E. Lumley,

2 Sheets, Sheet 1.

Snake Lathe.

No. 38,399.

Patented May 5, 1863.

Fig. 1

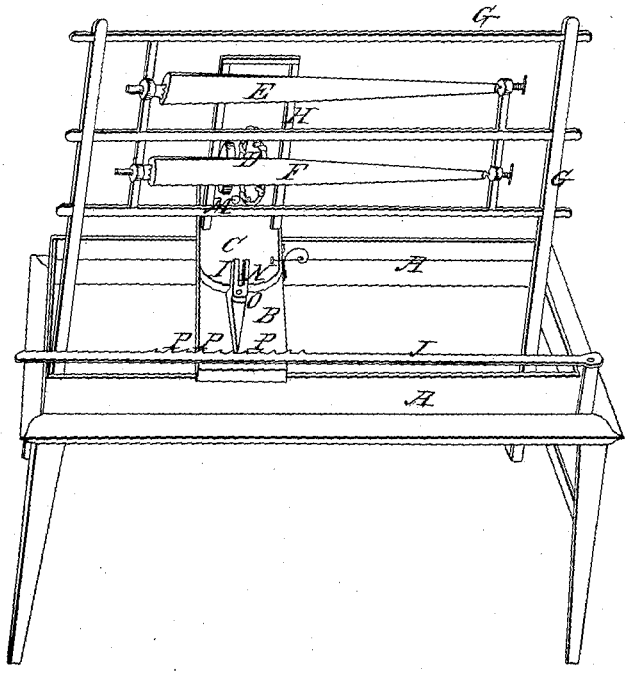


Fig. 2

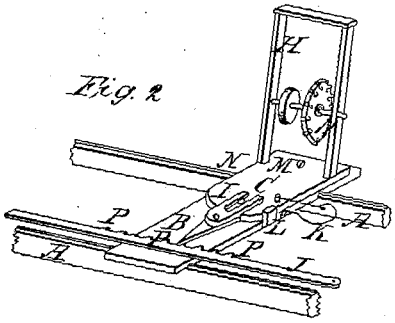


Fig. 3

Witnesses:

[illegible] M Fording

[illegible] Cromwell

Inventor.

Edward Lumley

2 Sheets, Sheet 2.

E. Lumley,

Spoke Lathe.

No. 38,399. Patented May 5, 1863.

Fig. 1.

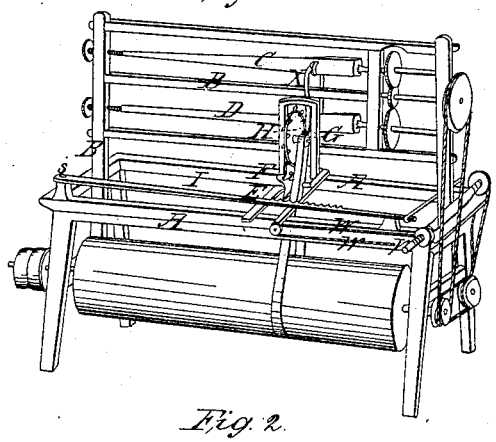


Fig. 2.

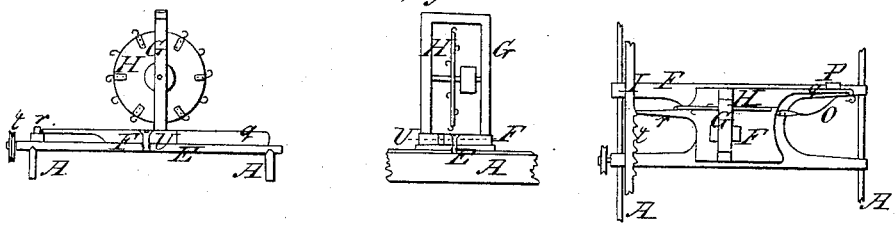


Fig. 3.

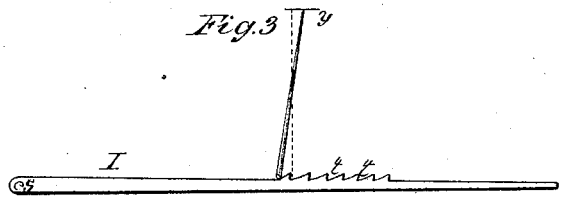
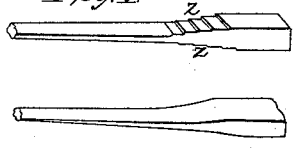


Fig. 4.



