C. I. SEDLMAYER & J. W. BROOKS.

ADJUSTABLE VALVE RESEATING OR MILLING TOOL.

APPLICATION FILED OCT. 29, 1913.

1,132,396.

Patented Mar. 16, 1915.

2 SHEETS—SHEET 1.

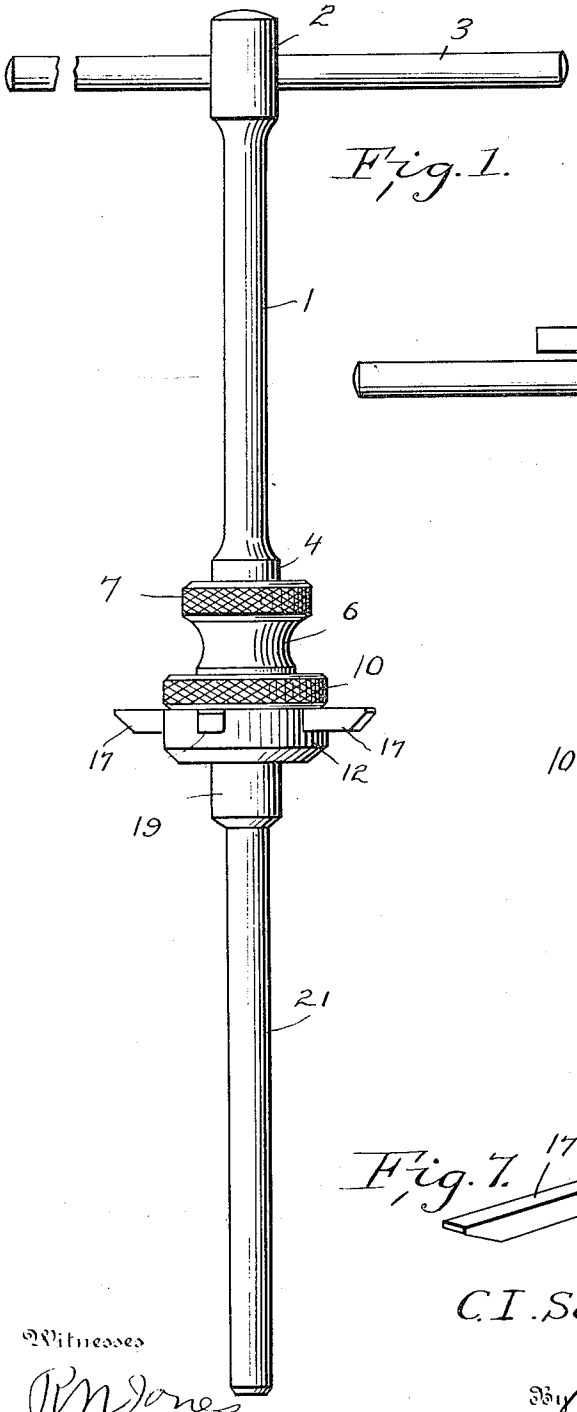


Fig. 1.

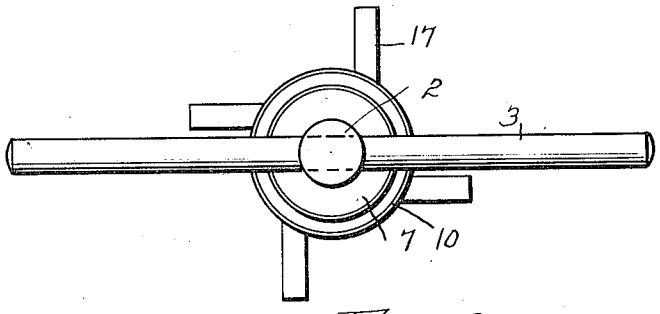


Fig. 2.

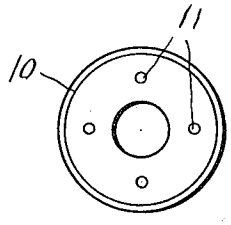


Fig. 8

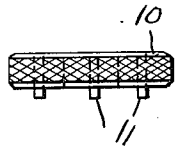


Fig. 9.

Fig. 7.

Witnesses

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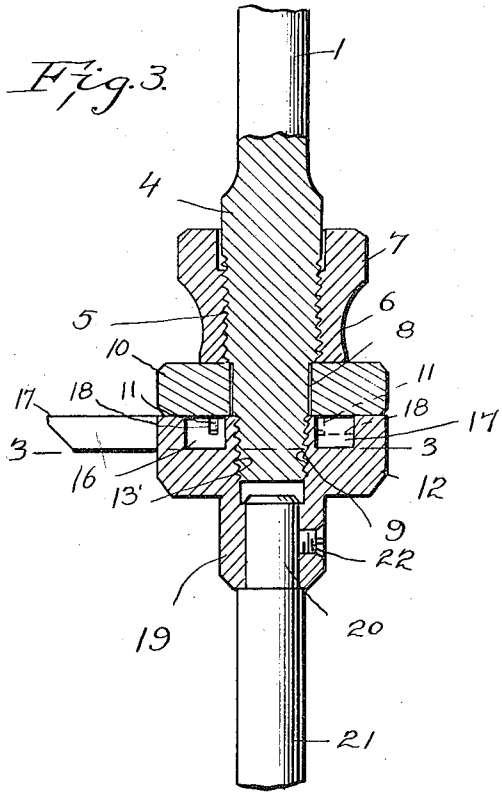
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2 SHEETS—SHEET 2.

