

J. WHEELLOCK.

Tool-Holders and Cutter-Heads for Boring-Bars.

No. 144,583.

Patented Nov. 11, 1873.

Fig. 1.

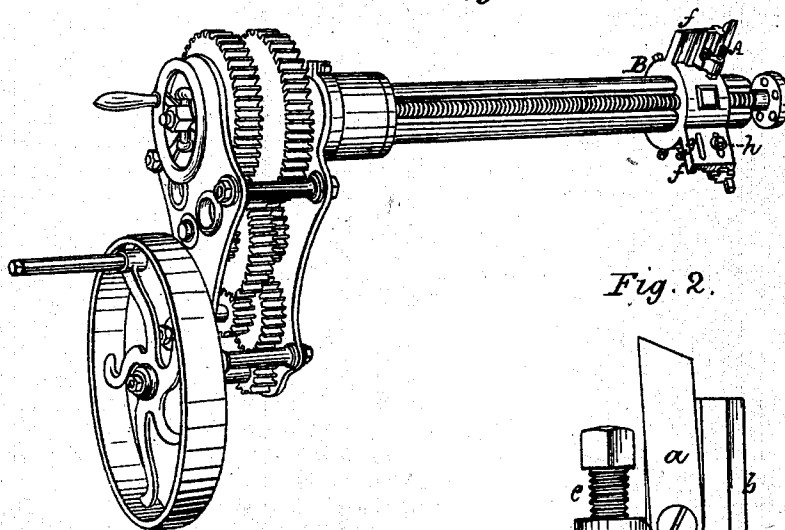


Fig. 2.

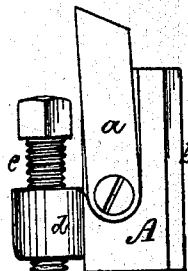


Fig. 3.

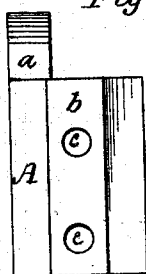


Fig. 4.

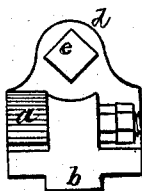
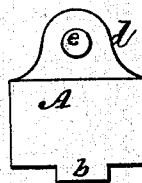


Fig. 5.



Witnesses
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JEROME WHEELOCK, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN TOOL-HOLDERS AND CUTTER-HEADS FOR BORING-BARS.

Specification forming part of Letters Patent No. **144,583**, dated November 11, 1873; application filed July 2, 1873.

To all whom it may concern:

Be it known that I, JEROME WHEELOCK, of the city and county of Worcester, in the State of Massachusetts, have invented certain Improvements in Tool-Holders and Cutter-Heads of Boring-Bars; and I do hereby declare that the following specification contains a true and accurate description thereof.

My present invention relates to that class of boring-bars which are, in part, of my own invention, and are described in certain Letters Patent granted to me October 11, 1870. In said bars, as heretofore constructed, the cutting-tool has been held directly by the radial arms of the cutter-head on which they were mounted, and, in order to bore out cylinders of various diameters, special cutting-tools were required for each different-sized cylinder. With tool-holders and cutter-heads embodying my present improvements, various-sized cylinders may be bored, by reason of a ready and effectual means of radial adjustment. My invention consists in a certain novel holder, on which the cutting-tool is mounted, and in combining the same with a radial-armed cutter-head; but, more particularly to describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 represents in perspective several of my improved tool-holders attached to a cutter-head which is adapted to receive them. Fig. 2 represents one of my tool-holders in side view. Figs. 3, 4, and 5 represent one of my holders in rear, top, and bottom view, respectively.

In each of the figures, A represents the tool-holder. It is constructed usually of cast-iron, and is provided with a recess for receiving the cutter *a*, which is so pivoted to the holder in the recess that it can be swung forward on the pivot, but when in working position will be rigidly prevented from swinging backward. The bevel-edge on the cutter inclines toward the top of the holder, as shown in the drawings. On the rear side of the holder is a square-edged guide-block, *b*, through which, from the front of the holder, are two bolt-eyes, *c*. At the base of the holder, projecting to the front, is a ledge, *d*, through which, in tapped holes, the adjusting-screws *e* are set. The arms *f* of the cutter-head B are each provided

with longitudinal slots *g*, which should be at true right angles to the axis of the boring-bar on which the cutter-head is to be mounted, and with which it is to revolve when in operation. The slots *g* are each fitted to receive one of the guide-blocks *b*, preferably in such a manner that they may be moved longitudinally therein without any possible lateral movement. The arms *f* of the cutter-head are set tangentially, so that when the holder and cutter are mounted thereon the latter will occupy a line substantially radial, and by that means an easy-cutting action is secured.

It is to be understood that my boring-bar, to which the present improvement particularly pertains, is adapted to bore out a steam-engine cylinder without removing the back head or the bunter-beam. At times it is desirable to commence the boring of the cylinder at the front, in which case the tool-holders may be set in the slots *g* which are nearest the operative end of the bar, and secured in position by the bolts *h* through the bolt-eyes *c*. When the boring is to be commenced at the back end of the cylinder, the tool-holders will preferably be set in the slots *g* which are farthest from the operative end of the bar, in order that the boring may be commenced closely adjacent to the inner face of the head.

As explained in my Letters Patent referred to, the cutter-head may be withdrawn at any time without scoring the cylinder by swinging the cutters forward on their pivots from a radial to a tangential line, by which the radial distance of each cutting-edge from the center of the cutter-head is lessened, and the edges of the cutters removed from contact with the finished surface.

As before stated, in the said Letters Patent the cutters are represented as pivoted direct to the arms of the cutter-head, and that such arrangement necessitates the employment of cutters of different lengths for boring out cylinders of different diameters.

With my tool-holder, as herein described, cylinders of various diameters may be bored with the same cutters by reason of the radial adjustment of the holders, which is effected by means of the adjusting-screws *e*, which, by bearing with one end on the exterior of the hub of the cutter-head, will force the holder

outward on the arms to any extent which the length of the screws will admit. Comparatively short screws may be employed, and considerable range of movement be attained therewith, by setting their heads so as to be in contact with the hub of the cutter-head, in which case the holders may be so far advanced that but two or three threads of the screw will be engaged with the threads in the tapped holes.

I am aware that the tool-holder may be made in two parts, hinged together at the lower end, and arranged so that one part will engage with the cutter-head, substantially as described, and also so that the other part, by means of a clamp, will hold and carry the cutter rigidly, with which approximate results would be attained.

I am also aware that the holders and cutter-head may be connected in various ways which would result in the proper carrying of the

holder and cutter, and admit of the radial adjustment required; and I do not therefore confine myself to the precise construction herein shown.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A boring-bar tool-holder, fitted to receive the tool and admit of its being advanced from a radial to a tangential line while operatively mounted on the holder, in combination with a cutter-head provided with arms fitted to receive and carry the holder, and with means for effecting the radial adjustment of said holder, substantially as and for the purposes specified.

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Witnesses:

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