F. E. CLINE.

VALVE ADJUSTER AND SILENCER.

APPLICATION FILED FEB. 6, 1918.

1,333,160. Patented Mar. 9, 1920.

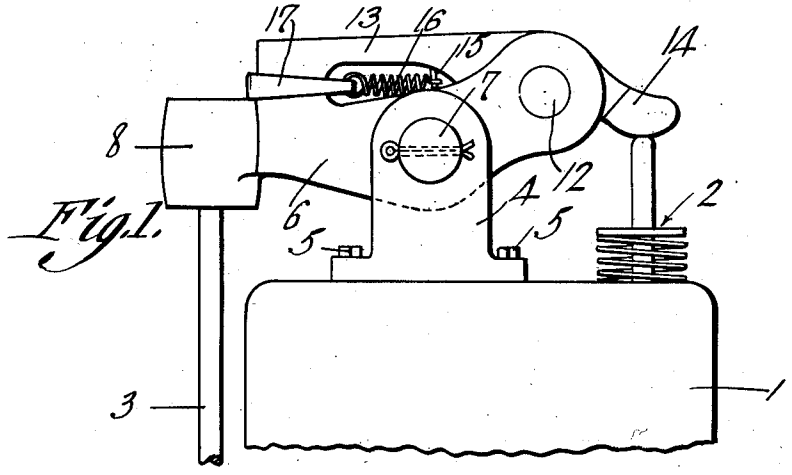


Fig. 1.

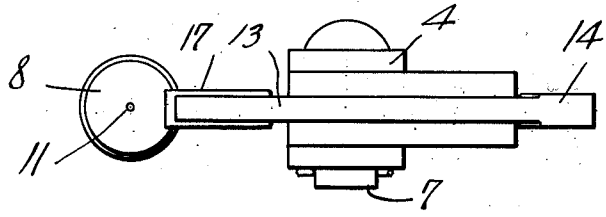


Fig. 2.

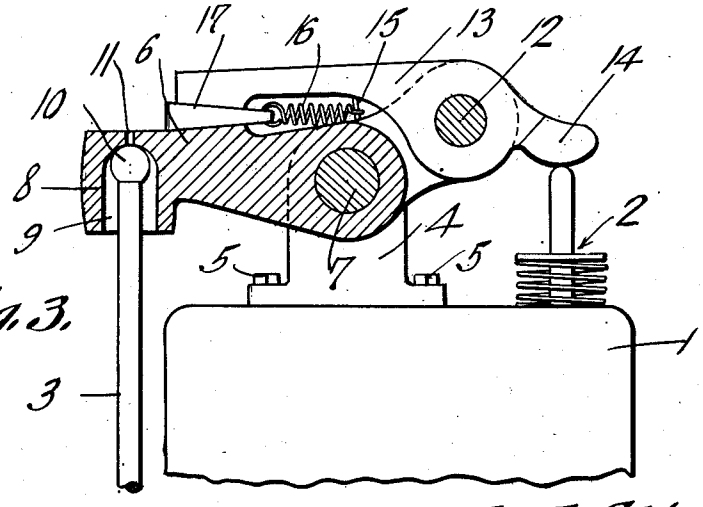


Fig. 3.

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FRANK E. CLINE, OF TRENTON, MISSOURI.

VALVE ADJUSTER AND SILENCER.

1,333,160. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed February 6, 1918. Serial No. 215,678.

To all whom it may concern:

Be it known that I, FRANK E. CLINE, a citizen of the United States, residing at Trenton, in the county of Grundy and State of Missouri, have invented a new and useful Valve Adjuster and Silencer, of which the following is a specification.

This invention relates to a valve adjuster and silencer intended for use principally with puppet valves and especially with those in use on internal combustion engines.

A main object of the invention is to provide means for easing the valve in assuming its seat so as to prevent the noise usually attendant thereon.

A further object within the contemplation of the invention is the provision of means for automatically adjusting the valve easing means.

A still further object of the invention is the provision of a simple, durable and efficient valve adjuster.

