Jan. 23, 1923. 1,443,018.

M. E. FOSS.

VALVE SPRING COMPRESSOR.

FILED MAY 2, 1921.

Fig. 1.

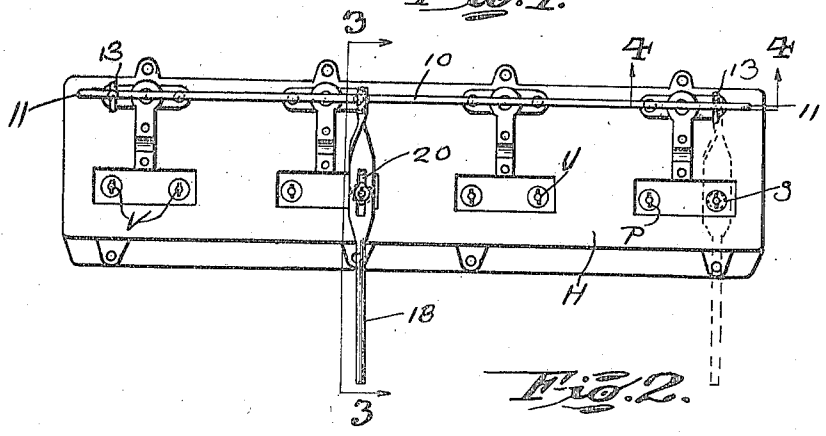


Fig. 2.

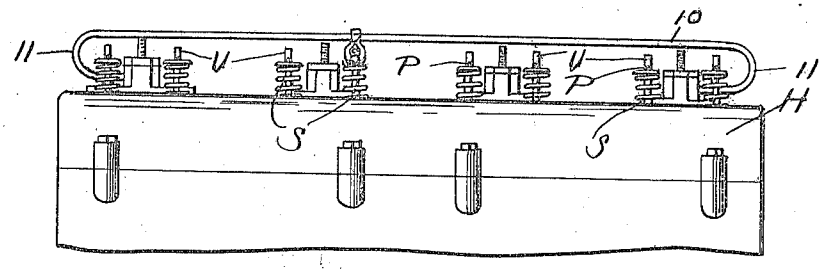


Fig. 3.

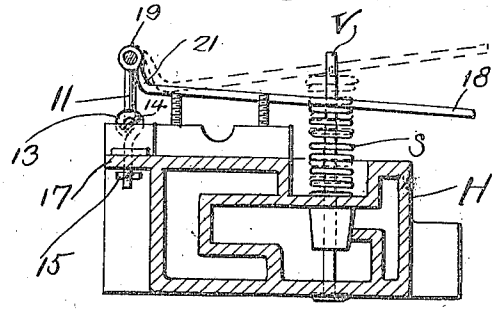
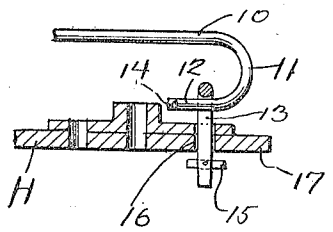


Fig. 4.



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By

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Patented Jan. 23, 1923. 1,443,018

UNITED STATES PATENT OFFICE.

MANTON E. FOSS, OF WILDER, MINNESOTA.

VALVE-SPRING COMPRESSOR.

Application filed May 2, 1921. Serial No. 465,981.

To all whom it may concern:

Be it known that I, MANTON E. Foss, a citizen of the United States, residing at Wilder, in the county of Jackson and State of Minnesota, have invented certain new and useful Improvements in Valve-Spring Compressors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to valve spring compressors for internal combustion engines and more particularly to a compressor for the valve springs of overhead valves.

An important object of the invention is to provide a device of this character which may be employed for successfully removing or replacing all of the valve springs and their retaining pins in the engine without changing the mounting of the compressor. In the majority of devices for compressing the valve springs of overhead valves with which I am familiar, the construction of the compressor requires constant changing of the position thereof in removing or replacing the springs, and particularly in removing and replacing the springs of the end valves. This is due to the fact that all of the available supports usually present upon the engine head are arranged inwardly of the end valves and consequently the construction of a device permitting shifting of the valve spring engaging member to engage all the valves presents a difficult problem. This difficulty I have overcome by providing a mounting for the compressor proper which, while secured at a point inwardly of its ends, permits of shifting of the compressor thereon to the ends of the bar or support, thereby permitting access to the springs of the end valve.

