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H. A. TUVESON

INSTRUMENT FOR REPLACING VALVE SPRINGS

Filed April 7, 1922

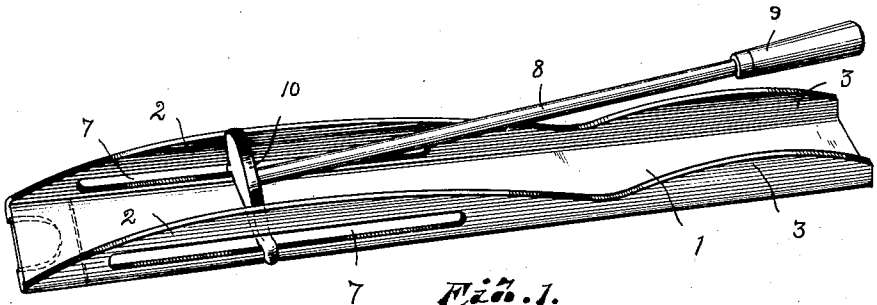


Fig. 1.

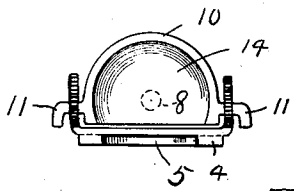


Fig. 2.

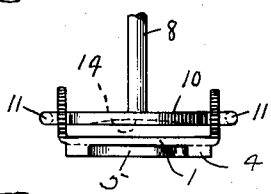


Fig. 3.

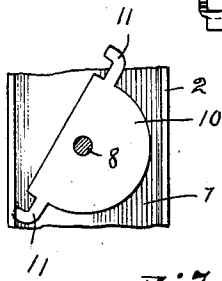


Fig. 4.

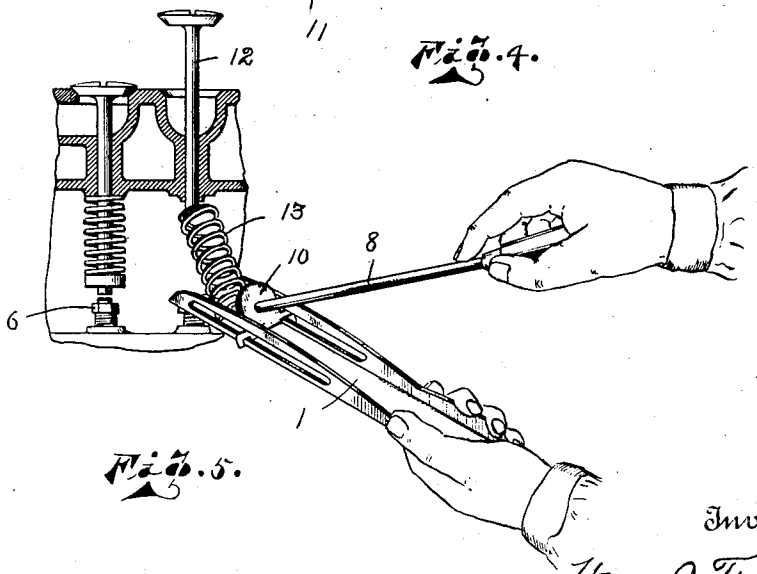


Fig. 5.

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UNITED STATES PATENT OFFICE.

HARRY A. TUVESON, OF SUPERIOR, WISCONSIN.

INSTRUMENT FOR REPLACING VALVE SPRINGS.

Application filed April 7, 1922. Serial No. 550,400.

To all whom it may concern:

Be it known that I, HARRY A. TUVESON, a citizen of the United States, residing at Superior, in the county of Douglas and State of Wisconsin, have invented certain new and useful Improvements in Instruments for Replacing Valve Springs, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a mechanic's instrument and has special reference to a tool for the application of valve springs for internal combustion engines which have vertically disposed valve stems carrying helical springs within the engine block.

The principal object of the invention is to provide a simple and convenient instrument of this character, by the use of which such springs may be readily positioned within the engine block with the least effort and annoyance possible.

