T. M. BOGGS.

TOOL FOR FINISHING BEARINGS.

APPLICATION FILED MAY 14, 1908.

969,452. Patented Sept. 6, 1910.

FIG. 1

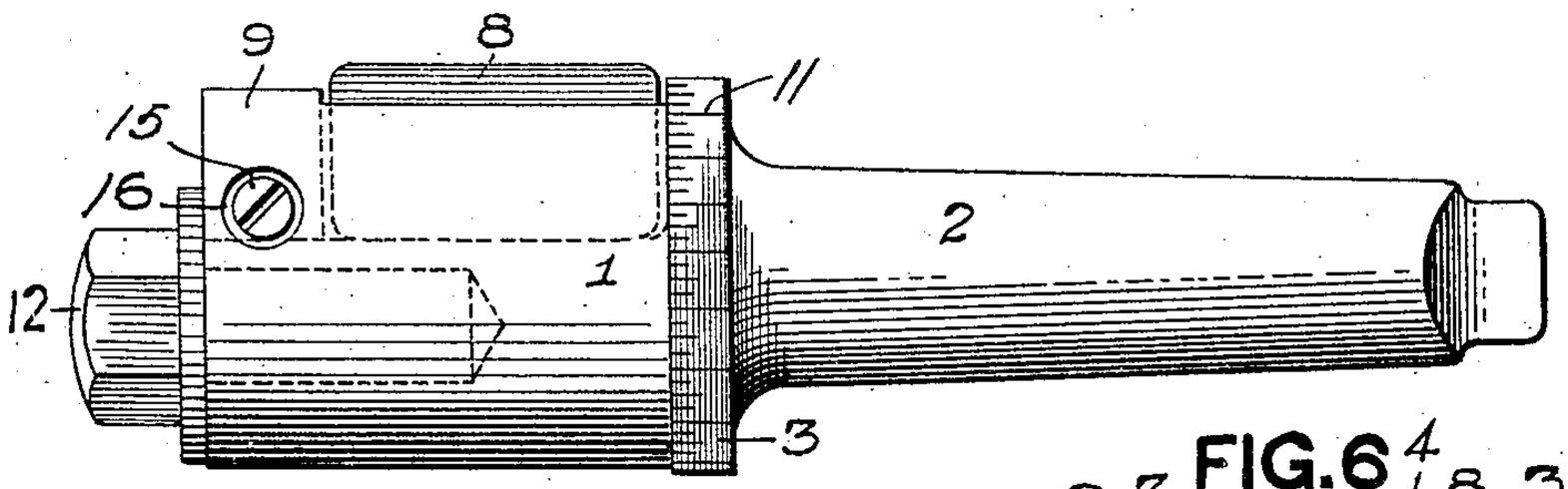


FIG. 6

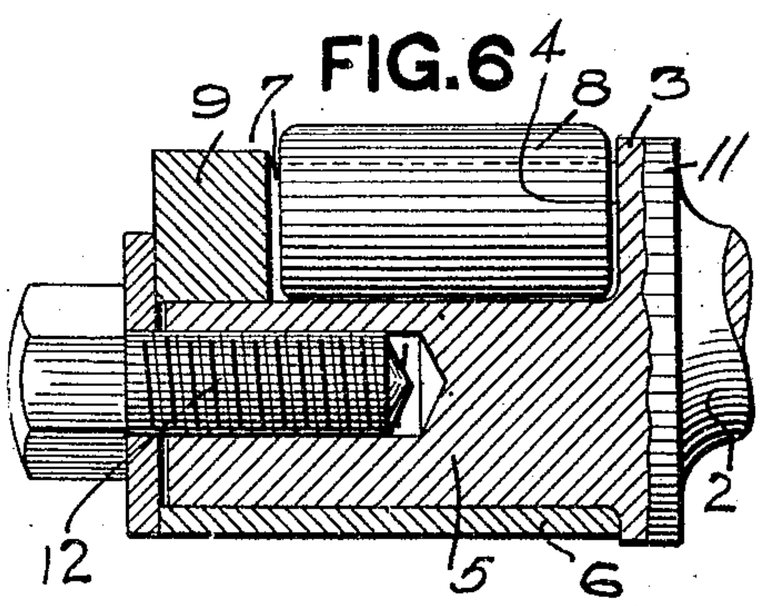


FIG. 2

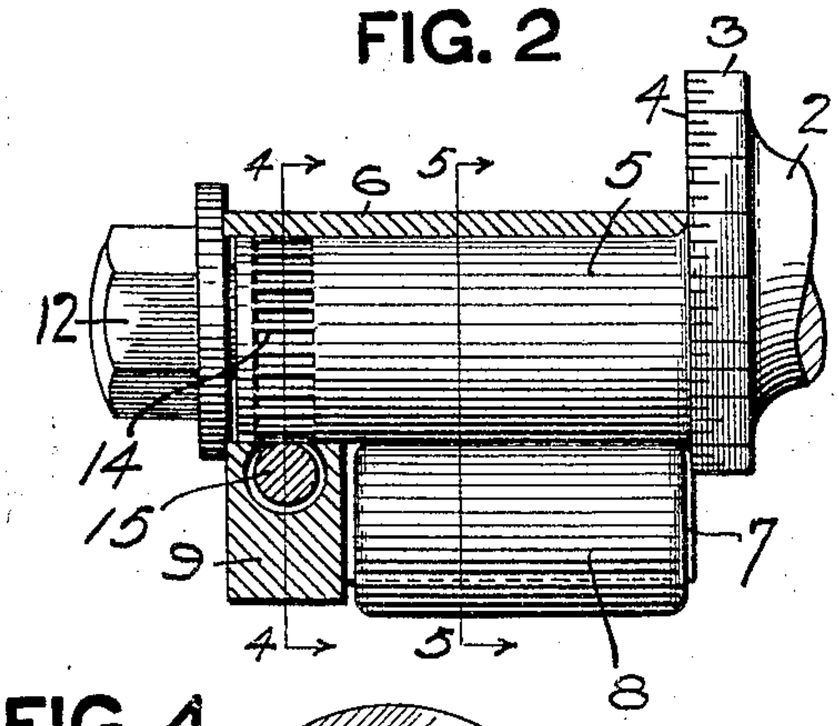


FIG. 3

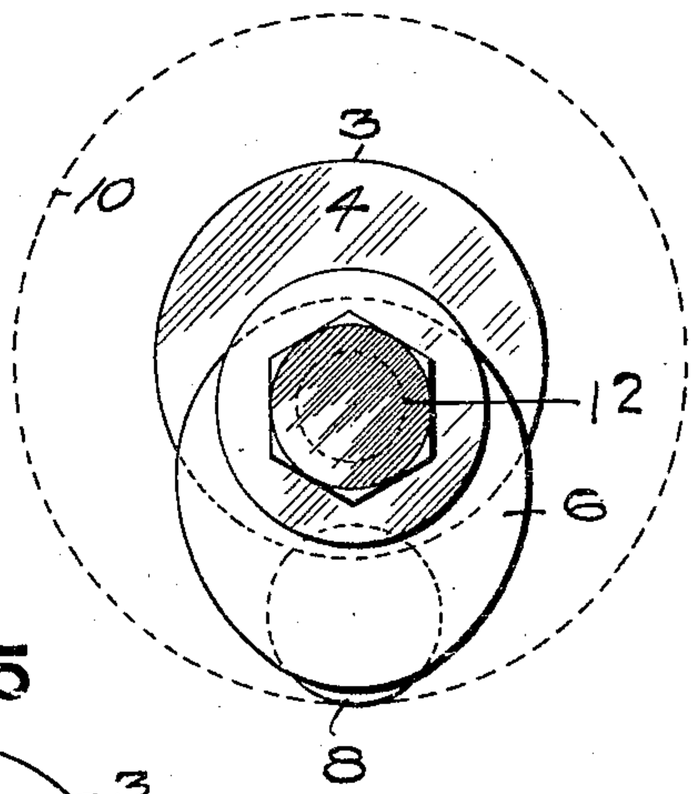


FIG. 4

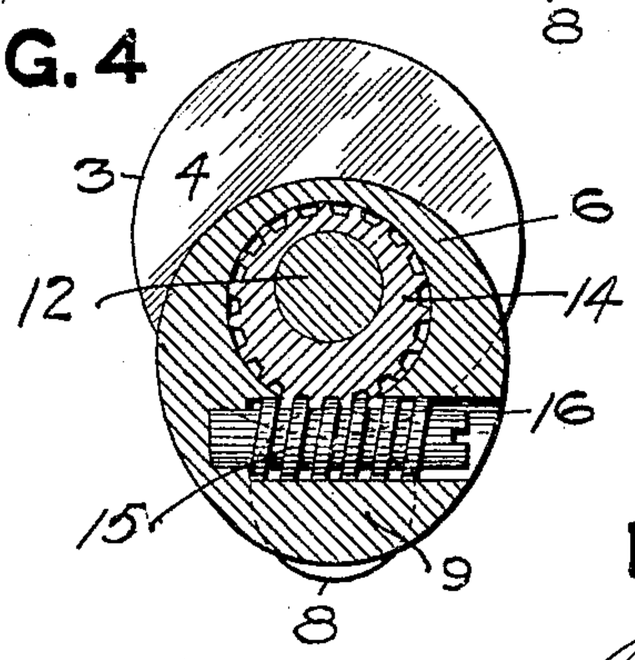
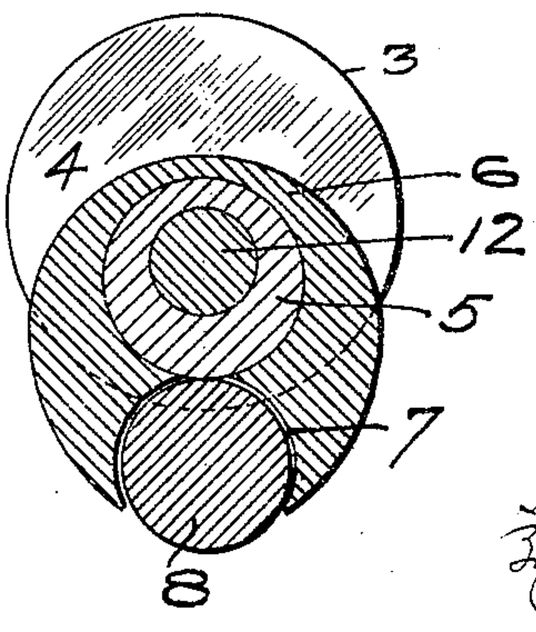


FIG. 5



WITNESSES.

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TOOL FOR FINISHING BEARINGS.

969,452. Specification of Letters Patent. Patented Sept. 6, 1910.

Application filed May 14, 1908. Serial No. 432,826.

To all whom it may concern:

Be it known that I, THADDEUS M. BOGGS, a resident of Monongahela, in the county of Washington and State of Pennsylvania, have invented a new and useful Improvement in Tools for Finishing Bearings; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to a tool for finishing the interior of bearings and the like.

The object of the invention is to provide a convenient tool which will effectively remove the tool marks and compact and smooth the inner surface of the bearing.

Bearings for shafts and other journals are finished by boring the same out. This leaves on the interior slight tool marks and also tears the metal somewhat which makes it rough and also softens the same. Usually the bearings are finished with the boring, and no further work is put on the same, except filing or scraping by hand.

