

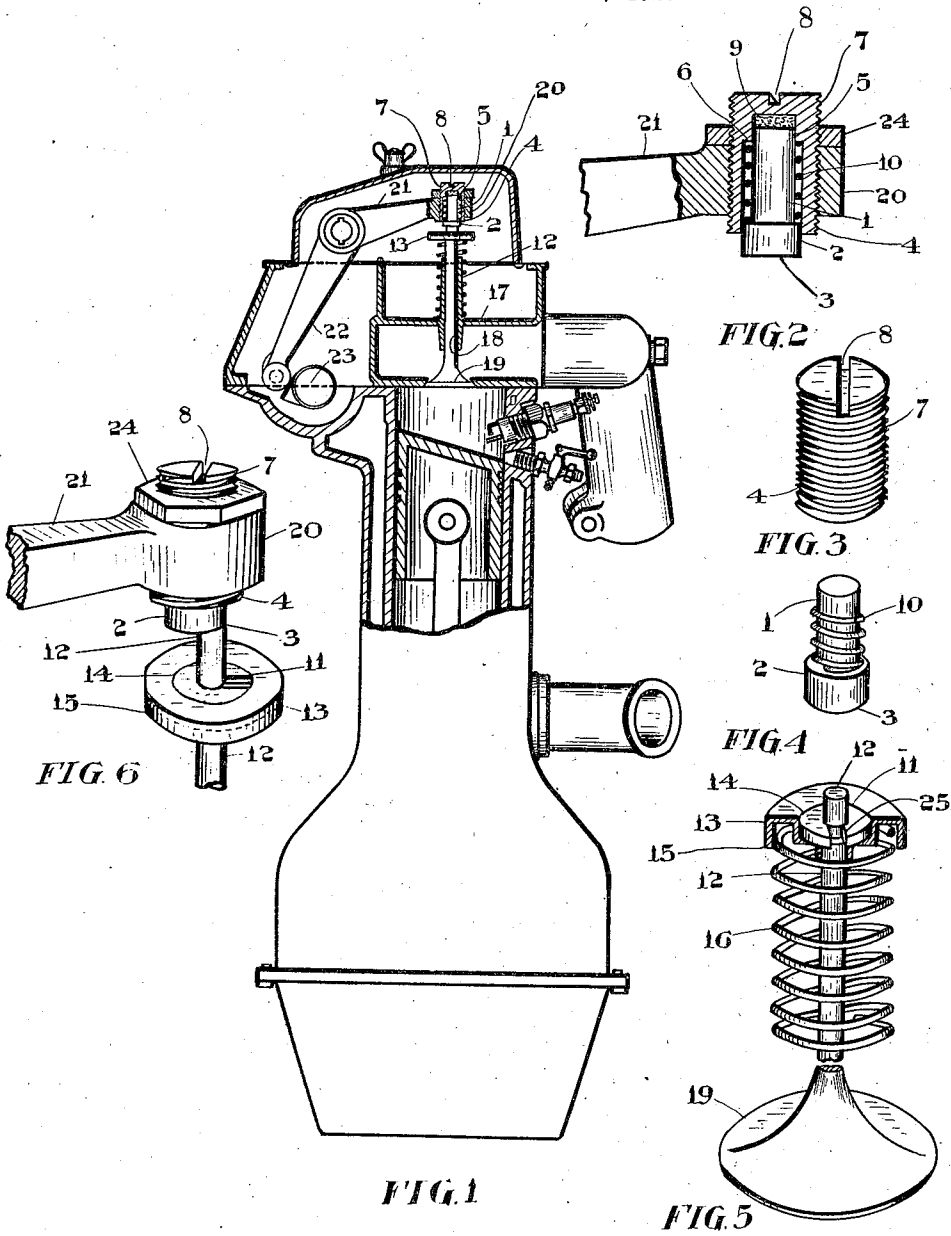
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ENGINE VALVE GEAR

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UNITED STATES PATENT OFFICE.

ALPHONSE JOSEPH LAVOIE, OF MONTREAL, QUÉBEC, CANADA.

ENGINE VALVE GEAR.

