Jan. 30, 1923.

1,443,715.

J. C. PERAZA.

POPPET VALVE ACTUATING MECHANISM.

FILED MAY 31, 1921.

Fig. 1.

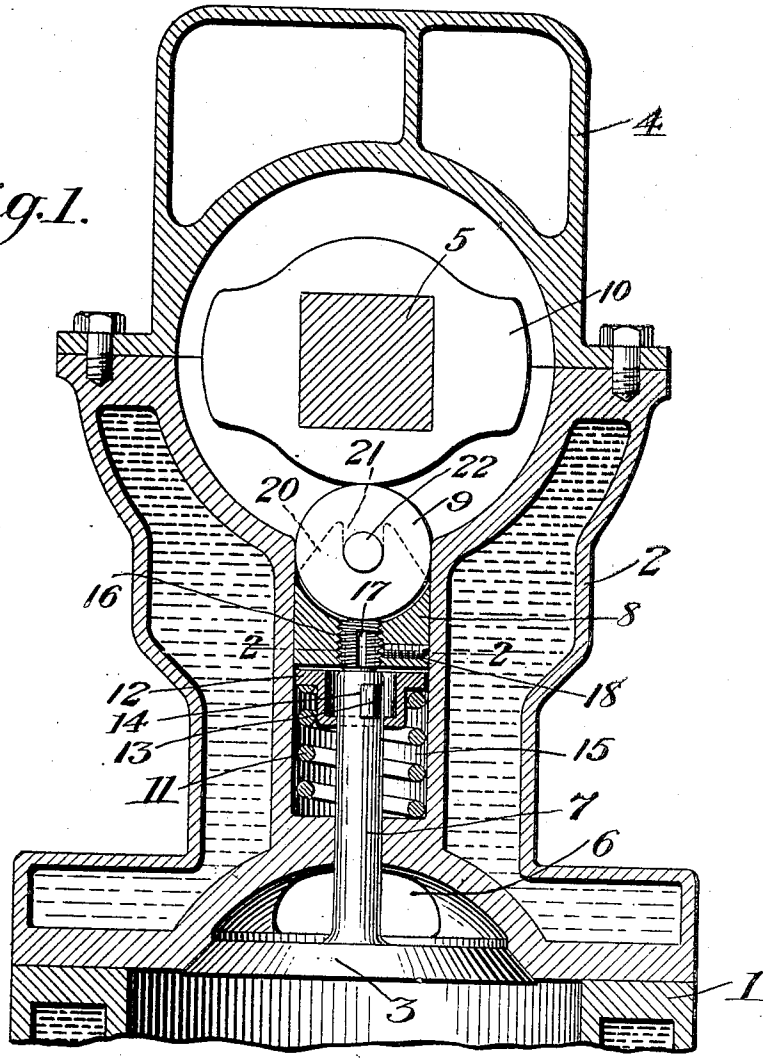
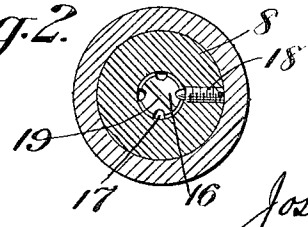


Fig. 2.



Inventor.

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UNITED STATES PATENT OFFICE.

JOSE CASTILLO PERAZA, OF NEW YORK, N. Y.

POPPET-VALVE-ACTUATING MECHANISM.

Application filed May 31, 1921. Serial No. 473,996.

To all whom it may concern:

Be it known that I, JOSE CASTILLO PERAZA, a citizen of the Republic of Mexico, residing at New York, N. Y., have invented certain new and useful Improvements in Poppet-Valve-Actuating Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to valve mechanism for internal combustion engines and particularly to an improvement in the combined rotary and reciprocating valve construction, as set forth in a co-pending application, Serial No. 455,307, filed March 24, 1921.

In the present construction, as in the former case, an arrangement of combined rotary and overhead poppet valves, for controlling the intake and exhaust, is provided, the rotary valve shaft being supplied with a cam for operating the reciprocating or poppet valve.

The principal object of this invention, however, as distinguished from the earlier case, resides in the means for adjusting and regulating the length of the stem of the reciprocating valve in order to compensate for wear and to insure the perfect seating of the valve under varying conditions.

