

July 29, 1924.

1,503,055

J. J. MCGUCKIN

VALVE SEAT REAMER

Filed Nov. 26, 1921

Fig. 1

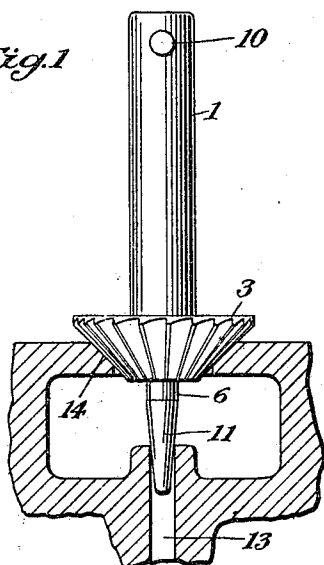


Fig. 2

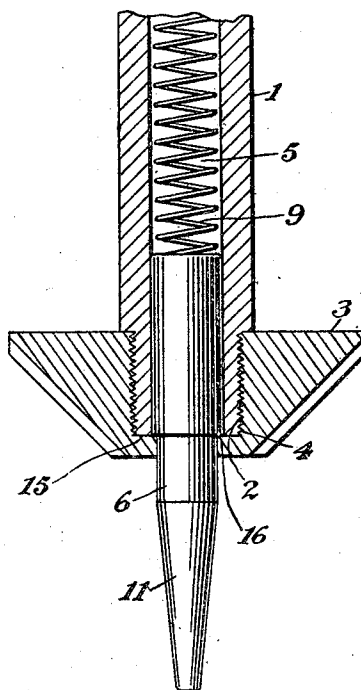
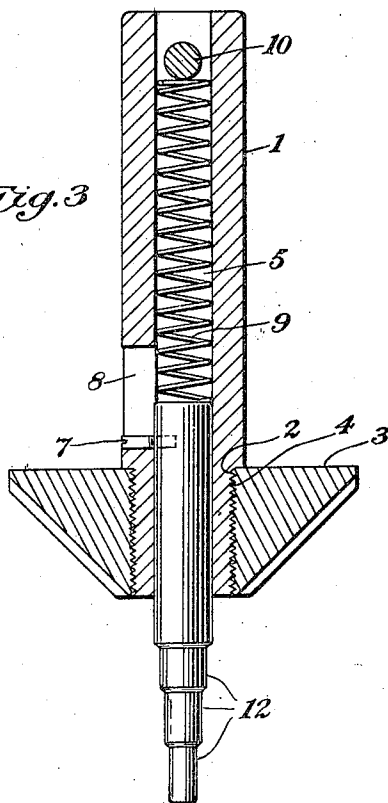


Fig. 3



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VALVE-SEAT REAMER.

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To all whom it may concern:

Be it known that I, JOHN J. MCGUCKIN, a citizen of the United States, residing at Brooklyn, Kings County, New York, have
5 invented certain new and useful Improvements in Valve-Seat Reamers, of which the following is a specification.

My invention relates to that class of reamers which are intended to ream out the
10 valve-seats of internal combustion engines, for instance of automobile engines. And my improvements are directed to means whereby a single reamer is adapted to operate upon valve-seats of different sizes, so that
15 the work which it has heretofore required a number of reamers to perform, may be accomplished by the use of a single tool.

In the drawings, Fig. 1 is an elevation of my improved tool, showing it in an operative position in a port section of an internal
20 combustion engine; Fig. 2 is a vertical sectional view of the same tool on a larger scale, the top of the tool being broken away; and Fig. 3 is a vertical sectional view of a
25 modification.

In all the figures similar parts are designated by similar reference numerals.

The shank of the body 1 if the tool is
30 preferably cylindrical in form, and is provided with suitable means, for instance a screw thread 2, whereby it may be detachably screwed to a cutter head 3, which is provided with a complementary screw
35 thread 4.

The shank 1 is also provided with a centrally disposed bore 5, in which slides a pilot
6, the movement of which is limited by suitable means, as, for instance, a shoulder 15
40 adapted to be arrested by a shoulder 16 in the cutter head; or a pin 7 sliding in a slot 8 in the shank 1; and the pilot being kept to duty by a coiled spring 9, housed in the bore 5 above the pilot.

The shank 1 is provided with suitable
45 means by which it may be grasped for the purpose of rotation, as for instance with a transverse hole through which a suitable rod 10 may be applied. This rod holds down the spring 9.

50 The lower end of the pilot 6 is, preferably, tapered as at 11; although for the taper a series of steps 12—12 may be substituted, as shown in the modification of Fig. 3. The

taper, or series of steps, is intended to co-
operate with the valve-stem bore 13 in the
55 engine casing, so that in the smaller makes of engine, the smaller portion, only, of the pilot will enter the valve-stem bore, while in the larger makes of engine the larger
60 portion of the pilot will be seated in the valve-stem bore.

The cutter head 3 is made of sufficient thickness to permit it to operate successfully on valve-seats of several different sizes, the
65 smaller valve-seat being reamed by a smaller portion of the cutter head, and the cutter head passing further and further into the seats as their sizes increase.

It will be seen, therefore, that when my improved tool is placed into an engine, as
70 shown in Fig. 1, its pilot end 11 will seat itself in the valve-stem bore 13, while the cutter head 3 will accommodate itself to the valve-seat 14, the spring 5 allowing the
75 pilot 6 to be pushed up into the shank of the tool against the tension of the spring 9, so that both the pilot and the cutter head may accommodate themselves to their
80 respective complementary bearings; the spring 9 also allowing the pilot to slide still further up in the handle, as the head 3 cuts down into the valve-seat.

By these means, it will be seen, that my improved tool will accommodate itself to
85 valve-seats and valve-stem bores of different diameters and of different relative, vertical, distances, so that the single tool may be utilized for reaming out the valve-seats of
engines of different sizes.

I desire to point out also that details in
90 construction of my device may be modified, as by the substitution of mechanical equivalents, without departing from the spirit and scope of my invention as claimed.

Having thus described my invention, what
95 I claim and desire to secure by Letters Patent of the United States, is:—

1. In a valve-seat reamer, the combination of a shank, a cutter, an adjustable pilot
100 housed within the cutter, and means for yieldably projecting the pilot.

2. In a valve-seat reamer, the combination in a unitary structure of a shank, a rigid
105 cutter head adapted to operatively engage with any of a plurality of valve-seats of different diameters, and an adjustable pilot

adapted to operatively seat itself in any of a plurality of valve stem bores of different diameters corresponding respectively with the different valve-seats.

5 3. In a valve-seat reamer, a unitary structure embodying a rigid element adapted to ream out any of a plurality of valve-seats

of different diameters, means for revolving such element, and centering means, adapted to cooperate with any of a plurality of 10 valve stem bores of different diameters corresponding respectively with the different valve-seats.

JOHN J. MCGUCKIN.