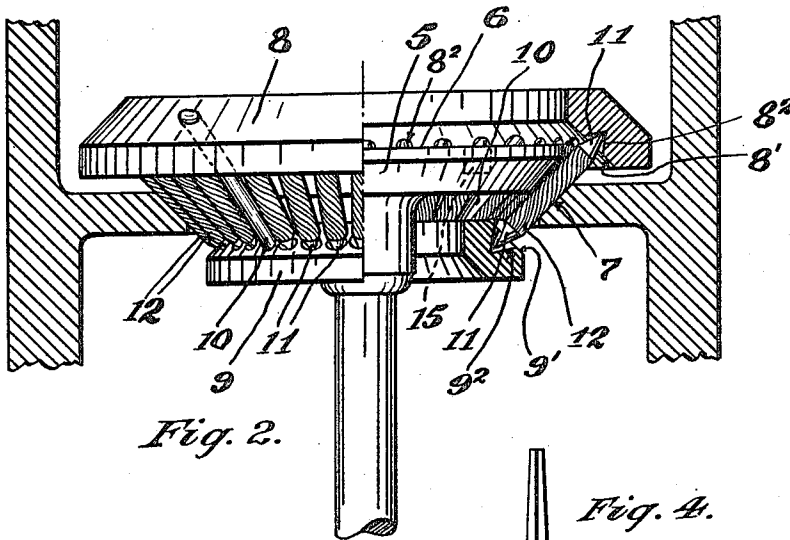
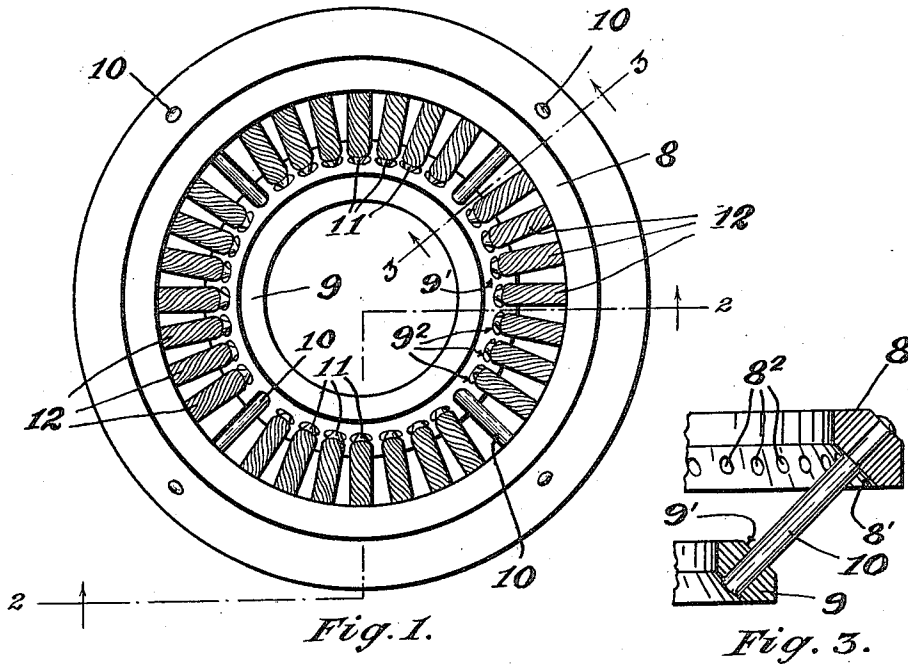


J. L. BRADFIELD.
VALVE DRESSING TOOL.
APPLICATION FILED OCT. 9, 1916.

1,235,959.

Patented Aug. 7, 1917.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH L. BRADFIELD, OF SEATTLE, WASHINGTON, ASSIGNOR OF ONE-FOURTH TO
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VALVE-DRESSING TOOL.

1,235,959.

Specification of Letters Patent.

Patented Aug. 7, 1917.

Application filed October 9, 1916. Serial No. 124,555.

To all whom it may concern:

Be it known that I, JOSEPH L. BRADFIELD, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Valve-Dressing Tools, of which the following is a specification.

The object of this invention is to provide a conveniently operated and efficient device for simultaneously dressing the opposing faces of a valve and its seat.

