E. G. YEATES.

WHEEL LATHE.

APPLICATION FILED OCT. 16, 1911.

1,043,997.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.

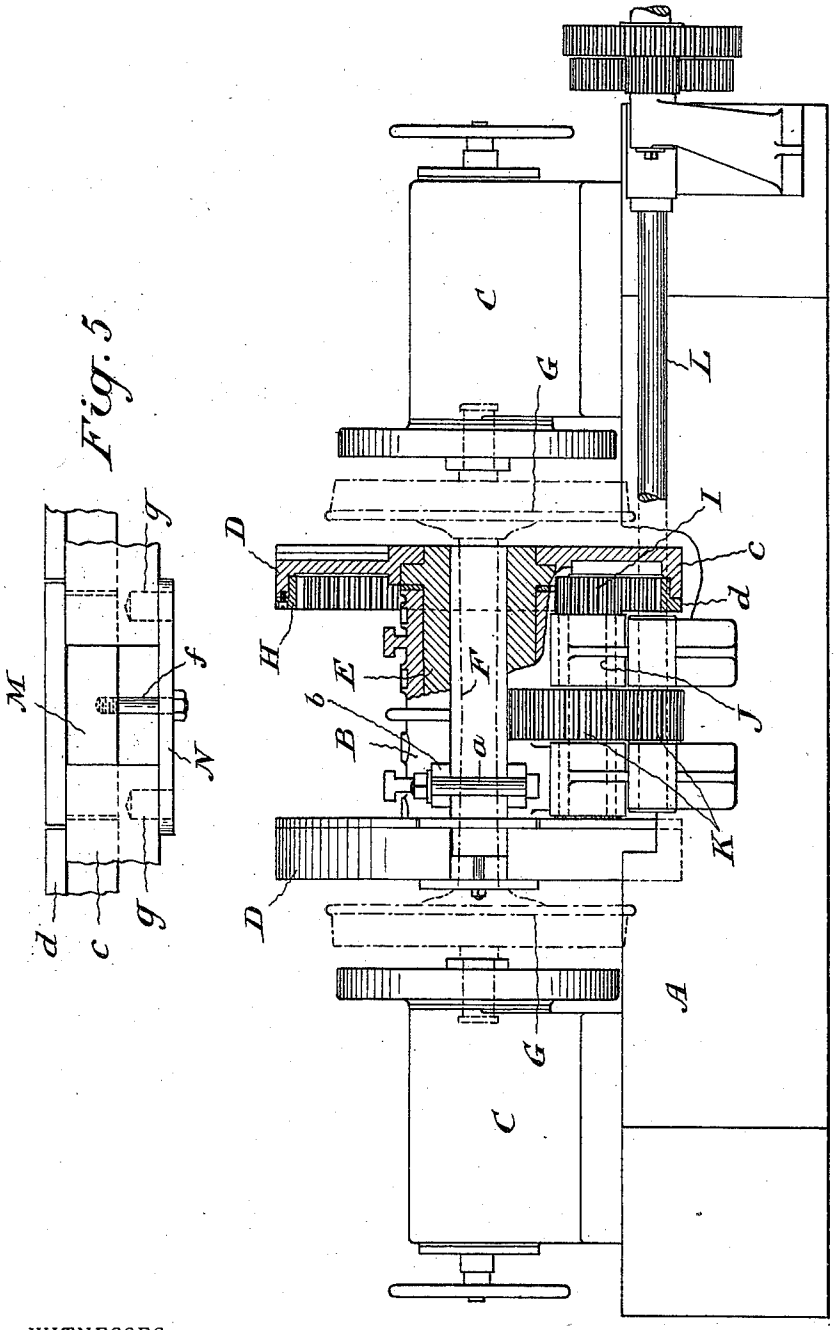

Fig. 1

Fig. 5

WITNESSES:

W. G. McMillen

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E. G. Yeates

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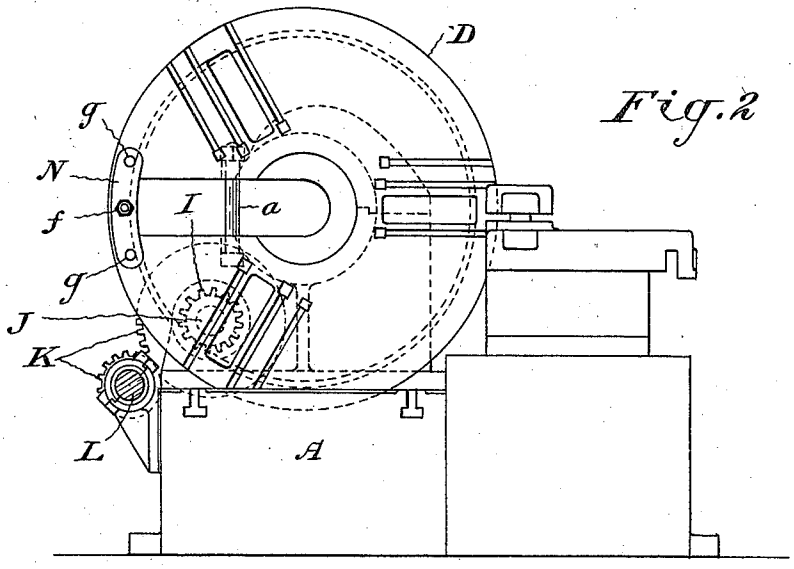

Fig. 2

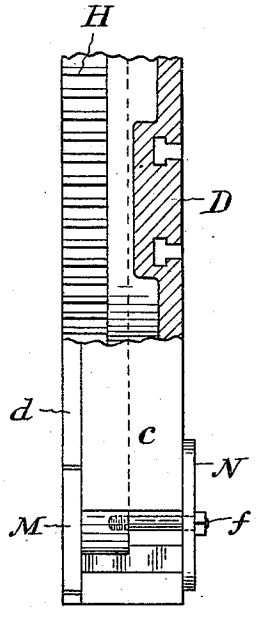

Fig. 4

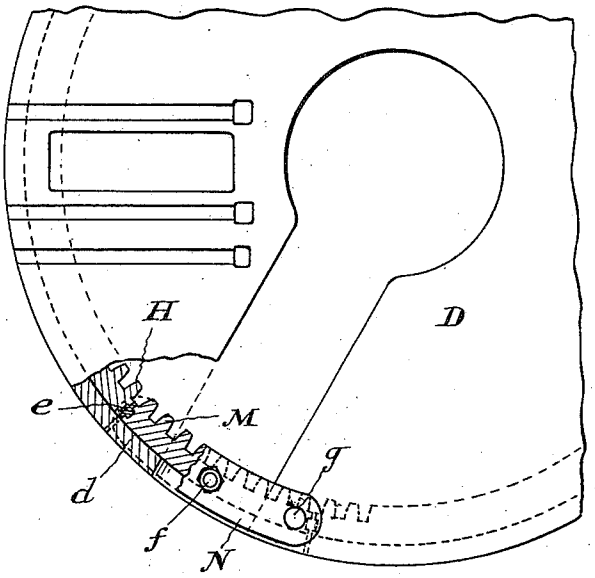

Fig. 3

WITNESSES:

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UNITED STATES PATENT OFFICE.

ERNEST GEORGE YEATES, OF HAMILTON, ONTARIO, CANADA.

WHEEL-LATHE.

1,043,997. Specification of Letters Patent. Patented Nov. 12, 1912.

Original application filed March 15, 1910, Serial No. 549,454. Divided and this application filed October 16, 1911. Serial No. 654,896.

To all whom it may concern:

Be it known that I, ERNEST G. YEATES, of the city of Hamilton, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Wheel-Lathes, of which the following is a specification.

This invention relates to central drive lathes in which car wheels may be turned while attached to their axles. In such lathes the ends of an axle are engaged by two tail stocks and the wheels are driven from a head stock located between them.

In previous machines the central drive has been obtained through the medium of a worm and worm wheel, the power being transmitted to the face plates of the head stock through the medium of a central shaft, the shafts and face plates being gapped or slotted to admit of the axle occupying a position in the axis of the lathe. There are many disadvantages in such a construction which I have overcome by driving each face plate of the head stock through the medium of internal gear wheels directly formed on or connected thereto. These internal gears are driven by pinions fast on a shaft suitably journaled in the head stock and itself driven in any suitable manner.

The internal gears are provided with removable segments to permit of the axle passing through into the slot in the face plate and head stock to its position in the axis of the lathe.

