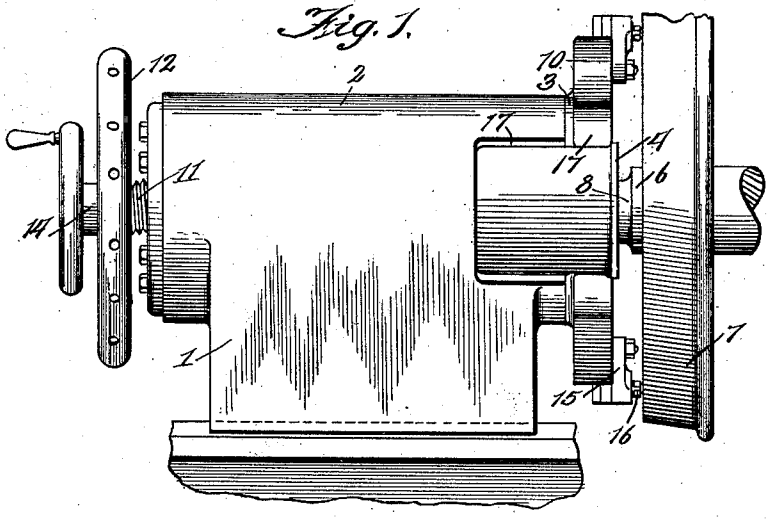
G. E. GREENLEAF.

CAR WHEEL LATHE.

APPLICATION FILED SEPT. 3, 1910.

987,227. Patented Mar. 21, 1911.

Fig. 1.



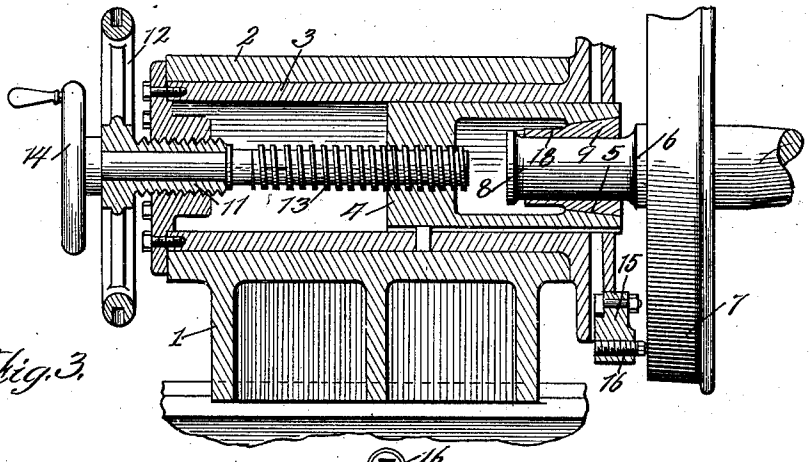


Fig. 3.

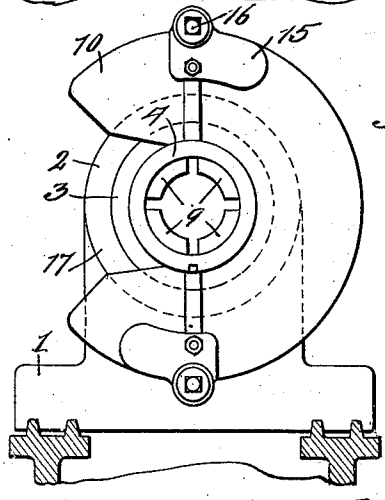


Fig. 2.

Witnesses:

Inventor:
George Edward Greenleaf

By James W. See
Atty.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE EDWARD GREENLEAF, OF PLAINFIELD, NEW JERSEY, ASSIGNOR TO NILES-BEMENT-POND COMPANY, OF JERSEY CITY, NEW JERSEY.

CAR-WHEEL LATHE.

987,227. Specification of Letters Patent. **Patented Mar. 21, 1911.**

Application filed September 3, 1910. Serial No. 580,303.

To all whom it may concern:

Be it known that I, GEORGE EDWARD GREENLEAF, a citizen of the United States, residing at Plainfield, Union county, New Jersey, have invented certain new and useful Improvements in Car-Wheel Lathes, of which the following is a specification.

There is a class of lathes for the turning of car wheels while on their axles, the particular class of lathes under consideration being characterized by a longitudinally gapped hollow driving arbor engaging between the two wheels on the axle, the outer end journals of the axle being supported by tailstock bearings. In some forms of lathes of this particular class the tailstocks are transversely gapped so that the journals can pass in and out of the tailstocks when the tailstock spindles are retracted. See, for instance, Stebbins and Sears United States Patent No. 952,084 of March 15th, 1910.

Lathes of the class referred to have been further improved by transversely gapping the tailstock spindle so that the axle could be inserted and removed without retracting the spindle.

The present invention pertains to improvements in the first-mentioned class of lathes when provided with gapped tailstock spindles, and the present invention will be readily understood from the following description taken in connection with the accompanying drawing in which:—

Figure 1 is a side elevation of a tailstock of a car wheel lathe embodying my invention: Fig. 2 an elevation of the inner end of the tailstock: and Fig. 3 a vertical section of the safe.

