J. J. RISCHARD.

VALVE GRINDING TOOL.

APPLICATION FILED NOV. 11, 1919.

1,377,440. Patented May 10, 1921.

FIG. 1.

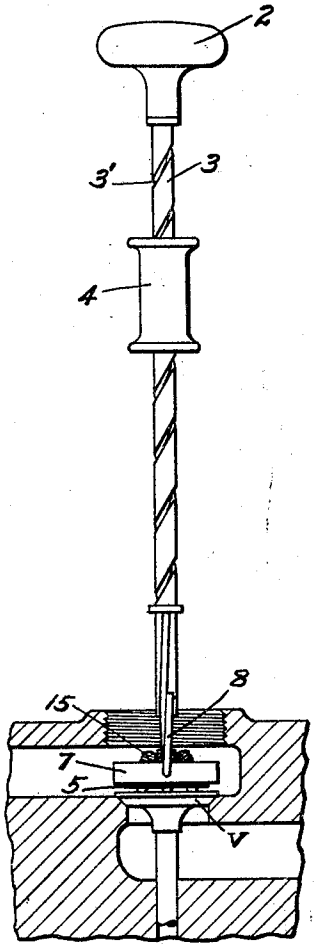


FIG. 2.

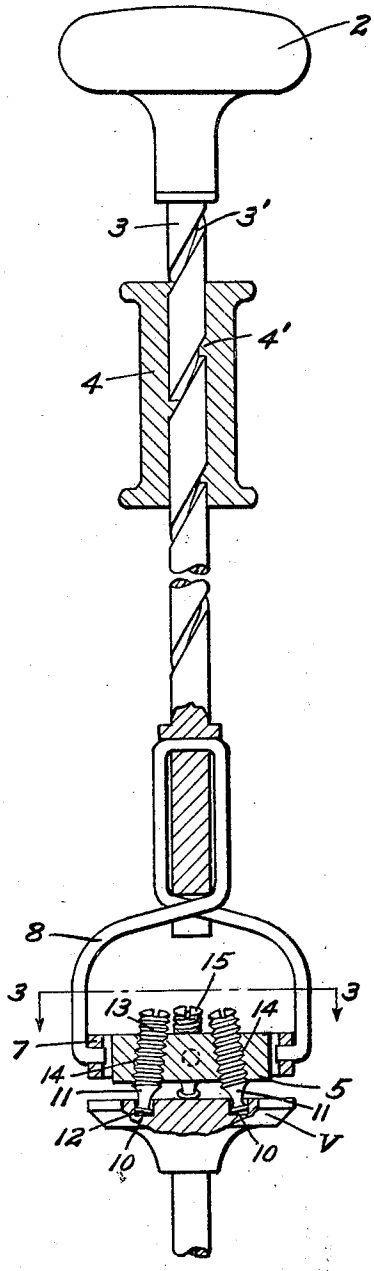
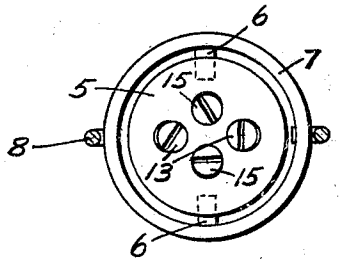


FIG. 3.



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UNITED STATES PATENT OFFICE.

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VALVE-GRINDING TOOL.

1,377,440. Specification of Letters Patent. Patented May 10, 1921.

Application filed November 11, 1919. Serial No. 337,326.

To all whom it may concern:

Be it known that I, JOSEPH J. RISCHARD, a citizen of the United States, residing at Pasadena, in the county of Los Angeles and State of California, have invented new and useful Improvements in Valve-Grinding Tools, of which the following is a specification.

This invention relates to mechanics' hand tools and particularly to valve grinders and has for its object to provide a valve grinder having means to be interlocked with the sockets usually provided in the head of the valve and having a stem connected to said means and capable of angular movement relative to the valve that is engaged and to be oscillated on its seat so as to facilitate the grinding of valves that are so located as to be difficult of access; and the invention consists of the construction, an embodiment of which is illustrated in the accompanying drawing and described and claimed herein.

Figure 1 is a side elevation of the improved tool showing it as applied.

Fig. 2 is a side elevation in a plane at right angles to Fig. 1 showing certain of the parts in section.

Fig. 3 is a sectional view on line 3—3 of Fig. 2.