The invention consists in the novel construction, adaptation and combination of elements in a valve-dressing device, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a device embodying the present invention.

Fig. 2 is a view partly in elevation and partly in section through 2—2 of Fig. 1 and shown applied to a valve and its seat.

Fig. 3 is a detail sectional view through 3—3 of Fig. 1 with the rotary abrading elements omitted.

Fig. 4 is a side elevational view of a drill-stock attachment for use in rotating the valve which is shown in transverse vertical section.

In carrying out my invention, I employ a plurality of rotary abrading elements which are revolvably carried by a frame between the face 5 (Fig. 2) of a valve 6 and the valve-seat 7. The referred-to frame, as illustrated, consists of two concentrically arranged annular members 8 and 9 rigidly coupled in spaced relation by posts 10. Between the latter and in the opposing faces 8¹ and 9¹ of the respective members are provided sockets 8² and 9² to receive the conical extremities 11 of a series of cylindrical rotary elements 12. These elements are of hardened steel or other suitable material.

The periphery of the cylindrical portion of each of said rotary elements is roughened, knurled or otherwise formed to furnish an abrading surface.

The diameter of the rotary elements is somewhat greater than that of the frame posts 10, and the tapered extremities of said elements fit loosely within the various sockets therefor.

For operation, the device is first positioned to have the elements 12 bear upon the valve seat 7 and the valve 6 is then placed upon

the elements 12, as clearly shown in Fig. 2. Being thus disposed, the valve, while being pressed down upon said elements, is rotated to impart rotary motion to the latter and cause them to travel in an orbital course on the valve seat.

In thus revolving, the speeds of the elements will be less than that of the outer portion of the face of the valve but greater than the inner portion of such face; consequently the abrasive surfaces of the elements will effect the dressing of the surfaces of both the valve and its seat by removing therefrom any superfluous material.

The valve may be rotated in any suitable manner as, for example, by means of a bifurcated attachment such as 14, Fig. 4, which is operated in an ordinary hand-drill stock, not shown, and having the prongs 14¹ of the attachment engage in holes such as 15 which are usually provided in valves of internal combustion engines.

Among the advantages of the invention is the elimination of the use of corundum, emery or other gritty substance which have been utilized in valve-grinding and are very injurious to the cylinders of engines, etc.

Another advantage is in the provision of a tool or other device which is self-centering, and may be effectively used by people with little mechanical skill to produce a perfectly fitting seat.

What I claim, is—

1. A device of the character described, comprising a supporting frame having two spaced annular members, and a plurality of abrading elements journaled in said frame members to enable said elements to rotate when they are caused to revolvably travel on and subjected to a pressure against a surface to be dressed.

2. A device of the character described, consisting of a frame comprising two annular members and posts rigidly coupling said members in spaced relation, and a plurality of substantially cylindrical elements having peripheral abrading surfaces rotatably mounted in said frame between the members thereof and concentric to the axis of the frame.

3. In a device of the character described, the combination of a plurality of elements having peripheral abrading surfaces adapted to be interposed between a valve and its seat, and a frame revolvably carrying said ele-

ments when the latter are rotated through the instrumentality of the valve to simultaneously dress the opposing faces of the valve and its seat.

- 5 4. In a device of the character described, a rigid frame having two annular members arranged in spaced relations with each other, series of recesses provided in the opposing faces of said frame members, and a plu-
10 rality of elements having peripheral abrading surfaces, said elements being provided with conical ends extending into the respective recesses of the frame members for rotatably connecting said elements to the
15 frame.

5. A device of the class described, comprising a hollow circular frame provided with circumferential openings and a plurality of rotatable abrading elements journaled
20 in the respective frame openings, said elements being arranged to bear against the

faces of a valve and its seat whereby the rotation of the valve will cause the rotation of the elements to revolutely carry the same about the axis of the valve to simultaneously
25 effect the abrading of the aforesaid faces.

6. In a device of the class described, a frame provided with spaced sockets, and a plurality of substantially cylindrical elements provided with peripheral abrading
30 surfaces, said elements being journaled in said sockets and arranged to be interposed between a valve and its seat for simultaneously dressing the faces of both the seat and the valve when the device is rotated through
35 the instrumentality of the latter.

Signed at Seattle, Washington, this 25th day of September 1916.

JOSEPH L. BRADFELD.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."