

Nov. 16, 1948.

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2,453,797

CRANK SHAFT DRESSING TOOL

Filed Jan. 14, 1947

2 Sheets-Sheet 1

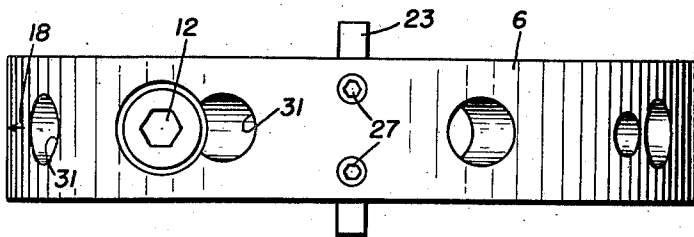
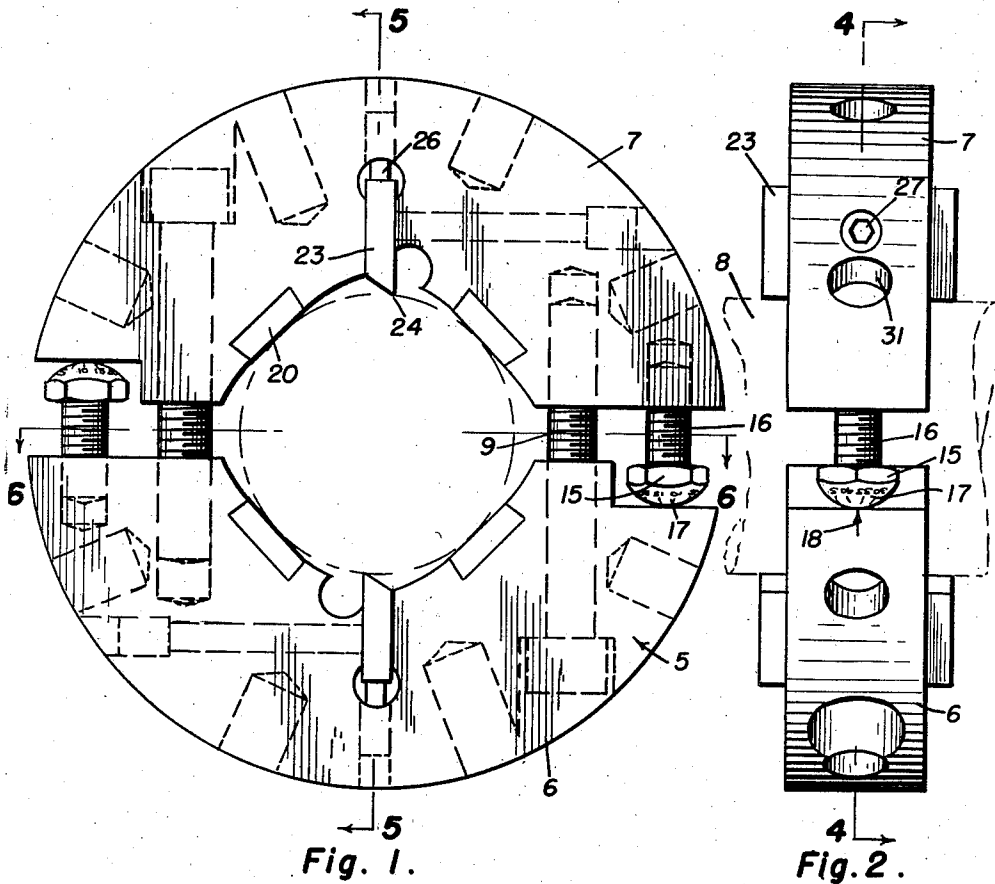


Fig. 3.

