March 22, 1927. 1,621,820

W. L. ALLEN

VALVE LIFTER

Filed Nov. 14, 1924

Fig. 1.

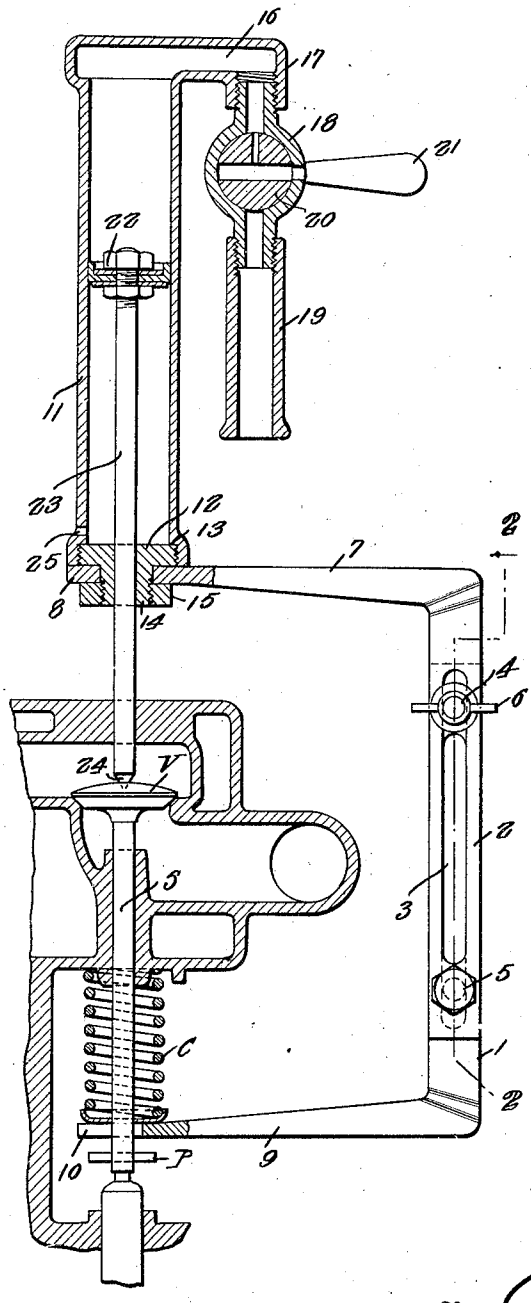
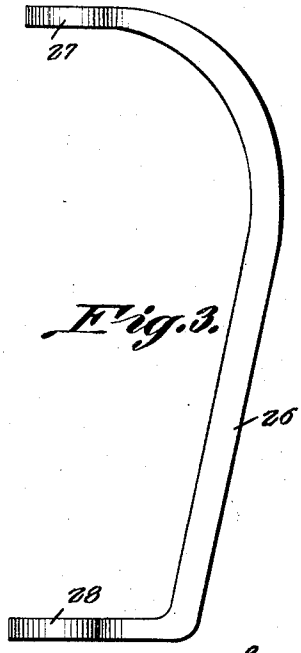


Fig. 3.



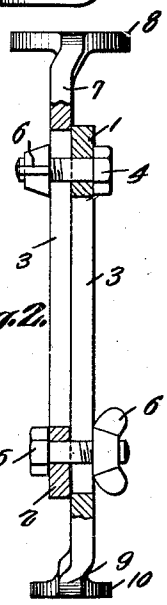


Fig. 2.

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UNITED STATES PATENT OFFICE.

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VALVE LIFTER.

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This invention relates to a valve lifter, one of its objects being to provide a pneumatically operated device of this character which can be applied quickly to the valve and can be adjusted readily to structures of different sizes.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings—

Fig. 1 is a view partly in side elevation and partly in section showing the tool applied to the valve;

Fig. 2 is a section on line 2—2, Fig. 1, the cylinder being removed from the yoke; and

Fig. 3 is a modified form of yoke.

Referring to the figures by characters of reference 1 and 2 designate lapping strips each of which is provided with a longitudinal slot 3. A bolt 4 is carried by the free end portion of the strip 1 and extends through the slot in strip 2 while another bolt 5 is attached to the free end portion of strip 2 and extends through the slot in strip 1. Nuts 6 are mounted on these bolts and by loosening them the strips can be adjusted longitudinally relative to each other after which they can be clamped together securely by tightening the nuts. An arm 7 is extended laterally from the strip 2 and is provided at its free end with an eye 8. Another arm 9 is extended laterally from the strip 1 and is provided at its free end with a fork 10.

A cylinder has been indicated at 11 and is provided at one end with a head 12 preferably secured thereinto against a shoulder 13. This head has a threaded boss 14 extending from the center thereof and adapted to project through the eye 8. A nut 15, engaging the boss, serves to clamp the eye against the head 12 and the end of the cylinder 11.

The other end of the cylinder has a passage 16 opening into extension 17 to which is connected a valve casing 18. A nipple 19 extends from this casing and is adapted to to be engaged by a hose for conducting air or other fluid under pressure to the valve casing. A valve 20 in the casing 18 can be turned by means of the handle 21 so as to establish or cut off communication between the nipple 19 and passage 16.

A piston 22 and piston rod 23 are mounted for reciprocation within cylinder 11 and this piston is slidable within the head 2 and has a reduced end 24 for engaging the valve V of an engine.

In Fig. 1 a portion of an engine of ordinary construction has been ilustrated, the valve V having a stem S on which is mounted a coiled spring C held assembled with the stem by a pin P.

When it is desired to remove the valve it is first necessary to remove the pin P. Thus the yoke made up of the strips 1 and 2 and their arms 9 and 7 is adjusted longitudinally to adapt it for use on the particular engine. The fork 10 is then inserted between lower end of spring C and the pin P. The end of the rod 23 is placed in engagement with the valve V after which pressure is admitted to the cylinder 11 by opening the valve 20. As before stated the nipple 19 is to be attached to a suitable hose for conducting fluid under pressure. As soon as pressure is admitted to the cylinder, the cylinder will be caused to move upwardly relative to the piston and this will cause the yoke to press against the spring C so as to force it away from the pin P. Said pin can then be removed readily by knocking it out of the valve stem after which the pressure can be withdrawn from the cylinder and the yoke removed.

For the purpose of facilitating the actuation of the cylinder under pressure, a vent 25 is provided in the cylinder as shown.

Under some conditions a one-piece yoke can be used as shown at 26 in Fig. 3, this yoke being provided at one end with an eye 27 and its other end with a fork 28.

What is claimed is:—

In a valve lifter, a yoke including longitudinally slotted members arranged side by side and in contact, a bolt carried by each member and extending transversely therethrough and in the slot in the adjoining member, means carried by the bolts for binding the members together, an arm extending

from the end of each member, an eye at the free end of one arm, a fork at the free end of the other arm, said arms being offset laterally to position the centers of the eye and fork in the plane of the contacting faces of the slotted members, a cylinder detachably connected to the eye, a piston therein, and a valve-engaging rod connected to the piston and extending from the cylinder and through the center of the eye.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

WILLIE L. ALLEN.