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 can be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is shown in the accompanying drawing, wherein:—

Figure 1 is a side elevation of a silencer constructed in accordance with the invention, the same being shown applied;

Fig. 2 is a plan view of the silencer;

Fig. 3 is a view in side elevation partly in section of the silencer, the same shown applied.

Referring to the drawing by numerals of reference:—

A fragment of the cylinder of the ordinary explosive, or internal combustion engine is shown at 1, and through the head of the cylinder passes the stem of the usual puppet valve indicated generally at 2. A push rod 3 is also shown which is attached to and actuated by the cam shaft for the purpose of unseating the puppet valve 2 at proper intervals.

A bifurcated standard 4 rises from the top of the cylinder 1 to which it is secured by machine screws 5 or otherwise. A rocker bar 6 is mounted between the upstanding prongs of the bifurcated standard upon a stub shaft 7 which passes through a suitable aperture formed in the rocker arm 6 for its reception and also through alining apertures in the prongs of the standard 4.

The rocker arm 6 is of irregular formation and has its rear end 8 enlarged and cored, as at 9, for the reception of the spherical end 10 of the push rod 3. This end of the rocker arm 6 may also have a duct 11 formed therein to permit oil to be introduced into the cored recess 9 for the purpose of lubricating the walls of the recess and the spherical end 10 of the rod 3.

The forward end of the rocker arm 6 is bifurcated and the prongs of the bifurcated portion are apertured to receive, with a close driving fit, a pin 12 upon which an arm 13 is rockable between the prongs of the bifurcated end of the bar 6. The arm 13 is formed with a forwardly projecting finger 14 which contacts the extending end of the stem of the puppet valve 2.

The arm 13 is provided with a downwardly projecting lug 15, formed at a medial point thereon, and to this lug is secured the forward end of a retractile spring 16 the rear end of which is secured to the forward end of a wedge 17 which is slidable between opposed faces formed on the bar 6 and on the rear end of the arm 13, the said faces being inclined to correspond to the inclination of the faces of the wedge.

In practice the device operates in the following manner:—

The bar 6 is rocked by the rod 3 causing the finger 14 to first press down upon the stem of the puppet valve 2 to open the valve and then ease the valve when seating under the force of the compression spring to prevent violent contact of the valve with its seat.

As the parts wear because of continued use, the wedge 17 is drawn forwardly by the spring 16 to further separate the bar 6 and arm 13 and adjust the parts to compensate for the wear.

Having thus described the invention, what is claimed as new and sought by Letters Patent, is:—

1. A valve adjuster and silencer including, in combination with an engine cylinder, and a valve therefor, a rocker bar, an arm pivotally secured to the bar and formed with a forwardly extending finger adapted

to engage the stem of the valve, an adjusting element between the bar and arm, means for automatically moving the adjusting element to adjusted positions, and means for rocking the rocker bar.

2. A valve adjuster and silencer, including a rocker bar, a valve contacting element carried by said bar, and means disposed between and engaging the rocker bar and valve contacting element and movable longitudinally of the bar for adjusting said element.

3. A valve adjuster and silencer, including a rocker arm, a valve contacting arm pivotally secured to the rocker arm, and means for adjusting the valve contacting arm with respect to the rocker arm.

4. A valve adjuster and silencer, including a rocker arm provided with a socket for the reception of the end of a push rod and a bifurcated end, a valve contacting arm overlying the rocker arm and pivoted within the bifurcated end, a nose projecting from the valve contacting arm and adapted to contact a valve stem, and means for adjusting the valve contacting arm.

5. A valve adjuster and silencer, comprising in combination with a motor cylinder, a valve, and a push rod, a bracket secured to the cylinder head, a rocker arm pivotally secured to the bracket, said arm provided with a socket adapted to receive the end of the push rod, a valve contacting arm pivoted to the rocker arm, a nose on the valve contacting arm and adapted to actuate the valve, and means interposed between the rocker arm and the valve contacting arm for adjusting the valve contacting arm.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRANK E. CLINE.

Witnesses:
H. L. ASHER,
JAS. T. MENEFEE.