April 4, 1950 T. H. CHOATE 2,502,705

MULTIPURPOSE FIXTURE FOR ABRASIVE GRINDING WHEELS

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FIG. 1.

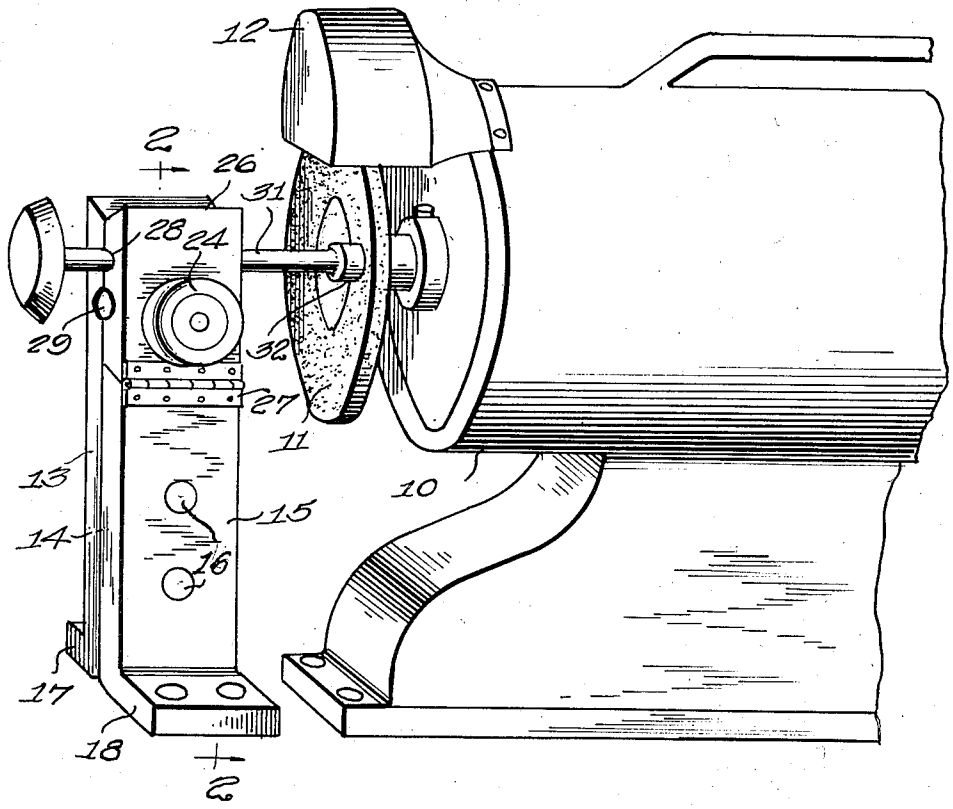
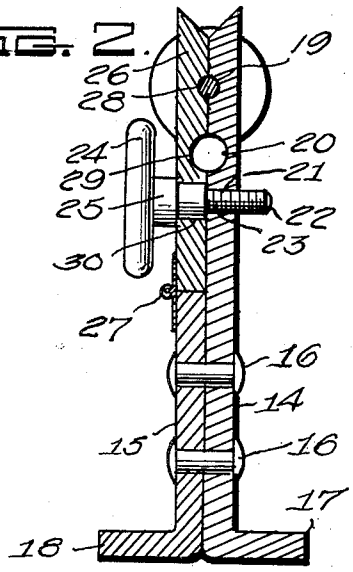


FIG. 2.



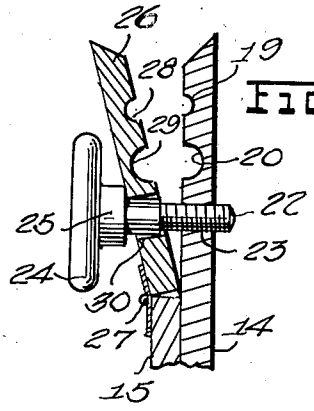


FIG. 3.

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FIG. 4.

