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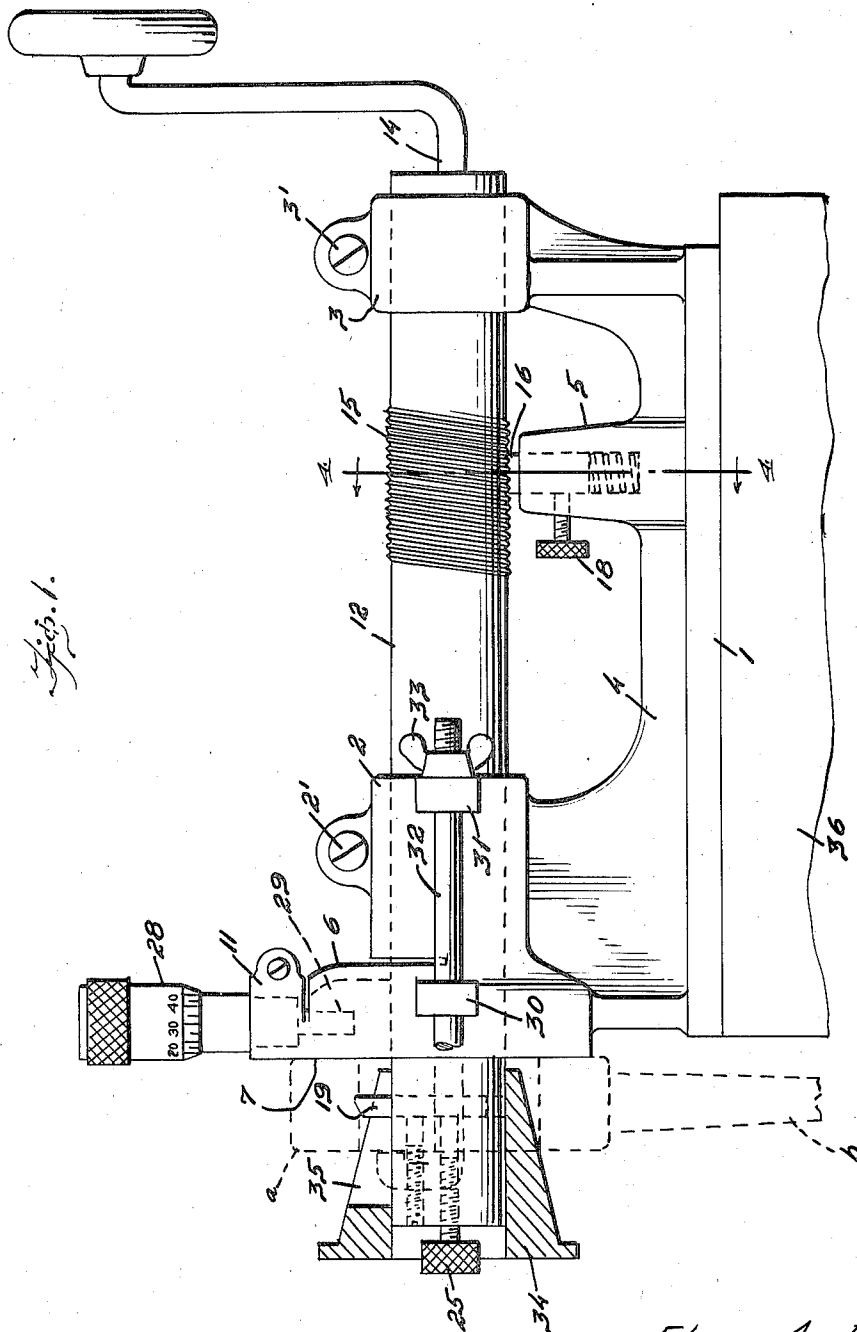
E. A. FUGLIE