A further object of the invention is to provide a device of this character which may be readily and cheaply produced and which may be very quickly applied to its position upon the engine.

Other objects and advantages of the invention will become apparent throughout the course of the following description.

In the accompanying drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein like reference characters designate like parts throughout:

Figure 1 is a plan view of an engine embodying overhead valves showing my valve spring compressor applied thereto;

Figure 2 is a side elevation thereof;

Figure 3 is a section on the line 3—3 of Figure 1, and

Figure 4 is a section on the line 4—4 of Figure 1.

Referring now more particularly to the drawings, the numeral 10 indicates a mounting or bar which is preferably round in cross section and straight throughout its length. The ends of the bar are provided with down-turned portions 11 terminating in inwardly turned portions 12 underlying the bar proper. These inwardly turned portions are provided with means for attaching the bar to the engine head H, shown in the present instance as comprising a member 13 having an eye receiving the portion 12 and which is retained in position upon the member 12 by a cotter pin 14 or the like, extending through the end of the portion 12.

The lower end of the member 13 is provided with a pivotally mounted stop member 15 which may be shifted transversely of the member 13 or may be alined therewith. When the stop member 15 is alined with the mmber 13 it permits of the ready insertion or withdrawal of the member 13 to or from the tappet guide opening 16, usually provided in the heads of valve-in-head motors. These tappet guide openings 16 are usally formed in an overhanging portion formed upon the head and accordingly the access of the stop member 15 after the member 13 has been inserted through the opening to shift the member 15 to the desired position may be easier accomplished.

A bar 18 or compressor proper is slidably and rotatably mounted upon the bar 10, as indicated at 19, the possible movements of the bar being indicated by the dotted lines in Figures 1 and 3. This bar has formed therein an opening 20 alining with the valves V of the engine head H when the bar 10 is in applied position. It will be readily seen that by sliding the bar 18 upon the bar 10 until it alines with a valve V, and by moving the same downwardly as from the position shown in dotted lines in Figure 3 to the position shown in solid lines, the valve spring will be compressed by the engagement of the bar 18 with the spring

S, and the retaining pin P accordingly be removed. The bar 18 is preferably provided adjacent the point of its adjustment with a downward offset 21, permitting sufficient spacing of the bar 10 from the top of the engine to prevent its interference with any normal portion thereof.

Many changes being possible in the shape, size and arrangement of the various parts hereinbefore set forth without in any manner departing from the spirit of my invention, I do not limit myself to the specific structure hereinbefore set forth except as hereinafter claimed.

What I claim is:

1. In a valve spring remover, a straight bar, a member slidably and pivotally mounted upon the bar, and means for securing the bar to an engine head at a point spaced inwardly of the ends of the bar, said member being provided with an opening permitting the passage therethrough of the stem and valve spring retaining pin of a valve.

2. In a valve spring remover, a straight bar, a valve engaging member slidably and pivotally mounted upon the bar, and means for securing the bar to the engine head at a point spaced inwardly of the ends of the bar comprising downwardly turned ends formed upon said bars and terminating in inwardly extending portions underlying the bar, said inwardly turned extensions being adapted for engagement with an engine head to retain the bar in position thereupon.

3. A valve spring remover for valve-in-head motor provided in the heads thereof with tappet guide openings, comprising a bar provided at its ends with means for engaging in said openings and retaining the bar in spaced relation to the engine head, and a member slidably and pivotally mounted upon the bar, said member being provided with an opening permitting passage therethrough of a valve stem and the spring retaining pin thereof.

4. A valve spring remover comprising a straight bar embodying means for attaching the same to an engine head longitudinally of the head, and a member pivotally and slidably mounted upon the bar and provided at a point spaced from the bar with an opening permitting passage therethrough of the stem and valve spring retaining member of the valve.

In testimony whereof I hereunto affix my signature.

MANTON E. FOSS.