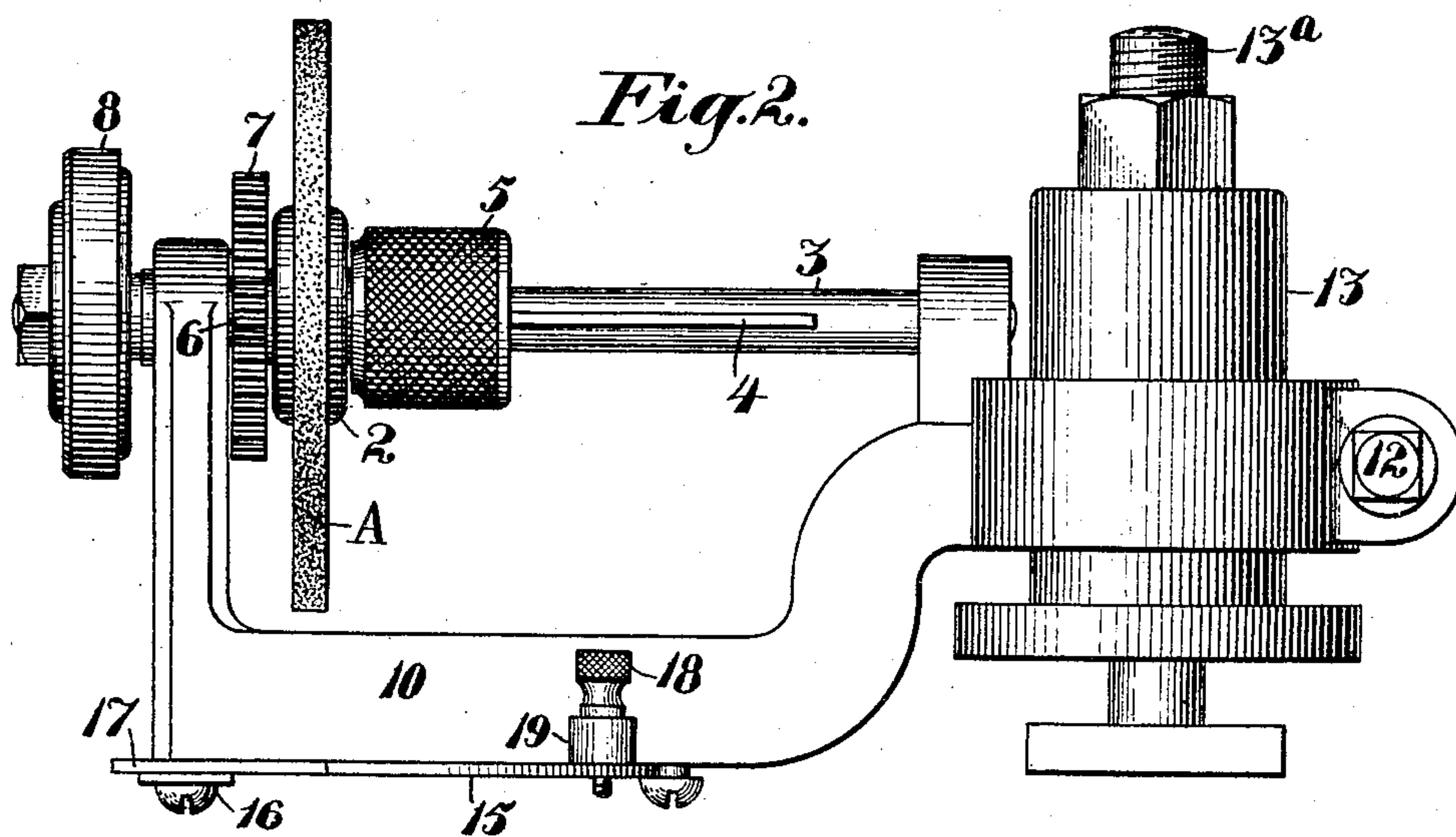