In the drawing: 1, indicates the tailstock: 2, the tailstock bearing: 3, the hollow tailstock spindle rotating therein: 4, a chuck plunger splined within the spindle: 5, an outwardly flaring tapering bore at the outer end of the chuck-plunger: 6, the car axle: 7, the car wheel: 8, the axle journal: 9, a bushing formed in segments and having a bore adapted to the axle journal and having its exterior fitting the tapering bore of the chuck plunger: 10, a face-plate on the inner end of the spindle: 11, a hollow screw threaded axially in the outer end of tailstock spindle 3, or what is the same thing, into a flange separably secured to the end of the spindle: 12, a hand-wheel secured on hollow screw 11 and preferably drilled for a capstan bar: 13, a screw journaled in hollow screw 11 and threaded into the inner end of chuck plunger 4: 14, a hand-wheel on the outer end of screw 13: 15, driving dogs secured in slots in the face-plate: 16, screws carried by these driving dogs, parallel with the axis of the lathe, and adapted, by being turned, to have their inner ends forced against the outer face of the car wheel, preferably at the tire: 17, a gap extending transversely through the inner end of spindle 3 and bearing 2 and having such dimensions as to permit the transverse entry and exit of the car wheel journal and its segmental bushing: and 18, a nosing projecting inwardly from the tapering portion of bushing 9 into proximity with the end collar of the axle journal.

The lathe being at rest and empty, and the spindle 3 having been put in such position that its gap will match the gap in the bearing, and chuck plunger 4 having been retracted, and screws 16 having been retracted, a wheeled axle having the tapering bushings upon its journals, may be inserted transversely in the lathe, the journals with their bushings passing through the gaps. The chuck-plunger may now be rapidly advanced to active position where its tapering bore engages the bushing and compresses it upon the journal, thus centering the axle. Screw 13 is to be of very quick lead so as to quickly shift the chuck-plunger. This quick action on the part of the screw unfits it for the work of clamping the bushing-segments to the journal with sufficient force. But by turning hollow screw 11, which is at comparatively fine pitch, the coarse screw may act as a mere thrust-bar and push the chuck-plunger on the bushing with very great force. When the axle is to be removed the chucking operation is reversed, the powerful hollow screw 11 being first turned to take the main strain off the bushings, after which the chuck-plunger may be quickly retracted by means of the coarse screw.

It is often found that the friction between the tapering bore of the chuck-plunger and the periphery of the bushing is so great that when an attempt is made to retract the chuck-plunger the tapering grip holds on and the bushing slides on the journal, tending to injure the journal. This applies to tapering segments which are short compared

with the length of the journal, but in the present construction the extension 18 on the bushing quickly abuts against the collar of the journal and thus prevents further sliding motion of the bushing on the journal.

It is intended that the frictional grip of the chuck upon the journal shall be sufficient to cause the rotating axle to turn the tailstock spindle in its bearing, the tailstock spindle forming, so to speak, a temporary artificial journal for the axle. But such action on the part of the chuck involves a very considerable outward thrust of the tailstock spindle in its bearing, this thrust considerably increasing the friction of the spindle and bringing about a liability of the journal to turn in the bushing while the spindle remains at rest. To overcome this the driving dogs 15 are employed. When screws 16 are set in against the face of the wheel, the wheel drives the face-plate and compels the turning of the spindle. In other words, a portion of the friction by which the wheeled axle is to turn the tailstock spindles is brought into action at points at a much greater radial distance from the axis than is the case with the friction at the periphery of the journals. In car wheel lathes it is common to drive the wheel and axle structure by means of driving dogs carried by face-plates and engaging the wheels, but in the present case the action is the reverse for the wheels, instead of being driven by the faceplates, themselves drive the faceplates through the medium of the dogs.

I claim:—

1. A lathe tailstock comprising, a hollow rotary spindle, a chuck-plunger fitted to slide therein, a coarse screw journaled axially in the spindle to serve in quickly moving the chuck-plunger endwise, and a fine screw carried by the spindle to serve in moving the coarse screw endwise relative to the spindle, combined substantially as set forth.

2. A lathe tailstock comprising, a hollow rotary spindle, a chuck-plunger fitted to slide therein, a hollow fine screw threaded axially in the outer end of the spindle, and a coarse screw journaled axially in the fine screw and threaded into the chuck-plunger, combined substantially as set forth.

3. A lathe tailstock comprising, a tailstock bearing, a hollow tailstock spindle journaled therein, a chuck-plunger sliding axially in the spindle, a face-plate on the inner end of the spindle, and driving dogs carried by the face-plate and adapted to engage the outer face of the car wheel and cause the car wheel to turn the spindle, combined substantially as set forth.

GEORGE EDWARD GREENLEAF.

Witnesses:
GEO. B. WEAN,
HUMPHRY A. BODINE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."