March 20, 1934. J. H. GEHRIG 1,951,573

VALVE LIFTER

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Fig. 2

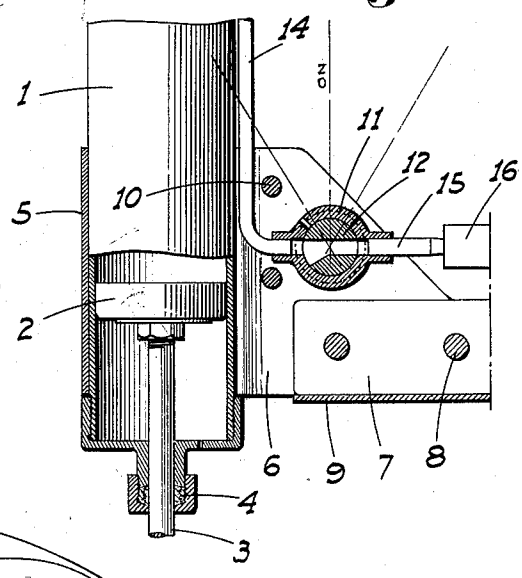


Fig. 1

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VALVE LIFTER

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1 Claim. (Cl. 29—86.3)

This invention relates to what is commonly known as valve lifters, for compressing the springs of the valves of gas engines to advance the springs along the valves so as to expose the spring cup keepers for removal to permit of the removal of the valves from the engine.

The principal object of my invention is to provide a tool of this character in which the spring compressing means is actuated by compressed air under the control of the operator of the tool, and so arranged that the tool may be easily and efficiently manipulated with the use of two hands, one of which is used to hold the tool and operate the air controlling means, and the other to initially engage the spring cup supporting member of the tool with the cup. Valve removing and replacing operations therefore may be carried out much faster and with greater facility than is at present the case, and even the stiffest springs may be compressed without any additional physical effort on the part of the operator being necessary.

Another object is to construct the tool so that it may be used with valve stems of any length without any initial adjustment being necessary to accommodate the tool to such different conditions.

A further object is to provide an air actuated mechanism for the purpose so arranged that it may be easily mounted as a unit on a standard type of supporting frame without any change being made to the latter.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side elevation of the improved tool.

Fig. 2 is a fragmentary enlarged sectional elevation of the same.

Referring now more particularly to the characters of reference on the drawing, the novel portion of the tool comprises an air cylinder 1 having a piston 2 slidable therein which may be of the conventional leather cup or other air holding type. A piston rod 3 depends from the piston and is preferably pointed on its outer end to engage the usual axial socket in a valve head. The rod passes through a packing gland 4 on the lower end of the cylinder which is not necessary to hold air but frictionally engages the rod so as to prevent undue free sliding movement of the latter.

A sleeve 5 surrounds the lower portion of the cylinder, said sleeve on one side being formed with transversely spaced relatively long wings or extensions 6. The lower portions of these extensions are adapted to receive the adjacent end of the upper portion of a standard C-frame 7 therebetween, and to be secured thereto by bolts 8 or the like. The wings are preferably connected across the bottom by an integral strip 9, so that a saddle is formed for proper located engagement with the frame. Additional bolts 10 connect the upper portions of the wings adjacent the cylinder so as to clamp the sleeve firmly about said cylinder, or said sleeve may be soldered onto the cylinder.

The wings above the frame 7 and near the cylinder also form supporting means for the ends of the body 11 of a transversely extending 3-way air valve, said valve having a turnable passaged plug therein. One end of the plug projects outwardly of one wing, preferably that one on the left hand side of the tool and is attached to an upwardly projecting control arm 13 shaped for engagement with a finger. An air conduit 14 is connected to the valve body to communicate with the plug passage and leads upwardly alongside the cylinder to a connection therewith adjacent the top.

Another conduit nipple 15 is connected to the opposite sides of the valve body and projects away from the cylinder so that it is convenient for detachable connection to one end of a compressed air hose 16, which in turn is connected to a source of compressed air with which all modern garages and automotive repair shops are equipped.

The valve plug passage is arranged relative to the conduits 14 and 15 so that the plug may be selectively turned to admit air to the cylinder so that the piston will be advanced, to hold the air in the cylinder so that the piston will be held against retraction, and to discharge the air from the cylinder so that the piston can return to its normal position, by proper manipulation of the control arm 13.

In operation the frame of the tool is grasped at the top with one hand in such a position that the air valve arm may be operated by the thumb of such hand. The other hand is used to initially guide the conventional spring cup engaging unit 17 of the tool into place relative

to the spring cup. This unit is mounted on the lower end of the frame 7 in alinement with the rod 3 and as usual can be interchanged with other units so as to fit cups of different forms. Since the air cylinder, valve and conduits, and the means for attaching the same to the C-frame form a single unit, the mechanism may be readily mounted on or removed from such frame without changing the latter or disturbing any part of said unit. The valve and its actuating arm being mounted adjacent the cylinder and adjacent the point to which the frame of the tool is naturally held, the manipulation and control of the operation of the tool is extremely convenient.

It is to be understood that while I have shown the valve-plug passage in a certain relation to the handle so that the different valve positions are had with corresponding movements of the handle, such relationship may be changed as the manufacturer may deem advisable to provide the utmost in convenience of operation.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

A valve tool comprising with a C-frame, an air cylinder having a piston slidable therein, a rod connected to the piston and projecting from the lower end of the cylinder, a sleeve about and clamped to the cylinder, spaced wings projecting from the sleeve on one side of the cylinder to receive the upper end of the frame therebetween, air passage means connected to the cylinder adjacent the top, a control valve interposed in said passage means, said valve being supported by and between said wings above the frame and a control member for the valve connected thereto outwardly of the wings.

JOHN H. GEHRIG.