Witnesses:
Wm M Gording
Daniel Cronin

Inventor
Edward Lumley

UNITED STATES PATENT OFFICE.

EDWARD LUMLEY, OF ELIZABETH CITY, NEW JERSEY.

IMPROVEMENT IN LATHES FOR TURNING IRREGULAR FORMS.

Specification forming part of Letters Patent No. **38,399**, dated May 5, 1863.

To all whom it may concern:

Be it known that I, EDWARD LUMLEY, of the city of Elizabeth, in the county of Union and State of New Jersey, have invented certain Improvements in Lathes for Turning Irregular Forms; and I do hereby declare the following to be a full and exact description thereof, reference being had herein to the drawings, which accompany this specification and make part of the same.

The nature of my improvement consists in giving to the frame that holds the cutter such a vibratory motion as shall obviate the notched surface now made in turning oblong pieces, where there are curves in them.

In the drawings, Figure 1 represents, in perspective, one of the common spoke-turning lathes with the improvement combined therewith. Fig. 2 shows the improvement in the construction of the cutter-frame and the way it is connected to or combined with the common lathe. Fig. 3 shows the principle on which the desired result is obtained. Fig. 4 shows the old and the new style of work on a carriage-wheel-spoke.

The same letters refer to the same parts in each figure.

The difficulty to be obviated is, that in turning from a pattern, where there is an upward curve upon the pattern and two straight flat sides upon the same, it follows that if the cutter moves forward in a rigid straight line that the cutter after passing one curved side of the piece that is being turned will not touch that side again until three-fourths of a revolution of the piece, and must consequently commence its cut as much higher as the curve on the pattern has made the turned piece recede from the cutter on its rigid straightforward motion, which, of course, must leave the notches in the turned piece, as shown at *z*, Fig. 4. The means taken to obviate this has its principle shown in Fig. 3. A vibratory motion is given to the cutter-holding frame, while it is making its straightforward motion, by detents so proportioned, constructed, and arranged as to produce the needed curve, for, of course, if the cutter continues its forward motion and at the same time takes a curve, as shown at *y*, Fig. 3, it will leave just so much wood as will fill in what otherwise would be a notch in the piece that is being turned.

Fig. 1 is a common spoke-turning lathe. A is its main frame. B is the vibrating frame that holds the pattern and the piece to be turned. C is the pattern; D, the piece to be turned. *x* is the rigid stop, against which the pattern C is held by a stiff spring on the opposite side, which, as the irregular-formed pattern revolves, causes the frame B to advance and recede from the cutter that is operating on the piece D, which piece, being held in the same frame as the pattern and revolving simultaneously in the same time as the pattern, takes the shape of the pattern as nearly as circumstances will allow.

The bed-piece E, to which the frame holding the cutter is ordinarly attached, is caused to move forward by the winding of the cord W upon the small cylinder V, the machinery releasing the cylinder at the necessary point to allow it to turn in the opposite direction when the bed-piece E is run back on the main frame to begin anew another piece of turning.

Our improvement begins in adding to the common bed-plate E the plate F, and having this plate at liberty to vibrate on the pen U, by which it is held securely to the bed-plate E. To the plate F the cutter-holding frame G is attached, instead of being fast to the plate E in the ordinary manner. A bar with detents *t* upon it, the detents so shaped, proportioned, and distanced as to allow the cutter H to come to its straight position when it passes the corner of the curved edge and comes upon the straight side of the piece to be turned, is put lengthwise with the main frame of the lathe, and is held at one end by a bolt, S, while the other end can be fast or loose at the pleasure of the operator, so as not to interfere with the back movement of the bed-pieces and the cutter when they are returned to begin a new piece, which returning is done by hand. The end *r* of the bed-piece F impinges against the detents *t*, and gives the vibrating motion (shown in Fig. 3) to the cutter-frame and cutter. The end *q* of the bed-piece F is held back against the stop-piece *p* by the spring *o*, and returns the cutter to its straight position immediately on a release of the end *r* from a detent, *t*. The detent-bar is shown by the letter I.

What I claim, and desire to secure, is—

Vibrating the cutter H in the manner and for the purpose hereinabove specified.

EDWARD LUMLEY.

Witnesses:

W. M. GOODING,

DANIEL CRONIN.