, and is vertically adjustable to regulate the depth or angle of the cut by tilting up the forward end of the carriage D as the spoke is carried over the cam.

O is a guard secured in arm H. It serves to stop the spoke in the proper place in the bed-plate, and prevents it from being accidentally thrown upon the cutter while placing it to be cut.

The devices which effect the rounding of the shoulder consist of the sliding rest R, slotted link-arm P, stud-arm T, and their connecting and guide pins, the whole controlled by the movement of carriage D. The rest R slides upon carriage D, guided by pins fixed in the carriage and slots cut from each end of the rest inward. The link P is slotted at each end, and secured, the one end to the carriage and the other to the lower brace-piece of the frame by screw-pins passing through the slots. A fulcrum-pin, *t*, passes through one of a series of holes in link P, and is secured in the stud-arm T, which is rigidly secured to the carriage, and extends down from it.

The curve of the shoulder is determined by the swing that is given to the outer end of the spoke while passing over the cutter, and this is regulated by the fulcrum-pin *t*. If more of a curve is desired, the pin is moved lower down, and if less it is moved into one of the upper holes in the link. Projecting up from rest R is a pin, against which the edge of the spoke rests. Another pin projects from the rest parallel with the spoke when in position. This pin is grasped, together with the spoke, by the left hand of the operator while feeding the spoke over the cutter.

It is obvious that, if the pin *h* is vertically over the mandrel, and hinge-pin *g'* and the center of the spoke in the same vertical plane, both edges of the spoke would be dressed to the same thickness, and that the bevel of the throat is regulated by the distance the pin *h* is removed from this vertical plane during the operation of cutting; hence the bevel of the throat is determined by the distance the end stop f^2 and the notch in the opposite end of the bar are placed from pin *h*. The inner stop f^2 is simply for the purpose of arresting the bar in the proper position to allow the notch to pass over the pin f^1.

In setting the machine the end stop f^2 is first placed in the proper position. The bar is then extended or shortened to bring the notch in the opposite end the same distance from pin *h*.

The curve of the throat is made more or less rounding by depressing or raising the standards E E to bring the pin *h* closer to or remove it farther from bed G. The same result would, of course, be attained by making the pin *h* vertically adjustable.

The machine being set and a spoke in position, as seen in Fig. 1, the operator grasps the spoke and horizontal pin in rest R with his left hand, while with his right hand he holds the handle or lever J. Then the carriage is pushed forward and one side of the spoke is dressed. The carriage and bed are drawn back to the first position. The lever J is now elevated to release the spoke for the purpose of turning it over, and by the same operation the sliding bar is thrown up by link L, and its notch released from guide-pin f^1. The spoke being reversed, the lever is pressed. This operation slides the bar to the position shown in Fig. 3. The bed is again pushed forward and returned, completing the throat. To change the bar back from the position seen in Fig. 3 to that shown in Fig. 1, after a spoke is placed in position, push the carriage forward without pressing down upon the lever, and the notch will reach pin f^1 before the spoke reaches the cutter, or the bar may be changed before placing the spoke in position.

I claim—

1. In a spoke-throating machine, the combination of the rocking bed G, arm H, and sliding bar F, the parts being arranged for the purpose of changing the swing of the bed with relation to the cutter, so as to produce reverse bevels upon opposite sides of the spoke, substantially as described.

2. The slotted link L, having its lower end jointed to lever J and its upper slotted end adapted to engage a stud-pin, *l*, which projects from the sliding bar F for the purpose of disengaging the notch in said bar from its pin or guide f^1, substantially as specified.

3. The combination, substantially as described, of bed G, lever-arm J, and fulcrum-arm K, said arm K being rigidly secured to bed G, and lever-arm J being jointed to arm K, so as to control the movements of the bed by the handle of lever J, for the purpose specified.

4. In combination with a throating-machine,

the extensible bar F fitted with adjustable stops f^2 at one end and a notch at the opposite end, said bar being fitted to slide on stud pins or guides secured in standards E E, the purpose of said adjustable stops and extensible bar being to guide and limit the longitudinal play of said bar, so as to adapt the machine to cut different bevels, substantially as specified.

5. In combination, the bed G, bed-plate I, and its adjusting-screw *i*, for the purpose of setting the plate I nearer to or farther from the revolving cutter to leave a shoulder of any desired length upon the spoke.

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Witnesses:
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GEO. J. MURRAY.