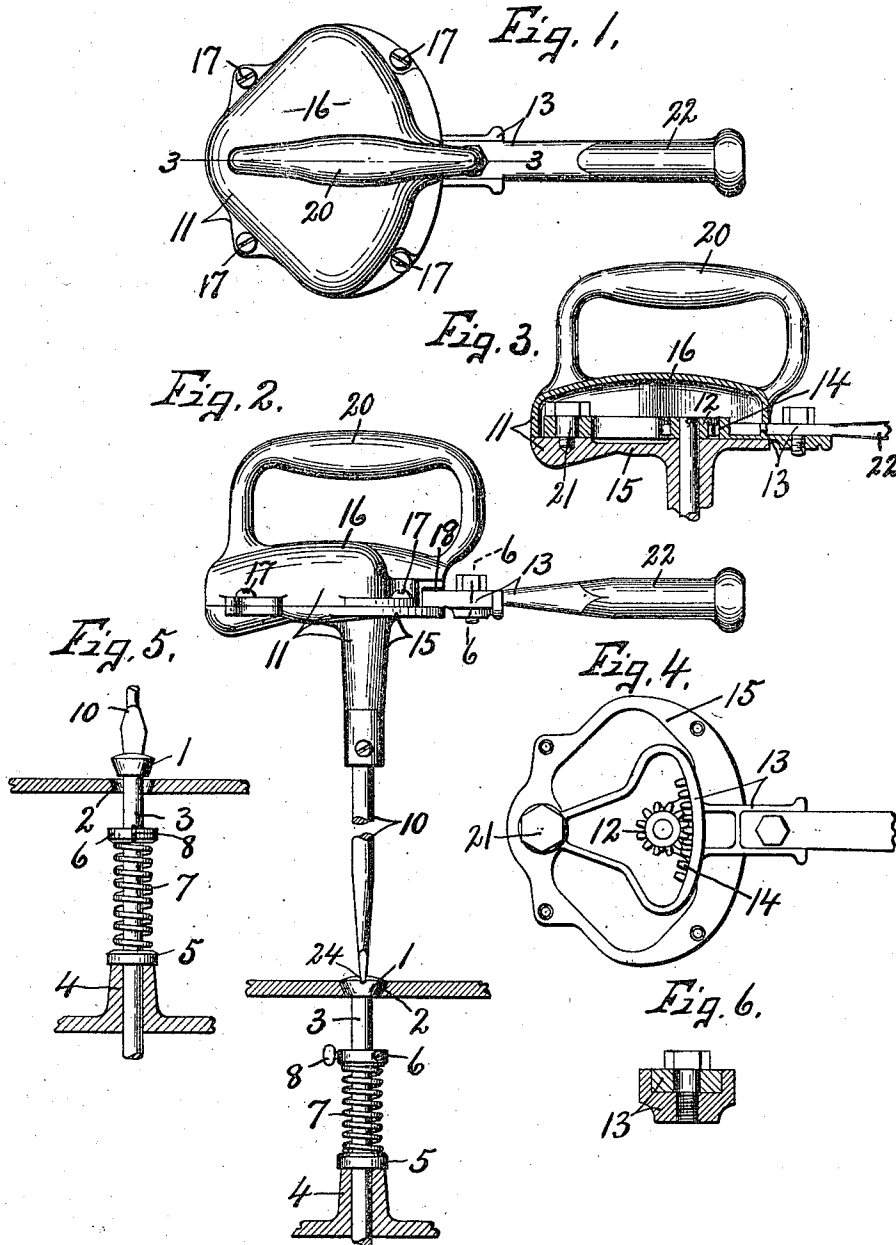


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VALVE RESEATING DEVICE.
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949,057.

Patented Feb. 15, 1910.



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UNITED STATES PATENT OFFICE.

GARRETT H. BROWN, OF SYRACUSE, AND HENRY W. BROWN, OF ITHACA, NEW YORK.

VALVE-RESEATING DEVICE.

949,057.

Specification of Letters Patent.

Patented Feb. 15, 1910.

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To all whom it may concern:

Be it known that we, GARRETT H. BROWN and HENRY W. BROWN, of Syracuse and Ithaca, respectively, in the counties of Onondaga and Tompkins, respectively, in the State of New York, have invented new and useful Improvements in Valve-Reseating Devices, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improved valve reseating device by which the valve itself may be manipulated under a rotary action against its seat with an interposed polishing or abrasive substance such as emery flour or polishers' paste for the purpose of establishing a closer fit between the valve and its seat and although it is particularly useful in reseating the valves of internal combustion engines, it is equally applicable for regrinding or refitting other valves to their seats.

The main object of our present invention is to provide a simple, practical and efficient hand-operated device for engaging and rotating the valve against its seat in combination with yielding means for intermittently unseating the valve when the pressure upon the rotating mechanism is released so that the valve may be turned to a different position away from its seat and then repressed against its seat and again rotated to avoid grinding or wearing in one particular place so that the valve will closely fit its seat, when turned to any position.

