N. L. GRAVES.

VALVE LIFTER.

APPLICATION FILED OCT. 9, 1919.

1,356,978. Patented Oct. 26, 1920.

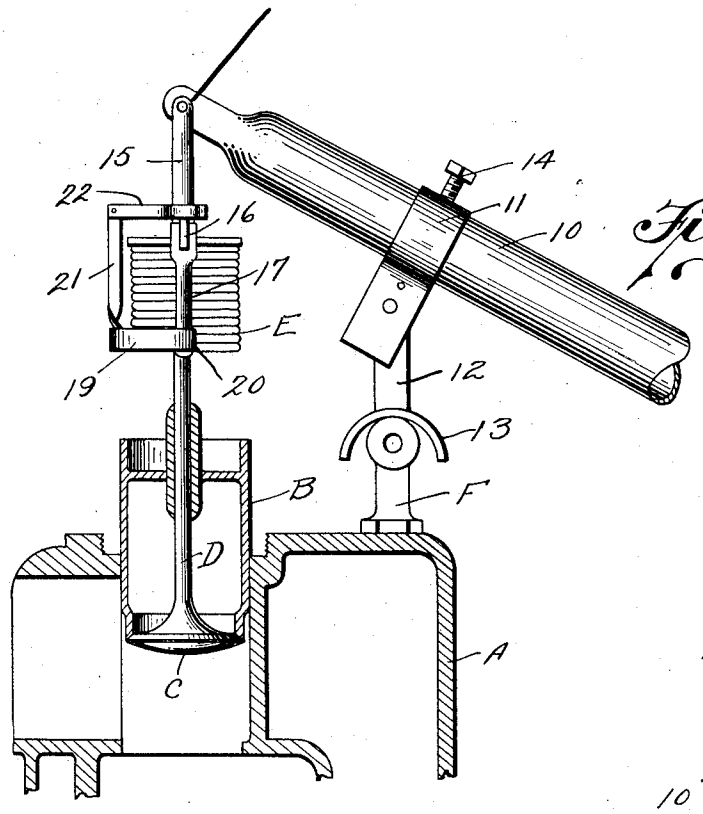


Fig. 1.

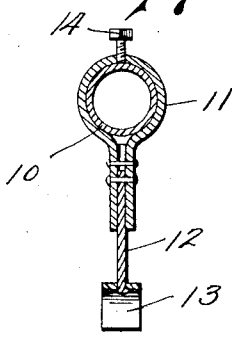


Fig. 3.

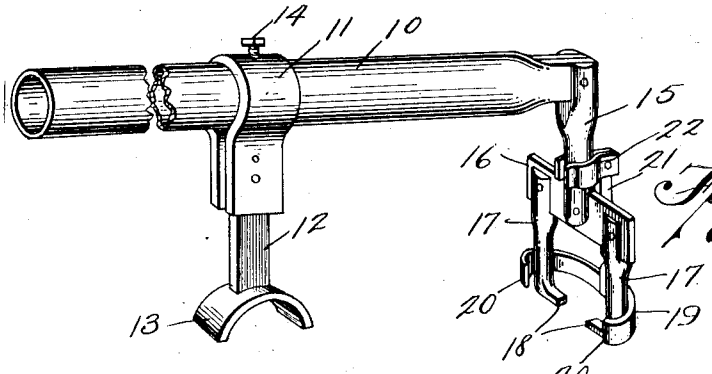


Fig. 2.

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VALVE-LIFTER.

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To all whom it may concern:

Be it known that I, NORMAN L. GRAVES, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Valve-Lifters, of which the following is a specification.

This invention relates to tools for disassembling gas engines.

More especially the invention relates to a valve removing tool especially adapted to remove the valves and valve cages from engines of the Buick type, wherein the valves are over-head valves, held in cages removable from the cylinder heads.

One important object of the invention is to provide an improved tool wherewith the valve cage, valve and spring may be removed as a whole.

A second important object of the invention is to provide a tool of this description which may be adjusted to various sizes of engines.

A third important object of the invention is to provide an improved tool of this description having means to prevent accidental slipping of the tool from its grip on the valve.

With the above and other objects in view, as will be hereinafter apparent, the invention consists in general of certain novel arrangements of details and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically claimed.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:

Figure 1 is a view partly in section, showing the upper portion of a gas engine cylinder with the valve and its correlated elements being withdrawn,

Fig. 2 is a perspective view of the improved tool,

Fig. 3 is a cross-section therethrough.

In Fig. 1, there is disclosed the upper part of a gas engine cylinder A having an opening therein wherein fits a valve cage B. Mounted in the cage is a valve C having a stem D whereon is a coiled spring E, normally holding the valve closed. At F is a rocker arm bracket.

The invention itself consists of a lever 10 whereon is slidably mounted a collar 11 to which is pivoted a leg 12, having an arcuate fulcrum member or yoke 13, swiveled to its lower end and adapted, by its form, to engage on the upper end of the bracket F. The collar is adjustable so that the tool may be used with engines wherein the distances between the valve and bracket vary, and in order to hold said collar in adjusted position, there is provided a set screw 14. Pivoted to the forward end of the lever is a link 15, carrying a cross bar 16, to each end of which is pivoted a hook 17, said hooks having their extremities turned in toward each other, as shown at 18.

By means of this arrangement, after the retaining ring of the cage B is removed, the device may be positioned with the ends 18 beneath the spring or some coil thereof, the fulcrum member 13 being engaged on the bracket F. Then, by depressing the handle of the lever, the spring may be brought solid and the cage, valve and spring lifted.

In order to prevent the fingers from slipping out from beneath the spring by spreading or from slipping sidewise, there is provided a yoke 19, having inturned ends 20 and embracing the hooks, as shown in Fig. 2. These yokes are made in different sizes to accommodate different sized valve springs and each is provided with a hanger 21, carrying a forked spring clip 22, whereby the yoke may be attached to the link 15.

There has thus been provided a simple and efficient device of the kind described, and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the device without departing from the material principles thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as come within the scope claimed.

Having thus described my invention, what is claimed as new, is:

1. In a tool of the class described, a lever, a link depending from said lever, a cross bar carried by the lower end of the link, opposed engaging hooks pivoted to opposite ends of the cross bar, and means to limit the movement of said hooks away from each other.

2. In a tool of the class described, a lever, a link depending from said lever, a cross bar carried by the lower end of the link, opposed engaging hooks pivoted to oppo-

site ends of the cross bar, and means to limit the movement of said hooks away from each other, said means comprising a yoke embracing the lower ends of said hook, and means to detachably connect the yoke to the link.

3. In a tool of the class described, a lever, a link depending from said lever, a cross bar carried by the lower end of the link, opposed engaging hooks pivoted to opposite ends of the cross bar, means to limit the movement of said hooks away from each other, a sleeve slidable along said lever, a leg pivoted to said sleeve, and an arcuate fulcrum member swiveled to the lower end of the leg.

4. In a tool of the class described, a lever, a link depending from said lever, a cross bar carried by the lower end of the link, opposed engaging hooks pivoted to opposite ends of the cross bar, means to limit the movement of said hooks away from each other, said means comprising a yoke embracing the lower ends of said hook and means to detachably connect the yoke to the link, a sleeve slidable along said lever, a leg pivoted to said sleeve, and an arcuate fulcrum member swiveled to the lower end of the leg.

In testimony whereof I affix my signature.

NORMAN L. GRAVES.