J. F. KYTLICA.

TOOL.

APPLICATION FILED JAN. 31, 1918.

1,274,425. Patented Aug. 6, 1918.

Fig. 1.

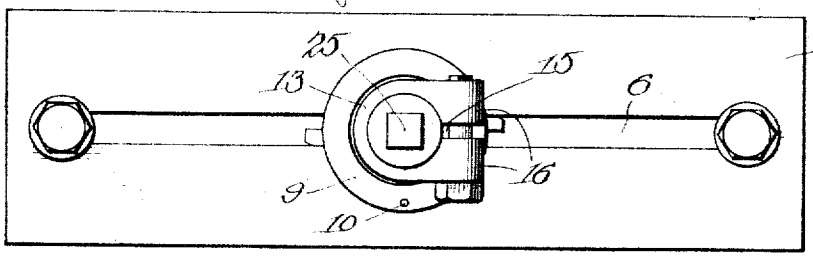


Fig. 2.

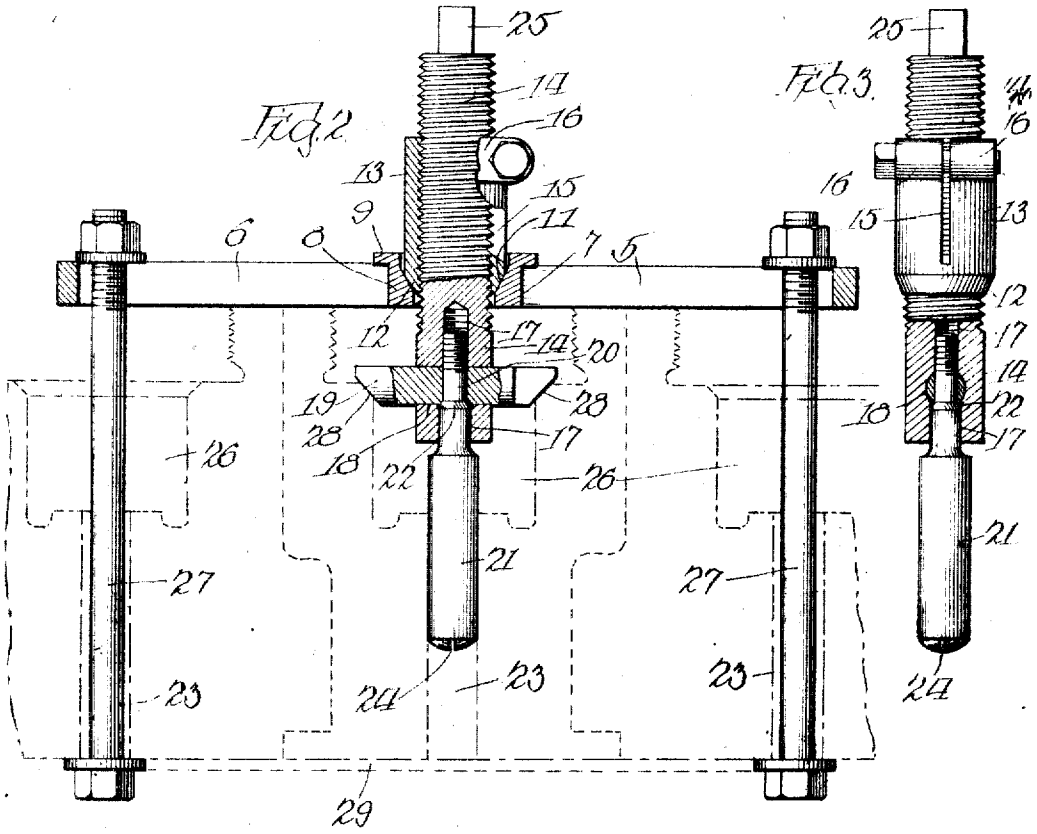
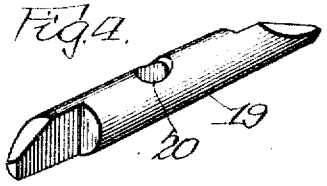


Fig. 3.

