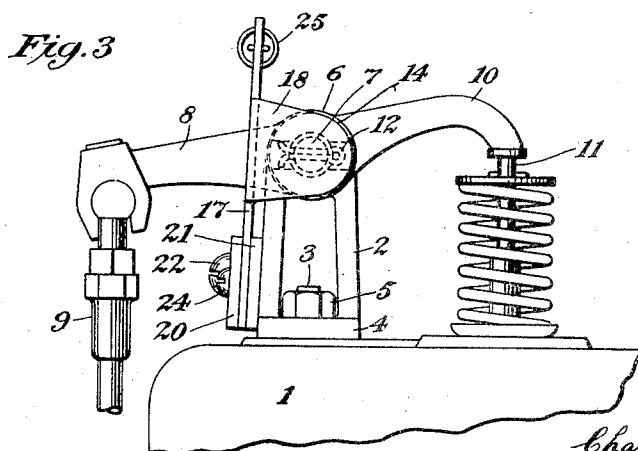
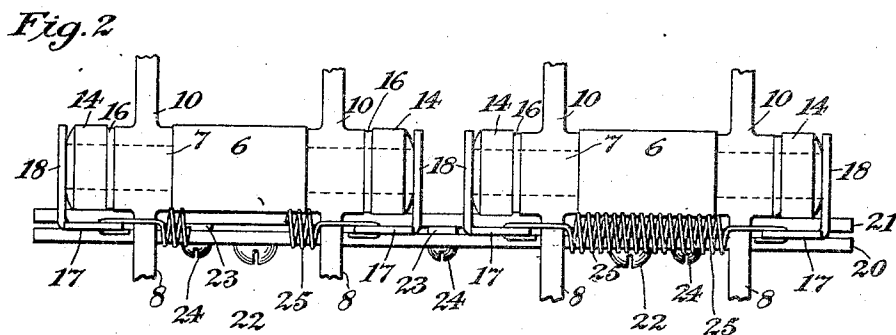
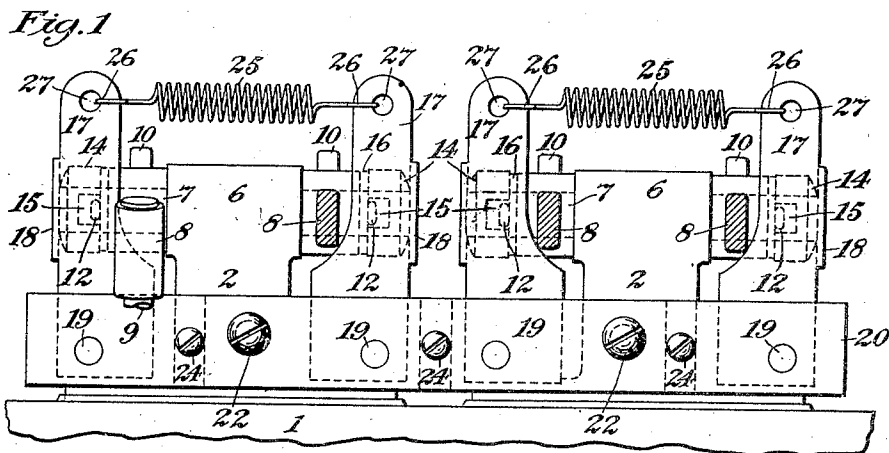


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 ANTISIDEPLAY ATTACHMENT FOR VALVE OPERATING MECHANISM.
 APPLICATION FILED MAY 24, 1919.

1,332,446.

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ANTI-SIDEPLAY ATTACHMENT FOR VALVE-OPERATING MECHANISM.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES H. NEWTON, a citizen of the United States, residing in the town of Plainville, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Anti-Sideplay Attachments for Valve-Operating Mechanism, of which the following is a specification.

My invention relates to improvements in mechanism for operating the valves of internal combustion engines, and particularly to that class of engines wherein the valve operating mechanism is arranged above and outside of the engine casing, for instance, in the type of engine used in the Buick automobiles; and my improvements are directed to means whereby the smoothness of operation of such valve operating mechanism shall be increased and sideplay and looseness of the operating parts may be eliminated by means which I will now proceed to particularly describe and claim, referring, in so doing, to the accompanying drawings in which similar parts are designated by the same reference numerals, Figure 1 being a front elevation, partly in section, illustrating valve opening mechanism to which my improvements have been applied; Fig. 2 is a plan view of the same, omitting the engine head, parts being broken away for clearness; and Fig. 3 is an end view looking to the left on Fig. 1.