Another object is to provide means for unseating the valve immediately upon the release of the pressure thereon so that the valve may be turned to different positions when away from its seat and again repressed against the action of the retracting means and rotated so as to bring both the valve and its seat in exact circular form. In other words, we have sought to provide a valve reseating tool having means to engage and rotate the valve, additional means by which the valve engaging tool may be pressed against its seat and against the action of the retracting spring and additional means for rotating the valve engaging tool by hand while the valve is under pressure.

Other objects and uses relating to specific parts of the device will be brought out in the following description.

In the drawings—Figures 1 and 2 are respectively top plan and side elevation of our

improved valve reseating mechanism, a portion of the valve engaging tool being broken away in Fig. 2 which also shows the valve in its seat and also the retracting spring for moving the valve away from its seat when the pressure thereon is released. Fig. 3 is a sectional view taken on line 3—3, Fig. 1 omitting the valve engaging tool. Fig. 4 is a horizontal sectional view of the lower portion of the head of the valve reseating device showing the rack and pinion for rotating the valve engaging tool. Fig. 5 is an elevation of the valve and its retracting spring showing also the valve seat in section, the valve being shown as unseated by its retracting spring. Fig. 6 is a detail sectional view taken on line 6—6, Fig. 2.

In order to demonstrate the practicability of our invention we have shown, a valve —1— coacting with a suitable seat —2— and having a stem —3— which is guided in a bearing —4— located some distance from the valve seat —2—, the intermediate portion of the valve stem being surrounded by 80 collars —5— and —6— and an interposed coil spring —7—. The collar —5— bears against the bearing —4— while the collar —6— which is located some distance from the collar —5— is adjustably secured to the 85 valve stem so as to produce the desired tension upon the coil spring —7— and is held in its adjusted position by means of a set screw —8—, Fig. 2. The object of this adjustability of the collar —6— is to tension 90 the spring —7— sufficiently to unseat the valve —2— when the axial pressure of its rotating means presently described is relieved so that the valve may be turned to a different position after rotating it back and 95 forth a desired number of times against its seat, it being understood that a suitable abrasive or polishing material is employed between the valve and its seat to grind the contact surfaces so as to closely fit each 100 other.

The means for rotating the valve and moving it axially preferably consists of a rotary tool —10— which is journaled in an axially moving supporting frame or casing 105 —11— containing a pinion —12— and lever —13— which latter is provided with a toothed rack —14— meshing with the pinion —12— so that by applying the tool —10— to the valve —1— and pressing the 110 same axially so as to bring the valve in close engagement with its seat the lever —13—

may be rocked back and forth by hand thereby rotating the pinion and tool which is secured to said pinion. The casing—11—preferably consists of lower and upper sections —15— and —16— which are detachably secured together by removable fastening means as screws —17—, said sections forming a hollow dust proof casing having a slot —18— in one side through which the lever —13— projects. The upper section —16— of the casing is provided with a handle —20— whereby the casing with the tool thereon and valve which is engaged by the tool may be pressed axially against the action of the spring —7— and turned about the axis of said tool.

The lever —13— is pivoted at —21— within the casing —11— at one side of the pinion —12— and is provided with a handle —22— exterior to the casing and at the opposite side of the pinion whereby the lever may be rocked laterally upon its pivot —21—, the toothed rack —14— being engaged with the same side of the pinion as that to which the handle —22— is secured but is located wholly within the casing, sufficient clearance being left within the casing at opposite sides of the lever to afford the desired oscillatory movement of said lever.

As shown in the drawings, the outer face of the valve is provided with a slot —24— while the engaging end of the tool —10— is made in the form of a screw driver adapted to enter the slot —24— for rotating the valve, thus permitting the tool —10— and its supporting means to be readily inserted into the valve casing and engaged with the valve but it is evident that any other form

of tool may be used to conform to the construction of the valve so long as the valve and its operating tool are provided with co-acting members whereby the valve may be actuated and rotated by such tool.

It is evident from the foregoing description that this valve reseating mechanism is made up of comparatively few parts and, therefore, may be manufactured at a small cost and comprises essentially means for rotating and moving the valve axially in one direction, and separate means for unseating the valve when the pressure thereon is relieved.

What we claim is:

1. In a valve reseating device, yielding means normally tending to unseat a valve, and additional means operated by hand for pressing the valve to its seat against the action of the yielding means, and rotating said valve upon said seat.

2. In a valve reseating device, a spring normally tending to unseat a valve, means for adjusting the tension of the spring, and additional means including a rack and pinion operated by hand for pressing the valve to its seat against the action of said spring and for rotating said valve against its seat.

In witness whereof we have hereunto set our hands this 21st day of January 1908.

GARRETT H. BROWN.
HENRY W. BROWN.

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