(No Model.)

G. T. REISS.

LATHE.

No. 430,088. Patented June 10, 1890.

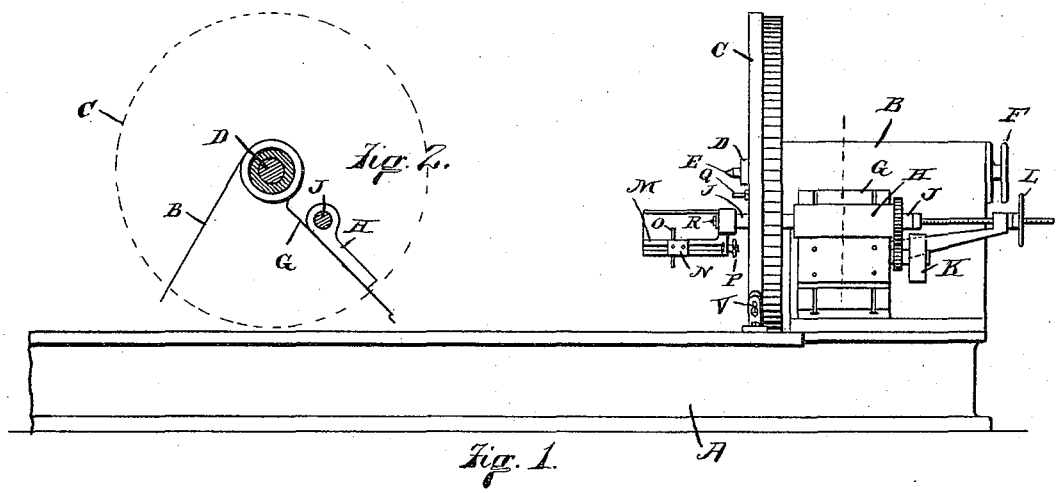

Fig. 1.

Fig. 2.

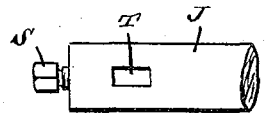

Fig. 4.

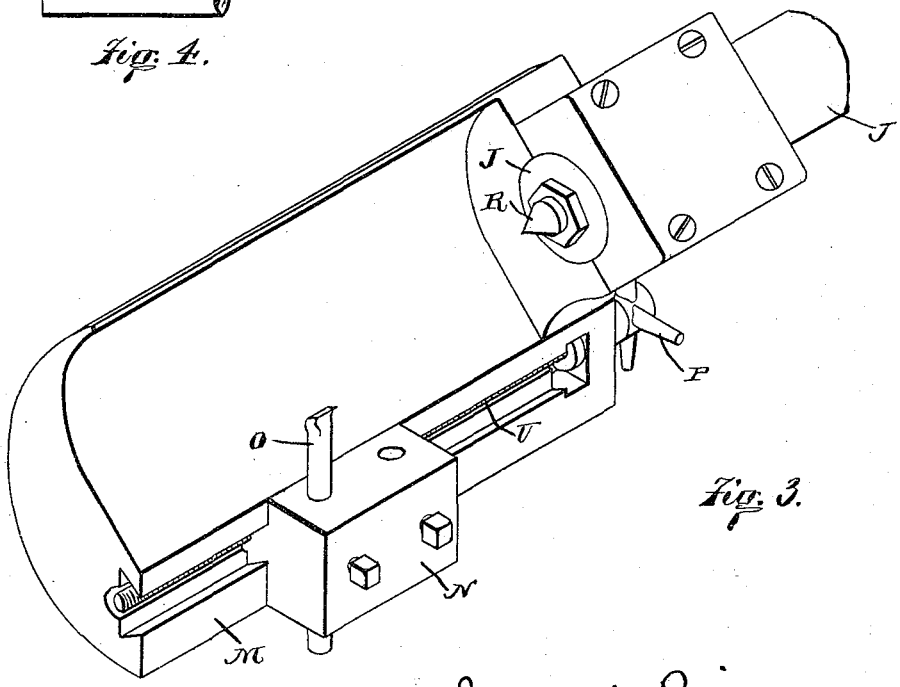

Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE T. REISS, OF HAMILTON, OHIO, ASSIGNOR TO THE NILES TOOL WORKS, OF SAME PLACE.

LATHE.

SPECIFICATION forming part of Letters Patent No. 430,088, dated June 10, 1890.

Application filed April 19, 1890. Serial No. 348,677. (No model.)

To all whom it may concern:

Be it known that I, GEORGE T. REISS, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Lathes, of which the following is a specification.

This invention pertains to improvements in that class of lathes designed for operation on the driving-wheels of locomotives, and has special reference to such improvements as will fit such lathes for the turning or re-turning of the crank-pins projecting outwardly from the driving-wheels.

My improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a rear elevation of the bed and head-stock of an ordinary driving-wheel lathe provided with crank-pin-turning appliances exemplifying my present invention; Fig. 2, an end view of a portion of the head-stock, showing the spindles in vertical transverse section; Fig. 3, a perspective view, on an enlarged scale, of the slide-rest for turning the crank-pins; and Fig. 4 a side elevation of the end portion of the boring-bar employed in boring the crank-pin holes.

