April 13, 1937. J. WSZOŁEK 2,076,834

VALVE SPRING RAISING DEVICE

Filed April 20, 1936

Fig. 1

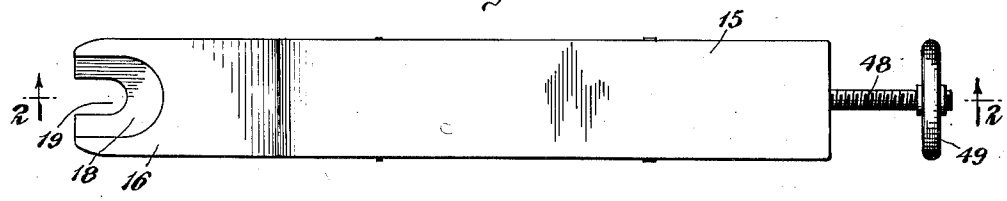


Fig. 2

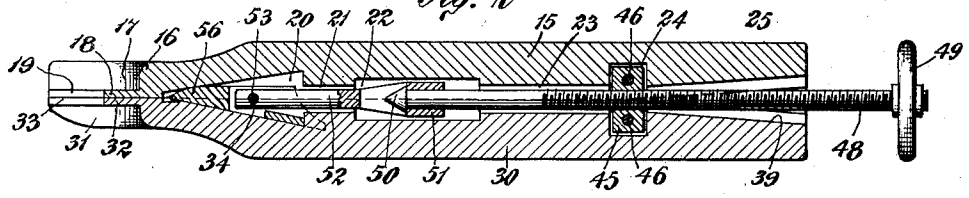


Fig. 3

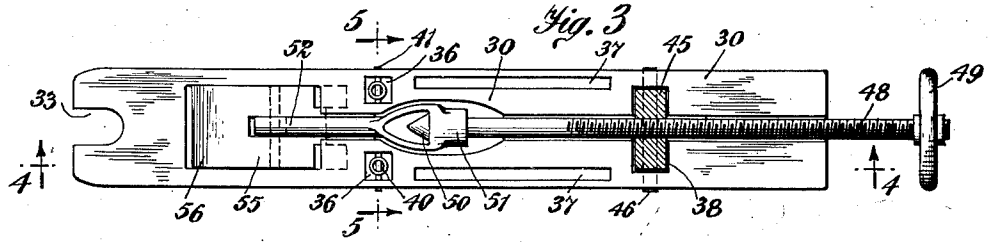


Fig. 4

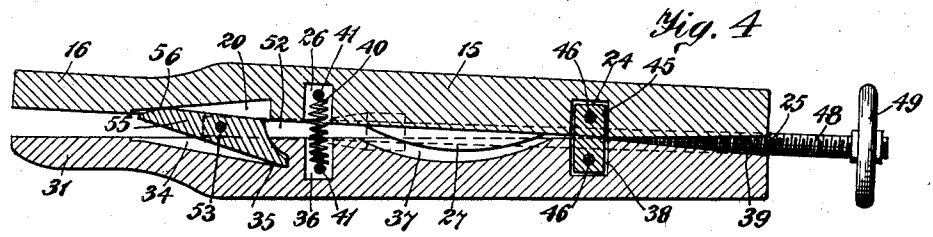


Fig. 5

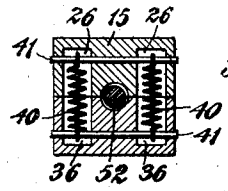
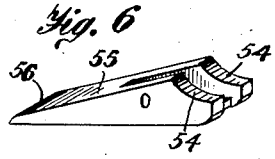


Fig. 6



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Patented Apr. 13, 1937

2,076,834

UNITED STATES PATENT OFFICE

2,076,834

VALVE SPRING RAISING DEVICE

Jakub Wszołek, Barnesboro, Pa.

Application April 20, 1936, Serial No. 75,373

2 Claims. (Cl. 29—86.3)

This invention relates to appliances for raising valve springs in internal combustion motors in order to free the valves for inspection and repairs.

An object of the invention is to provide an efficient tool for this purpose, compact, simple and easily operated.

A further feature is in the provision of spreading or lifting devices comprising a pair of opposed, hingedly connected levers, normally in close contact and having means for separating the ends engaging the spring in a positive manner.

