A. C. STEBBINS & W. T. SEARS.

CAR WHEEL LATHE.

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952,084. Patented Mar. 15, 1910.

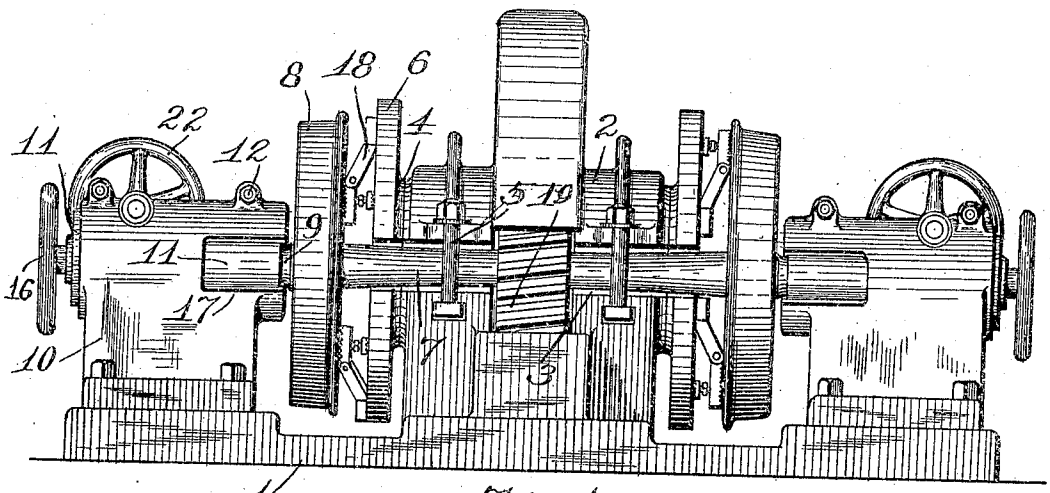

Fig. 1

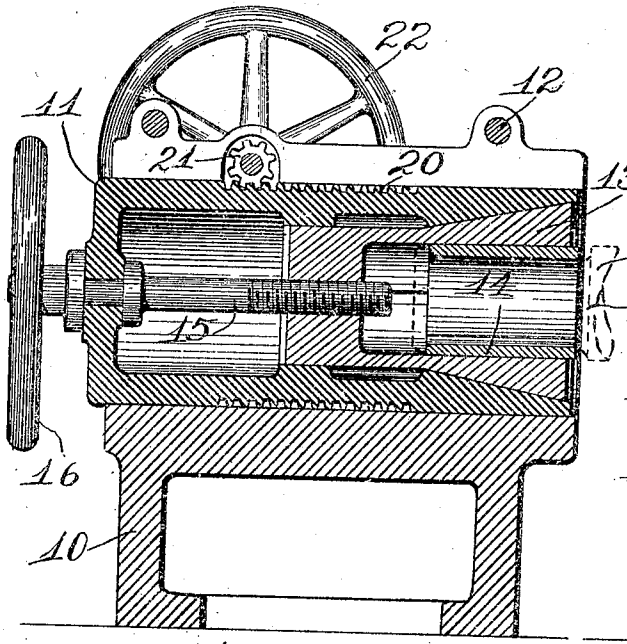

Fig. 2.

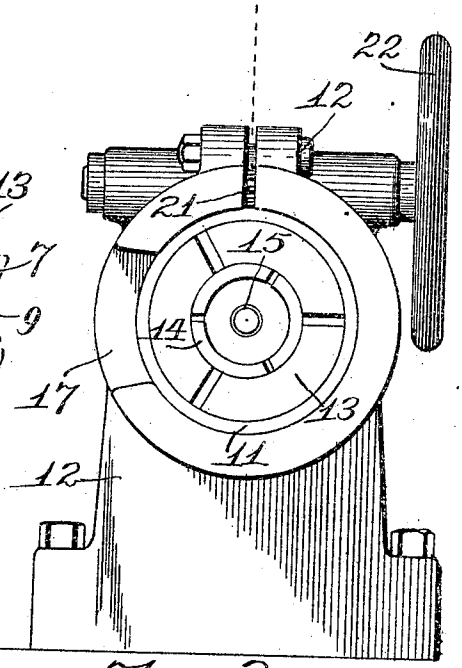

Fig. 3.

