Jan. 31, 1939. J. S. RODGERS 2,145,665

AUTOMOBILE ACCELERATOR CONTROL

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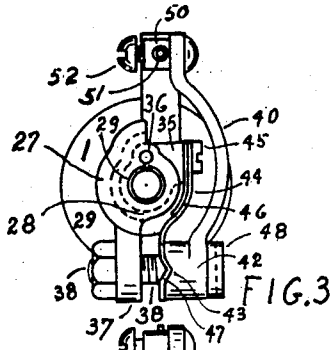

FIG. 3

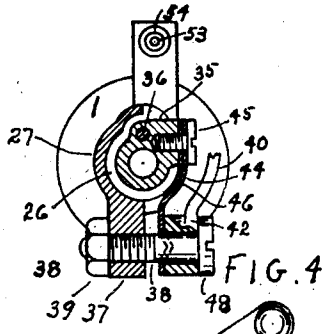

FIG. 4

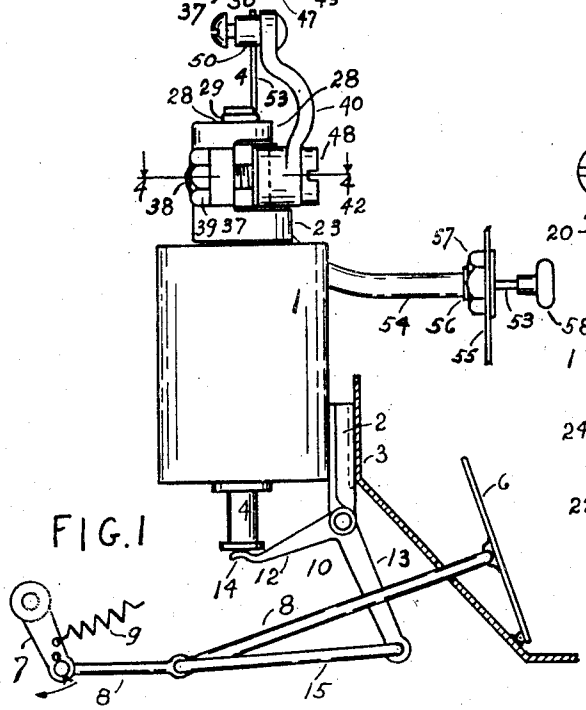

FIG. 1

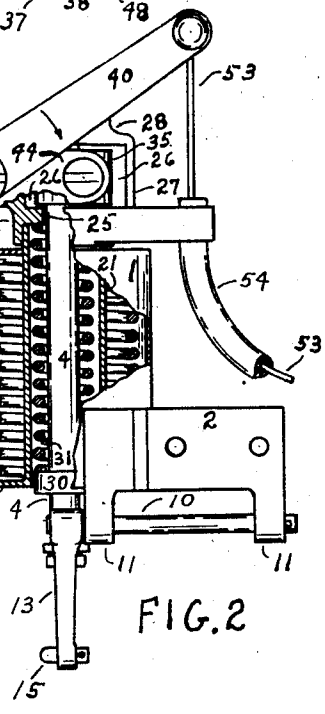

FIG. 2

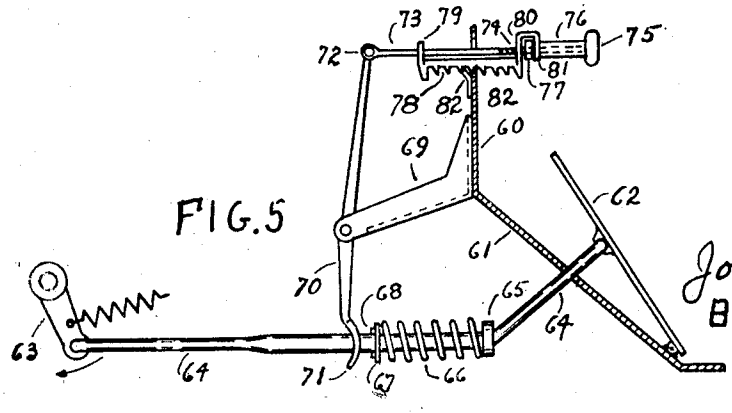

FIG. 5

INVENTOR
John S. Rodgers
BY A.S. Krotz
ATTORNEY

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AUTOMOBILE ACCELERATOR CONTROL

John S. Rodgers, Racine, Wis.