Other objects and advantages will appear in the further description of the invention.

Referring to the accompanying drawing forming part of this application in which like reference characters indicate like parts—

Figure 1 is a perspective view of the completely assembled instrument.

Figure 2 is a front elevation of Figure 1, showing the reciprocal portion of the instrument as lying parallel within the body portion thereof,

Figure 3 is a view similar to Figure 2, except that the handle of the reciprocal portion of the instrument is turned uprightly at right angles to the body portion;

Figure 4 is a plan view of Figure 3 showing only a portion of the body of the instrument, but with the reciprocal device rotated somewhat showing the appearance of its being separate from the body portion, and

Figure 5 is a perspective view of the instrument in use showing a fractional portion of the engine block in section, and wherein the valves are located.

The instrument comprises an elongated trough like body portion, the body of which is indicated at 1, preferably constructed of sheet metal. The sides of the body portion are turned upwardly somewhat more extensively near the forward end and arcuate in shape as at 2, and near the rear end are also arcuately shaped as at 3, though slightly less extensive; this portion of the body portion being thus shaped simply for convenience of handling as for example by the left hand of an operator.

Upon the lower side of the extreme forward end of the body is an enlargement or boss like increase of thickness of the body portion, indicated at 4, the forward face of which is cut-away, semi-circularly in shape, as at 5, forming a recess for abutting engagement about or against the tappet nut or head 6 of the engine valve, to which a spring is to be applied.

In each of the upwardly turned flange like sides 2 is formed an elongated slot 7, it being in close juxtaposition to the bottom 1 of the body and parallel therewith.

A reciprocal thrust rod 8 is cooperatively engageable with the body portion and within the slots 7, by having upon the end thereof opposite to that of the handle 9 a substantially semi-circularly shaped cross-head 10. This cross-head is provided with integrally formed projecting lugs or trunnions 11, they being slightly turned downwardly upon their extreme ends and by which the thrust rod is held in operative relation to the body, when the cross head is in position within the slots and this position can only be acquired by the thrust rod 1 being positioned vertically in relation to the body with the cross-head turned at an angle thereto, as shown in Figure 4, and subsequently rotated so that the trunnions occur within the slots, and then, when the rod is dropped downwardly assuming a more parallel position with the body, the cross-head will be inseparably engaged therewith except as by a reversal of the uniting process, as is obvious.

Now when it is desired to place a spring in position within the engine block ready for application to the valve stem, the latter being illustrated at 12 and one of the springs at 13, all that is necessary is to place the spring within the body of the instrument with the head 10 against the innermost end thereof and the forward end of the spring projecting slightly from the instrument when it may be held in such an angle as to engage the free end of the spring adjacent the seat about the valve stem hole, when a slight forward motion of the thrust rod 8 will retain it there while the forward end of the body of the instrument is tipped downwardly until the tappet nut or head is encountered within the recess 5 where the instrument may

be readily held when a forward thrust of the rod 8 will contract the spring simultaneously with forcing it into an upright position where it belongs, and a withdrawal of the body of the instrument will result in the spring being left in its properly seated position.

The face of the cross-head 10 is slightly concaved as at 14 to more positively engage and hold the spring while being manipulated as just previously described.

From the foregoing it is evident that I have devised an exceedingly simple and convenient valve spring manipulating device, and, having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An instrument of the class described comprising a portable trough like body portion, and a separable, longitudinally reciprocable member, carrying a piston-like head cooperatively engageable within the body portion.

2. A device of the character described comprising in combination a trough like spring carrying portion, means at the forward end of the body portion for engagement with a stationary member, elongated slots within the opposite sides of the body portion adjacent the forward end thereof, a reciprocal spring engaging cross-head cooperatively engageable within the slots, and a thrust rod fixed to the cross-head for the purpose described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

HARRY A. TUVESON.

Witnesses:
S. GEO. STEVENS,
S. C. BRONSON.