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To all whom it may concern:

Be it known that I, ALPHONSE JOSEPH LAVOIE, a subject of the King of Great Britain, and residing at 294 Wilson Avenue, Notre Dame de Grace, in the city and district of Montreal, in the Province of Quebec, in the Dominion of Canada, have invented a new and useful Engine Valve Gear, of which the following is the specification.

The invention relates to engine valve gear as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially of the novel construction and arrangement of parts, whereby the adjustable plunger pin indirectly connected to the driver shaft is in constant and direct contact with the valve stem.

The objects of the invention are to operate the valve without noise and with due regard to vibratory movements; to insure constant and therefore steady operation; to maintain the operating parts in good working condition; to obtain valve clearance in a muffled chamber, where the hammer blow of the plunger pin is cushioned; and generally to provide a reliable, durable and efficient valve operating gear.

In the drawings, Figure 1 is an end view partially in vertical section, showing the interior of the cylinder head and a valve and valve gear.

Figure 2 is a sectional detail enlarged to show the plunger pin and mounting.

Figure 3 is a perspective detail of the adjusting screw.

Figure 4 is a perspective detail of the plunger pin.

Figure 5 is a perspective detail of the valve and contiguous parts.

Figure 6 is a fragmentary view of the cam operated lever, showing adjusting screw plunger pin and head of valve stem.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, the plunger pin 1 is shown as having an annular shoulder 2, forming a spring stop and a hammer head 3 continuing from said shoulder and forming a guide for the plunger pin in its reciprocating movements.

The pin 1 is mounted in the adjusting screw 4 and at its inner end projects into the recess 5 extending beyond the bottom or ledge 6 in the hollow of the screw 4, said

ledge forming a stop for a string 10, said screw having the exterior thread 7 and a driver slot 8.

The screw 4 is locked by the nut 24 and the felt lining 9 is introduced into the recess 5 and forms a cushion for the pin 1.

The spring 10 presses outwardly on the pin 1 against the spring stop 2 and the hammer end 3 engages valve stem 12. The lock washer 11 engages the valve stem 12 in the annular slot 25, as a lock for the spring collar 13 which it engages in the central cupped portion 14, said collar having the outer flange 15 retaining the spring 16 the latter encircling the valve stem 12. The spring 16 is between the collar 13 and intermediate wall 17 of the head centrally around the valve stem guide 18 above the valve 19 at the lower end of the stem 12. The adjusting screw 4 is screw-threaded into the arm 20 of the cam lever 21, the other arm 22 being engaged by the cam 23.

In the operation of this valve gear, the cam 23 is driven in any suitable way by means of operatively connected parts to the piston driven members, and this constantly and regularly operates the cam lever 21. This movement is communicated to the adjusting screw 4 and consequently to the plunger pin 1.

The hammer end 3 engages the top of the valve stem 12 slightly off centre of said hammer end, and as the plunger pin 1 is freely rotatable, any movement to or from the valve stem in respect to the hammer end of the said plunger pin is readily accounted for, as other than the downward pressure there is no rigidity during the temporary period of their engagement.

Some changes may be made to contribute to filling the wants due to surrounding conditions, but all such changes will enjoy the protection under the patent as fully set forth in the claims for novelty following.

What I claim is:

1. In an engine valve gear, a rocker arm suitably operated at intervals and an adjusting screw at the end thereof having a pin chamber therein and a cushion bottom to said chamber, a plunger pin spring-held to its outer position and having its head forming a guide in its reciprocating movements within said chamber and a valve spring-held to its seat and having its stem in constant engagement with said pin head.

2. In engine valve gear, a rocker arm

suitably operated at intervals and an adjusting screw carried by said arm and recessed from the under side and a reduced bottom to said recess, a felt pad in said reduced end of the recess, a plunger pin having a head reciprocating in said screw recess and projecting therebeyond, an encircling spring between the shoulder of said pin and that in said recess wall, a valve having keeper slots in the said stem, a spring encircling said stem, an annular housing for the upper end of said spring having a central keeper mounted on said stem in said slots and within said housing recess.

Signed at Montreal, Quebec, Canada, this 15 second day of December, 1920.

ALPHONSE JOSEPH LAVOIE.