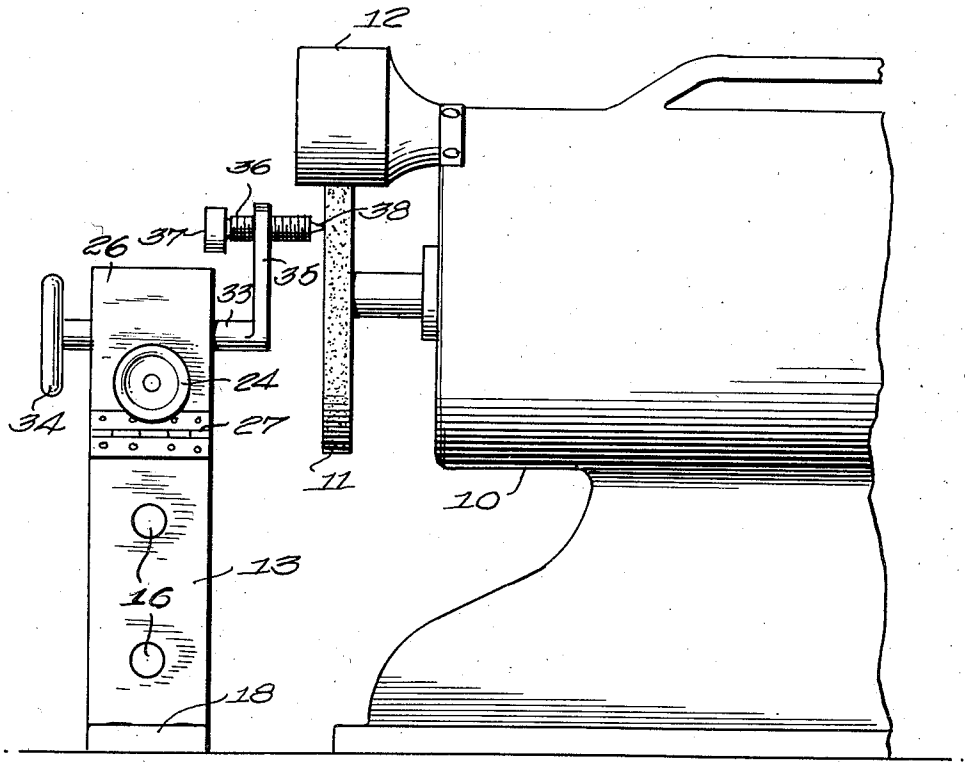
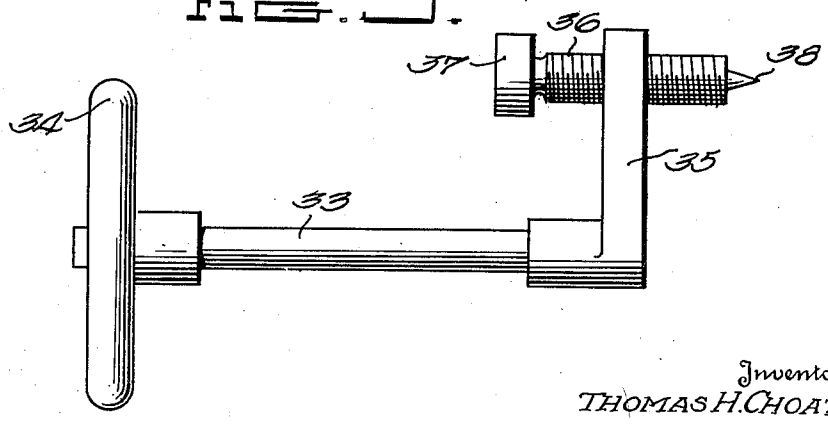


FIG. 5.



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MULTIPURPOSE FIXTURE FOR ABRASIVE GRINDING WHEELS

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Application February 6, 1948, Serial No. 6,753

1 Claim. (Cl. 51—125)

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This invention relates to a multi-purpose fixture for abrasive grinding wheels and the primary object of the invention is to provide an attachment used in conjunction with bench grinders to support either a tool or work in cooperative relationship with the abrasive wheel.

In the grinding of valve stem ends the contact face of the abrasive wheel becomes worn and must be redressed for further use. It is the objective of this invention to provide a fixture that first readily supports a valve stem for end grinding but secondly is also adapted to alternatively receive a diamond wheel dresser when redressing of the abrasive wheel face is necessary.

It is also an object of the invention to provide a bench supported quick releasable fixture used in conjunction with a bench grinder having an abrasive wheel which is adapted to support valve stems of different diameters and to securely hold the ends of the valve stems against the face of the abrasive wheel for grinding.

A still further object of the invention is to adapt the fixture to support an abrasive wheel dressing tool and mount that is adjustable therein for accurately redressing the grinding surface of the wheel.

These and other objects of the present invention will appear as the following description thereof proceeds, and in order to more clearly understand the invention, references may be had to the accompanying drawings in which an embodiment of the invention is shown.

In the drawings:

Figure 1 is a perspective view of a bench-type valve grinder illustrating the fixture holding a valve stem in proper position on the grinder for end grinding;

Figure 2 is a vertical transverse sectional view taken substantially upon the plane of the section line 2—2 of Figure 1;

Figure 3 is a fragmentary view, similar to Figure 2, but showing the holding jaws of the fixture in open position;

Figure 4 is a side elevational view of the bench grinder, the fixture and a dressing tool carried thereby for dressing the surface of the abrasive wheel of the grinder; and,

Figure 5 is a side elevational view of the dressing tool and mount in Figure 4.

Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, 10 designates generally a conventional and well-known type of bench grinder, having an abrasive

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wheel 11 carried thereby together with a grinder hood or shield 12 overlying the upper portion of the wheel and constituting a guard to prevent the injurious emission of abraded articles from contacting the eyes or person of the user. The bench grinder which is of any desired type and preferably includes an electric motor, not shown, for operating the abrasive wheel, is intended to be mounted upon any suitable support such as a bench, and has positioned adjacent thereto the fixture indicated generally at 13 and which constitutes the gist of this invention.

As illustrated in Figures 1–3, this fixture comprises a support, having a pair of parallel vertically extending and abutting standards 14 and 15 respectively, which are preferably rigidly secured together as by rivets 16 or the like, and which at their lower ends are outwardly flanged as at 17 and 18, to constitute a base for mounting the fixture upon the supporting surface of the bench grinder by conventional fasteners.

The inner face of one of the members of the fixture, such as the member 14, is provided adjacent its upper end with a plurality of parallel, transversely extending semi-cylindrical channels 19 and 20 respectively, and preferably below these channels is provided with a suitable bore 21 which screw-threadedly receives the end 22 of a clamping screw 23 having the finger-grip knob or wheel 24 and a collar 25 thereon.

The other bracket member 15 is shorter than the above mentioned member 14, but has an extension 26 positioned longitudinally thereof and hinged thereto at 27, to thereby provide a movable jaw having channels 28 and 29 complementary to and registering with the above mentioned channels 19 and 20. The upper ends of the fixed and movable jaws are provided with downwardly and inwardly inclined surfaces respectively providing a V-shaped notch when the jaws are closed. Preferably below the channel 29, the movable jaw 26 is provided with a vertically elongated slot 30 which loosely receives the shank 23 of the bolt.

The pairs of registering channels 19 and 28, and 20 and 29, are of various diameters in order to accommodate various sizes of valve stems, one of which has been indicated at 31 in Figure 1, as secured in the device in operative position with respect to the abrasive wheel.

This valve stem 31 is provided with the customary valve stem and foot 32 which is adapted to be contacted by the cam of the cam shaft of an internal combustion engine or the like, in order to raise or lift the valve from its seat

against the action of its opposing spring. When valves are reconditioned for replacement in their seats, it is frequently found that the foot **32** is not given the desired clearance with the base circle of the operating cam of the valve mechanism, and accordingly, it is necessary to grind the end of the foot **32** until the desired clearance is again provided. In operating this device, the jaw **26** is swung to its open position as shown in Figure 3 by loosening the clamping screw **23**, and the valve stem **31** placed in the appropriate valve stem retaining bore in the jaws. The clamp is then tightened and the valve is thus held in proper position against the abrasive wheel **11** as the latter is rotated by the grinder **10**.

The various sizes of bores in the jaws of the fixture will accommodate different sizes of valve stems rendering the device readily applicable to various types of valves.

Occasionally, it becomes necessary to redress the wear surface of the abrasive wheel **11**, in order to remove unequally worn spots therefrom, and provide a true surface for correctly grinding the foot of a valve stem. For this purpose, the grinder dressing tool indicated in Figures 4 and 5 is provided. This tool consists of a reduced shank portion **33**, which at one end is provided with a finger-grip knob or wheel **34** for rotating the shank, and at the other end is provided with a crank arm **35** through which is screw-threadedly adjusted a diamond tool **36** having a knurled or other finger-grip portion **37** at one end and a diamond tool dressing point **38** at the other. The ends of the reduced shank **33** are appropriately spaced to engage the outer surfaces of the fixed and movable jaws of the fixture for preventing longitudinal displacement of the diamond tool **36** but to permit rotation of the shank **33** within the appropriate complementary bores of the jaws of the fixture whereby the dressing point **38** may be moved in an accurate path across the abrasive surface of the wheel **11**. As will readily be seen, proper adjustment of the diamond tool may be effected by rotating the same by means of the finger-grip portion **37**, to thus advance or retract the point from the face of the wheel **11**.

When employing either the dressing tool or the valve stem grinding features of the invention, it will be seen that the article contacting

the face of the abrasive wheel **11** will at all times be held at the proper angle with respect thereto, and in a firm and rigid position. Further, the article so contacting the abrasive wheel may be readily inserted in or removed from the fixture with a minimum of effort.

From the foregoing, the manner of operating and utilizing the device will be readily understood and accordingly, further explanation is believed to be unnecessary. Since numerous changes and modifications will readily occur to those skilled in the art after a consideration of the foregoing drawings and specification, it is not desired to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to falling within the scope of the appended claim.

I claim:

A supporting fixture adapted for use in conjunction with an abrasive wheel grinder including a pair of vertically extending abutting standards of unequal length secured together in face to face contact, outwardly flanged feet for said standards to act as a supporting base, an extension pivotally connected with the upper end of the shorter standard adapted to form with the extending portion of the longer standard pivoted and rigid clamping jaws, complementary different sized channels formed on the adjacent faces of said jaws, and a clamping bolt extending through an oversized opening in the extension and threadedly engaged with extending portion of the longer standard.

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