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3 Claims. (Cl. 74—526)

My invention relates to a safety device providing dual speed controlling means and has for its object the exercising of a certain predetermined control or restraint over the driver while cruising, which is operative at times when the driver's mind may be occupied in conversation or when the mind is not definitely observant of the speed attained.

It is well known that a driver frequently attains, unconsciously, a speed not desired or sought and that his forethought as to speed, is safer than the speed he is apt to reach while under the spell of scenery, conversation, or a sudden desire for a thrill or at a time when his sense of security is submerged by these or other matters too numerous to mention.

I accomplish these objects by means of a secondary spring which must be overcome by additional pressure on the accelerator at a predetermined or selected point, which may be fixed by means of a dash control to be operative at any desired position in the movement of the accelerator or from idling to full open throttle.

To these and other useful ends my invention consists of parts and combinations thereof or their equivalents as described and claimed and shown in the accompanying drawing in which:

Figure 1 is a side elevation showing one form of my invention, as connected to the accelerator and throttle of an automobile.

Figure 2 is a front elevation of the device as shown in Figure 1, having certain parts cut away to clearly illustrate some of the operating parts.

Figure 3 is a fractional top view of the device shown in Figures 1 and 2.

Figure 4 is a section of the clutch device taken on line 4—4 of Figure 1.

Figure 5 is a side elevation of a modification.

As thus illustrated in Figures 1 to 4, numeral 1 designates the barrel or housing of the device having a bracket 2 suitably shaped to be attached to the cowl board 3 of an automobile as indicated in Figure 1.

I provide an operating plunger 4 which may, for the present, be considered in its off position, or in the position assumed when the engine is idling, at which time the accelerator foot pad 6 is at its highest position as indicated. Accelerator 6, plunger 4 and engine throttle lever 7 are shown wherein rod 8 provides a suitable connection therebetween; thus when the accelerator is pressed downward, lever 7 will cause the throttle to open. Plunger 4 is operated by this downward movement of accelerator 6 as follows: Plunger 4 is spring held in the position shown, this spring pressure cooperating with throttle spring 9 acting to yieldingly hold the throttle closed and the accelerator in its upward position.

A shaft 10 is journaled in depending members 11 on bracket 2 and is provided with a bell crank having arms 12 and 13; a pad 14 on the end of arm 12 operatively contacts member 4 as illustrated. Arm 13 is operatively connected to rod 8 by means of rod 15 as indicated.

Thus it will be seen that when accelerator 6 is moved downward, plunger 4 will be moved upward and lever 7 will be moved in direction of the curvilinear arrow to thereby open the throttle and increase the mixture allowed to pass to the engine.

It will be understood that the position of my device and the operating connections to the accelerator and carburetor lever may be changed in any suitable manner whereby the device will cooperate with any operating means on a car.

The construction of and manner in which my device acts to exercise a predetermined influence upon the operator is as follows:

Housing 1 at its upper end is provided with an inturned flange 20, having an opening of a suitable size to slidably embrace inner tube 21 which protrudes through the flange for a short distance and is, at its lower end, provided with a flange 22, the outer edge of which is slidably engaged by the inner wall of housing 1; thus it will be seen that tube 21 is free to move vertically. A head 23 is secured to the protruding end of tube 21 and a spring 24 is provided, which rests under tension between flanges 20 and 22; thus tube 21 will be held downward whereby head 23 will rest on flange 20 as indicated, but may raise a considerable distance against the tension of spring 24.

Head 23 is provided with an inwardly extending flange having an opening 25 which loosely embraces plunger 4. This head includes a chamber 26 formed by a half circle wall 27 having an overhanging end member 28. Member 28 is provided with an opening which registers with opening 25 and loosely embraces plunger 4, the end of which protrudes therethrough and having a groove and split ring 29 to thereby prevent plunger 4 from moving downwardly below the position shown in Figures 1 and 2. I provide a flange 30 on plunger 4 in the position illustrated, which is loosely embraced by tube 21. I provide a spring 31 which is adapted to lightly hold plunger 4 downward but will yieldingly per-

mit the plunger to be raised by the action of the accelerator as herebefore described.