Witnesses:
Elmer R. Shipley.
Lutie Hale

Albert C. Stebbins
Willard T. Sears
Inventors
by James W. See
Attorney

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT C. STEBBINS, OF PLAINFIELD, NEW JERSEY, AND WILLARD T. SEARS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS TO NILES-BEMENT-POND COMPANY, OF JERSEY CITY, NEW JERSEY.

CAR-WHEEL LATHE.

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To all whom it may concern.

Be it known that we, ALBERT C. STEBBINS, of Plainfield, Union county, New Jersey, and WILLARD T. SEARS, of Philadelphia, Philadelphia county, Pennsylvania, have invented certain new and useful Improvements in Car-Wheel Lathes, of which the following is a specification.

This invention relating to improvements in lathes for employment in the turning of car wheels while fast upon their axles, will be readily understood from the following description taken in connection with the accompanying drawing, in which:—

Figure 1 is a rear elevation of a lathe embodying our invention: Fig. 2 is a vertical longitudinal section of one of the tailstocks: and Fig. 3 an elevation of the inner face of one of the tailstocks.

There is a class of car wheel lathes in which a hollow lathe arbor surrounds the car axle between the wheels and is provided on each end with drivers engaging the wheels, the arbor and its bearing being longitudinally slotted to permit the entrance and exit of the axle, tailstocks being provided to furnish bearings for the journals of the axle projecting outwardly from the wheels, as illustrated, for instance, in United States Patent No. 312,615.

The present invention relates to improvements in the tailstocks, the improvements being designed to facilitate the placing and removal of the work in the lathe and to give superior stability to the tail-stock bearings which engage the journals of the axle.

In the drawing:—1, indicates the lathe bed: 2, the headstock mounted thereon: 3, the longitudinal gap in the headstock to permit the transverse passage of the axle: 4, the arbor journaled in the headstock and also longitudinally gapped: 5, removable tie-bolts to strengthen the headstock at its gap: 6, the driving face-plates on the ends of the arbor: 7, the car axle: 8, the car wheels thereon: 9, the journal-ends of the car axle projecting outwardly beyond the wheels: 10, the two tailstocks, hereafter described in the singular: 11, a large hollow journal in the tailstock, the tailstock bearing for this spindle being longitudinally split to permit the taking up of wear, and the inner end of the spindle having a tapering bore with walls converging outwardly or away from the car wheel: 12, bolts at the split of the tail-stock bearing to provide for taking up the wear: 13, a split collet fitting the tapering bore of the spindle: 14, segmental pads adapted to fit the journals of the car axle and to fit within the cylindrical bore of the collet; 15, a screw journaled in the outer end of the spindle and threaded into the collet to adjust the collet endwise in the spindle: 16, a hand-wheel for operating the screw: 17, a gap in the rear side of the inner end of the tail-stock bearing, this gap being of such horizontal length and vertical width as to permit the transverse entrance of the journal of the car axle: 18, the drivers by which the face-plates drive the car wheels: 19, the driving gear on the arbor, gapped and provided with a removable patch at the gap as usual: 20, a rack formed on spindle 11, each tooth of the rack extending circumferentially around the spindle: 21, a pinion journaled in the tailstock and engaging this gear: and 22, a hand-wheel connected with the pinion and serving in moving the spindle endwise in the tailstock.