2,252,121

REBORING MACHINE

Filed Dec. 10, 1940

3 Sheets-Sheet 1



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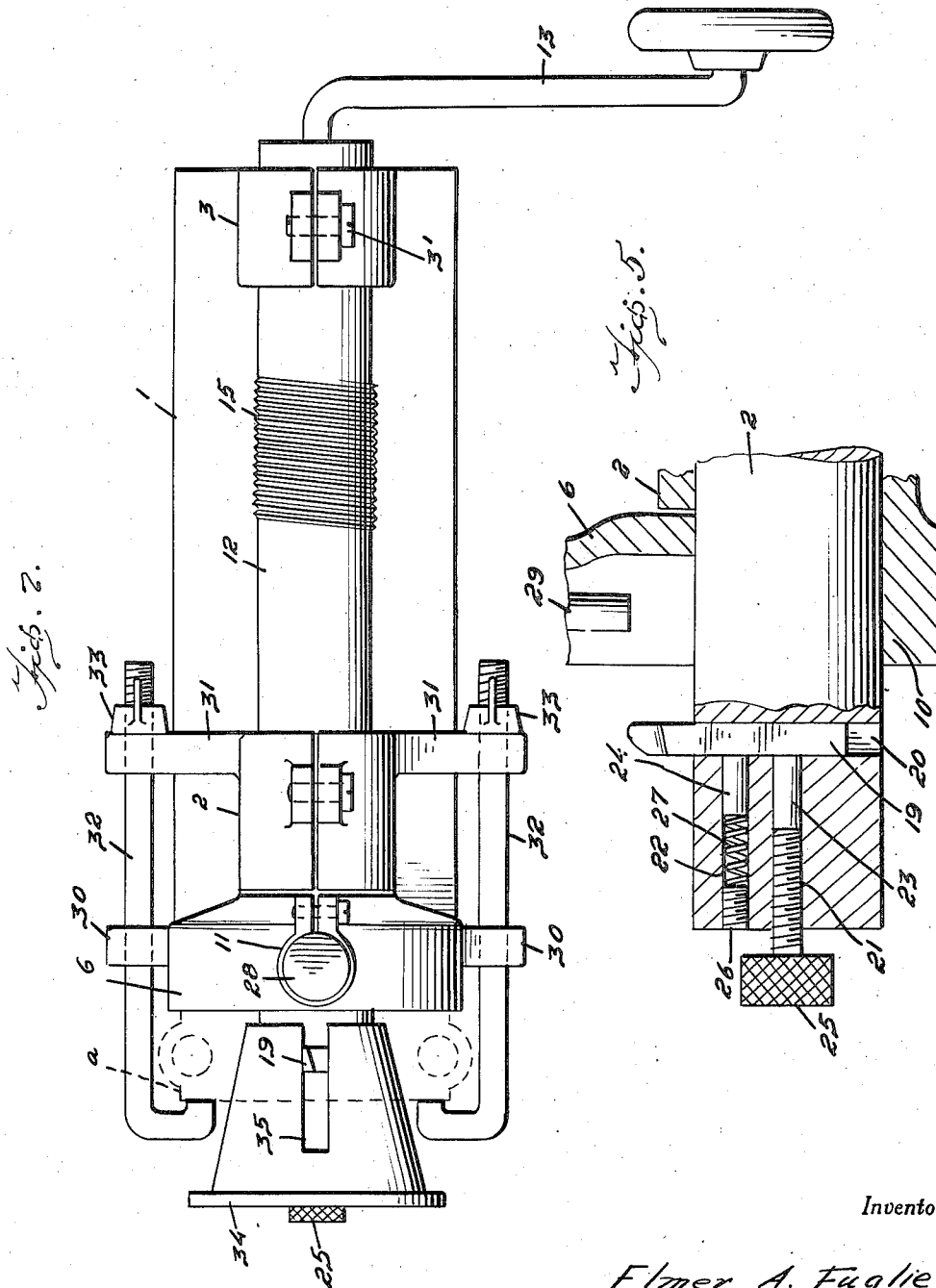
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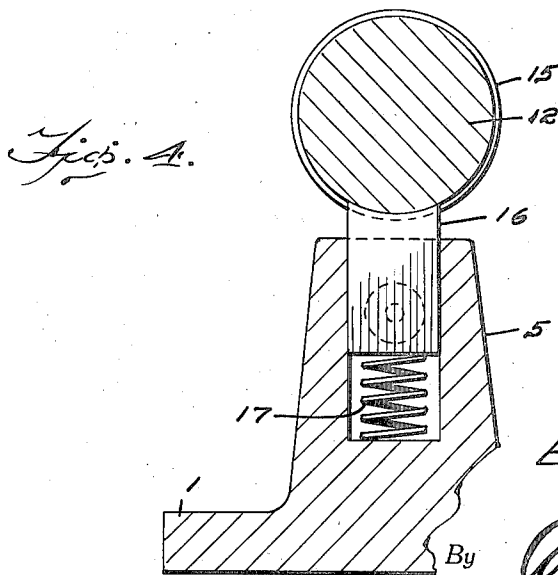
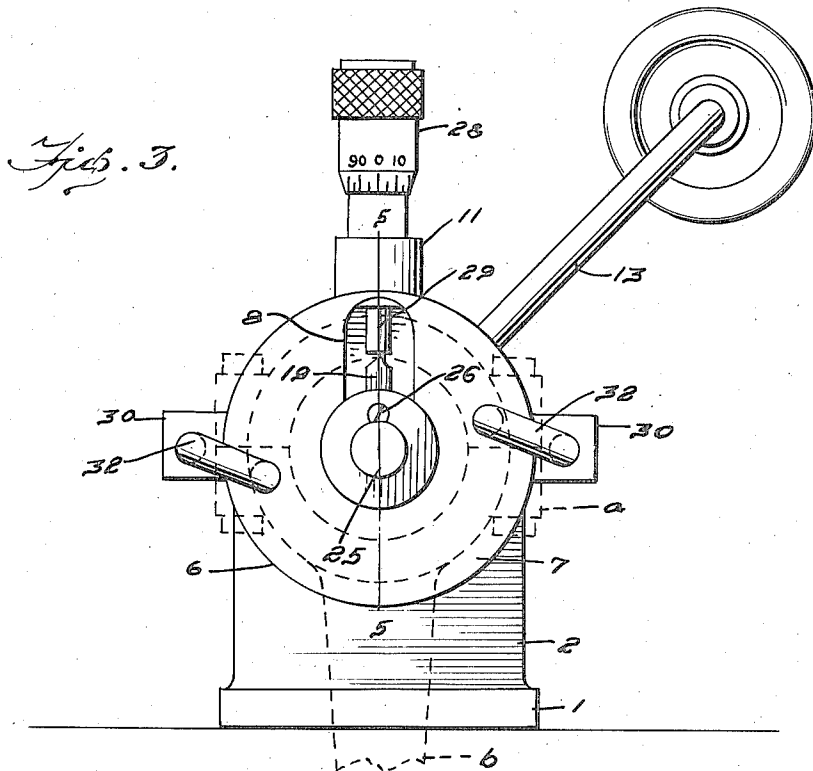
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UNITED STATES PATENT OFFICE