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2 Sheets-Sheet 2

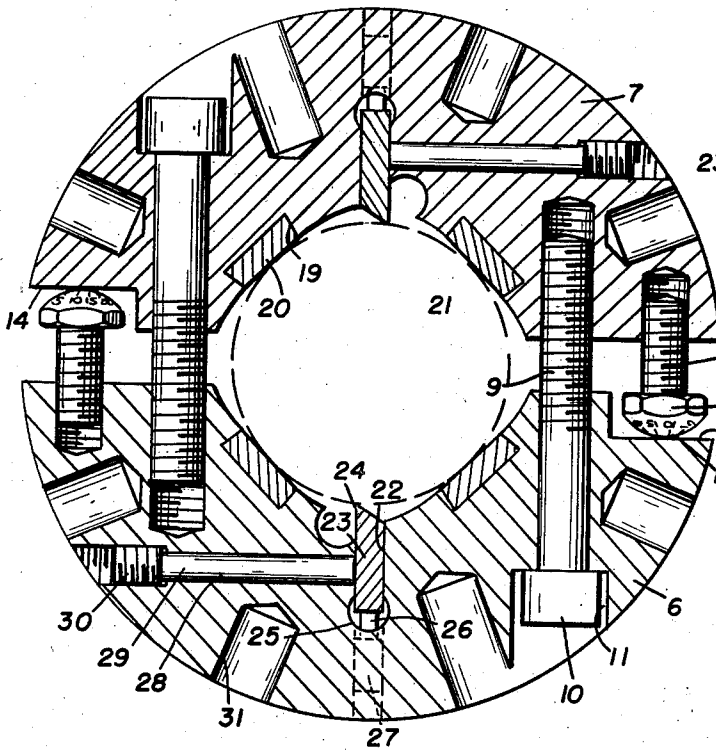


Fig. 4.

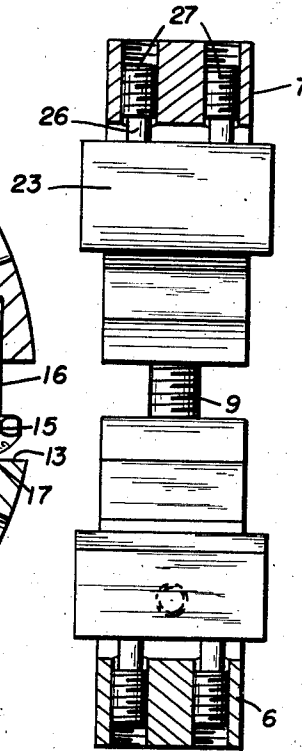


Fig. 5.

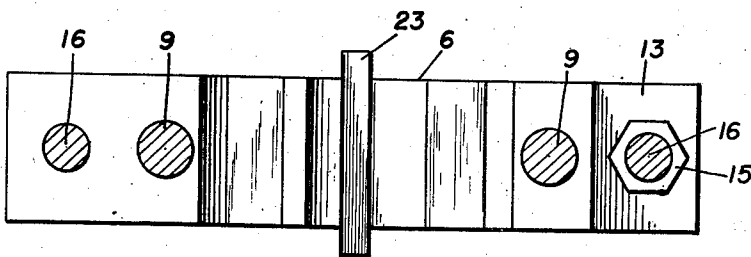


Fig. 6.

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CRANKSHAFT DRESSING TOOL

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3 Claims. (Cl. 82-4)

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The present invention relates to new and useful improvements in dressing tools and more particularly to a tool for trueing and burnishing the connecting rod journal of crank shafts.

An important object of the present invention is to provide a tool of the above mentioned character which may be clamped in position on the bearing surface of a crank shaft throw to true the bearing surface and at the same time dress the surface by means of contacting pressure plates carried by the tool.

A further object of this invention is to provide a tool of the above mentioned character which may be clamped on the throw of an internal combustion engine crank shaft without requiring the complete removal thereof from the engine for the purpose of trueing the journal or bearing surfaces when they have become out of round, as from a faulty connecting rod bearing of the engine.

Another object of the invention is to provide a crank bearing dressing and trueing tool including gage means capable of being set before the tool is placed in position on the crank to produce a finished bearing surface having a predetermined circumference.

A still further object of the invention is to provide a combined trueing and dressing tool for refinishing the bearing surfaces of internal combustion engine crank shafts, and which is capable of being inserted through the oil pan opening of the crank case and operated by means of a capstan bar to cause complete revolution thereof by attaching the bar intermittently through various degrees of the crank throw axis.

A still further object is to provide a tool of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view.

Figure 2 is an edge elevational view showing the openings in the periphery thereof for receiving the capstan bar and showing the tool in position on a crank throw of a crank shaft.

Figure 3 is an elevational view looking toward the outer edge of one of the sections of the tool and showing one of the trueing cutters.

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Figure 4 is a sectional view taken on a line 4-4 of Figure 2.

Figure 5 is a sectional view taken on a line 5-5 of Figure 1, and

Figure 6 is a sectional view taken on a line 6-6 of Figure 1.

