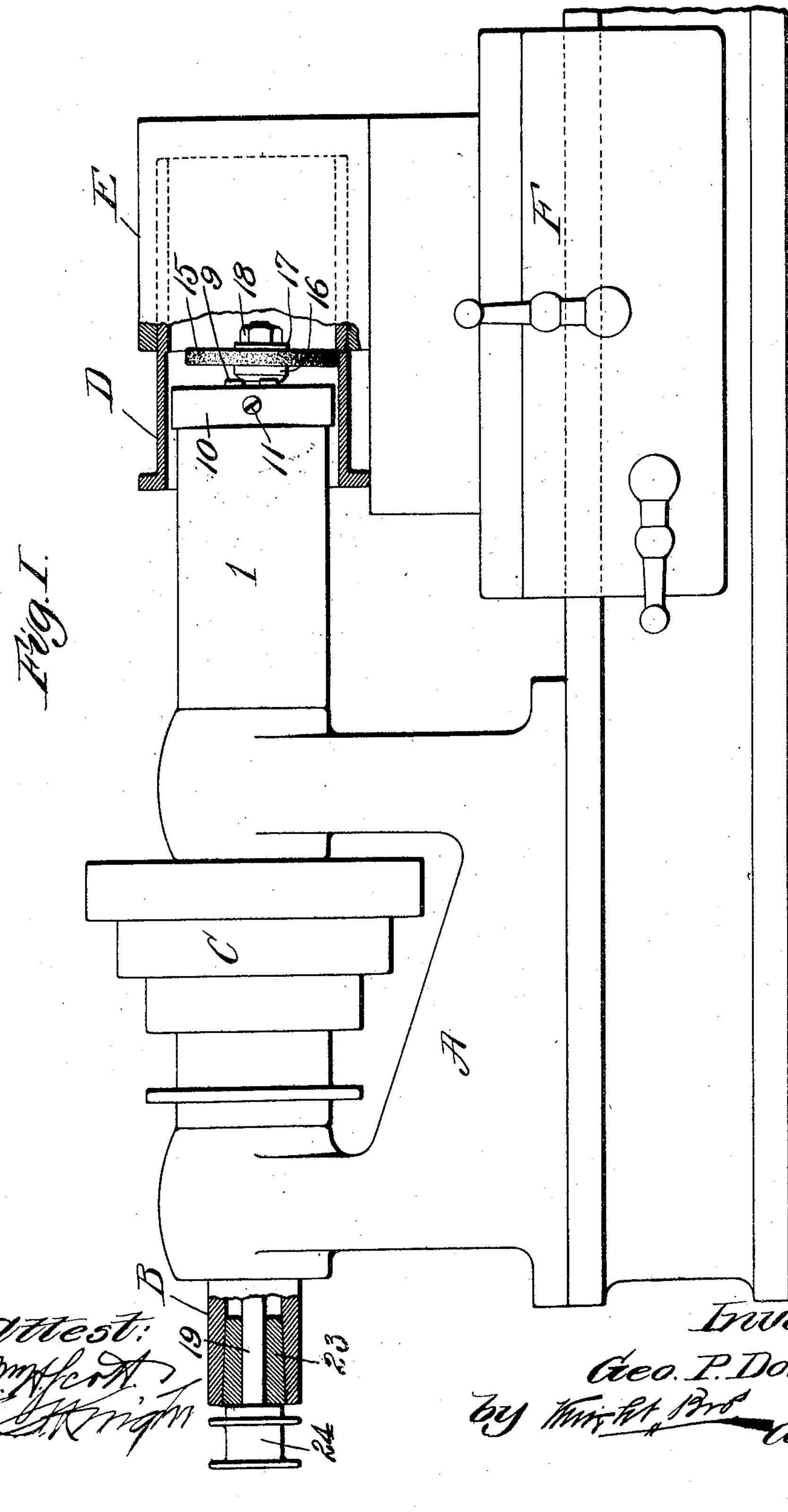
No. 844,265. PATENTED FEB. 12, 1907.

G. P. DORRIS.

CYLINDER GRINDING ATTACHMENT FOR LATHES.

APPLICATION FILED JAN. 2, 1906.

