No. 670,962. Patented Apr. 2, 1901.

W. LODGE & C. F. PEASE.

LATHE.

(Application filed Nov. 1, 1900.)

(No Model.) 2 Sheets—Sheet 1.

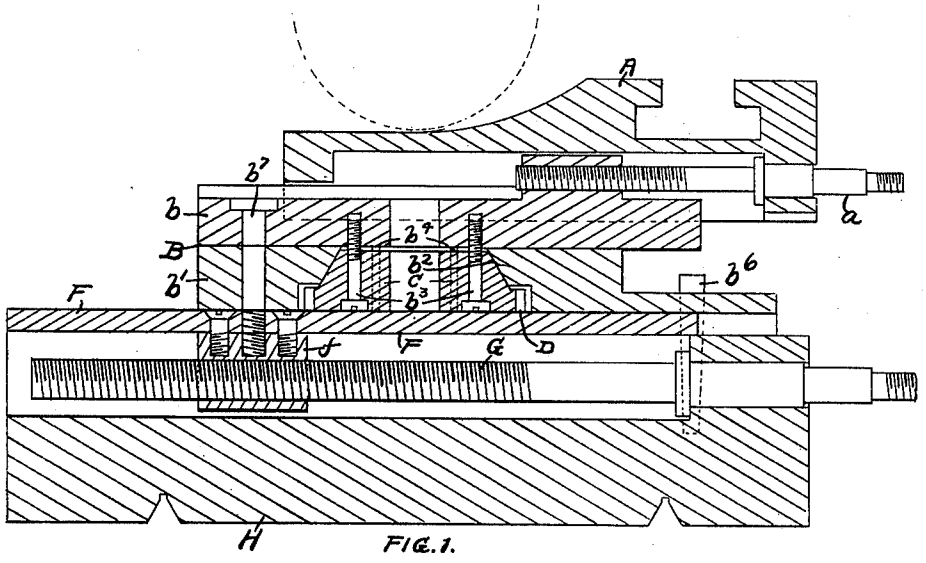


FIG. 1.

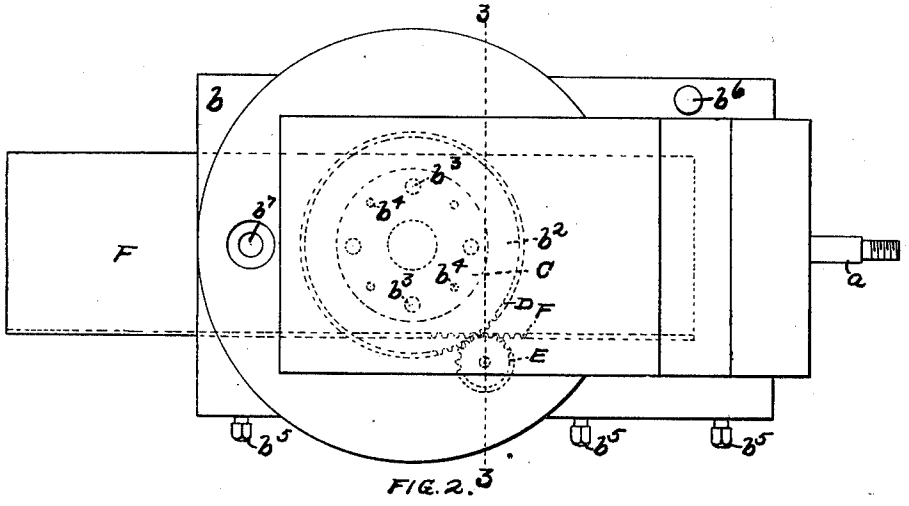


FIG. 2.

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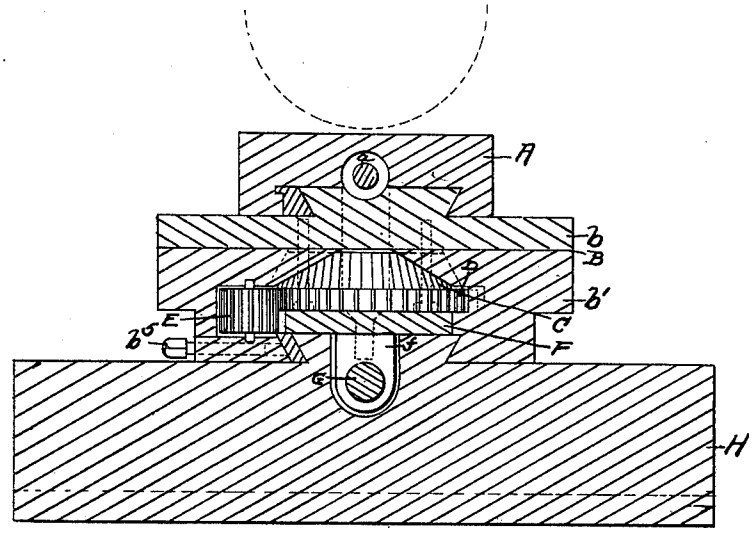


FIG. 3.

