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THROTTLE CONTROL DEVICE FOR AUTOMOBILES

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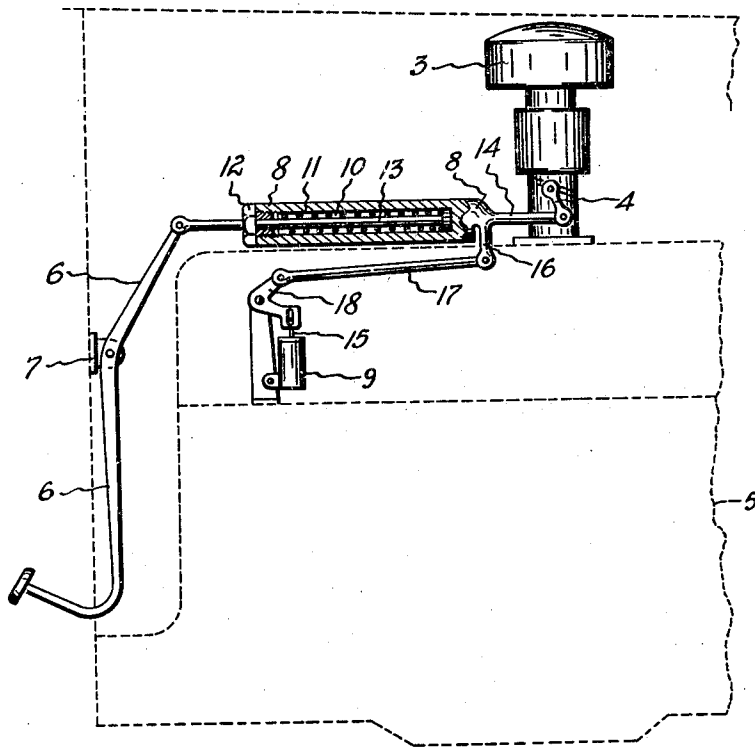


FIG. 1.

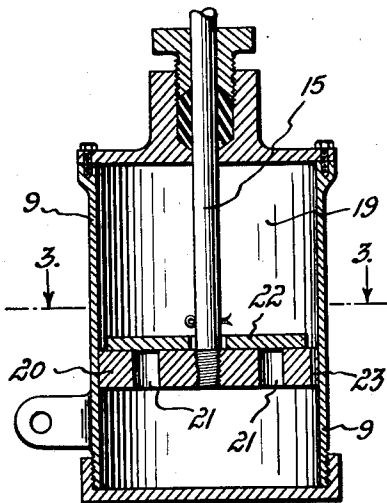


FIG. 2.

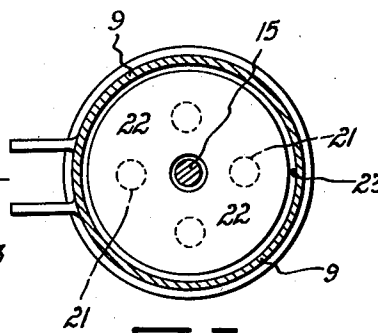


FIG. 3.

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THROTTLE CONTROL DEVICE FOR AUTOMOBILES

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In Australia December 19, 1934

1 Claim. (Cl. 137—139)

This invention relates to an improved throttle control device for automobiles propelled by internal combustion engines, and is adapted to govern the movement of the accelerator pedal or lever.

In the driving of such vehicles it is well known that many drivers fully depress the accelerator pedal or move the lever provided, when they desire to accelerate quickly, thereby allowing a surplus amount of fuel to be drawn into the engine without causing the latter to increase its revolutions more rapidly than it would if the pedal or lever were depressed or moved gradually in keeping with the demand of the engine.

Furthermore, the vibration to which a throttle valve is subjected due to the continuous application of the driver's foot to the accelerator pedal causes undue wear on the spindle whereon said valve is mounted, thereby allowing an excess of air to be admitted past said valve when closed and necessitating adjustment of the idling mixture.