2 SHEETS—SHEET 1.



Attest:
Wm. Scott
[illegible] Knight

Inventor:
Geo. P. Dorris,
by Knight Bros. Attys.

No. 844,265. PATENTED FEB. 12, 1907.

G. P. DORRIS.

CYLINDER GRINDING ATTACHMENT FOR LATHES.

APPLICATION FILED JAN. 2, 1906.

2 SHEETS—SHEET 2.

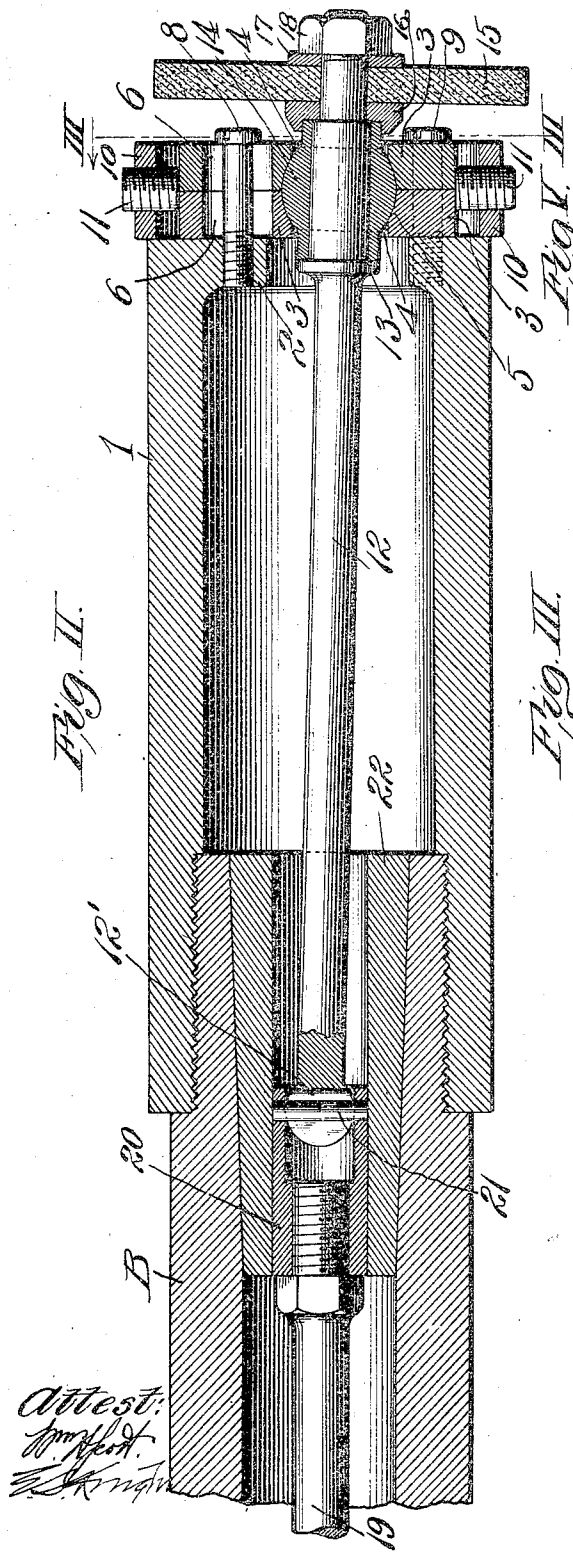


Fig. II.

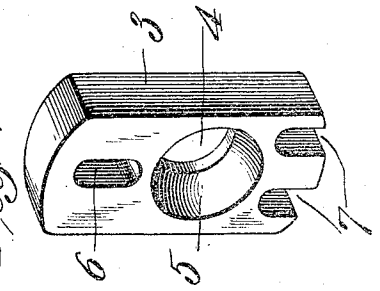


Fig. V.