In the drawings, A indicates the bed of an ordinary driving-wheel lathe; B, the usual head-stock thereon; C, the usual face-plate intended to be driven in the ordinary way and by the ordinary means; D, the usual adjustable center spindle at the axis of the face-plate; E, the usual lathe-center carried by this center spindle and serving to engage the center of the axle on which the driving-wheels are fixed; F, the usual hand-wheel for adjusting the center spindle endwise; G, a guide-bed or bolting-seat upon one face of the head-stock adapted to receive and permit the radial adjustment of the bearing which is to carry the boring-bar; H, the bearing of the boring-bar, secured to the guide-bed and arranged for adjustment thereon to and from the center spindle, so as to suit different throws of the cranks, the axis of this bearing being of course parallel with the axis of the face-plate, these dispositions being as usual; J, the usual boring-bar carried by the adjustable bearing and arranged for rotation therein, and arranged, also, for a longitudinal feeding motion therein, the inner end of this boring-bar protruding through the usual slot in the face-plate, so that the inner end of the bar may operate in the crank-pin hole in the driving-wheel supported in the lathe; K, the usual driving-pulley geared to the boring-bar and exemplifying an ordinary system for giving rotation to the boring-bar; L, the usual feed-wheel engaging the feed-screw of the boring-bar and exemplifying ordinary hand-feed devices for giving the longitudinal feed motion to the boring-bar; M, a slide-rest secured to the inner end of the boring-bar and having its guideway projecting inwardly beyond the inner end of the boring-bar and parallel with the axis of the boring-bar, but disposed outwardly some distance radial from the axis of the boring-bar; N, a tool-holder fitted to slide along the guideway of the slide-rest and be actuated by a feed-screw in the slide-rest; O, a tool secured in the tool-holder and projecting inwardly therefrom, so that its inner or cutting end may, as the boring-bar revolves, sweep in a circle corresponding with the desired diameter of crank-pin to be produced; P, a star-wheel on the end of the feed-screw of the slide-rest nearest the face-plate; Q, a stud projecting from the face of the face-plate and adapted to be engaged by the star-wheel as the boring-bar revolves; R, a center projecting from the inner end of the boring-bar; S, Fig. 4, the usual set-screw in the end of the boring-bar for securing the boring-tool in the boring-bar when the boring-bar is to be employed for purposes of boring; T, (same figure) the transverse tool-holding mortise in the end of the boring-bar to hold the boring-tool under the circumstances just mentioned; U, the feed-screw of the slide-rest, rotated by means of the star-wheel and serving to give the longitudinal feed movement to the tool-holder N, and V the usual detent screw or pin mounted upon the lathe-bed and engaging the periphery of the face-plate and serving to lock the face-plate against rotation when the boring-bar is being employed. It is to be understood, of course, that the lathe

may be single-headed or double-headed, as desired—that is to say, the lathe may have two head-stocks, or it may have one head-stock and one tail-stock—and in the case of a double-headed lathe either one or both of the head-stocks may be provided with the boring-bar arrangement, such alternative construction being about equally common.

Assume a locomotive-axle with two driving-wheels attached to be mounted in the lathe in the usual way and that one of the crank-pin holes is to be bored. In such case the driving-wheel will be dogged, as usual, to the face-plate of the lathe and the detent V will engage the face-plate so as to lock it against rotation and hold the driving-wheel firmly in such position that the axis of the desired crank-pin hole will coincide angularly with the axis of the boring-bar. The slide-rest will be entirely omitted from the boring-bar and the boring-bar will have the usual boring-tool held in the mortise T by the set-screw S. The bearing H will then be adjusted radially to bring the axis of the boring-bar the proper radial distance from the axis of the driving-wheel. The crank-pin hole is then bored in the usual manner.

Assume now that instead of wishing to bore a crank-pin hole in the locomotive-driver we wish to re-turn a crank-pin already found in the driving-wheel. In this case the boring bar instead of being employed as a boring implement is to be employed as a turning implement. The boring-tool will be removed from the mortise T, the set-screw S will be removed, and the center R will be substituted for the set-screw. The slide-rest will now be clamped firmly to the end of the boring-bar. The boring-bar will then be adjusted endwise by means of its usual feeding appliances until the center R takes a bearing in the center of the crank-pin, it being understood, of course, that the proper adjustments have been made to secure coincidence between the axis of the boring-bar and the axis of the crank-pin. The tool O is now secured in the tool-holder with its cutting end in proper relation to the surface of the crank-pin, and the tool may be longitudinally adjusted by hand by turning the star-wheel. The boring-bar is then put into rotation the same as if for boring and the tool O will proceed to operate upon the periphery of the crank-pin, the longitudinal travel of the tool being effected by the engagement of the star-wheel with the stud Q. During this operation the slide-rest structure is steadied by reason of the engagement of the center R with the center of the crank-pin. For short crank-pins, where much overhang of the slide-rest is not involved, this center-steadying feature may be omitted, and, if desired, the feeding, instead of being effected by the screw of the slide-rest, may be effected by the usual feeding appliances of the boring-bar, the boring-bar being moved endwise to accomplish the feed.

I claim as my invention—

1. In a driving-wheel lathe, the combination, substantially as set forth, with a head-stock provided with a center, a center spindle, and a face-plate, of a detent to lock the face-plate against rotation, a bearing mounted on the head-stock and adjustable to and from the axis thereof, a boring-bar carried by said bearing and projecting through said face-plate and provided with mechanism for rotating and feeding it, a slide-rest mounted on the projecting end of the boring-bar, and a tool-holder mounted on said slide-rest.

2. In a driving-wheel lathe, the combination, substantially as set forth, with a head-stock provided with a center, a center spindle, and a face-plate, of a detent to lock the face-plate against rotation, a bearing mounted on the head-stock and fitted for adjustment to and from the axis thereof, a boring-bar carried by said bearing and projecting through the face-plate of the lathe and provided with mechanism for rotating and feeding it, a center projecting from the projecting end of the boring-bar, a slide-rest secured to the projecting end of the boring-bar and projecting endwise beyond the same, a tool-holder mounted for longitudinal movement on said slide-rest, and mechanism for feeding said tool-holder along said slide-rest.

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