Fig. 4.



WITNESS

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TOOL.

1,274,425. Specification of Letters Patent. Patented Aug. 6, 1918.

Application filed January 31, 1918. Serial No. 214,582.

To all whom it may concern:

Be it known that I, JOHN F. KYTLICA, a citizen of the United States, residing in the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Tools, of which the following is a specification.

This invention relates to improvements in a tool to be used for re-cutting valve-seats, and it consists in certain peculiarities of the construction, novel arrangement and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention, is, to provide a tool for re-cutting valve-seats in an absolutely accurate and true manner, which shall be extremely simple and inexpensive in construction, easily operated by a drill-press, brace drill or otherwise, and which is especially adapted for recutting the valve seats located in the heads of engines, but which is by no means limited in its operation to the location of said seats.

Another object of the invention is to provide a tool of the above named general character, the parts of which can be adjusted and fitted with respect to one another, and with respect to the machine or part in which the valve seat is located, so as to quickly re-cut the seat to the desired degree, to the end, that the valve will be seated therein in a positive, true and accurate way.

A further object is to provide a re-cutting tool for valve seats in which inter-changeable parts may be used, thus rendering it applicable for use on valve seats of different sizes, as well as, where valve stems of different sizes are employed. Various other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In the accompanying drawing, which serves to illustrate the invention:

Figure 1, is a plan view of the tool, showing it mounted on its supporting plate;

Fig. 2, is a view partly in section and partly in elevation, showing by dotted lines, a cross-sectional view of an engine and one of its valve chambers with the tool in full lines mounted transversely thereon, and by dot and dash lines, a longitudinal view of an engine, and three of its valve chambers with the tool in full lines mounted longitudinally thereon;

Fig. 3, is a detached view partly in section and partly in elevation of the tool with its supporting bar or plate and its adjusting collar omitted, and

Fig. 4, is a detached inverted perspective view of the bit or cutting tool of the device.

Corresponding numerals of reference refer to like parts throughout the different views of the drawing.

Referring now to Figs. 1 and 2 of the drawing, the numeral 5, designates the supporting bar or plate of the tool, which is provided with a longitudinal slot 6, which extends from near one end thereof to near its other end and has between its ends an enlarged opening 7, in which is located an adjusting collar 8, which has an annular flange 9 on its upper portion to rest on the upper surface of the supporting bar. The flange 9 has a depending pin 10 to fit in a suitable opening in the supporting bar to prevent the collar turning thereon. As shown in Fig. 2, the collar 8 has a downwardly tapered opening 11 therethrough to guide and center the downwardly tapered end 12 of an internally screw-threaded sleeve 13, which is adjustably mounted on an externally screw-threaded bit or cutting-tool carrier 14, of any suitable size and length. The sleeve 13 is provided with a longitudinal slot 15, and has on each side of said slot an orificed lug 16, which lugs are united by a screw bolt 17, used to tighten the sleeve on the member 14, if desired. The lower end of the bit carrier 14, is provided with a vertical opening 17, which is preferably enlarged at its lower portion and without threads, and slightly contracted in its upper portion and internally screw-threaded. Intersecting the opening 17, is a transverse opening 18 for the reception of the bit or cutting tool 19, which is provided at its middle with an opening 20, for the reception of a rod 21 used for securing the bit 19 in place, as well as, for assisting in centering the tool in the valve chamber. The upper portion of the rod 21 is screw-threaded to engage the screw-threaded portion of the opening 17, and below its screw-threads the rod 21 is provided with a beveled shoulder 22 to engage the flared lower end of the opening 20 in the bit, which may be of the ordinary or any well-known construction. As shown in Fig. 2 of the drawing, the lower portion of the rod 21 is located in the vertical opening 23, for the valve stem, which of course must be removed