The primary object of this invention is to provide an inexpensive device capable of preventing the sudden opening of the throttle and of damping vibrations of the throttle valve, but which will allow said valve to close or partially close as ordinarily immediately pressure on the accelerator pedal or lever is removed or reduced.

The improved device is preferably in the form of a dash-pot, and comprises a cylindrical chamber containing a piston having a stem which protrudes through one end of said chamber and is adapted to be connected, to a lever or arm actuated by, or fast on the shaft usually employed to transmit movement of the accelerator pedal or lever to the push rod operating the throttle valve.

The piston has preferably a plurality of comparatively large ports closed normally by a disc mounted slidably on the piston stem, and in the periphery of the piston there is a groove or grooves serving as a bypass. Alternatively said groove or grooves may be formed in the wall of the cylinder.

The cylinder contains a suitable fluid which on the accelerator pedal or lever being depressed or moved, is forced from one side of the piston to the other, preventing sudden opening of the throttle valve.

In order that the invention may be more readily understood reference will now be made to the accompanying drawing wherein:

Figure 1 is an elevational view partly in section

illustrating the application of the invention to an internal combustion engine, portion of the latter being indicated by broken lines.

Figure 2 is a detail view illustrating the dash pot of the invention drawn to a larger scale.

Figure 3 is a plan view thereof.

In order to explain the invention it is necessary to refer to a carburettor 3 of known construction having a throttle operating link 4 said carburettor being mounted in approved manner upon a cylinder block 5. An accelerator pedal 6 or operating lever of usual construction is pivoted for instance to a bracket 7.

In accordance with the present invention there is interposed between the carburettor 3 and the pedal 6, a spring coupling member 8 and a dash pot mechanism 9.

The spring coupling member 8 may take the form of a recessed portion 10 containing a spring 11, disposed between an adjustable abutment 12 and a shoulder upon a pull rod 13 which latter is connected directly or indirectly to the pedal 6.

The coupling member 8 is connected by a rod 14 to the throttle operating link 4 and is also connected for instance by an arm 16, and a coupling link 17 to a bell crank lever 18, to which the piston rod 15 of the dash pot 9 is pivotally connected.

The dash pot 9 comprises a cylinder 19 containing fluid and within which there is a piston 20 connected to the piston rod or stem 15. The piston 20 has ports 21 covered by a loose disc 22 which acts as a non-return valve to prevent the flow of fluid through the ports 21 of the piston 20.

The arrangement is such that in the event of the dash pot 9 not being connected to the arm 16 the throttle would open and close in synchronism with the operation of the pedal 6.

When however, the dash pot 9 is connected to the coupling 8 and the pedal 6 depressed as in the act of acceleration, the dash pot 9 resists sudden movement of the coupling member 8 and throttle link 4 and causes the spring 10 to be compressed.

If the pedal 6 remains depressed the throttle will then open gradually under action of the compressed spring as permitted by the movement of the piston 20, in the dash pot cylinder 19 as the result of the passing of fluid through a restricted groove 23 in the piston 20 or in the wall of the cylinder as the case may be.

When pressure on the accelerator pedal or lever is reduced or removed the rod 13 engages the member 8 and forcibly closes the throttle by link

4, the ports 21 in the piston 20 are uncovered immediately by fluid pressure on the under face of the disc 22, and the latter lifts allowing the piston 20 to move freely in the cylinder 19 without retarding the closing of the throttle valve by link 4, under the influence of the usual accelerator pedal spring not shown.

I claim:

In throttle control devices for the carburetors of automobiles wherein a dash-pot is incorporated, improved resilient means interposed between the usual throttle operating link of the

carburetor and the accelerator pedal, said improved means comprising a coupling having a recessed portion, a spring within said recessed portion, a pull rod within said recessed portion and surrounded by the said spring, said pull rod being operatively connected at one end to the said accelerator pedal; a collar fast on the other end of said pull rod, and an adjustable abutment for said spring within said recessed portion, the latter being operatively connected to the aforesaid dash-pot.

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