C. DILLHOFF.

VALVE RELEASING TOOL.

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1,006,185. Patented Oct. 17, 1911.

Fig. 1.

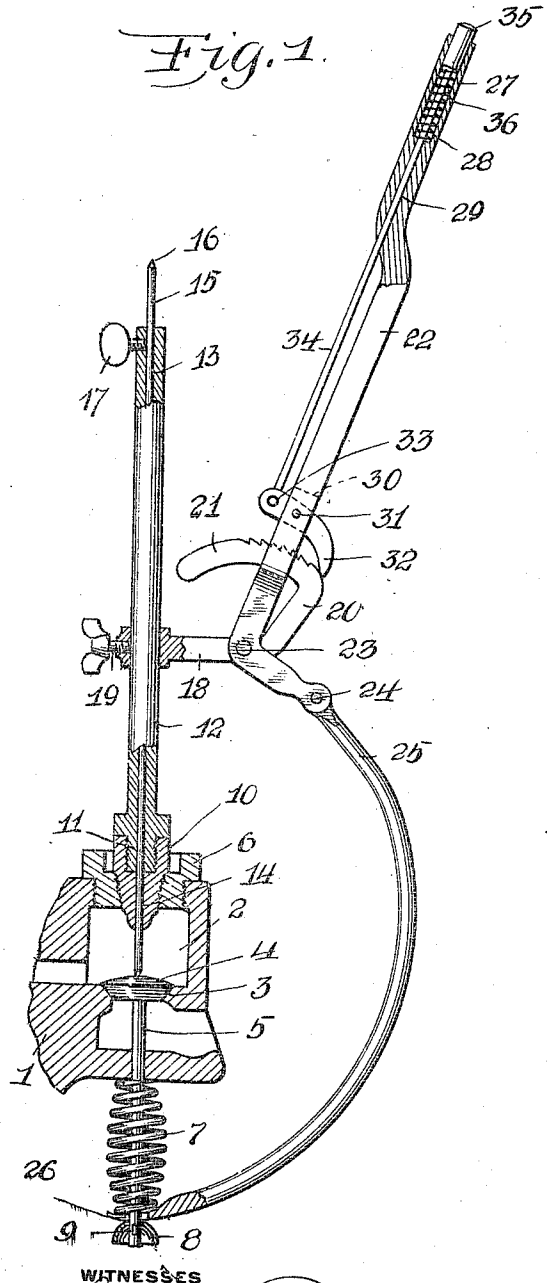
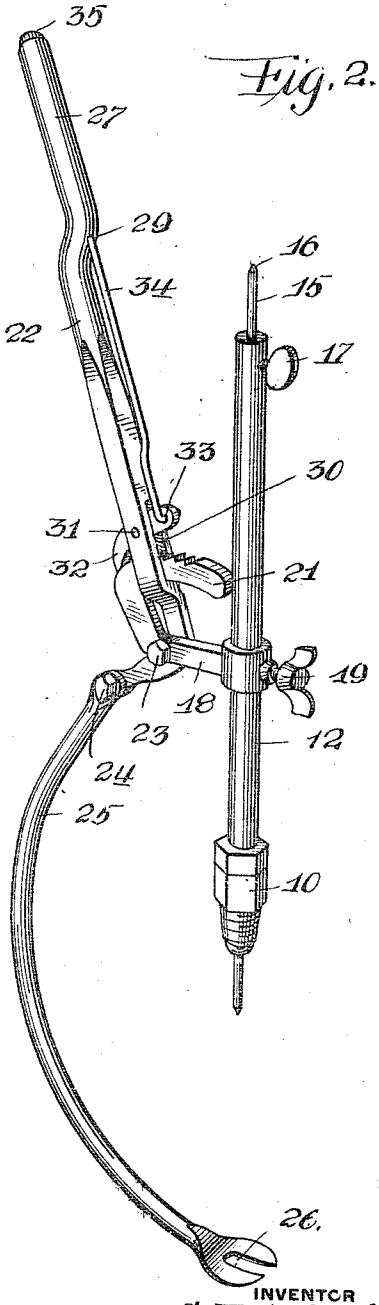


Fig. 2.



WITNESSES

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VALVE-RELEASING TOOL.

1,006,185. Specification of Letters Patent. Patented Oct. 17, 1911.

Application filed February 1, 1911. Serial No. 605,947.

To all whom it may concern:

Be it known that I, CLEMENS DILLHOFF, a citizen of the United States of America, residing at North Side, Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Valve-Releasing Tools, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a valve releasing tool, and the primary object of the invention is to provide a tool of such class that can be advantageously used for releasing the valves of gas and gasolene engines, the tool being constructed whereby the operation can be expeditiously and economically performed.