My tool is intended to roll down the inner surface of the bearing after the boring, so as to obliterate the tool marks and to smooth and compact or harden the surface so as to reduce friction and wear in use. The tool is so constructed that the roller can be readily contracted and expanded to fit bearings of different sizes.

The invention comprises the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is a side view of one form of my tool showing the roller contracted; Fig. 2 is a longitudinal section with the roller expanded; Fig. 3 is an end view corresponding to Fig. 2; Fig. 4 is a transverse section on the line 4—4, Fig. 2; Fig. 5 is a similar view on the line 5—5, Fig. 2; and Fig. 6 is a longitudinal section showing a modification.

The tool comprises a suitable body or mandrel 1 having a shank 2 preferably tapered to the standard of drills, taps and the like so that it can fitted in the chuck of an ordinary drilling or boring machine. This mandrel is provided with an enlargement or disk 3 having a substantially flat outer end face 4. Projecting from the disk is a journal portion 5 located eccentrically with reference to the axis of the mandrel. Fitted on this journal portion so as to rotate thereon is a roller carrier or sleeve 6 whose bore is eccentric therein. This sleeve is slotted in from one end through to its bore to form a seat 7 for the roller 8, which is constructed preferably of cylindrical shape so as to present a smooth surface to the inner face of the bearing to be polished. This roll seat 7 does not extend for the full length of the sleeve, so as to leave one end portion 9 solid. The seat 7 is of circular form in cross section, as shown in Fig. 5, so that the roller 8 cannot escape radially. The roller is inserted by slipping it in endwise before the sleeve is put on the journal 5, said roller being held between the solid end wall 9 of the sleeve and the disk 4 on the mandrel. The seat 7 opens into the bore of the sleeve 6 so that the cylindrical roller contacts with the journal portion 5. On account of the eccentric location of the journal 5 the roller 8 can be adjusted radially with reference to the axis of the mandrel by merely adjusting the sleeve 6 angularly on the journal 5. Figs. 1 and 2 show the extremes of the adjustment, and in Fig. 3 the dotted line 10 shows the largest bore that can be rolled by the tool shown. This adjustment adapts the tool to bearings of different sizes. The roller in all positions has a solid backing on the journal 5. The disk 3 is provided with graduations 11 to assist in the adjustment of the roller.

