July 8, 1941. C. A. VATTER 2,248,314

VEHICLE SPEED CONTROLLER

Filed Sept. 13, 1937 2 Sheets-Sheet 1

Fig. 1.

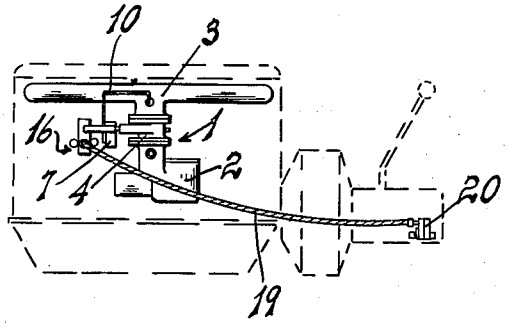


Fig. 2.

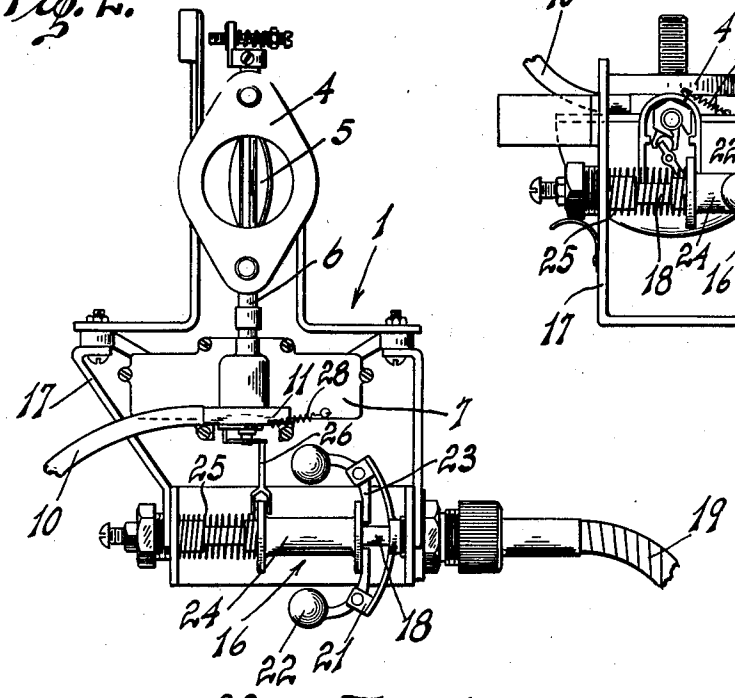
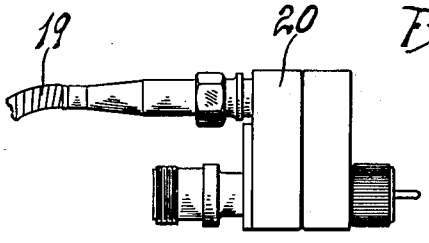


Fig. 3.

Fig. 4.



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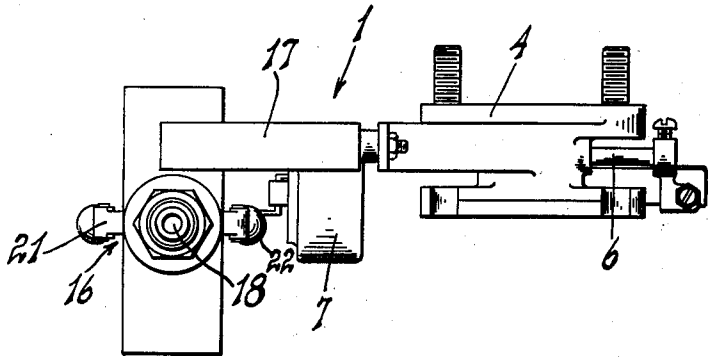


Fig. 5.

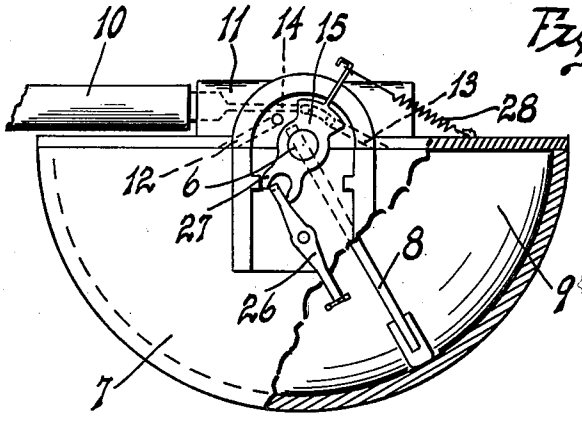


Fig. 6.

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VEHICLE SPEED CONTROLLER

Claude A. Vatter, Long Beach, Calif.

Application September 13, 1937, Serial No. 163,529.

1 Claim. (Cl. 121—43)

This invention relates to a vehicle speed controller wherein the fuel supply to the engine is governed by the speed of the vehicle and overspeeding of the vehicle will cause the controller to shut off the fuel supply to the engine.

An object of my invention is to provide a novel vehicle speed controller in which the throttle valve is opened and closed by means of a motor, the motor in turn being controlled by a speed sensitive appliance.

A further object is to provide a novel vehicle speed controller in which a vacuum actuated motor operates a throttle, the vacuum motor being controlled in its movements by a speed sensitive device.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detailed description and the appended claim.

In the drawings:

Figure 1 is a diagrammatical side elevation of my controller mounted on a motor.