Fig. 3.



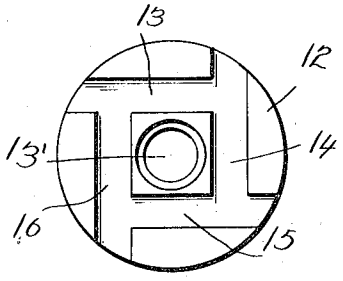


Fig. 5.

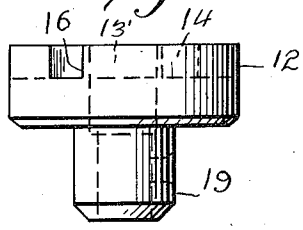


Fig. 6.

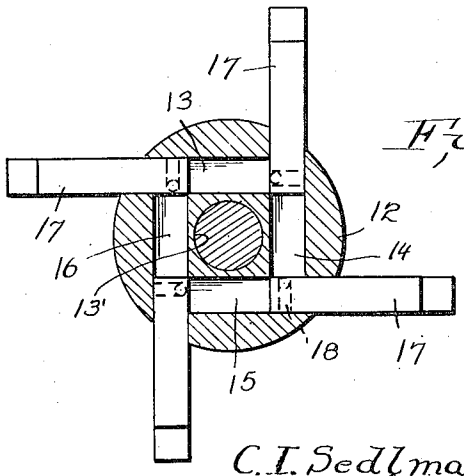


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE VALVE RESEATING OR MILLING TOOL.

1,132,396. Specification of Letters Patent. Patented Mar. 16, 1915.

Application filed October 29, 1913. Serial No. 797,954.

To all whom it may concern:

Be it known that we, CHARLES I. SEDLMAYER and JOHN W. BROOKS, citizens of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Adjustable Valve Reseating or Milling Tools; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to new and useful improvements in adjustable valve reseating or milling tools and resides in the provision of a tool such as above described which will effectually facilitate the removal of carbon accumulation between valves and their seats in internal combustion engines and the like, and true the faces of valve seats.

An important object of the invention is to provide a device such as above described which consists of a plurality of scraping knives or cutters that are novelly secured upon a rotatable bar in a reliable and efficient manner thus insuring a more efficient cutting action.

A still further object is to provide a device such as above described which is simple as to construction and arrangement of parts, may be readily applied to the valve seats for operation and is cheap to manufacture.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

With reference to the drawings, wherein we have illustrated the preferred embodiment of our invention as it is reduced to practice, and throughout the several views of which, similar reference numerals designate corresponding parts: Figure 1 is a side elevation of our device as it would appear in assembled position, Fig. 2 is a top plan view of the device as it would appear in assembled position, Fig. 3 is a vertical sectional view illustrating the cutters or knives and means for holding them in assembled operative position, Fig. 4 is a cross sectional view taken on line 3—3 of Fig. 3, Fig. 5 is a detail plan view of the holder for the cutters or scraping knives, Fig. 6 is a detail side elevation of the holder for the knives, Fig. 7 is a detail perspective view of one of the knives or cutters, Fig. 8 is a bottom plan view of the means for adjusting the cutters in operative position, and Fig. 9 is a side elevation of the knife or cutter adjusting means or washer plate.

Referring to the drawings by reference numerals 1 designates as an entirety a rotatable bar having an enlarged head portion 2 at its upper terminal through which is centrally mounted a transversely extending operating handle 3 that extends at right angles to the bar 1 upon opposite sides.

The bar 1 is enlarged intermediate its terminals and adjacent the lower terminal thereof as at 4. This enlarged portion 4 of the bar 1 is provided with screw threads 5 upon which is mounted a cylindrical internally screw threaded locking sleeve 6 that is provided with a knurled surface 7 which is enlarged with respect to the rest of the sleeve and disposed adjacent the upper terminal of the sleeve so that adjustment of the sleeve may be readily had by engagement of the jaws of a wrench or a pair of pliers with the knurled surface 7.

An annular shoulder 8 is formed on the bar 1 adjacent the lower terminal of the enlarged screw threaded portion 4 thereof. This annular shoulder 8 is slightly reduced with respect to the enlarged portion 4 and terminates in spaced relation to the extreme lower terminal of the bar 1 which is provided with a set of screw threads 9. An annular washer plate 10 having a central opening therethrough is loosely mounted upon the annular shoulder 8 and provided with a plurality of equidistantly spaced and downwardly extending pins 11 that are for a purpose which will be hereinafter disclosed.