After having been adjusted to its proper position the sleeve is clamped in place by suitable means, that shown comprising a tap screw 12 entering a threaded opening in the end of the journal portion 5 and having its head bearing against the end of the sleeve 6. This sleeve is slightly longer than the journal 5, shown in Fig. 2, so that when the tap screw 12 is set tightly the sleeve is clamped between the head of the screw and the disk 4 of the mandrel.

For the smaller sizes the construction so far described will suffice, and Fig. 6 shows such a tool. For larger sizes it is preferred to use some special means for adjusting the sleeve 6 angularly on the journal. This means comprises a worm wheel 14 cut in the surface of the outer end of the journal 5, which worm wheel is engaged by a screw of worm 15 mounted transversely in the sleeve 6 in any suitable manner, as at 16, to provide engagement for a key or the like for turning the same. This worm and worm wheel serve to adjust the sleeve angularly, after which the sleeve is clamped in position by the screw 12.

In finishing bearings, they are, as usual,

clamped in the chuck of a boring machine and the interior then bored out to a true circle. The boring tool is then removed and the tool above described substituted therefor. The sleeve 6 will be adjusted angularly on the journal 5 so as to bring the roller 8 out far enough to finish the particular size of bearing which is bored. This tool is then inserted into the bearing and the boring spindle rotated in the usual way, thereby carrying the roller 8 around and around in contact with the interior surface of the bearing. The consequence is that all marks of the boring tool are entirely obliterated and the metal thoroughly smoothed, compacted and hardened. This gives a bearing offering less friction and subject to less wear in use than if the rolling was not resorted to.

What I claim is:

1. A tool for finishing the interior of bearings and the like, comprising a mandrel, an eccentric portion thereon, a roller having a smooth surface adapted to compact the bearing surface, and a roller carrier fitting the eccentric portion and adjustable angularly to thereby move the roller radially with reference to the axis of the mandrel.

2. A tool for finishing the interior of bearings and the like, comprising a mandrel provided with an eccentric journal portion rigid therewith, a sleeve fitting said eccentric journal portion, a substantially cylindrical roller carried by said sleeve, and means for adjusting said sleeve angularly on said journal portion.

3. A tool for finishing the interior of bearings and the like, comprising a mandrel provided with an eccentric journal portion, a sleeve on said journal portion, a substantially cylindrical roller carried by said sleeve, means for adjusting the sleeve angularly on said journal portion, and means for clamping the same in its adjusted position.

4. A tool for finishing the interior of bearings and the like, comprising a mandrel, an eccentric journal portion thereon, a sleeve fitting said journal portion and adjustable angularly thereon, said sleeve being provided with a slot therethrough, and a roller seated in said slot and bearing against the eccentric journal portion.

5. A tool for finishing the interior of bearings and the like, comprising a mandrel provided with a disk, a journal projecting from the disk with its axis eccentric to the axis of the mandrel, a sleeve on said eccentric journal and having a slot extending from one end through to its bore but leaving the other end solid, a roller bearing against the eccentric journal portion in said slot between said solid end of the sleeve and disk on the mandrel, and means for clamping the sleeve in different angular positions.

6. A tool for finishing the interior of bearings and the like, comprising a mandrel provided with an enlargement or disk, a journal projecting beyond the disk and being eccentric to the axis of the mandrel, a sleeve on said journal, a roller carried by said sleeve, and a clamping means carried by the journal comprising a member overlapping the sleeve and adapted to clamp the same between itself and the disk on the mandrel.

In testimony whereof, I the said THADDEUS M. BOGGS have hereunto set my hand.

THADDEUS M. BOGGS.

Witnesses:

F. W. WINTER,

ROBERT C. TOTTEN.