A further object of the invention is to accomplish the above results by a valve releasing tool that is simple in construction, durable, inexpensive to manufacture and highly efficient as an engine accessory.

With the above and such other objects in view as may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts to be specifically described in detail and then claimed.

Reference will now be had to the drawings, wherein there are illustrated the preferred embodiments of the invention, but it is to be understood that the structural elements thereof are susceptible to such changes as fall within the scope of the appended claims.

In the drawings:—Figure 1 is a side elevation of the tool partly broken away and partly in section and Fig. 2 is a perspective view of the same.

Like numerals of reference designate corresponding parts throughout the several views.

In Figs. 1 and 2 of the drawings, the reference numeral 1 denotes a portion of a combustion engine having a sparking chamber 2, a valve seat 3, a valve 4 provided with a depending valve stem 5, and a cap 6 closing the upper end of the chamber 2 and adapted to support a sparking plug (not shown). The valve 4 is normally held in the seat 3 by a coiled compression spring 7, said spring encircling the lower end of the valve stem 5 between the engine 1 and an inverted cup or head 8 detachably retained upon the lower end of the stem 5 by a key 9.

10 denotes a plug adapted to be detachably mounted in the cap 6 in lieu of the sparking plug thereof, and detachably connected to said plug is the lower threaded end 11 of a post 12, said post having a longitudinal bore 13 alining with a bore 14 in the plug 10. Extending through the bores 13 and 14 is an adjustable rod 15 having the ends thereof pointed or tapered, as at 16. The rod 15 is retained in engagement with the post 12 by a set screw 17 arranged at the upper end of said post, and after the post has been placed in position, the rod 15 can be adjusted and fixed to engage and retain the valve 4 upon the seat 3.

18 denotes a bracket slidably mounted upon the post 12 and fixed thereon by a set screw 19. The outer end of the bracket 18 extends upwardly, as at 20 and is provided with a curved rack 21.

22 denotes an operating lever having the lower angular end thereof pivotally connected to the bracket 18 by a screw bolt 23 or other pivotal means. The lower angular end of the operating lever 22 is pivotally connected by a screw bolt 24 to the upper end of a curved arm 25, said arm having the lower end thereof flattened and bifurcated or forked, as at 26. The upper end of the operating lever 22 is provided with an offset handle 27 having a longitudinal recess 28 and a bore 29. The operating lever 22 adjacent to the lower angular end thereof is provided with a slot 30 to receive the curved rack 21. Pivotally mounted in the slot 30 by a transverse pivot pin 31 is a pawl 32 adapted to engage the rack 21, said pawl having one end thereof pivotally connected, as at 33 to a rod 34 that extends upwardly through the bore 29 into the recess 28. The upper end of the rod 34 is provided with a button 35 protruding from the upper end of the recess 28 and encircling said rod, within the recess 28 between the lower end of the button 35 and the bottom of the recess 28, is a coiled compression spring 36 adapted to normally retain the rod 34 in an elevated position and the pawl 32 in engagement with the rack 21.

When the device is to be used, the post 12 is placed in position and the bifurcated or forked end 26 of the arm 25 placed under the lower convolution of the coiled compression spring 7. The operating lever 22 is then pushed toward the post 12, thereby elevating the arm 25 and placing the compres-

sion spring 7 under tension, whereby the key 9 can be removed and the inverted cup thereof. As the operating lever 22 is pushed toward the post 12, the pawl 32 holds the same by engaging the rack 21. To release the operating lever 22 and the arm 25 thereof whereby the spring 7 can be removed from the valve stem 5, the button 35 is pushed inwardly to move the pawl 32 out of engagement with the rack 21 and allow the operating lever 22 to be shifted to lower the arm 25. By this operation, the valve stem 5 and the valve 4 thereof are released whereby the valve can be rotated upon its seat.

From the foregoing it will be observed that I have devised a tool that can be advantageously used upon various types of combustion engines for unseating the valves thereof, the tool being constructed whereby the parts thereof are easily interchangeable and ready for almost instant use.

What I claim is:—

1. In a valve releasing tool, a post, means adjustably mounted in said post and adapted to hold a valve while the spring thereof is being released, a bracket adjustably mounted upon said post, an operating lever pivotally connected to said bracket and provided with a lower forked end adapted to engage under the spring of the valve for compressing the same, and means carried by said lever and engaging said bracket to lock said lever in a shifted position.

2. The combination in a valve releasing tool, a post, means adjustably arranged in said post and adapted to engage the valve and retain it upon its seat, a bracket adjustably carried by said post, an operating lever pivotally connected to said bracket and adapted to have the lower end thereof engage under the spring and compress said valve spring, and means including a rack and pawl adapted to lock said lever in an adjusted position.

In testimony whereof I affix my signature in the presence of two witnesses.

CLEMENS DILLHOFF

Witnesses:
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