The extreme lower terminal of the bar 1 is reduced relative to the shoulder 8 and is adapted to have turned thereon an annular knife or cutter holding plate 12. This plate 12 is provided upon its upper surface with two or four knife or cutter receiving grooves designated 13, 14, 15 and 16 respectively each disposed at right angles to the vertical

axis of the plate in opposed relation to each other. The plate 12 is provided with a central opening 13′ in which the screw threads 9 of the lower terminal of the bar 1 are mounted. The inner terminal of each of the grooves 13, 14, 15 and 16 communicates with the groove that is disposed at right angles thereto as clearly illustrated in Fig. 5 in the drawings, so that the knives or cutters 17, one of which being illustrated in detail in Fig. 7 in the drawings, are in abutting engagement with each other as will be clearly seen with reference to Fig. 4.

The knives or cutters 17 are mounted within the grooves 13, 14, 15 and 16 so that they abut each other as above described and extend radially from the plate 12. The knives 17 are of the same thickness as the depth of the grooves in the plate 12 so that the upper surfaces of the knives are disposed flush with the upper surface of the plate.

Each of the knives or cutters 17 are provided adjacent their inner terminals with a transversely extending groove 18. These grooves 18 are adapted to receive the pins 11 that are carried upon the washer plate 10 for the purpose of locking the knives or cutters in operative position. The washer plate or adjusting means 10 and the knife or cutter holding plate 12 measure the same circumference and when the device is in assembled position the bearing engagement of the plates with each other is equalized.

A cylindrical sleeve 19 is formed integral with plate 12 and is disposed centrally of the underside thereof so that its opening is in registration with the opening 13′ in the plate. Mounted within the cylindrical sleeve 19 is the reduced upper terminal 20 of a centering pin or bar 21. A set screw 22 is mounted within the cylindrical sleeve 19 and adapted for engagement with the reduced portion 20 of the centering pin 21 whereby the pin is firmly held within the sleeve.

In assembling the device the locking sleeve 7 is turned upon the screw threads 5 of the enlarged portion 4 of the bar 1 and the adjusting means or washer 10 is then mounted after the manner described upon the annular shoulder 8. The knives or cutters 17 are mounted after the manner described within the grooves 13, 14, 15 and 16 of the plate 12 so that the transverse grooves 18 in each of the knives or cutters is in a position for engagement with the pins 11 on the washer or adjusting plate 10. The plate 12 is then turned upon the screw threads 9 until the pins 11 are in engagement with the transverse grooves 18 and upon the tightening of the locking sleeve 6 the coöperative clamping action of the plate 12 and washer or adjusting plate 10 with the knives is had. The pins 11, as clearly shown in Fig. 3, snugly fit within the grooves 13, 14, 15 and 16 and insure accurate and simultaneous adjustment of the cutters 17 in the plate 12. The centering pin 21 is mounted after the manner described within the cylindrical sleeve 19 carried by the plate 12 and the device is assembled and ready for operation.

In operation the centering pin 21 is positioned within the valve opening and the handle 3 operated to cause the cutters 17 to scrape the valve seat whereby the carbon accumulations are scraped from the valve seat and a perfect seating of the valve is insured.

It will thus be seen that a simple, effective and reliable tool for the purpose herein described is provided and that the possibility of derangement or breakage of the parts thereof is eliminated owing to the efficient manner in which they are assembled and held in operative position.

In reduction to practice, we have found that the form of our invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of our device will necessarily vary, we desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of our invention, as defined in the appended claims.

What is claimed is:—

1. An adjustable valve reseating or milling tool comprising a rotatable bar, an annular cutter knife receiving plate detachably secured to the lower terminal of said bar, said plate provided with a plurality of cutter knife receiving grooves formed therein at right angles to each other, a plurality of cutting knives mounted within the grooves and extending outwardly from the plate, said cutter knives having transverse grooves formed therein at their inner terminals, means for clamping the knives in operative position, removably mounted upon said rotatable bar and adapted for engagement within the transverse grooves in the cutter knives and means for locking said clamping means in engagement with the cutter knives.

2. An adjustable valve reseating or milling tool comprising a rotatable bar, an annular knife receiving plate detachably secured to the lower terminal of said bar and having a plurality of knife receiving grooves formed therein and disposed at right angles to each other, said grooves communicating with each other at their inner terminals, cutter knives mounted within the grooves and disposed flush with the upper

face of the plate, a washer adjusting plate mounted upon said bar, means carried by said washer adjusting plate for simultaneously locking said knives within the grooves, and a locking sleeve threaded upon said bar and adapted for engagement with the washer adjusting plate, a handle carried at the upper terminal of said bar.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES I. SEDLMAYER.
JOHN W. BROOKS.

Witnesses:
GEORGE R. CLOSE,
MABEL E. HAMILTON.