March 21, 1950 C. E. MURPHEY 2,501,000

VALVE GRINDING TOOL

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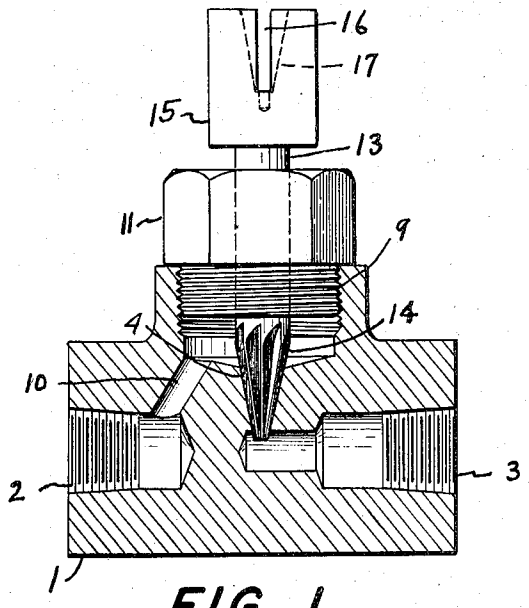


FIG. 1

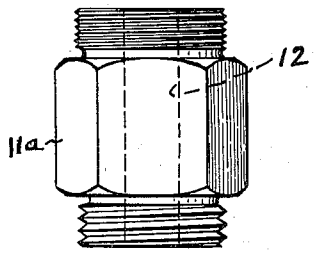


FIG. 3

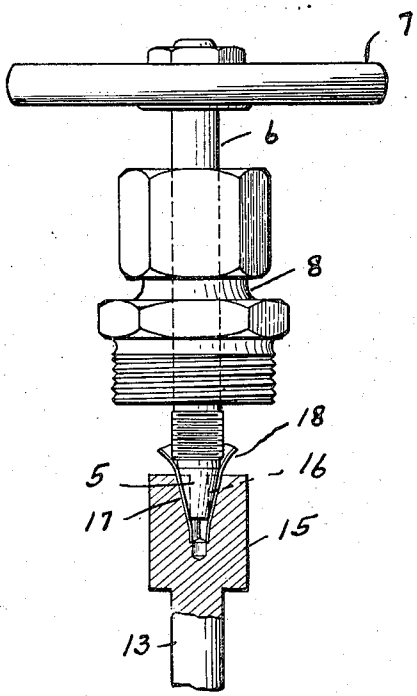


FIG. 2

INVENTOR.
Conrad E. Murphey

BY

E. V. Hardway,
ATTORNEY

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VALVE GRINDING TOOL

Conrad E. Murphey, Beeville, Tex., assignor to Leonard A. Parks, Harris County, Tex.

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6 Claims. (Cl. 51—181)

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This invention relates to a valve grinding tool.

An object of the invention is to provide a tool of the character described for grinding and reconditioning the valve seat as well as the valve in case of wear of said parts which causes leakage.

It is another object of the present invention to provide a tool of the character described whereby the valve assembly may be reconditioned without removal from the conducting line.

As is well known fluid conducting valves become worn, due to abrasive substances in the fluid flowing through the valve casing, so as to cause leakage and it is an object of the present invention to provide a tool whereby the valve seat may be reamed out and smoothed and the valve ground to conform to said seat to prevent such leakage.

It is another object of the invention to provide a tool of the character described that may be readily adapted to valve casings with threads of different pitch.

Other objects and advantages will be apparent from the following specification which is illustrated by the accompanying drawings, wherein—

Figure 1 is a sectional view of a valve casing showing the tool applied to the seat to grind said seat to a uniform contour.

Figure 2 is a fragmentary, sectional view of the tool showing a tapering valve being reconditioned or reground, therewith, and

Figure 3 is an elevational view of a preferred embodiment of the guide block.

Referring now more particularly to the drawings wherein like numerals of reference designate the same parts in each of the figures, the numeral 1 designates a valve casing having end connections 2, 3 for the connection of adjacent sections of a flow line thereto. This valve casing is provided with a tapered seat 4.

