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2,351,245

AUTOMATIC SPEED REGULATOR

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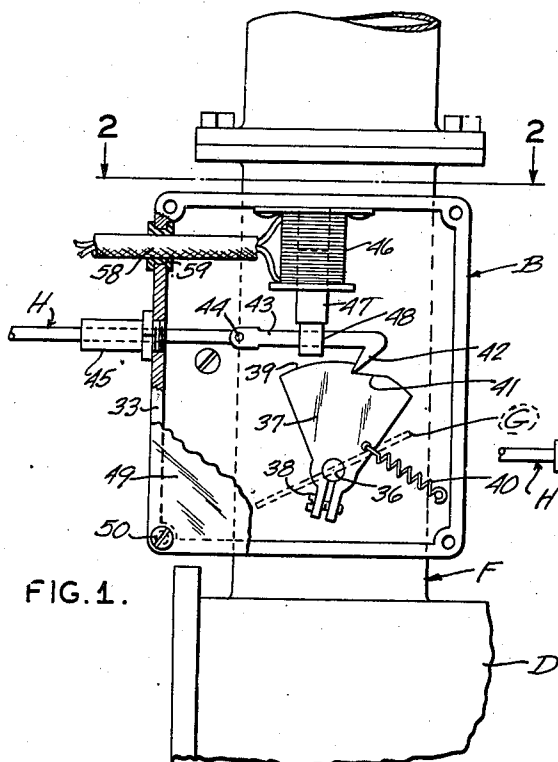


FIG. 1.

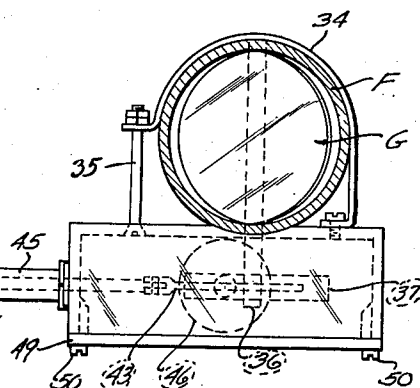


FIG. 2.

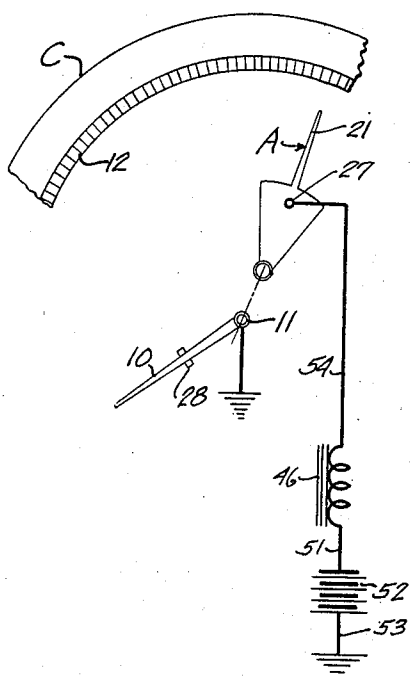


FIG. 3.

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AUTOMATIC SPEED REGULATOR

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4 Claims. (Cl. 180—82.1)

This invention relates to means for automatically limiting and controlling the maximum or peak speed of a motor vehicle.

The primary object of the invention is to provide means whereby the owner, the authorities, or other persons, may predetermine and preset the maximum possible speed of a vehicle such as an automobile or truck so that the vehicle cannot be driven over that speed. A further object is to provide means of this kind associated with the usual speedometer and fuel control of the engine in such manner that the driver will have full control over the vehicle at any speed less than the maximum but which, when this maximum speed is attained, will automatically retard the engine to idling speed and require that the driver release the throttle or accelerator in order to again assume control of the engine. Another object is to provide, in combination with a speed responsive electrical switch, a speed control or regulator mechanism of this kind which may be readily assembled upon the vehicle and engine and adjusted to the desired peak speed after which, through provision of means to this end, the control may not be tampered with by the driver or other unauthorized person or at least without leaving evidence of such work.

These and other objects of the invention will be made apparent in the course of the following detailed description of certain preferred embodiments of the invention, reference being had therein to the accompanying drawing wherein:

Fig. 1 is a side elevation of the fuel or throttle valve control unit as assembled upon the carburetor and with a part of the cover member broken away to disclose interior parts of the unit.

Fig. 2 is a horizontal cross section taken along the line 2—2 in Fig. 1.

Fig. 3 is a schematic wiring diagram of the electrical circuit of the entire control or regulator mechanism, including certain conventional speedometer elements and elements of a speed responsive electrical switch assembled and associated therewith.

