Oct. 4, 1927. 1,644,070

H. F. MARTIN

VALVE SPRING LIFTER

Filed Aug. 6, 1926

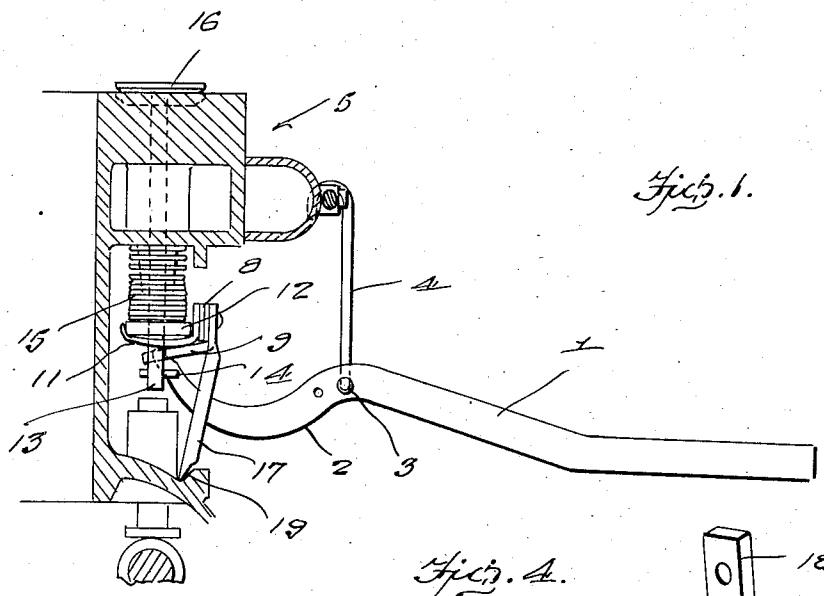


Fig. 1.

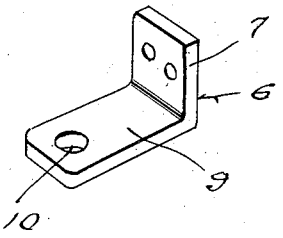


Fig. 4.

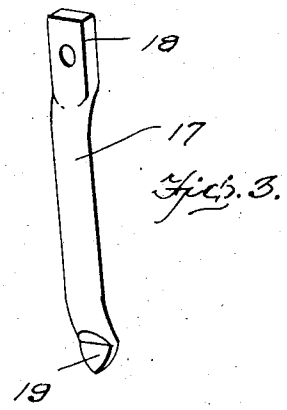


Fig. 3.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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VALVE-SPRING LIFTER.

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This invention relates to what is commonly known in the art as a valve spring lifter, the same having more particular reference to an automotive tool which is used for lifting and compressing the valve springs for permitting grinding of valves, removal of the same, or to facilitate removal and replacement of the pins which cooperate with the valve spring cups.

My principal aim is to provide a device of this kind including a single suspension device, a single operating lever, and multiple means for simultaneously lifting all of the valve springs, whereby to facilitate grinding, etc.

The particular structural details constituting the novelty of the invention will become apparent from the following description and drawings.

In the drawing:—

Figure 1 is an end view of the device showing the manner in which it is used.

Fig. 2 is a top plan view of the device by itself.

Fig. 3 is a perspective view of one of the props, and

Fig. 4 is a perspective view of a special bracket forming a part of the device.

In carrying out the invention I employ a lifting lever 1 having a curved inner end 2. This lever is adjustably and pivotally connected at 3 with a suspension hook 4 which is adapted to take over a relatively stationary part of the cylinder block 5. In most instances, the hook will be constructed to engage the exhaust manifold or a part thereof as shown in Fig. 1. The lever cooperates with a special right angular bracket 6, the vertical portion 7 of which is riveted or otherwise fastened to a connecting bar 8. The leg 9 of the bracket extends at right angles to the bar 8 and is provided with an opening 10 for reception of the upwardly directed end of the curved portion 2 of the lever.

Secured at longitudinally spaced points to this bar 8, are the cup engaging forks 11. These are shaped to receive the spring cups 12 as represented in Fig. 1. The arms of the forks straddle the valve stems 13. In this connection, it might be stated that 14 represents the removable pin, 15 the spring, and 16 the valve head, all of these being of usual construction and forming no part of the invention.

In addition, the device includes what may be designated as props or braces 17, the upper flattened ends 18 of which are secured to the bar 8, and the lower ends 19 of which are shaped to rest upon the cylinder block as shown in the drawing. These devices 17 function in steadying the appliance when it is in use.

In practice, the end portions of the bar 8 are placed against the cylinder block in an obvious manner and the various forks 11 are engaged with the valve spring cups 12 in a customary manner. The hook 4 is engaged with the exhaust manifold or clamps on the latter, thus positioning the curved end 2 of the lever 1 in a place to engage the bracket 6 so that upon moving the outer end of the lever downwardly, the device as an entirety may be lifted up to simultaneously compress and lift all of the springs 15, thus facilitating removal of pins, springs, and valves. The braces 17 may now be brought into play and rested upon the cylinder block as shown in Fig. 1 to maintain the springs lifted.

The advantage of a construction of this kind is clear as well as the operation, and relative arrangement of details. Therefore, a more lengthy description is believed unnecessary.

Minor changes coming within the field of invention claimed may be resorted to if desired.

Having thus described my invention, what I claim as new is:—

1. In a valve spring lifter of the class described, a mounting bar, a plurality of forks disposed at right angles to the bar and rigidly connected therewith at longitudinally spaced points, depending braces carried by said bar, a bracket of right angular form secured to the central portion of the bar and having its horizontal portion disposed substantially in a plane with said forks, a single suspension hook, and an operating lever pivotally connected with the lower end of the shank of the hook, said lever having an inner curved end cooperable with said bracket for simultaneously lifting said bar and forks.

2. In a valve spring lifter of the class described, a mounting bar adapted for horizontal disposition in a manner to permit the opposite ends of the bar to engage a cylinder block, a plurality of longitudinally spaced forks disposed at right angles to the bar and rigidly connected thereto, said forks being adapted to engage valve spring cups, a

bracket of right angular form secured to the central portion of the bar and having its horizontal portion disposed in substantially the same plane with said forks, said horizontal portion being provided with an opening, a suspension hook adapted to engage a stationary part of the engine, and an operating lever pivotally connected with the lower end of the shank of the hook, said lever having an inner head and end cooperable with the opening in said bracket for simultaneously lifting said bar and said forks.

In testimony whereof I affix my signature.

HERMAN F. MARTIN.