

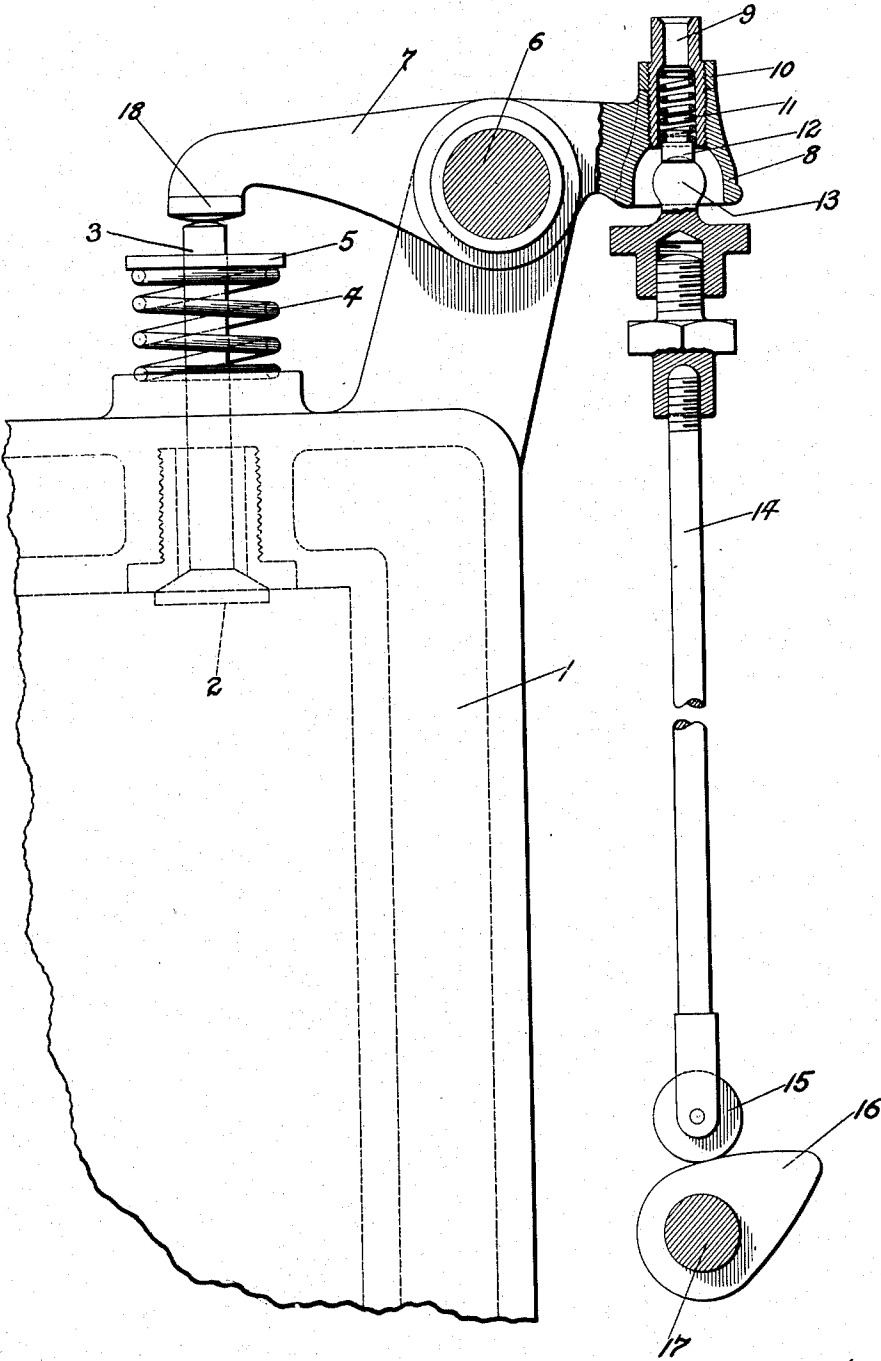
Feb. 10, 1925.

1,525,583

R. KOEHLER

SILENCING AND CUSHIONING DEVICE FOR VALVE ACTUATING LEVERS

Filed Aug. 22, 1921



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UNITED STATES PATENT OFFICE.

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SILENCING AND CUSHIONING DEVICE FOR VALVE-ACTUATING LEVERS.

Application filed August 22, 1921. Serial No. 494,107.

To all whom it may concern:

Be it known that I, RUDOLPH KOEHLER, a citizen of the United States of America, and a resident of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in a Silencing and Cushioning Device for Valve-Actuating Levers, of which the following is a specification.

10 The main object of this invention is to provide an improved attachment to an operating lever to prevent clattering thereof relative to the part with which it is to operate.

15 A further object of the invention is to provide an improved cushioning device to one end of an operating lever.

A further object of the invention is to provide an improved attachment to a valve operating lever.

20 Other and further objects of the invention will be apparent from the following detailed description taken in connection with the accompanying drawing in which the figure discloses a valve operating lever used in connection with an internal combustion motor and having this improved attachment secured to one end thereof.

With reference to the accompanying drawing 1 designates a portion of an internal combustion motor and relatable thereto is a valve 2 having an extending valve stem 3. For actuating said valve in one direction is a spring 4 bearing against a washer 5 which is carried by the stem 3.

Extended horizontally above the motor is a stationarily held shaft 6 and rockable on said shaft is a lever 7 having one end in engagement with the valve stem 3. The opposite end of said lever is provided with an inverted cup-shaped portion 8. Adjustably mounted within said cup-shaped portion is a bushing 9 and relatable therewith is a lock nut 10.

45 Seated within the bushing 9 is a coil spring 11 and secured to the lower end of said spring is a seating portion 12, said seating portion being engaged by the adjustable end 13 of an actuating rod 14, said rod at its lower end being provided with a roller 15 which engages the surface of a cam 16

mounted on the cam shaft 17. The cam shaft and cam thereon is of usual construction and are mounted within the crank case of the motor.

Heretofore valve actuating levers of internal combustion engines, due to both of the ends of each of the levers solidly bearing against the parts with which they are adapted to cooperate, produced a noise or clatter on account of there being a looseness or small amount of play between the upper end of the valve stem and the valve end which actuates on the valve stem. With this improvement, on account of there being cushioning means provided by the spring 11 bearing against the upper end of the actuating rod 14, the end 18 of the lever 7 will always be in contact with the end of the valve stem 3 as the spring 11 will at all times tend to force the cup-shaped end of the lever upwardly and therefore there will be no gap between the lever end 18 and the valve stem 3 and consequently no noise will be produced as there is no coming together action between the valve stem 3 and the end of the lever 18.

For increasing or decreasing the tension of the spring 11 manipulation of the bushing 9 is all that is required.

I claim:

1. In an internal combustion motor the combination of a valve, a lever for said valve, a reciprocal rod for actuating said lever, an adjustable bushing carried by said lever, a spring seated in said bushing, and a take-up member for said rod interposed between said rod and said spring, said bushing providing means for adjusting the tension of said spring.

2. In an internal combustion motor the combination of a valve, a lever for said valve, a reciprocal rod for actuating said lever, an adjustable bushing carried by said lever, a spring seated in said bushing, and a take-up member adjustably secured to one end of said rod interposed between said rod and said spring, said bushing providing means for adjusting the tension of said spring, said take-up member providing means for adjusting said rod.

RUDOLPH KOEHLER.