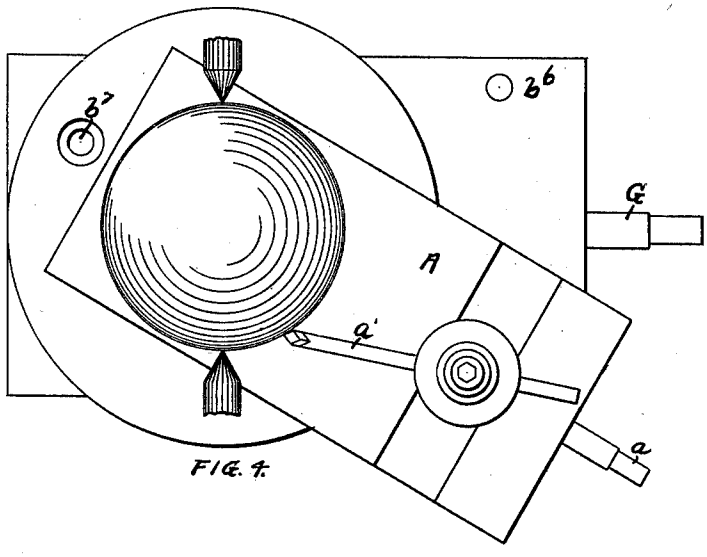


FIG. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM LODGE AND CHARLES F. PEASE, OF CINCINNATI, OHIO, ASSIGNORS TO THE LODGE & SHIPLEY MACHINE TOOL COMPANY, OF SAME PLACE.

LATHE.

SPECIFICATION forming part of Letters Patent No. 670,962, dated April 2, 1901.

Application filed November 1, 1900. Serial No. 35,126. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM LODGE and CHARLES F. PEASE, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Lathes, of which the following is a specification.

The object of our invention is to endow a lathe with the capacity of turning balls or spheres; and our invention consists in the parts and combinations and arrangements of parts hereinafter set forth and claimed.

In the drawings, Figure 1 is a vertical section through the carriage and tool-rest of a lathe embodying our invention; Fig. 2, a top plan view corresponding to Fig. 1; Fig. 3, a section on line 3 3 of Fig. 2, and Fig. 4 a top plan view showing the tool in the operation of cutting a ball.

Reference-letter A represents a tool-block, B the lower portion of a compound tool-rest, C a bearing-block pivoting the tool-block, D a gear on block C, E a pinion meshing with gear D, F a rack-bar meshing with pinion E, G the cross-feed screw, and H the carriage, of a lathe.

The tool-block A is the usual tool-block of a lathe, dovetailed to the lower portion B of the compound tool-rest and provided with the usual compound-rest screw a for making adjustments. The lower portion of the compound rest is made in two parts b and b', pivoted relatively to each other by pivot-block C, which is rigidly attached to portion B and has a pivotal bearing in portion b' on conical surfaces b^2, the lower portion of b' having the usual dovetailed connection with the carriage. In order to render the connection between portion b and block C adjustable to compensate for wear on surface b^2, binding-screws b^3 and set-screws b^4 are provided, the former to bind the two parts together and the latter to distance the block, so as to nicely fit surfaces b^2. Gear D is preferably cut out on the lower edge of block C and meshes with pinion E, which is rotatably mounted in portion b' of the compound rest. The rack-bar F is slidably mounted in portion b' of the tool-rest and meshes with pinion E, which for this purpose is made as thick as the combined thickness of the gear C and rack F. Rack-bar F is connected, through nut f, with the usual cross-feed screw G of the lathe. The lower portion b' of the compound rest is rendered capable of a rigid attachment to the carriage through screws b^5 and tapered pin b^6, and screw-hole b^7 renders it possible to lock portions b and b' of the compound rest and rack-bar F rigidly together.

In operation when it is desired to cut balls or spheres the lower portion b' of the compound rest is rigidly locked to the carriage H by means of screws b^5 and pin b^6, so that the pivotal axis of block C and gear D intersects the axis of the lathe, and the cross-feed screw is operated by hand or any of the usual power appliances. Operation of the cross-feed screw causes the rack-bar F to slide relatively to pinion E, which causes pinion E to rotate gear D, and thus swing tool a' in the arc of a circle having its center in the axis of the lathe. This movement will cause the tool to cut a body, revolving on the lathe-center, to the exact surface of a sphere or ball. When it is desired to utilize the lathe for its usual functions, screws b^5 are loosened and pin b^6 removed and a screw inserted in hole b^7 to lock portions b and b' of the compound rest to the rack-bar F and cross-feed-screw nut f, in which case portions b and b' constitute the usual lower member B of a compound tool-rest and may be used to perform all its usual functions.

We claim as our invention—

1. The combination in a lathe of a tool-rest made in two parts mounted to swing relatively to each other, one part being mounted to travel transversely of the carriage of the lathe and the other part carrying the tool; with a connection between the cross-feed screw of the lathe and the tool-carrying portion of the tool-rest for swinging the tool-carrying portion relatively to the other portion, substantially as and for the purpose set forth.

2. The combination in a lathe of a plate mounted to travel transversely of the carriage of the lathe; a detachable connection between the plate and the cross-feed screw of the lathe; a detachable connection between the plate

and the carriage; a tool-rest pivoted to the plate and a detachable connection between the tool-rest and the cross-feed screw for rotating the tool-rest, substantially as and for the purpose set forth.

3. The combination, in a lathe, of a tool-rest made in two parts pivoted to each other; a gear attached to one of the parts; a pinion rotatably mounted in the other part and engaging the gear; a rack-bar engaging the pinion, and means for actuating the rack-bar, substantially as and for the purpose set forth.

4. The combination, in a lathe, of a compound tool-rest having its lower portion in two parts pivoted to each other; a gear attached to one part; a pinion rotatably mounted in the other and engaging the gear; a slidable rack-bar engaging the pinion, and having a connection with the cross-feed screw of the lathe; and means for locking one of the lower portions of the tool-rest to the carriage, substantially as and for the purpose set forth.

5. The combination, in a lathe, of a compound tool-rest, having its lower portion in two parts pivoted to each other; a gear attached to one part; a pinion rotatably mounted in the other and engaging the gear; a slidable rack-bar engaging the pinion; and having a connection with the cross-feed screw of the lathe; means for locking the two parts of the tool-rest to each other and to the rack-bar; and means for locking one of the lower portions of the tool-rest to the carriage, substantially as and for the purpose set forth.

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