J. HALL.

TOOL FOR TURNING JOURNALS OF LOCOMOTIVE CROSSHEADS, &c.

No. 18,970. Patented Dec. 29, 1857.

Fig. 1.

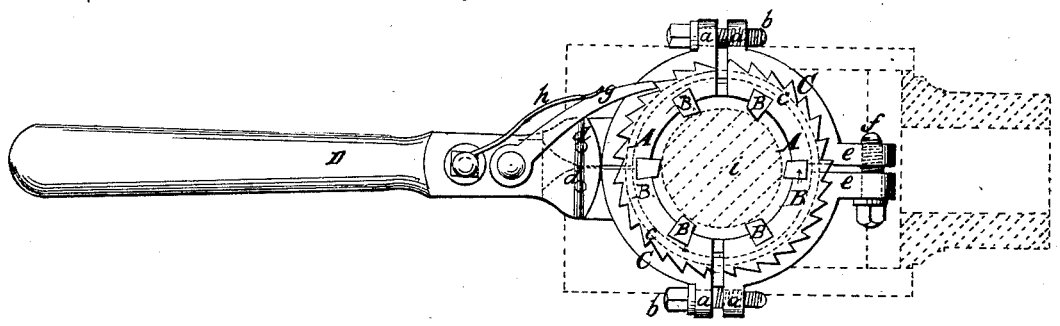
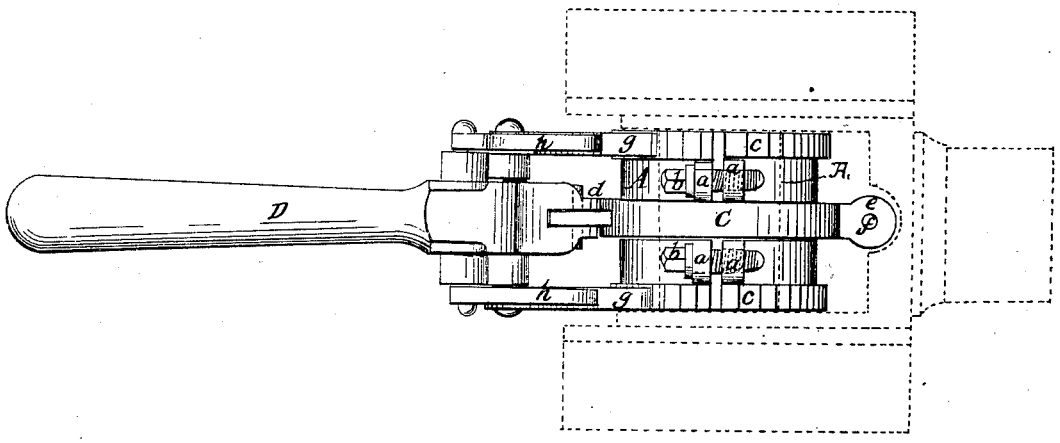


Fig. 2.



UNITED STATES PATENT OFFICE.

JAMES HALL, OF NEW HAVEN, CONNECTICUT.

TOOL FOR TURNING JOURNALS.

Specification of Letters Patent No. 18,970, dated December 29, 1857.

To all whom it may concern:

Be it known that I, JAMES HALL, of the city of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Tool for Turning the Journals of Locomotive Cross-Heads and other Articles of Similar Character that cannot be Turned in a Lathe; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a side view of the tool, showing it in operation on a locomotive cross-head. Fig. 2 is a top view of the same.

Similar letters of reference indicate corresponding parts in both figures.

A, A, is a hollow cylindrical cutter box, of a length equal or nearly so to the journal to be turned, and of an internal diameter somewhat larger than the rough journal, divided longitudinally into two equal parts, each of which is provided with lugs *a*, *a*, at each side, to receive screws *b*, *b*, which attach them together. The cutter box thus constructed is provided at each end with a circle of ratchet teeth *c*, surrounding its exterior.

B, B, are the cutters, of which there may be any number, of a length equal to the journal to be turned, fitted to dovetail-shaped grooves made longitudinally in the interior of the cutter box.

C, C, is a metal ring, divided diametrically into two equal parts and fitted to a groove turned around the exterior of the cutter box A A; each of the said parts being hinged by a separate pin *d*, to a handle D; and opposite to their hinges, they are provided with lugs *e*, *e*, to receive a screw *f*, by which they are kept closed upon the cutter box.

g, *g*, are two pawls, pivoted to the handle D, to engage with the circles of ratchet teeth on the cutter box to turn the said cutter box by working the handle backward and forward.

h, *h*, are two springs, to keep the pawls in gear. The cross head is shown in red outline in both figures; Fig. 1, representing it in section, and Fig. 2, representing it entire. Fig. 1, is the cross-head journal.

The cross-head or other article to be turned is held in a vise, or otherwise secured in a stationary condition, but in re-turning a locomotive cross-head already in use, it may be allowed to remain in its place in the engine. To apply the tool to it, the screw *f*, must be taken out and the ring C, C, opened on its hinges to allow the cutter box to be taken out. The cutter box is then opened by taking out the screws *b*, *b*, and the two parts of it are applied on opposite sides of the journal, and secured together again by the screws *b*, *b*. The cutter box now encircling the journal, has the ring C, C, applied to it and secured by its screw *f*, in such a manner as to allow it to turn freely on the cutter box. By working the handle D, back and forth, the pawls *g*, *g*, are caused to give the cutter-box and cutters a rotary motion around the journal, and the cutters are thus caused to turn the journal to a circular form. The screws *b*, *b*, generally require to be tightened from time to time during the turning operation, to reduce the journal to a proper size, or to turn it down to the perfect circular form.

The journals of locomotive cross-heads and many other journals similarly arranged have been heretofore commonly chipped and filed to the circular form, which is a very tedious and slow process, and occupies from four to five times the time shown by actual experiment to be required to do the same job by my invention.

I do not claim to be the first inventor of a revolving cutter stock for turning journals; as I am aware that such a contrivance has been used for turning crank journals and other articles, but—

What I claim as my invention, and desire to secure by Letters Patent, is:—

The combination, substantially as described, of the divided hollow cylindrical cutter-box A, A, furnished with ratchet teeth on its exterior, and tightening screws *b*, *b*, and the divided ring C, C, handle D, pawls *g*, *g*, and fastening screw *f*, the whole operating as herein set forth.

his
JAMES × HALL.
mark

Witnesses:
CHAS. C. WILDMAN,
R. W. BUCHER.