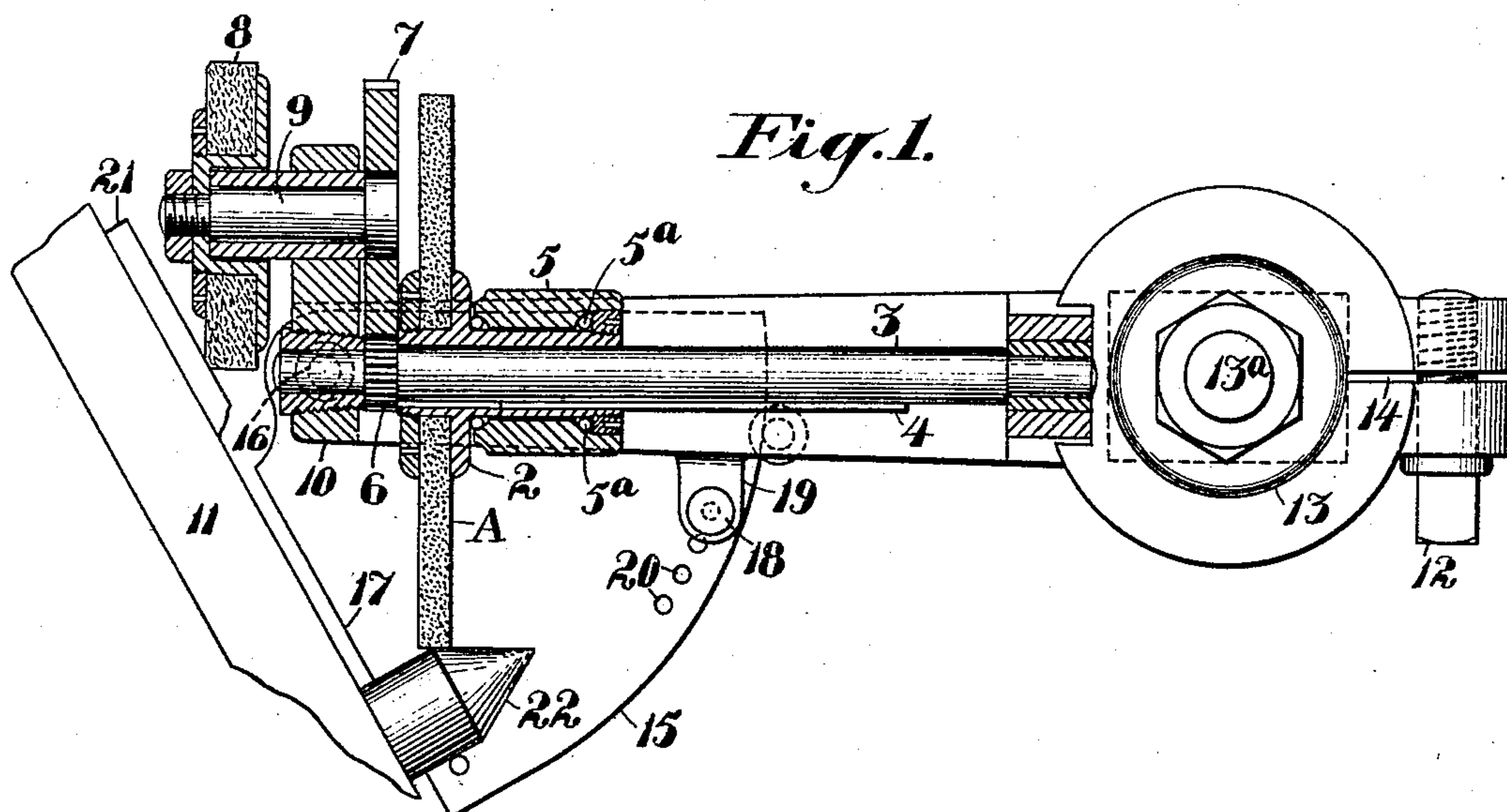