The numeral 5 designates a tapering valve formed integrally with which there is a valve stem 6 whose outer end is provided with a suitable grip member, as 7, for turning the valve to open or close the seat.

This valve stem extends through a suitable stuffing box 8 whose inner end is threaded and screwed into the internal threads 9 of the valve casing when the valve is assembled.

Adjacent the valve 5 the stem 6 is externally threaded and upon assembly the valve stem 6 is screwed into the stuffing box 8 and said stuffing

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box is then screwed into the threads 9 of the casing 1, as stated, so that by turning the hand wheel 7 the valve 5 may be screwed into the seat 4 to close the valve or the wheel 7 may be turned to withdraw the valve 5 from the seat to open the valve.

When the valve is open the fluid will flow inwardly through the connection 2 and through the duct 10 and thence through the valve seat and out through the connection 3.

The valve grinding tool comprises a guide block 11 having an axial bore 12 therethrough through which the stem 13 fits snugly. One end of the guide block is externally threaded so that when the stuffing box 8 and valve 5 are removed said guide block may be screwed into the threads 9, as shown in Figure 1.

One end of the stem 13 is tapered to conform to the taper of the seat 4 and is provided with suitable reaming teeth 14 so that when the tool is applied to the valve casing the reaming portion 14 will fit into the valve seat nicely and the stem 13 may then be turned to ream out the seat 4 so that it will be uniform and so that the valve 5 will fit snugly therein when closed.

The other end of the stem 13 is formed with an enlarged head 15 which is preferably square in cross-section and this head has a transverse slot 16 therethrough to receive a suitable implement forming a handle by means of which the stem 13 and reamer 14 may be turned.

Valve casings some times have different types of threads to receive the stuffing box 8 and for that reason the guide block 11*a* is provided with threads of different pitch at opposite ends so that it may be accommodated to different types of valve casing.

The head 15 has a tapering outer end socket 17 which conforms in taper to the taper of the seat 4 and of the valve 5.

It may be that the valve 5 will need reconditioning, or grinding, to closely fit the seat and in such case the valve may be inserted into the socket 17 and surrounded by an abrasive 18, such as sand paper, and the valve then turned until it has been smoothed so that it will nicely fit the valve seat 4 when the valve is again assembled. In applying the sand paper two small sheets of this paper are placed, in coinciding relation, in

the transverse slot 16 and the valve 5 then inserted between them as shown in Figure 2.

Upon completion of the reconditioning of the seat and valve stem 6 may be again threaded into the stuffing box 8 and said stuffing box then screwed into the threads 9 of the valve casing 1 and the valve assembly will be again in condition for operation.

The drawings and description are illustrative merely while the broad principle of the invention will be defined by the appended claims.

What I claim is:

1. A grinding tool comprising, a guide block having an axial bore and a threaded end, a stem extended through the bore and one end of which is tapered and formed with an abrasive surface and whose other end is enlarged and longitudinally slotted.

2. A valve grinding tool comprising, a guide block having an axial bore and a threaded end, a stem extended through the bore and one end of which is tapered and formed with an abrasive surface and whose other end is formed with a transverse slot extending longitudinally of the stem.

3. A valve grinding tool comprising, a guide block having an axial bore and a threaded end, a stem adapted to extend through the bore and one end of which is enlarged and formed with an inside tapered seat and a transverse slot through said seat.

4. A valve grinding tool comprising, a guide block having an axial bore and a threaded end, a stem adapted to extend through the bore and one end of which is enlarged and formed with an inside tapered seat and a transverse slot through said seat.

5. A grinding tool comprising a cylindrical shaped stem one end of which is tapered and formed with an abrasive surface and whose other end is enlarged and provided with a longitudinal slot extending from said other end.

6. A grinding tool comprising a cylindrical shaped stem one end of which is enlarged and formed with an inside tapered seat and a transverse slot through said seat.

CONRAD E. MURPHEY.

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