Another purpose is to produce a valve spring lifter that can be applied and actuated by one hand alone, the other hand being free for other purposes.

These advantageous objects, together with others which will appear as the description proceeds, are attained by the novel construction, combination and arrangement of parts hereinafter described and illustrated in the accompanying drawing, forming a material part of this disclosure, and in which:

Figure 1 is a plan view of an embodiment of the invention.

Figure 2 is a longitudinal sectional view taken on line 2—2 of Figure 1, showing the device in a closed position.

Figure 3 is a plan view of the lower element, the upper element being omitted.

Figure 4 is a longitudinal sectional view taken approximately on line 4—4 of Figure 3, showing the device in a spread position.

Figure 5 is a transverse sectional view taken on line 5—5 of Figure 3.

Figure 6 is a perspective view of the rocker spreading cam.

Referring to the drawing in greater detail, the device will be seen to consist of two essentially similar flat lever-like bars 15 and 30, respectively upper and lower, the former being reduced in thickness, on its outer side, at its end portion to produce a jaw 16.

A recess 17, extends inwardly from the front end forming a thin seat 18, around a slot 19.

In the under side of the bar 15 is a triangular recess 20, its base towards the rear, adjoining a semi-circular groove 21, leading to a larger groove 22, connected by a passage 23 with a rectangular recess 24, rearwardly beyond which the under side of the bar is bevelled, as at 25, to its end.

A pair of spaced openings 26 extend into the bar on opposite sides of the groove 22, and semi-circular rocker-like projections 27.

The other bar 30 is similarly grooved and recessed to produce a jaw 31 rounded on its lower front end, and having a seat 32 and slot 33.

A triangular recess 34 is disposed opposite the recess 20, the inner rear end of the recess being undercut, as at 35.

Openings 36 in the adjacent side register with the opening 26 and rearwardly are guide grooves 37 to receive the projections 27.

Further out is a registering recess 38 and therebeyond the bar is bevelled as at 39.

A pair of coiled tension springs 40 are contained in the recesses 26—36, the springs having eyes at their ends to engage rods 41 set in the bars which retain the springs in tension.

A screw threaded block 45 is loosely contained in the recesses 24—38, the block being pivotally secured by pins 46 set transversely in the bars 15—30 near their proximate surfaces.

A screw 48, fitting the block threads, extends outwardly at the rear and is provided with a handle 49 for manual operation.

The inner end of the screw is upset to form a head 50 after passing revolubly through a yoke 51 movable lengthwise in the recess 22 and its mate in the lower bar.

A rod 52 extends forwardly from the yoke and is pivotally engaged by a pin 53 between the forked arms 54 of a cam 55 operative in the space formed between the recesses 20—34.

The upper front portion 56 of the cam rides on the surface of the recess 20 and the rear ends of the forks 54 engage in the undercut recesses 35 of the main recess 34.

It will now be seen that the bars are hingedly connected by the block 45, drawn together by the springs 40, and guided laterally by the elements 27—37.

When the seats 18—32 have been placed in position below the spring to be lifted and its support, the valve stem enters the slots 19—33.

By suitably turning the screw 48 force is transmitted through the yoke elements 51—52, drawing the cam rearwardly causing its member 56 to press powerfully against the seat 20 and separating the bars at their front ends, the bars turning on the pins 46, and, due to the bevelled proximate rear ends, assume an angular position carrying the valve spring at the forward end of the apparatus.

As changes of construction could be made within the scope of the invention, it is intended that

all matter contained in the foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, what is claimed as new and desired to secure by Letters Patents, is:

1. In a valve spring lifter, a pair of bars arranged in close proximity and having a block pivotally connecting therebetween near their outer ends, spring receiving seats formed in the spring engaging front ends of each bar, tension springs to draw said bars towards each other, said bars having bevelled outer ends and substantially triangular recesses near said seats in their adjacent surfaces, a cam operable in said recesses, a yoke having a part engaging said cam, and means to draw said yoke rearwardly thereby to spread said seats.

2. In a valve spring lifter, a pair of closely proximate bars having a block pivotally connecting therebetween near their outer ends, spring receiving seats formed in the spring engaging front ends of each bar, tension springs to draw said bars towards each other, said bars having their adjacent rear surfaces bevelled, a screw operative in said block, a yoke engaged by said screw, and a cam actuated by said yoke to force said seats apart.

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