Figure 1 is a longitudinal sectional elevation of a car wheel lathe constructed in accordance with my invention. Fig. 2 is a sectional elevation looking at the face of one of the face plates of the head stock. Fig. 3 is a front elevation of a portion of one of the face plates of the head stock. Fig. 4 is a side elevation of the parts shown in Fig. 3. Fig. 5 is a detail illustrating more particularly the construction of the removable segment of one of the internal gear wheels of the head stock.

In the drawings like letters of reference indicate corresponding parts in the different figures.

Referring particularly to Figs. 1 and 2, A is the bed of the lathe on which are suitably supported the head stock B and the tail stocks C. These latter are of ordinary construction and are operated in the ordinary manner. They are also provided with the ordinary centering and other attachments which need not here be particularly described. The head stock also is in the main of ordinary construction differing principally from the constructions already known in the means employed for rotating its face plates.

D are the face plates of the head stock. These are suitably secured to the spindle E. Both the face plates and this spindle are gapped, as shown, to admit of the reception of the axle F of a pair of car wheels G, this axle of course lying with its own axis co-incident with the axis of the lathe while the wheels are being turned.

Each face plate carries a toothed rim H forming an internal gear wheel. Two gear pinions I mesh with these internal gears H and are secured to a shaft J suitably journaled in the head stock. This shaft is driven through the medium of the gearing K from the shaft L operated in any suitable manner.

Owing to the head stock having a gap in one side thereof, I prefer to employ one or more clamp bolts *a* engaging suitable lugs or jaws *b* on the cap and base of the head stock to prevent the cap from springing under the strain of a heavy cut. These bolts are easily removed for the insertion of the axle. As the car axle must be inserted through the toothed rim H, the latter is also gapped and provided with a removable gear segment M.

In order to secure the necessary strength, I prefer to construct the rim of each face plate D, the toothed rim H, and the gear segment M in the following manner:—It will be noted that each face plate is provided with a rim or flange *c*. The toothed rim H fits within this rim *c* and is preferably provided with a shoulder *d* fitting against the edge of the rim *c*, which two last mentioned members are bolted, screwed or otherwise suitably secured together.

The gap in the toothed rim H is wider than the gap in the face plate and its rim *c* so that the gear segment M, spans the gap in the face plate. This gear segment is slightly tapered and is removable by a movement parallel to the axis of the lathe away from the face plate. It is held in accurate alinement with the remainder of the toothed rim H by means of steel keys *e* which engage the ends of the segment and

the adjoining ends of the toothed rim H. The gear segment is drawn into place and securely held through the medium of the clamp N, spanning the gap in the face plate. A screw bolt *f* engages the segment and the face plate and by its means the segment may be drawn into place and securely clamped. Pins *g* are formed on the clamp and engage suitable holes in the face plate to prevent the clasp turning. By this arrangement the segment is securely held in place and the complete wheel will be found as strong as if no removable segment were employed.

By the above described arrangement of the drive I secure many advantages. As the face plates are directly driven all torsional strain is taken off the gapped spindle and the difficulty of giving it sufficient strength is entirely removed.

The internal gears give the maximum possible mesh with the pinions and thus the problem of securing pinions strong enough to stand the strain and wear is much simplified.

The spindles of the driving gear are much nearer the axis of the lathe than in older constructions and the central driving gear is absent, enabling the operator to get nearer his work and take up a position where all control mechanisms are close at his hand.

This application is a division of application, Ser. No. 549,454, filed March 15, 1910.

What I claim as my invention is:—

1. In a car wheel lathe the combination of a head stock slotted for the introduction of the axle of a pair of car wheels; a slotted spindle journaled therein; a pair of slotted face plates carried by said spindle; a slotted internal gear wheel secured to each face plate; a removable gear segment in each gear normally closing the slot; a shaft journaled in the head stock; and pinions on said shaft meshing with the internal gear wheels.

2. In a car wheel lathe the combination of a head stock slotted for the introduction of the axle of a pair of car wheels; a slotted spindle journaled therein; a pair of slotted face plates carried by said spindle; a slotted internal gear wheel secured to each face plate; a removable gear segment in each gear normally closing the slot; and means for simultaneously driving said internal gears.

Dated at Toronto this 10th day of Oct.

ERNEST GEORGE YEATES.

Signed in the presence of—

J. EDW. MAYBEE,

E. P. HALL.