It will now be seen that plunger 4 may be raised against the tension of spring 31 and that tube 21 may be raised against the tension of spring 24 and that when tube 21 is raised, the head 23 will follow. I provide means whereby plunger 4 may be locked to head 23 through a remotely controlled clutch, in the following manner:

I provide a sleeve 35 which fits loosely over plunger 4 and within chamber 26, this chamber being considerably larger transversely, than the sleeve. I provide a pin 36 which is loosely embraced by sleeve 35 and is secured to member 23 whereby the sleeve may swing horizontally with pin 36 as an axis; thus noramlly plunger 4 will be free to move longitudinally.

I provide a threaded projection 37 having a screw threaded bolt 38 and a lock nut 39. A lever 40, having a hub 42 is journaled on bolt 38 and is normally held against bolt head 48. The inner edge of hub 42 is provided with a centrally positioned transverse V shaped groove 43.

I provide a flat spring 44 one end of which is secured to sleeve 35 by means of screw 45 as indicated, and having a reinforcing spring 46 thereunder. Spring 44 is shaped to thereby rest under hub 42 having a V shaped member 47, which registers with groove 43. When lever 40 is in the position shown in Figure 2 and the bolt 38 properly adjusted, sleeve 35 will be free and in a central position; thus plunger 4 will be free to move longitudinally through the head and sleeve. When lever 40 is moved in the direction indicated by curvilinear arrow in Figure 2, the V shaped groove in hub 42 will move the spring end toward projection 37 and cause collar 35 to turn on its axis 36 and lock plunger 4 and prevent its movement longitudinally in the head.

As thus shown and described it will be seen that when lever 40 is in the position shown in Figure 2, the plunger 4 is free but will exercise a mild pressure against downward movement of the accelerator because of spring 31; therefore, normally, springs 9 and 31 will act jointly against foot pressure on accelerator 6. If however the accelerator is pressed to its lowest position and lever 40 is moved to thereby lock plunger 4 in its highest position, spring 9 only will act against foot pressure on the accelerator; therefore the accelerator will be very sensitive to control. If however, lever 40 is caused to lock plunger 4 in its lowest position, a downward movement of the accelerator will act to move the tube 21 upward against the pressure of spring 24; thus it will be seen that three pressures may be caused at will to act against the downward movement of the accelerator, viz., either spring 9 only, springs 9 and 31 jointly or springs 9 and 24 jointly.

Assuming that accelerator 6 were moved to its central position, at which time lever 40 is caused to lock plunger 4 to head 23, the first half of the accelerator movement will thereafter be resisted by spring 9 only and a further movement will be resisted by spring 24.

In order to provide remote or dash control of the clutch, I provide a swivel head 50 on the free end of lever 40, having an orifice 51 and a screw 52 whereby a control wire 53 may be attached. A conduit 54 is provided having a suitable anchor to the device and is made long enough to be attached at the other end to the instrument board 55 by means of a suitable sleeve 56 and lock nut 57, the free end of the control wire protruding and having a hand knob 58; thus the driver may at any time reach forward and engage the clutch to cause the spring 24 to come into action at any desired position of the accelerator.

The operator may leave the clutch disengaged whereby springs 9 and 31 will resist pedal pressure, or lock the plunger in its highest position to thereby provide a very sensitive pedal movement, or lock the clutch at any predetermined position of the accelerator as a secondary warning or control. He may if desired, lock plunger 4 to head 23 while in its lowest position, thus to require additional foot pressure on the accelerator all of the time.

In hill climbing, if greater speed is desired when the safety device is in action, additional pressure may be applied to the accelerator; however the tendency will be to maintain consciously or unconsciously, the cruising speed selected, because the supplemental spring will tend to move the accelerator back to that speed.