2,252,121

REBORING MACHINE

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2 Claims. (Cl. 77—3)

My invention relates to improvements in machines for reboring the bearings of connecting rods, particularly those used in automobile engines.

The principal object of the invention is to provide a simply constructed, portable machine of few parts in which a connecting rod may be quickly clamped for reboring in accurately centered position relative to a cutting tool and the tool accurately and quickly set by micrometer adjustment of the machine.

To the accomplishment of the above, and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawings, set forth in detail in the succeeding description, and defined in the claims appended hereto.

In said drawings:

Figure 1 is a view in side elevation, partly in section, of the preferred embodiment of my invention,

Figure 2 is a view in top plan,

Figure 3 is a view in front elevation,

Figure 4 is a transverse section taken on the line 4—4 of Figure 1 and drawn to an enlarged scale, and

Figure 5 is a fragmentary view in longitudinal section taken on the line 5—5 of Figure 3.

Referring to the drawings by numerals, my improved machine comprises a suitable elongated base 1 having a pair of front and rear end bearings 2, 3, arising therefrom and connected by a reinforcing web 4 extending longitudinally and centrally of said base with an upstanding bearing sleeve 5 arising from the same intermediate said bearings 2, 3, and terminating at a lower level than the latter. The bearings 2, 3, are of the split sleeve type adjustable by screw bolts 2', 3', to take up wear in the usual manner. The front bearing 2 has formed integrally therewith, in front of the same, and concentric thereto, an upstanding, annular pillow block 6 having a flat face 7 perpendicular to the axis of the block and bearings 2, 3. The pillow block 6 is provided with a recess 9 in the face 7 thereof extending upwardly from the bore 10 of the pillow block and said block embodies in its upper portion a split clamping sleeve 11. Both the recess 9 and sleeve 11 are disposed in the vertical center of the block 6 and radially of the bore 10. The function of the pillow block 6, recess 9 and sleeve 11 will presently appear.

Fitted in the bearings 2, 3, and in the bore 10 of the pillow block 6 for rotation and endwise

sliding movement therein is a tool operating shaft 12 having its front and rear ends suitably extended beyond said bearings. A suitable hand crank 13 is threaded, as at 14, into the rear end of said shaft 12 for rotating the same. The shaft 12 is threaded, intermediate the bearings 2, 3, as at 15, for engagement by a threaded, preferably rectangular nut 16 slidably fitted in the bearing sleeve 5 and spring pressed, as at 17, upwardly toward engagement with said threads 15. A set screw 18 extended into the sleeve 5 provides for clamping the nut 16 in engagement with said threads 15, whereby, under rotation of said shaft 12 in opposite directions, it will be fed endwise forwardly and rearwardly, respectively.

A cutting tool 19 of the usual type is slidably mounted in a diametrical, square, socket 20 provided in said shaft 12 in front of the pillow block 6, the arrangement being such that said tool may be adjusted in the socket 20 into different set positions to variably position its cutting end out of the socket to cut bores of different diameters under rotation and endwise feed of the shaft 12.