No. 773,846.

PATENTED NOV. 1, 1904.

H. C. BARNES.
LATHE CENTER GRINDER.
APPLICATION FILED FEB. 9, 1904.

NO MODEL.



Witnesses:
F. L. Fliedner
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UNITED STATES PATENT OFFICE.

HARRY C. BARNES, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO AARON T. SPENCE, OF ALAMEDA, CALIFORNIA.

LATHE-CENTER GRINDER.

SPECIFICATION forming part of Letters Patent No. 773,846, dated November 1, 1904.

Application filed February 9, 1904. Serial No. 192,788. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BARNES, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Lathe-Center Grinders, of which the following is a specification.

My invention relates to a device which is especially designed for the accurate grinding or renewing of lathe-centers.

It consists of a grinding device and mechanism whereby it may be applied in any desired angle or position with relation to the lathe-center while the same remains in its normal position of use and means for adjusting and operating the grinder so as to present it to all parts of the tapering center or other part to be ground and finished.

It also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan and section through bearings of my device. Fig. 2 is a side elevation of same.

As shown in the accompanying drawings, A is a wheel of emery or other abrasive material mounted upon a sleeve 2, which is movable on its shaft 3 and revolves with it. This is accomplished by means of a feather, as at 4, fixed in the shaft in a corresponding slot in the sleeve. On the sleeve is a milled thumb-piece, as at 5, fitted, preferably, with ball-bearings, as shown at 5^a. Attached to or solid with the shaft is a pinion 6, driven by a gear 7, which has a friction-wheel 8, of leather or other suitable material, attached to the opposite end of its shaft 9. This mechanism may be suitably housed in a frame 10, which is designed to be rigidly held on the tool-block of an engine-lathe at any horizontal angle to the plane of the lathe face or plate 11 and is adjustable as to height. This adjustment may be accomplished in various ways. In the present case it is effected by means of a binder-bolt, as shown at 12, which clamps the frame to a column 13. This column, binder-bolt, and the division in the frame shown at 14 may be dispensed with and the frame may be

clamped to the tool-block in any suitable and well-known manner.

15 is a sector-shaped angle-gage of sheet metal pivoted under the frame by a pin, as at 16. The edge 17 of this plate is to be set to various positions and held in these positions by a milled plug or thumb-piece 18, which passes through a boss 19 on the frame and into holes 20 in the angle-gage as required.

21 is a disk of wood or other suitable material to be placed against the lathe face-plate and driven by it. This disk serves to cover the usual slots in the face-plate and presents a plain surface for the friction-wheel 8 to act against. Also when of suitable thickness it will serve the purpose of setting the grinder in position for centers which project to an unusual distance from the face-plate.

22 is a lathe-center projecting centrally from the face-plate and in position for grinding.

The adjustment and operation will then be as follows: The column 13 is bolted to the lathe tool-block by a bolt, as at 13^a. The frame 10 is lightly clamped to the column by the binder-bolt 12 at a height which will bring the center of the shaft 3 to a level with the lathe-centers. The angle-gage 15 is then set and secured by the plug 18 to the hole 20, which will bring the shaft 3 parallel to the rear side of the required conical surface of the lathe-center 22 when edge 17 is parallel with face-plate. The holes 20 are marked for convenience in degrees indicating the included angle of conical surface of lathe-centers for various required grindings. The frame 10 should then be swung until the edge 17 is parallel with the plane of the face-plate. The frame is then clamped rigidly to the column. The angle-gage should then be swung clear of the face-plate. The mechanism may then be advanced by moving the lathe-carriage and tool-block to such a position that the friction-wheel 8 will bear against the face-plate 11 or the interposed disk 21 well toward the back of the lathe and with sufficient pressure to drive the mechanism. Then clamp the lathe-carriage and on starting the lathe it will be seen that the emery-wheel will be driven at a rapid

rate of rotation and that the contiguous surfaces of the emery-wheel and the center to be ground move in opposite directions. The mechanism may then be fed toward the front
5 of the lathe until in position to commence grinding, when by moving the wheel slowly back and forward on its shaft alternately by means of the thumb-piece 5 and adjusting forward slightly with the lathe cross-feed as the
10 grinding proceeds a true conical surface will result.

The same mechanism can be used for grinding small tools by hand by providing a suitable hand-rest and placing the grinder, with
15 its shaft, parallel to the line of the lathe-centers and in such a position that the periphery of the friction-wheel will bear upon the periphery of the lathe face-plate.

Having thus described my invention, what
20 I claim, and desire to secure by Letters Patent, is—

1. A grinder for lathe-centers and the like consisting of an abrasive disk, a journaled bearing-shaft and support therefor, a sleeve
25 slidable upon and revoluble with the shaft to which sleeve the grinder is fixed, a thumb-piece having antifrictional bearings interposed between itself and the sleeve and contact connections whereby said thumb-piece

may be caused to move the disk and sleeve 30 upon the shaft in the line of their longitudinal axis, a gage by which the angle of the grinder may be regulated with relation to the part to be ground, a friction-wheel contacting with
35 and driven by the lathe face-plate, and intermediate gears whereby motion is transmitted to revolve the contacting faces in opposite directions.

2. A grinder for lathe-centers consisting of an abrasive disk or the like, a shaft, a sleeve 40 slidable upon a feather on the shaft, upon which sleeve the grinder is carried, a yoke or frame in which the shaft is journaled, a clamping device by which said frame is supported from the tool post or column a graduated sec- 45 tor, means for fixing it with relation to the part to be ground, a friction-wheel adapted to contact with the lathe face-plate and gearing by which motion is transmitted from the friction-wheel to revolve the grinder. 50

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY C. BARNES.

Witnesses:

JESS F. SWART,
JOSEPH RAYMOND.