Assume the lathe to be empty; the tie-bolts 5 removed; the patch removed from the gap of the driving gear; the arbor in such angular position that its gap will coincide with the gap in the headstock; spindles 11 retracted so far outwardly that their inner ends will be at about the outer margins of the gaps 17 in the tailstocks; the collets adjusted so far inwardly as to be in fairly expanded condition; and pads 14 removed from the collets. The wheel and axle structure is now to be inserted in the lathe, the body of the axle passing into the arbor through the gaps in the headstock, the driving gear, the arbor, and the face-plates, and the axle journals with the pads upon them passing through the gaps 17 in the tailstocks. The spindles are now to be moved inwardly, by actuating the hand-wheels 22, till the bores of the collets inclose the pads. The collets are now to be moved outwardly, by actuating hand-wheels 16 till the axle journals become firmly chucked in the spindles. This leaves the wheel-and-axle structure centered and firmly supported in the tailstocks, the spindles forming artificial journals, so to speak, for the axle. The patch-block is now to be replaced in the driving gear, tie-bolts 5 replaced, the drivers

adjusted for their work, and everything is ready for the operation of the lathe in turning the car wheels in the usual manner. When the work is done the wheel-and-axle-structure is to be removed by a method substantially the opposite of that which has been described in connection with the placing of the work in the lathe.

It is to be observed that the system provides substantial journal support for the axle close up to the car wheels in a manner consistent with the taking of heavy cuts on the car wheels; that no shifting of the tail-stocks is required in placing and removing the wheel-and-axle structures; that no opening of the tailstock bearings is necessary in placing and removing the work; and that while the work is being done there is no wear on the axle journals, the work at the same time being accurately centered by those journals. It is to be observed that operation on the work produces no end thrusts on the tail-stocks or their parts, these thrusts being taken care of by the headstock drivers.

We claim:—

1. A car wheel lathe comprising, a gapped headstock provided with a gapped arbor and driving apparatus, a pair of tailstocks having bearings gapped for the transverse passage of the axle-journals, a spindle journaled in each tail-stock and longitudinally movable therein, a chuck carried by the inner end of each spindle and adapted for engagement with the axle-journals, means for operating the chucks, and means for moving the spindles endwise, combined substantially as set forth.

2. A car wheel lathe comprising, a gapped headstock provided with a gapped arbor and driving apparatus, a pair of tailstocks having bearings gapped for the transverse passage of the axle-journals, a spindle journaled in each tailstock and longitudinally movable therein, a chuck carried by the inner end of each spindle and adapted for engagement with the axle-journals, means for operating the chucks, endless rack teeth extending circumferentially around the spindles, a pinion journaled in each tailstock and engaging the rack teeth of the appropriate spindle, and means for turning the pinions, combined substantially as set forth.

3. A car wheel lathe comprising, a gapped headstock provided with a gapped arbor and driving apparatus, a pair of tailstocks having split bearings gapped for the transverse passage of the axle-journals, tightening bolts at the split portions of said bearings, a spindle journaled in each tailstock and longitudinally movable therein, a chuck carried by the inner end of each spindle and adapted for engagement with the axle-journals, means for operating the chucks, and means for moving the spindles endwise, combined substantially as set forth.

4. A car wheel lathe comprising, a gapped headstock provided with a gapped arbor and driving apparatus, a pair of tailstocks having bearings gapped for the transverse passage of the axle-journals, a spindle journaled in each tail-stock and longitudinally movable therein and having its inner end provided with a tapering bore, a split collet fitted in each spindle, a screw journaled in each spindle and engaging its collet to serve in adjusting the collet endwise, and means for moving the spindles endwise, combined substantially as set forth.

5. A car wheel lathe comprising, a gapped headstock provided with a gapped arbor and driving apparatus, a pair of tailstocks having bearings gapped for the transverse passage of the axle-journals, a spindle journaled in each tail-stock and longitudinally movable therein and having its inner end provided with a tapering bore, a split collet fitted in each spindle, a screw journaled in each spindle and engaging its collet to serve in adjusting the collet endwise, segmental pads fitting the bore of the collets and adapted to engage the axle-journals, and means for moving the spindle endwise, combined substantially as set forth.

ALBERT C. STEBBINS.
WILLARD T. SEARS.

Witnesses:
J. T. W. MURRAY,
C. W. BEITER.