A pair of longitudinally extending bores 21, 22 are provided in the front end of the shaft 12 in advance of the socket 20, the bore 21 being in the axis of the shaft 12 and the bore 22 radially offset from said axis, both bores communicating with the socket 20. A pair of tool clamping plugs 23, 24 are slidably fitted in the inner ends of the bores 21, 22, respectively, to bear against said tool 19.

A set screw 25 threaded into the bore 21 provides for clamping the plug 23 against the tool 19 to establish different set positions of said tool.

A screw plug 26 threaded into the outer end of the bore 22, and a coil spring 27 in said bore interposed between said plug and the plug 24, provide for frictionally clamping the latter against the tool 19 to yieldingly hold the same during adjustment.

A micrometer 28 with an adjustable stem 29 is clamped in the sleeve 11 with its stem extending downwardly into the recess 8 radially of the shaft 12.

A pair of apertured bearing ears 30 are provided upon diametrically opposite sides of the pillow block 6, and a similar pair of ears 31 in similar position on the front bearing 2 behind the ears 30. A pair of hook-shaped rod-like clamps 32 are mounted in the pairs of ears 30, 31, on opposite sides of the block 6 and bearing 2 for endwise and rotary adjustment to clamp

the bearing end *a* of a connecting rod *b* against the face 7 of the pillow block 6 concentrically of the shaft 12. Wing nuts 33 threaded onto the rear ends of said clamps 32 for turning against the ears 31 provide for adjusting said clamps endwise into clamping position.

For centering the bearing end *a* of rod *b* relative to the shaft 12 a tapered bushing 34 is provided for sliding over the outer end of the shaft 12 into the bearing end *a* of the rod *b*, said bushing being longitudinally slotted, as at 35, to accommodate the cutting end of the tool 19.

Referring now to the operation of the described invention, the micrometer 28 is set to a reading giving the selected diameter to be rebores, the inner end of the stem 29, as will be understood, establishing the diameter. The set screw 18 is then loosened and the nut 16 disengaged from the threads 15 of shaft 12 so that the latter may be pushed backwards and said nut clamped by said screw in disengaged position. The set screw 25 is then loosened to free the tool 19 for adjustment in the socket 20, said tool being yieldingly held by plug 24 and spring 27. The shaft 12 is then moved back in the bearings 2, 3, to enter the cutting end of the tool 19 in the recess 8 of the pillow block 6 so that the cutting end may be rubbed against the inner end of the micrometer stem 29. Thus the set position of the tool 19 is determined. The set screw 25 is then tightened to clamp the tool in set position. The nut 16 is next engaged with screw threads 15 and clamped by set screw 18 in engaged position. The bearing end *a* of rod *b* is next placed over the front end of the shaft 12, flat against the face 7 of the pillow block 6. Bushing 34 may then be sleeved over the front end of the shaft 12 and extended into the bearing end *a* to center said end on the shaft 12. Said end *a* of rod *b* may then be clamped to the face 7 of the pillow block 6 by the clamps 32. The bushing 34 is then removed. As will now be seen, under operation of the crank 13 in the proper direction, the shaft 12 may be fed forwardly and rotated to feed the tool 19 into the bearing end *a* of the rod *b* and rotate the same to effect re boring.

The described machine may be set upon any fixed support represented at 36.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention, without further explanation.

Manifestly the invention, as described, is susceptible of modification without departing from the inventive concept, and right is herein reserved to such modifications as fall within the scope of the subjoined claims.

What I claim is:

1. In a machine of the class described, a base, a tool operating shaft endwise slidable on said base and rotatable thereon and having a front tool carrying end, a cutting tool mounted in said end of the shaft and adjustable endwise into different set positions diametrically thereof, and means to predetermine the settings for said tool comprising a split clamping block arising from said base over the front end of the shaft and having a recess therein into which the tool may be retracted by endwise movement of said shaft, and a micrometer clamped in said block and having a stem extending into said recess and adjustable radially of said shaft for engagement by the cutting end of the tool to predetermine the setting thereof.

2. In a machine of the class described, a base, a tool operating shaft endwise slidable on said base and rotatable thereon and having a front tool carrying end, a cutting tool mounted in said end of the shaft and adjustable endwise into different set positions diametrically thereof, means to predetermine the settings for said tool comprising a split clamping block arising from said base over the front end of the shaft and having a recess therein into which the tool may be retracted by endwise movement of said shaft, and a micrometer clamped in said block and having a stem extending into said recess and adjustable radially of said shaft for engagement by the cutting end of the tool to predetermine the setting thereof, an axial set screw in said shaft adjustable to clamp the tool in different set positions, and a spring pressed plug in said shaft bearing against said tool and yieldingly holding the same in set position during adjustment of said screw.

ELMER A. FUGLIE.