Figure 2 is a top plan view of my controller.

Figure 3 is a rear elevation of the same.

Figure 4 is a side elevation of the transmission coupling.

Figure 5 is a side elevation of the controller.

Figure 6 is an enlarged rear view of the vacuum motor with parts broken away to show interior construction.

Referring more particularly to the drawings, the speed controller 1 is mounted between the carburetor 2, and the manifold 3 of the engine. The speed sensitive device of the controller is driven from the drive shaft, transmission or wheels of the vehicle as will be further described.

The speed controller comprises a fitting 4 which is mounted between the carburetor and the manifold, and is suitably flanged so as to be bolted to the carburetor and manifold substantially as shown.

A throttle valve 5 is mounted on the fitting 4 on a shaft 6. This shaft is journaled in the fitting and extends horizontally into the motor 7. This motor is preferably of the vacuum type, in which a piston 8 is moved from one side to the other of the cylinder 9, under the urge of a partial vacuum created in the engine.

The piston 8 is fixedly attached to the shaft 6 and it will be evident that movement of the piston will cause the shaft to rotate, thereby swinging the valve 5 into either open or closed position.

A vacuum tube 10 extends from the intake manifold of the engine to the valve chest 11. Within the valve chest there are provided ducts 12 and 13, which extend from the atmosphere to either side of the piston 8. A duct 14 extends to the vacuum tube 10 and this latter duct is arranged between the ducts 12 and 13. An oscillating valve 15 is journaled loosely on the shaft 6 and is provided with a conduit which joins either the ducts 14 and 13, or 14 and 12, depending upon the position of the valve. Utilizing the shaft 6, which carries the throttle valve 5 and is rocked by the piston 8, as a bearing means for the swingable valve 15, is a valuable feature of the invention, because it economizes space and reduces cost of manufacture.

When the ducts 14 and 13 are connected as shown in Figure 6, there will be a partial vacuum to the right of the piston 8, while atmospheric pressure will be exerted on the left face of the piston. Again referring to Figure 6, if the valve 15 is swung to the left so as to connect the ducts 14 and 12, the piston 8 will be moved towards the left, due to the partial vacuum on the left face of the piston, and atmospheric pressure on the right face of the same.

It will thus be evident that the valve 5 can be opened or closed by means of the motor 7, the piston of this motor being controlled by the valve 15. The valve 15 is actuated by the speed sensitive device 16. The speed sensitive device 16 and the motor 7 are both fixedly attached to a frame 17, the frame in turn being fixedly mounted on the fitting 4.

The speed sensitive device consists of a horizontal shaft 18 journaled in the frame 17. The shaft 18 is rotated by the flexible shaft 19 at a speed proportionate to the speed of the vehicle. The flexible shaft 19 extends to the gear box 20 and this gear box is in turn driven by either the transmission, the drive shaft, or the wheels of the vehicle.

A fly ball governor 21 is mounted on the shaft 18 and is driven thereby. The balls 22 of the governor are each mounted on an arm 23, the inner end of which arm engages one face of the spool 24. This spool is slidably mounted on the shaft 18. The sliding movement of the spool 24 is opposed by the spring 25, which surrounds the shaft 18. As the fly ball governor 21 operates, it tends to slide the spool 24 along the shaft 18 and against the tension of the spring 25.

A link 26 is pivoted to the rear face of the motor 7 and the outer end of this link is formed as a clevis to engage the spool 24. The inner end of the link 26 extends into the bifurcated end 27 of the valve 15.

Thus, as the spool 24 slides along the shaft

18 under the urge of the governor 21 and spring 25, the link 26 will swing the valve 16 to control the ducts 12, 13 and 14. A spring 28 is attached to the valve 15, tending to hold the valve in a position so that the piston 8 will be in the position shown in Figure 6 with the valve 5 open.

In operation, as soon as the motor starts, the valve 5 will be held in open position. The usual throttle of the vehicle will control the speed of the motor in the usual and well known manner. As the vehicle moves forwardly, the governor 21 will swing, and if the speed of the vehicle is too high, the spool 24 will be slid along the shaft 18 by the governor, whereupon the link 26 will swing the valve 16 to a position where the vacuum of the engine will create a reduced pressure on one side of the piston 8, causing this piston to move in its cylinder, whereupon the shaft 6 will swing the valve 5 into closed position. The speed of the engine will thus be reduced and as soon as the governor 21 reduces its speed, the spool 24 will again move along the shaft 18 under pressure of the spring 25, thus swinging the valve 15 to the position shown in Figure 6, at which time the piston 8 will move to the position shown in Figure 6, and the valve 5 will be wide open.

With this arrangement, I provide a very sensitive speed controller and also one in which the speed of the motor is not reduced at low speeds of the vehicle.

For example, in climbing a hill in the lower gears, the speed of the motor can be maintained as necessary.

Having described my invention, I claim:

In a vehicle speed controller, an air motor including an oscillative piston, a shaft, said piston being mounted on the shaft and oscillating the same as the piston moves, said shaft being attachable to a motor control valve, an intake valve on the motor, said intake valve being adapted and arranged to control the oscillating movement of the piston, a speed sensitive device, including a fly ball governor, a spool engageable and movable by the fly ball governor, a shaft on which the spool is slidably mounted, a link, one end of which engages the spool, said link extending to the intake valve and engaging said intake valve whereby the intake valve is opened and closed as the speed sensitive device operates.

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