Referring now to the drawings in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of this invention the numeral 5 designates generally the trueing and dressing tool for operating upon the journal or throws of crank shafts, the tool including a pair of semi-circular complementary sections 6 and 7. The sections 6 and 7 are secured in assembled relation on the journal or throw 8 of a crank shaft by a tap bolt 9 of conventional construction threaded through the opposed edges of the sections. The heads 10 of the bolt are recessed in the periphery of one of the sections as shown at 11 and are formed with hexagonal recesses 12 for receiving an Allen wrench.

The opposed edge of the section 6 at one side thereof is stepped to provide a shoulder 13 and the opposed edge of the section 7 at the opposite side of the tool is also stepped to provide a shoulder 14. The shoulders 13 and 14 are adapted to receive the hexagonal heads 15 of a gage screw 16 which is threaded into the edge of the opposing section and each head 15 is rounded and marked with graduations 17 registering with a pointer or zero marking 18 formed on the outer periphery of each section adjacent the respective shoulder.

The inner periphery of each of the sections 6 and 7 of the tool are formed with dove-tailed grooves 19 for received complementary shaped inserts 20 which have flat exposed surfaces 21 bearing against the journal or throw 8 of the crank shaft. The inserts 20 are spaced from each other 90° at the circumference of the journal whereby the journal is contacted only by the inserts carried by the tool to dress the journal.

The inner periphery of each of the sections 6 and 7 are also provided with radially extending slots 22 at diametrically opposite sides of the journal of the crank shaft and spaced equidistantly between the inserts 20 of each of the sections. Cutters 23 are positioned in the slots 22 having inwardly projecting bevelled cutting edges 24 engaging the surface of the journal.

The inner ends of the slots 22 terminate in transverse openings 25 in which clamping blocks 26 are positioned and held against the rear of the cutters 23 by set screws 27 recessed in the periphery of the tool. Each section 6 and 7 is

also formed with a bore 28 extending at right angles to the slot 22 and cutter 23, the bores 28 having clamping blocks 29 slidably mounted therein with the inner ends of the blocks bearing against one side of the cutters 23. The blocks 29 are held in clamping engagement with the cutters by set screws 30 recessed in the periphery of the tool.

The periphery of the tool is formed with circumferentially spaced recesses 31 for receiving a capstan bar or handle (not shown) whereby the tool may be rotated about the journal or crank throw 8 of the crank shaft in a step-by-step fashion in the event there is insufficient room in the crank case of the engine to allow free rotation of the handle.

When it is desired to dress and burnish the journal or throw of a crank shaft, the reduced size of the connecting rod bearing is determined and the dressing tool is set to the correct diameter. The sections of the tool are then clamped on the journal or throw of the crank shaft until the journal has been trued perfectly round and dressed to the desired diameter.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

I claim:

1. A rotary cutting and burnishing tool comprising a pair of complementary semi-circular sections, a cutting blade mounted in each section in diametrically opposed relation to each other, a burnishing insert located on each side of the cutting blades, the inserts of one section being diametrically opposed to the inserts of the other section and means within the confines of the

periphery of the sections for clamping the semi-circular sections together and comprising bolts drawing the sections together, and stops threaded in each section parallel to an adjacent bolt and including micrometer heads abutting an opposite section.

2. A rotary cutting and burnishing tool comprising a pair of semi-circular clamping members, cutting and burnishing elements carried at the inner edges of the sections, means connecting the sections to each other in clamping position on the work, gauge means between opposed edges of the sections, and comprising stops at diametrically opposite sides of the assembled sections, said stops being threaded in one section and having micrometer heads abutting an opposing edge of the other section and handle engaging means carried by the tool for rotating the same.

3. A rotary cutting and burnishing tool comprising a pair of semi-circular clamping members, cutting and burnishing elements carried at the inner edges of the sections, bolts connecting the sections to each other in clamping position on the work, gauge means between opposed edges of the sections, and comprising stops at diametrically opposite sides of the assembled sections, said stops being threaded in one section and having micrometer heads abutting an opposing edge of the other section and handle engaging means carried by the tool for rotating the same, said bolts, said gauge stops, and said handle engaging means being confined within the periphery of the tool.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,370,141	McNicholas	Mar. 1, 1921
1,467,501	Roney	Sept. 11, 1923
2,129,253	Willis	Sept. 6, 1938
2,219,245	Zitzerman	Oct. 22, 1940