O. S. McFARLAND.

TOOL FOR VALVE SPRINGS.

APPLICATION FILED AUG. 7, 1915.

1,179,732. Patented Apr. 18, 1916.

FIG. 1.

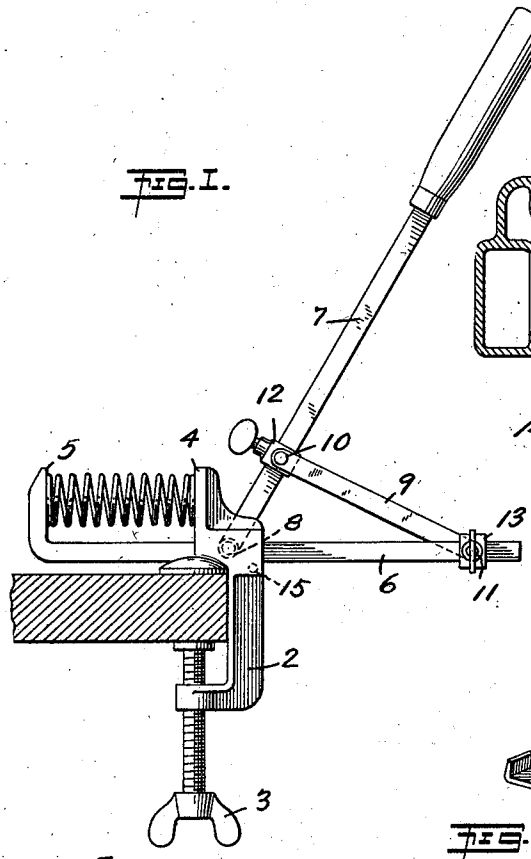
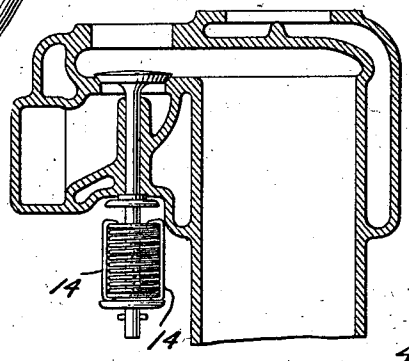


FIG. 4.



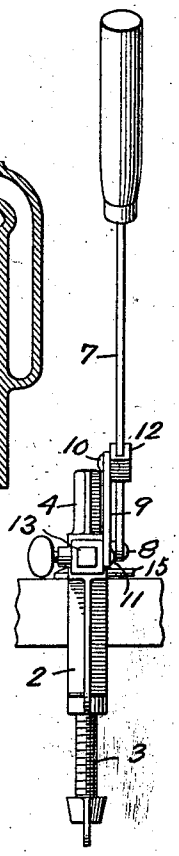


FIG. 2.

FIG. 5.



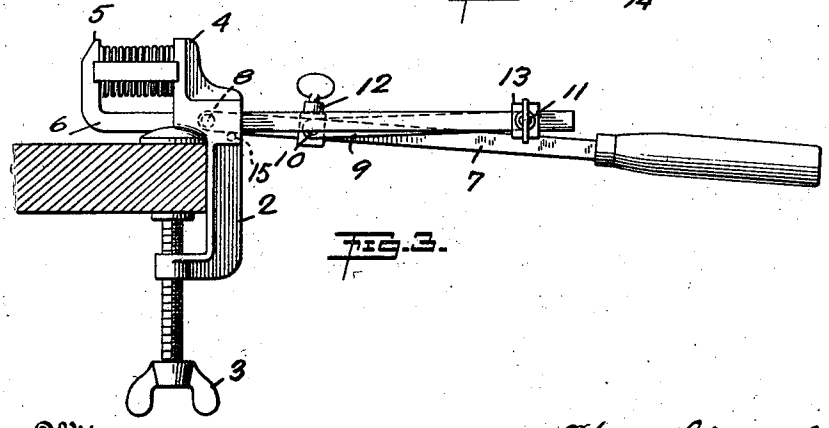


FIG. 3.

Witnesses

G. Robert Thomas

Francis C. Wright

Inventor

Okey Stanley McFarland

By his Attorney

W. F. Bissing

UNITED STATES PATENT OFFICE.

OKEY STANLEY McFARLAND, OF OYSTER BAY, NEW YORK.

TOOL FOR VALVE-SPRINGS.