when the tool is being used. In order to securely hold the bit in place or to remove the same, it is obvious that the rod must be tightened or removed, and to permit this, the lower end of said rod is provided with means to turn the same, such as a groove 24 for a screw-driver, which can be inserted in the lower end of the opening 23 as is obvious. The upper end of the carrier or member 14, is provided with an angular extension 25 to which power may be applied for turning the tool, for instance, by means of a drill press or brace drill. When there are a number of valve chambers 26, located in a row, as shown in Fig. 2, the supporting bar 5, can be placed longitudinally above the same on the engine and firmly held in place by means of bolts 27 located in two of the openings 23 for the valve stems, and so that the tool can be adjusted and properly located to re-cut the valve seat 28 of the intervening valve chamber or if desired, the bar can be placed transversely on the engine (shown by dotted lines in Fig. 2) and secured thereon by the bolts 27 engaging a bar 29 located transversely below the valve chamber being operated on or re-cut by the tool.

When the parts are mounted in either of the above mentioned ways, it is apparent that by applying rotary motion to the carrier 14, all of the parts, except the collar 8, will be caused to rotate, in which operation the bit 19 will cut the valve seat 28 away to the desired extent and in a most rapid, accurate and satisfactory manner. It is further manifest that the sleeve 13 can be adjusted with great nicety on the carrier 14, so as to regulate the cutting action of the bit 19 as desired, and that the tapered opening in the collar 8 and the rod 21 will properly center the tool and maintain it in such position. Different sizes of rods 21 and bits 19 can be used for different sized valve seats and openings for the valve stems as is obvious.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a tool of the class described, the combination with a slotted supporting bar having means to fix it across a valve chamber, of a collar located on said bar, a bit carrier located for rotation in said collar and adapted to extend into the valve chamber, a bit transversely mounted on said carrier, and means to center and adjust the carrier with respect to the collar and valve seat, said means including a rod detachably connected to the inner end of the bit carrier and extended therefrom in axial alinement therewith and adapted for location in the openings for the valve stems.

2. In a tool of the class described, the combination with a slotted supporting bar having means to fix it across the valve-chamber, of a collar located on said bar and having a downwardly tapered opening, a bit carrier located for rotation in said collar and adapted to extend into the valve chamber, a bit transversely mounted on said carrier, a sleeve adjustably mounted on said carrier and having its lower end downwardly tapered, and a rod detachably located in the lower end of the carrier and extended through the bit.

3. In a tool of the class described, the combination with a slotted supporting bar having means to fix it across the valve-chamber, of a collar located on said bar and having a downwardly tapered opening, a bit carrier located for rotation in the said collar and adapted to extend into the valve-chamber, a bit transversely mounted on said carrier and having a central opening flared at its lower portion, a sleeve adjustably mounted on the carrier and having its lower end downwardly tapered, a rod adjustably mounted in the lower end of the carrier and extended through the opening in the bit and having a beveled shoulder to engage the flared portion of the opening of said bit.

4. In a tool of the class described, the combination with a slotted supporting bar having means to fix it across a valve-chamber, of a collar located within said slot and fixed to said bar and having a downwardly tapered opening, a bit carrier located for rotation in said collar and adapted to extend into the valve-chamber, a bit transversely mounted on said carrier, and a rod detachably located in the lower portion of the carrier and extended through an opening in the bit and having means to engage the opening in the valve-chamber for the valve stem.

5. In a tool of the class described, the combination with a supporting bar provided with an opening therethrough and having means to fix it across a valve chamber, of a collar located in said opening and having a downwardly tapered opening, a bit carrier located for rotation in said collar and adapted to extend into the valve chamber, a bit transversely mounted on said carrier, and a rod detachably located in the lower portion of the carrier and engaging the bit and having means to engage the opening in the valve chamber for the valve stem.

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