H. E. FORREST.

Tool for Finishing Axle Blanks.

No. 134,742. Patented Jan. 14, 1873.

Fig. 2.

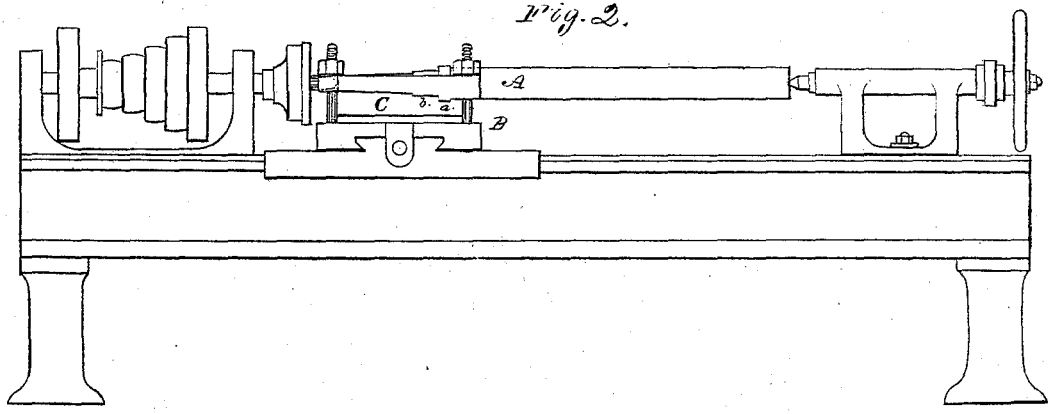


Fig. 1.

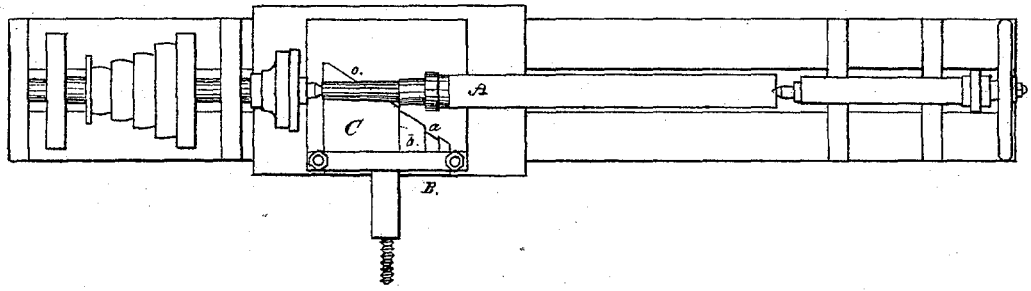


Fig. 3.

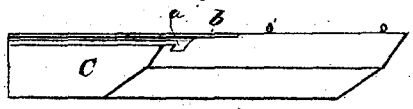


Fig. 4.

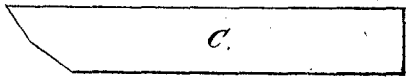
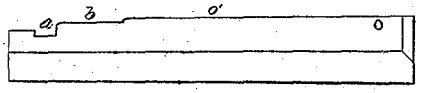


Fig. 5.



Witnesses.

Geo. Gray.

H. C. Hale.

H. E. Forrest

by his attorney

H. T. Hale

UNITED STATES PATENT OFFICE.

HAMLET E. FORREST, OF CAMBRIDGEPORT, MASSACHUSETTS, ASSIGNOR TO HIMSELF, HORATIO BOOTHBY, OF BOSTON, MASSACHUSETTS, AND JOHN H. LEAVITT, OF PORTLAND, MAINE.

IMPROVEMENT IN TOOLS FOR FINISHING AXLE-BLANKS.

Specification forming part of Letters Patent No. **134,742**, dated January 14, 1873.

To all whom it may concern:

Be it known that I, HAMLET E. FORREST, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented a new and useful or Improved Lathe-Tool for Finishing a Metallic Axle-Blank, or forming the journal and collar thereon at a single operation.

Heretofore in the formation of axle-journals, upon the swaged metallic blanks by means of a lathe, the axle-blank has been finished or reduced to the desired form by means of a narrow tool or series of tools firmly affixed to a tool-stock having horizontal compound movements—that is, both transversely and longitudinally of the axis of the lathe. In order to reduce the parts to the desired shape the workman was not only obliged to frequently stop and measure the journal as the reduction took place, but also to stop and gage or shift the tool for each change in the form of the journal. Under this method great care and skill were required to render the journals and their adjuncts of one standard uniform size, and the result has been that by such process only an approximation to a uniformity has been attained. The object of my invention is to produce a tool by which a novice in the art of working or "turning" metal can produce or turn any given number of axle-journals with their adjuncts or collars with the greatest certainty and ease; and my invention consists in a cutter or tool for forming or shaping the journal and collar of an axle, as made with a compound inclination, one being longitudinal and the other transverse, the former being to cause the edge of the tool to cut with a drawing stroke, and permit only a small portion of the edge to act upon the metal to be reduced at one time, and the latter incline being to impart to the journal the requisite degree of taper.

In the accompanying drawing, Figure 1 denotes a top view of my improved tool as applied to a lathe; Fig. 2, a side view of the same; Figs. 3 and 4 are end views; and Fig. 5 an edge view of the cutter or tool detached.

In Figs. 1 and 2, A denotes the axle or journal-blank as affixed to the arbor of an ordinary lathe. B is the carriage to which the cutter C is to be firmly secured. This cutter consists of a flat plate of steel of a quadrilateral shape, and of a width corresponding to the portion of the blank to be reduced, such cutter being formed with a compound inclination or longitudinal and transverse tapers—that is, with a tapering cutting-edge, *o*, to produce a drawing stroke, and with a lateral dip, *o'*, to produce the desired taper of the journal, and having, as shown in the drawing, two depressions, *a* and *b*, the one, *a*, to produce a collar upon the inner end of the journal, and the other, *b*, a re-enforce or strengthening band contiguous thereto.

This cutter, formed as shown in the drawing, produces a journal of the ordinary construction; but it is evident in forming a journal without a re-enforce, and of a regular taper, the depression *b* of the cutter can be dispensed with.

The cutter having the required shape to impart the desired form to the journal is to be firmly fixed upon a carriage, or adjustable support, or rest so arranged as to slide upon the bed or frame of the lathe, the cutting-edge of the knife being set and fixed at such an altitude, with respect to the forging or journal-blank, that the cutter, when having acted on the blank and reduced the same to the requisite form, shall freely slide under the finished journal.

The cutter may be fed up to the blank to be reduced either automatically or by means of a screw operated by manual power. By thus forming the cutter and locating it on a fixed determinate plane, with respect to the axis of the arbor of the lathe—that is, so that when the journal is formed the cutter will pass freely under the same—a novice or person unskilled in the art of turning or reducing metals can readily produce or finish, with perfect uniformity, the journal and collar upon any desired number of axle-blanks.

In operating with my improved tool the same is so arranged that the part for forming the smaller end of the journal is first caused to impinge against the blank, which, gradually advancing, reduces such part to the re-

quired shape, passes under the same, and allows fresh portions of the cutting-edge to act upon the blank, and pass under the same until the entire reduction of the blank has taken place, the cutter operating with a continuous drawing stroke during its entire action.

Having described my invention, what I claim is—

The improved lathe-tool, as described, the same consisting of the plate C, formed with the compound inclination or angular cutting-edge *o* and lateral taper *o'*, and with the collar forming recess *a*, the whole being as and for the purpose set forth.

HAMLET E. FORREST.

Witnesses:

F. P. HALE,

F. C. HALE.