Another feature is the provision of means for positively locking the adjusting means after the desired adjustment has been completed.

For the sake of convenience, the invention has been illustrated in connection with a single reciprocating valve, which is all that is necessary to adequately disclose the invention, as it will of course be understood that it is merely a question of duplication where the invention is applied to a multiple-cylinder engine.

In the accompanying drawings,

Fig. 1 is a view partly in section and partly in elevation, clearly illustrating the invention, and

Fig. 2 is a sectional view on lines 2—2 of Fig. 1.

Referring to the drawings in detail, 1 represents a partial transverse sectional view of the top portion of a cylinder casting, which may be of either a single or multiple-cylinder type, upon which is mounted a water-jacketed casting 2 supporting one or more reciprocating valves 3, and on top of said casting 2 is mounted another casting 4 forming a cover or inclosure for the horizontally disposed rotary valve-supporting shaft 5, all of which is similar to the construction as set forth in the co-pending application above referred to.

The reciprocating valve 3 controlling the port 6 is provided with the usual stem 7, the upper end of which cooperating with a reciprocating plunger or the like 8 carrying a roller 9, which is adapted to be engaged by a cam 10 mounted on the rotary valve shaft 5, so that as said cam rotates the reciprocating plunger 8 will transmit the necessary desired motion to the valve stem 7 of the valve 3 for opening the valve. When the cam 10 so permits, the valve 3 is returned to its normal position by a spring 11 encircling the upper portion of the valve stem 7, said spring being maintained below the upper end of the valve stem by a washer-like member 12 locked thereto by a key or the like 13 secured in the slot 14.

It is to be here noted that the casting 2 is provided with a vertically disposed cylindrical recess 15 surrounding the upper portion of the valve stem 7, and it is within this recess that the reciprocating plunger 8, spring 11, and spring-retaining washer 12 are retained and perform their various functions.

As hereinbefore stated, the principal object of this invention is to provide a means for regulating the length of the valve stem 7 to control the proper seating of the valve 3. This is accomplished in a very simple and effective manner by providing the lower central portion of the reciprocating plunger 8 with an adjustable screw plug 16, so mounted that said adjustable screw plug may be extended or retracted with respect to the plunger 8 to form the necessary adjustable contact with the upper end of the valve stem 7. In order to lock the adjustable screw plug 16 in its various desired positions, said plug is provided with a series of vertically disposed grooves or the like 17, said grooves adapted to be engaged by a set screw 18 extending inwardly from the side of the reciprocating plunger 8.

With this arrangement, the proper adjustable contact can not only be had between the reciprocating valve operating plunger 8 and the valve stem 7, but by reason of the adjusting screw 16, grooves 17, and cooperating set screw 18, the various

adjustments can be accomplished and maintained.

The top of the adjustable screw plug 16 is also provided with a transverse groove or slot 19 whereby said screw plug may be rotated in either direction from the top thereof by using a screw driver or the like. To permit this adjustment, the upper end of the plunger 8 is bifurcated, forming upstanding supports 20 between which the roller 9 is mounted in such a manner that said roller may be removed by simply moving the roller upwardly. This is made possible by constructing the upstanding supports 20 with diametrically opposite, vertically disposed, slots 21, forming journals for the trunnions 22 carried by the roller 9.

With the above arrangement, the seating of the poppet valve can be accurately adjusted in a very simple and expeditious manner, requiring the manipulation of the minimum number of parts, the whole arrangement being easily adapted to the previously designed construction as set forth in the copending application above referred to.

What I claim is:

In a valve actuating mechanism, the combination with a poppet valve, of a reciprocating plunger, an adjustable screw plug carried by the lower end of said plunger adapted to engage the end of the valve stem for opening said valve, a return spring for closing said valve, vertically disposed grooves carried by said screw plug, a set screw extending inwardly from the side of the plunger in position to engage one of said vertically disposed grooves for locking the screw plug in its adjusted position, a pair of upstanding supports carried by the upper end of said plunger, diametrically opposite vertically disposed slots formed in the upper ends of said supports, a removable roller mounted between said supports, trunnions carried by said roller adapted to be journalled in said slots, and a cam in engagement with said roller for actuating said plunger.

In testimony whereof I affix my signature.

JOSE CASTILLO PERAZA.