1,179,732. Specification of Letters Patent. Patented Apr. 18, 1916.

Application filed August 7, 1915. Serial No. 44,221.

To all whom it may concern:

Be it known that I, OKEY STANLEY McFARLAND, a citizen of the United States, residing at Oyster Bay, Long Island, New York, have invented certain new and useful Improvements in Tools for Valve-Springs, of which the following is a specification.

The object of the invention is to provide a simple and convenient tool whereby the stiff springs of gas engine valves may be readily compressed preparatory to assembling them with the valves.

The invention accordingly comprises certain combinations of parts, which will now be described and be hereinafter more particularly pointed out in the claims.

In the accompanying drawings forming a part hereof:

Figure 1 is a side elevation of the device in position to compress a spring; Fig. 2 is an end elevation of the same; Fig. 3 is a view similar to Fig. 1, showing the spring compressed by the tool; Fig. 4 is a vertical sectional view of an engine cylinder, with the valve and spring in elevation, showing the hooks for holding the spring compressed until after the parts are assembled; and Fig. 5 is a perspective view of one of the hooks.

The device is provided with means for fixing it firmly in position on a table or bench, the said means comprising a table clamp member or yoke 2 having a clamping screw 3.

A fixed jaw 4 is formed on the table clamp member and projects upward therefrom. With it coöperates a movable jaw 5, which is formed on the end of a horizontal bar 6, which slides through a guide opening in the table clamp member beneath the fixed jaw. As shown in Figs. 1 and 2 this bar projects to a considerable distance.

A hand lever 7 is fulcrumed at 8 on the table clamp member, at a point intermediate the ends of the bar 6, with which it is connected by a rigid thrust link 9, the connection of the said link with the bar being at the opposite side of the table clamp member from the jaws. The lever and link thus form a toggle, which is straightened in order to compress the spring, as represented in Fig. 3. In this way great power is available, and the device is self-holding when the pivots 8, 10 and 11 are brought into or past a line of centers. A projecting pin or abutment 15 is provided on the table clamp member for the lever 7 to bear against when the parts are carried slightly past dead center in the manner shown in Fig. 2. In this condition the toggle is locked, and the spring will not be released until the lever 7 is swung upward.

Means are provided whereby the pivoted ends of the link may be set at various points along the lever 7 and bar 6. To this end screw clamps 12 and 13 are mounted so as to be capable of being fixed at any points along these members, and it is to these clamps that the ends of the link are directly pivoted.

The range of movement of the movable jaw 5 may be varied, thus varying the compression of the spring, by setting the clamp 12 nearer to or farther from the fulcrum 8. This changes the leverage. By sliding the bar 6 through the clamp 13 the movable jaw may be initially set nearer to or farther from the fixed jaw, thus varying the spread of the jaws to receive springs of different lengths. By the combination of adjustments thus made possible the tool may be adapted for anyone of a large number of sizes of springs and for any desired degree of compression.

When a spring is compressed it is held by a couple of double-ended hooks 14 as shown in Fig. 4. In this condition the spring may be safely removed from the compressing device and placed in position on the valve stem, where it is confined in the usual way.

What I claim as new is:

1. A spring compressing tool, comprising, in combination, a clamp member, a fixed jaw thereon, a movable jaw slidably mounted on the clamp member, said jaws adapted to receive a spring between them, a hand lever fulcrumed on the clamp member, a rigid link pivoted to the hand lever and slidable jaw, and means for adjusting one end of said link along said hand lever.

2. A spring compressing tool, comprising, in combination, a clamp member, a fixed jaw thereon, a movable jaw slidably mounted on the clamp member, said jaws adapted to receive a spring between them, a hand lever fulcrumed on the clamp member, a rigid link pivoted to the slidable jaw and to the hand lever, the end of the link connected to the hand lever being adjustable longitudinally of the hand lever.

3. A spring compressing tool, comprising, in combination, a table clamp member bear-

ing a fixed jaw, a bar slidable horizontally through said member and bearing an opposing jaw, said jaws adapted to receive a spring between them, a hand lever fulcrumed on said clamp member intermediate the ends of said slidable bar, a rigid thrust link pivoted to said lever and to said bar, the connection of the link with the bar being at the opposite side of the lever from the jaws, and means for setting the pivotal ends of the link at various points along the lever and slidable jaw.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

OKEY STANLEY McFARLAND.

Witnesses:
W. F. BISSING,
LOUELLA F. LITTLE.