Referring now to Figure 5 wherein a design is shown which is quite simple but the operation will be very similar in some respects to the operation of the design shown in the other figures. In this design the cowl board is designated by numeral 60 and the toe board by numeral 61, having a conventional accelerator pad 62. The engine throttle lever 63 is operatively connected to the accelerator 62 by means of rod 64 having a collar 65 secured thereto; a spring 66 is slightly compressed and held into position by means of washer 67 and holding pin 68. Thus it will be seen that the throttle lever 63 may be operated in the usual way by depressing the accelerator 62. I provide a bracket 69 which is preferably secured to the cowl board 60 and providing hinged means for a lever 70, this lever having at its lower end, forked means 71 adapted to engage washer 67 at any point in the rearward movement of rod 64 as follows:

On the upper end of lever 70 I provide a hinged connection as at 72, to rod 73 which is suitably threaded at its forward end as at 74, a hand knob 75 having a threaded sleeve 76 engages threads 74, the rear end having a flange 77. A suitable toothed bar 78 is provided with an extension 79 through which the rod 73 is slidably mounted. A similar extension 80 is provided on the other end of the bar, having a loop 81 which loosely embraces sleeve 76 and is spaced apart from member 60 far enough to loosely embrace flange 77. Thus it will be seen that bar 78 may be moved longitudinally on rod 73 by simply turning knob 75. I provide a holding dog 82 which is secured to member 60. A slot is provided in member 60 whereby the knob 75 may be lifted and the rod moved thus to position and lock the fork 71 in any position along the path of washer 67 whereby the spring may be made to resist further movement of the accelerator after washer 67 contacts the fork 71. For example, when knob 75 is in its furthest rear position the accelerator may be pressed to its lowest position without contact between fork 71 and washer 67; if however the knob is moved forward so the center notch on the bar 78 engages pawl 82, the fork will be caused to contact washer 67 and cause the spring to resist further movement of the accelerator at its half way position. Clearly the fork may be placed in as many positions in the path of washer 67 as there are notches in bar 78 and a close adjustment may be secured by turning knob 75; thus the action will be very similar to the action provided in the design shown in

Figures 1 to 4. It will be understood, however, that the screw threaded adjustment in Figure 5 may be dispensed with or members similar to 80 and 81 may be anchored to the cowl or instrument board whereby the adjustment may be made by simply turning the knob 75.

Thus it will be seen that in either design shown, when driving at a safe and desired cruising speed, the operator may cause the safety spring to be engaged whereby additional pressure would be required to increase the cruising speed, this secondary contact point furnishing a safety position which will tend to keep the accelerator at the predetermined point. Clearly, for hill climbing or a necessary spurt of speed, a mental process will readily act to produce the added pressure needed to overcome the safety spring.

Clearly I have shown a device which may be changed in various ways without departing from the spirit of my invention as recited in the appended claims.

Having shown and described my invention I claim:

1. A device of the class described, comprising an accelerator and a controlling device in combination, said controlling device comprising a plunger having a spring and being operatively connected to said controlling device whereby the downward movement of said accelerator may be yieldingly resisted thereby, a clutch slidably mounted and slidably contacting said plunger and having a spring adapted to hold it in its normal position, means for causing said clutch to rigidly engage said plunger at any position thereof caused by the downward movement of said accelerator, whereby a further movement of said accelerator will be resisted by said clutch spring.

2. A device of the class described, comprising an accelerator and a controlling device in combination, said controlling device comprising a plunger having a spring and being operatively connected to said controlling device whereby the downward movement of said accelerator may be yieldingly resisted thereby, a clutch slidably mounted and slidably contacting said plunger and having a spring adapted to hold it in its normal position, remote manually operated means for causing said clutch to rigidly engage said plunger at any position caused by the downward movement of said accelerator, whereby a further movement of said accelerator will be resisted by said clutch spring.

3. A device of the class described, comprising a power valve, an accelerator pedal having an operating connection to said valve, a retrieving spring adapted to close said valve, a secondary spring having a controlling device which extends to within reach of the driver and means whereby said controlling device may be moved at will to thereby cause said secondary spring to moderately resist further opening of said valve at any predetermined point in the downward movement of said pedal.

JOHN S. RODGERS.