The present invention comprises a handle or knob form 2 in which is rotatably supported a stem 3 here shown as having a sliding sleeve 4, the stem and the sleeve being so constructed that upon relative movement longitudinally the stem will be rotated, and such parts are here shown as respectively provided with a spiral groove 3′ to be engaged by a complementary spiral thread 4′ in the sleeve or reciprocating member 4.

Mounted by suitable connections upon the lower end of the stem 3 is a block or member 5 here shown in the form of a disk having diametrically opposite pivots 6—6 which engage in a ring 7 so that the block or disk 5 can oscillate on its fulcrums 6 in the ring, the latter being pivotally connected to the device 8 mounted or formed upon the lower end of the stem 3 and which connects the member 5 to the stem. This form of double pivot connection, commonly known as a "gimbal" bearing permits of the rotation of the stem 3 when it is disposed in an angular relation with respect to the axis of the disk or block 5.

A further feature of the invention comprises means projecting below the bottom face of the block or member 5 and adapted to engage or interlock with the valve head V, such valve heads usually being provided with spanner wrench sockets 10 so that when such a wrench is inserted the valve head V can be oscillated to grind it to its seat in the usually well-known manner.

It is desirable to provide for a substantial interlocking of the member 5 to the valve head, and the interlocking means I prefer to form as projecting pins or dogs 11 which may have a reduced neck and provided with a biting edge or flange 12, these flanges adapted to firmly frictionally engage the surface of the walls of the sockets 10 when the pins or dogs 11 are advanced or adjusted downwardly from the face of the member 5. To accomplish substantial frictional interlock the dogs 11 are shown as provided with threaded body portions 13 to take into complementary threaded holes 14 that are obliquely disposed with relation to the vertical axis of the member 5 the lower ends of the dogs diverging so that as they are screwed downwardly the biting ends 12 will relatively separate and thus firmly impinge upon the walls of the sockets in which they are inserted. It will be seen that this method of mounting the adjustable dogs provides for their adaptation and ready adjustment for tight binding engagement with and upon valve heads of different sizes and in which the sockets 12 may be differently spaced.

Since the biting dogs 11 are arranged substantially on a diametrical line in the member 5 as shown in Figs. 2 and 3, it is desirable to steady the carrying member 5 after the dogs have been interengaged with the valve head and to that end I provide a suitable abutting device shown as comprising a pair of set or abutment screws 15 arranged in a diameter of the block 5 at right angles to the diameter in which the screw holes 14 are arranged. From this it will be seen that tipping of the block with respect to the valve head V on the points of the flanges 12 will be eliminated and the valve head securely locked with relation to the block 5.

The operation of the device is that when the handle 2 is held in one hand and the sleeve 4 reciprocated thereon after the proper connection has been made of the

block 5 with the valve head V, then the stem 3 will be oscillated alternately in reverse directions with the to and fro movement of the driving sleeve 4 and the valve ground as usual to its seat in the engine head or other location, as the case may be.

The advantage of the pivotal connection between the dog carrying member and the operating shaft or stem 3 is that the latter can be held at an angle with respect to the axis of the valve head and the latter still efficiently oscillated.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. A valve grinder comprising a stem or handle connected for relative rotation and means for rotating the stem, a valve head engaging member, and a flexible connection between said member and the stem to permit the stem to be held and manipulated at an angle with respect to the axis of the valve engaged by said member, the said member having obliquely disposed dogs adjustable in the sockets of the valve head.

2. A valve grinder comprising a member having a pair of dogs with tips adapted to enter the sockets of a valve head, said dogs divergently and adjustably arranged in said member, an actuating stem for the member, and a gimbal connection between said member and stem.

3. A valve grinder comprising a member having a pair of dogs with tips adapted to enter the sockets of a valve head, said dogs divergently and adjustably arranged in said member, an actuating stem for the member, and stop screws for steadying said member when it is attached by the dogs to the valve head.

4. A valve grinder comprising a handle, a stem attached thereto, a block pivotally attached to the handle, and divergent dogs threaded in the block and adapted to interlock with the socket walls of a valve head.

5. A valve grinder comprising a handle, a stem attached thereto, a block pivotally attached to the handle, divergent dogs threaded in the block and adapted to interlock with the socket walls of a valve head, and abutment screws in the block to steady the applied member.

In testimony whereof I have signed my name to this specification.

JOSEPH J. RISCHARD.