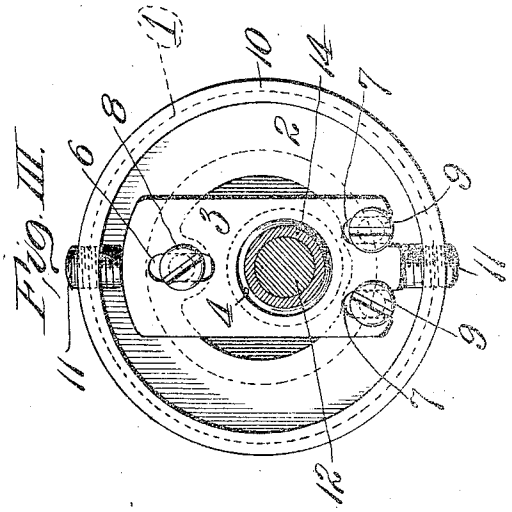


Fig. III.

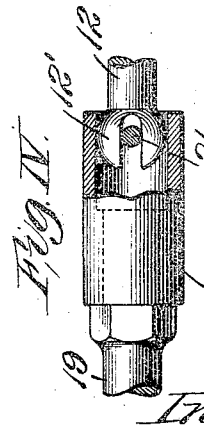


Fig. IV.

Attest:

Inventor:

Geo. P. Dorris,

by Knight Bros

Attys.

UNITED STATES PATENT OFFICE.

GEORGE P. DORRIS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO DORRIS MOTOR CAR COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

CYLINDER-GRINDING ATTACHMENT FOR LATHES.

No. 844,265. Specification of Letters Patent. Patented Feb. 12, 1907.

Application filed January 2, 1906. Serial No. 294,079.

To all whom it may concern:

Be it known that I, GEORGE P. DORRIS, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Cylinder-Grinding Attachments for Lathes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an attachment for application to lathes for use in grinding cylinders interiorly; and it has for its object to provide grinding mechanism of this character by which the desired work may be speedily and accurately accomplished.

Figure I is a view, partly in elevation and partly in longitudinal section, of a lathe and my attachment applied thereto. Fig. II is an enlarged longitudinal section of the grinding-wheel supporting and driving members of the attachment and the grinding-wheel. Fig. III is a view, partly in vertical cross-section, taken on line III III, Fig. II, looking in the direction of the arrow crossing said line and showing the grinding-wheel-shaft-supporting members in elevation. Fig. IV is a view, partly in section, of the flexible connection between the grinding-wheel shaft and its driving-shaft. Fig. V is a perspective view of one of the adjustable bearing-blocks, in which the grinding-wheel shaft operates.

A designates the spindle-frame of a lathe, in which the hollow spindle B is rotatably mounted, as usual. The spindle B has fixed to it the usual pulley C, to which power is applied for the purpose of driving the spindle.

1 designates a barrel secured to the lathe-spindle B, either detachably or permanently, but preferably detachably. This barrel extends in alinement with the spindle and preferably has an internal flange at its outer end, as seen at 2, Figs. II and III.

3 designates a pair of bearing-blocks that mate with each other and which are adjustably supported at the outer end of the barrel 1, so that they may be moved transversely of said barrel. Each of these bearing-blocks is provided with an aperture 4 and has therein adjacent to said aperture a concave seat 5, which is adapted to register with the concave seat in the other block to furnish a circular pocket in which a member, to be hereinafter mentioned, fits and operates. Each bearing-block 3 is also provided with slots 6 and 7, that respectively receive binding-screws 8 and 9, by which the bearing-blocks are secured to the barrel 1, preferably by screwing them into the flange 2 of the barrel 1 after they are passed through said slots. It will be seen that when the binding-screws are loosened the mating bearing-blocks may be shifted transversely of the barrel 1 to the degree permitted by the slots in said blocks in which the binding-screws are fitted.

10 is an adjustment-ring surrounding the bearing-blocks 3, and 11 are adjustment-screws which pass through said ring and are adapted to bear against the ends of the bearing-blocks for the purpose of securing any desired degree of adjustment of said blocks when the binding-screws 8 and 9 are in loosened condition.

12 designates a grinding-wheel-carrying shaft that extends longitudinally through the barrel 1 and through the apertures 4 in the bearing-blocks 3.

14 is a bearing-sleeve fitted to the grinding-wheel shaft 12 and preferably having a bulged circular central portion that is fitted in the pocket produced by the assemblage of the concave seats 5 in the bearing-blocks 3. The bearing-sleeve 14 is preferably restricted from inward movement on the shaft 12 by a rim 13, forming a part of said shaft, as seen in Fig. II.