The invention comprises the control, regulator or release unit B assembled in a case or housing 33 which is secured, as by means of an adjustable clamp 34 and tension bolt 35, to the upstanding manifold member F wherein the usual butterfly throttle valve G is located. Ordinarily said valve G is operated by a foot accelerator or hand throttle (not shown) through the rod H to control, in direct proportion to the degree at which it is opened, the fuel input and consequent

speed of the engine. In accordance with my invention however the valve shaft 36 carrying said valve G is provided, within the housing, with an operating member or cam 37 secured in place by clamp screw 38 and which has an arcuate margin 39 concentric about the axis of shaft 36. This member 37 is normally urged in one direction, which causes the valve to almost close, by the retractile coil spring 40 arranged as shown, and the margin 39 has a notch 41 with which is normally engaged the hooked end 42 of a latch 43 pivotally connected at 44 to the throttle rod H. Said throttle rod extends slidably through a guide 45 into the case 33 tangentially with respect to the member 37 and the latch 43 is thus adapted normally of its own weight to maintain its hooked end 42 in engagement with the notch 41 so that a pull on the rod H, caused by the manipulation of the foot accelerator or hand throttle, will oscillate member 37 and open the valve G and increase the engine speed in usual manner.

A solenoid 46 is secured within the case with its vertically reciprocating plunger 47 arranged immediately over the latch 43 and engaged therewith by an eye or loop 48 having free sliding engagement with the latch. The usual endwise operation of the latch will thus in no way be interfered with but, when the solenoid is energized, the resultant upward pull upon the plunger 47 will raise the latch free of the member 37 and the spring 40 will then immediately return the member to a position at which the valve is closed. When the solenoid is deenergized it will drop the latch back upon the arcuate margin 39 of said member 37. However, the hook 32 will not again engage the notch 41 to resume control of the valve position until the foot accelerator or hand throttle is returned to idling position so that the latch may slide inward to reengage the hook as will be evident.

A cover 49 is removably secured by screws 50 to the open side of the case 33 to protect the parts.

The invention as described is designed for use with any conventional form of speed responsive electrical switch as mounted upon or associated with a speedometer.

Such a switch is indicated at A in Figure 3, as mounted on the speedometer C having the hand 10 extended from its shaft 11 for rotation around the graduated dial 12. The switch includes a pointer 21 journaled on the speedometer shaft 11 back of the hand 10, and insulated from the shaft 11. A control contact 27 on the pointer

21 is arranged to intercept a complementary contact or brush 28 on the speedometer hand 10 as the speed of the automobile is sufficiently increased. The contact of the elements 27 and 28 is arranged to close a circuit through the solenoid 46, with the results as above pointed out. The wiring is conventional.

In wiring the unit B, the solenoid 46 is connected by one terminal through wire 51 to the ungrounded pole of the starting battery 52, the other pole of which is grounded as is the usual practice as designated at 53. A wire 54 then leads from the other terminal of the solenoid 46 to the journal of the pointer 21 where electrical connection is made to the control contact 27.

In operation, as the speedometer hand 10 reaches a point where its brush or contact 28 makes electrical contact with the control contact 27, the circuit is completed from battery 52 to the solenoid 46, the latter is energized and lifts the latch 43 from the member 37 allowing the spring 40 to assert itself and immediately close the valve G to throttle the engine to idling speed. The point at which this action takes place over the scale on the speedometer dial 12, and therefore the peak possible speed which may be attained before the limiting action takes place, may be readily preselected by adjustment of the pointer 21 as has been described. Once the engine speed has thus been automatically reduced the driver must return the foot accelerator or hand throttle to normal idling position before he can resume control of the engine. However, within the speed limit set by the device the driver has complete control of fuel admission for rapid acceleration, hard pulling on hills, and the like.

While I have herein set forth certain preferred embodiments of my invention, it is understood that I may vary from the same in minor details within the scope of the appended claims. Having now therefore fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In combination with the throttle valve and valve shaft and the throttle rod of a motor vehicle internal combustion engine, a device of the kind described, the same comprising a flat segmental cam anchored by its angular end to the valve

shaft and extended vertically therefrom with its plane perpendicular to the shaft, the cam having a free arcuate margin concentric with the shaft and there being a notch cut in the said margin, means for normally rotating the valve shaft and cam to close the throttle valve, a latch member pivoted to the working end of the throttle rod and adapted to releasably engage the marginal notch of the cam for holding the cam and shaft as rotated contrary to the pull of the means provided for normally rotating these elements for closing the throttle valve, thereby releasably holding the throttle valve in opened position.

2. In a device according to claim 1, means dependent upon the speed of the vehicle for releasing the latch from the notch of the cam, to enable the valve shaft to rotate back to its normal position for closing the throttle valve under the pull of the means provided for that purpose.

3. In combination with the throttle valve and valve shaft and the throttle rod of a motor vehicle driven by an internal combustion engine, a device of the kind described, the same comprising an elongated element anchored at its lower end to the valve shaft and extended vertically therefrom, the upper free margin of the said element being of arcuate formation and extended transversely above the valve shaft and there being a notch formed in the said margin, a spring for normally rotating the valve shaft and attached element so as to close the throttle valve, a latching member extended from the working end of the throttle rod and adapted to releasably engage the marginal notch of the said element extended from the valve shaft, for holding said element and the attached valve shaft as rotated contrary to the action of the said spring for holding the throttle valve in an opened position.

4. In a device according to claim 3, means dependent upon the speed of the vehicle for releasing the latch from the marginal notch of the said element extended from the valve shaft for restoring the valve shaft and element extended therefrom to the normal action of the said spring, for returning the elements to their normal position for closing the throttle valve.

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