The engine head is designated as 1, and 2, 2 are standards secured to the engine head by suitable bolts 3 passing through flanges 4 and held by nuts 5.

These standards 2 are provided with cross-heads 6 having arms 7 indicated by broken lines in Figs. 1 and 2; and on these arms 7 are mounted the valve-actuating levers, one arm of which, as 8, is actuated by the rod 9, in the usual manner, while the other arm 10 serves to push down the valve rod 11 and open the valve (not shown). These valve operating levers are held upon the arms 7 by cotter pins 12 passing through the holes in the arms 7. And, in practice, the levers are apt to become more or less loose on the arms 7 and to develop a certain amount of sideplay which interferes with the smoothness and quietness of operation.

I overcome this sideplay by supplementing the action of the cotter pins 12 by applying over the ends of the arms 7 caps 14 which have slots 15 in their rims to straddle

the cotter pins so as to permit the rims of the caps to bear evenly against the washers 16 which are between the cotter pins and the hub of the levers 8—10.

These caps 14 are pressed in on the arms 7 by the action of two arms 17, 17 provided with flanges 18 bearing against the tops of the caps, the arms 17 being pivoted as at 19, preferably between two plates 20 and 21 which, in turn, are secured to the standard 2 by suitable means as bolts 22, 22 tapped into the standard, the plates 20 and 21 being spaced, as by blocks 23 interposed between them, and being secured together, as by bolts 24. The upper ends of the arms 17 are drawn toward each other by a tense, coiled spring 25, the ends of which are secured, as by hooks 26 engaging in holes 27, in the upper ends of the arm 17.

This arrangement results in the flanges 18 of the arms 17 exerting a constant pressure upon the caps 14, and through them upon the washers 16, pressing them snugly in against the hubs of the levers 8—10, with a yielding pressure, so as to take up any sideplay between the levers and their mountings and to insure their true and quiet operation. And this is accomplished without removing the cotter pins 12 or otherwise disturbing the normal arrangement of the levers 8—10 on their mountings. It is desirable not to remove the cotter pins 12 but to leave them in position to act as positive retainers of the levers, while the supplementary and yielding means act to take up any sideplay as already explained.

Inasmuch as the levers are commonly arranged on the engine in groups of two pairs each, as illustrated in the drawings, I prefer to arrange my anti-sideplay attachment in corresponding units of two pairs each, so that the set of two pairs may be secured to the engine head as by the two bolts 22, with a minimum of special mechanical work, and also so that the anti-sideplay device shall be assembled so as to be conveniently and readily applied to such cars as Buick cars, with which they are intended to be used.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:—

1. In an anti-sideplay device for valve operating mechanism, embodying a pair of hubbed rocking levers, the combination of means adapted to exert pressure against the outer ends of the hubs of such levers, and

common means for causing said hub-engaging means to press laterally against the hubs.

2. In an anti-sideplay device for valve
5 operating mechanism, embodying a pair of
hubbed rocking levers, the combination of
means embodying pivoted arms adapted to
exert pressure against the outer ends of the
hubs of such levers, and common means for
10 drawing said pivoted arms toward each
other.

3. In an anti-sideplay device for valve
operating mechanism, embodying a pair of
hubbed rocking levers, the combination of
15 means embodying pivoted arms provided
with flanges, and caps having slotted edges,
adapted to exert pressure against the outer
ends of the hubs of such levers, and common
means for drawing said pivoted arms toward
20 each other.

4. In an anti-sideplay device for valve
operating mechanism, embodying a pair of
hubbed rocking levers, the combination of
means embodying a pair of pivoted arms
each provided with flanges, and caps having
25 slotted edges, adapted to exert pressure
against the outer ends of the hubs of such
levers, and common means for drawing said
pivoted arms toward each other.

5. In an anti-sideplay device for valve
30 operating mechanism, embodying two pairs
of associated hubbed rocking levers, the com-
bination of means embodying two pairs of
pivoted arms each provided with flanges,
and caps having slotted edges, adapted to
35 exert pressure against the outer ends of the
hubs of such levers, and means common to
the arms of each pair for drawing said piv-
oted arms toward each other.

CHARLES H. NEWTON.