15 is a grinding-wheel that is suitably secured to the outer end of the shaft 12 and which is adapted to be rotated with said shaft. The grinding-wheel is preferably held between two collars 16 and 17, the former of which bears against the bearing-sleeve 14 and the latter of which is held by a nut 18, that is applied to the extremity of the shaft 12.

19 designates a drive-shaft that extends longitudinally through the lathe-spindle B and which has driving connection with the grinding-wheel shaft 12. This driving connection is preferably secured through the medium of a hollow coupling member 20, secured to the driving-shaft and containing a swivel-pin 21, to which is flexibly fitted the inner forked end 12′ of the grinding-wheel shaft 12, that extends into said coupling member, and is preferably of ball shape in

order that said grinding-wheel shaft may move universally relative to the driving-shaft. The coupling member 20 is preferably loosely seated in a bushing 22, set into the lathe-spindle. (See Fig. II.) The rear end of the driving-shaft 19 is loosely mounted in a bushing 23, seated in the rear end of the spindle B. (See Fig. I.)

24 is a pulley to which power may be communicated for the purpose of transmitting motion to the driving-shaft 19 to rotate the grinding-wheel shaft and the grinding-wheel carried thereby.

D (see Fig. I) designates a cylinder such as may be ground by the use of my attachment and which may be held in position while being ground by seating it into a jig or holder E. This cylinder-holder is supported by a movable bed F, with which are associated feed-screws of any suitable description for the purpose of imparting longitudinal and transverse feed to the holder to properly feed the cylinder to the grinding-wheel when it is operating within the cylinder with grinding action in order that the cylinder may be dressed interiorly to any desired depth and any desired interior diameter.

It will be readily perceived that in the use of my attachment the position of the grinding-wheel 15 relative to the axis of the lathe-spindle B and the barrel 1, carried thereby, may be secured by adjusting the bearing-blocks 3, in which the grinding-wheel shaft 12 operates, transversely of said barrel and that due to such adjustment the grinding-wheel may be caused to grind in a circular path of greater or less dimension, as may be desired. During the operation of the attachment the barrel 1 rotates with the lathe-spindle, and the grinding-wheel and its shaft are carried with said barrel and move in a path eccentric to the axis of the spindle and barrel. At the same time the grinding-wheel is independently rotated through the medium of its shaft and the driving-shaft 19, to which power is communicated separately from the lathe-spindle, and as a consequence as the grinding-wheel enters into the cylinder to be ground and operates therein it acts to grind or dress the interior of said cylinder to a degree that is governed by the adjustment of the adjustable bearing-blocks.

I claim as my invention—

1. In a grinding device of the character described, the combination of a spindle, a grinding-wheel shaft, adjustable means supported by said spindle for holding said grinding-wheel shaft out of alinement with the axis of said spindle, a grinding-wheel carried by said shaft, and a drive-shaft having flexible connection with said grinding-wheel shaft, substantially as set forth.

2. In a grinding device of the character described, the combination of a spindle, an adjustable bearing-block supported by said spindle, means for adjusting said bearing-block transversely of said spindle, a grinding-wheel shaft seated in said bearing-block and confined therein out of alinement with the axis of said spindle, a grinding-wheel carried by said shaft, and means for driving said grinding-wheel shaft, substantially as set forth.

3. In a grinding device of the character described, the combination of a spindle, a pair of adjustable bearing-blocks supported by said spindle, means for adjusting said bearing-blocks transversely of said spindle, a grinding-wheel shaft seated in said bearing-blocks and confined therein out of alinement with the axis of said spindle, a grinding-wheel carried by said shaft, and means for driving said grinding-wheel shaft, substantially as set forth.

4. In a grinding device of the character described, the combination of a spindle, a barrel carried by said spindle, a pair of bearing-blocks located at the outer end of said barrel, means whereby said bearing-blocks are held to said barrel, means whereby said bearing-blocks are adjusted transversely of said barrel, a grinding-wheel shaft having bearing in said bearing-blocks, a grinding-wheel carried by said shaft, and means for driving said shaft, substantially as set forth.

GEORGE P. DORRIS.

In presence of—
E. S. KNIGHT,
NELLIE V. ALEXANDER.