Nov. 21, 1933. V. G. APPLE 1,936,149

VEHICLE CONTROL MECHANISM

Filed June 12, 1930

Fig. 1

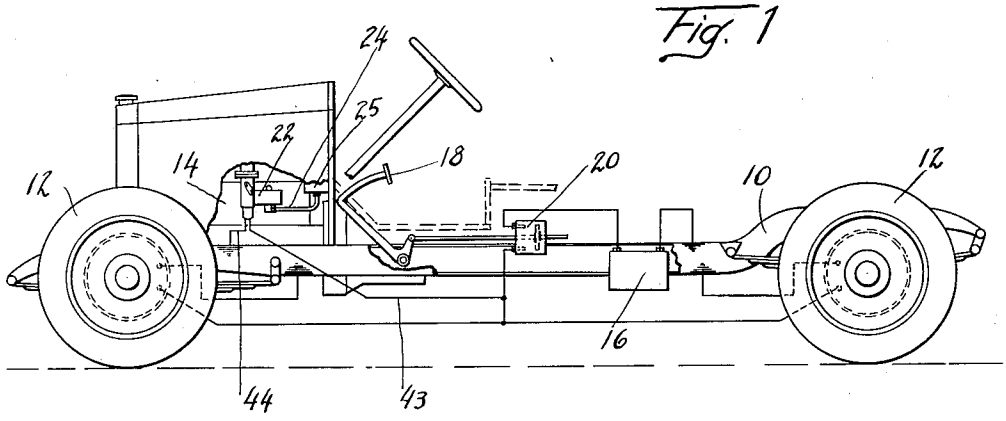
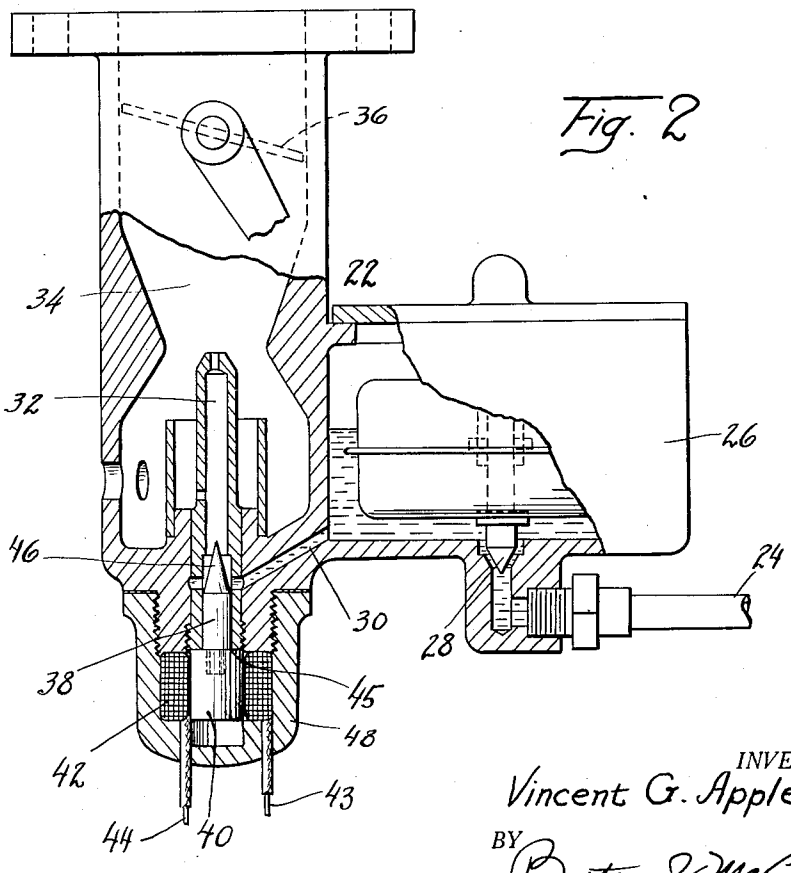


Fig. 2



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VEHICLE CONTROL MECHANISM

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5 Claims. (Cl. 192—3)

My invention relates to vehicle control mechanism and has particular reference to means for automatically closing down the supply of fuel to permit idling speed only of the motor upon application of the brakes. Not infrequently the throttle, either hand or foot, becomes jammed in wide open position and at such times the vehicle operator is apt to become panicky and serious accidents may result. For even though the brakes are applied under such circumstances unless the clutch is thrown in the racing motor will continue to counteract the effect of the brakes and render the vehicle uncontrollable.

It is a primary object of my invention to preclude the possibility of such an occurrence by providing means for automatically cutting down the supply of fuel flowing through the carburettor to the mixing chamber when the vehicle brakes are applied to such an extent that the motor slows to idling speed.

Various other objects and meritorious features of my invention will be apparent from the following description taken in conjunction with the drawing wherein:

Figure 1 is a somewhat diagrammatical illustration of my control mechanism, and

Fig. 2 is a detailed view of my automatic fuel stoppage mechanism.

In Fig. 1 the numeral 10 indicates the conventional automobile chassis frame upon which are mounted the wheels 12 and the internal combustion engine 14. Associated with each of the wheels is an electrically operated brake applying device, such as a solenoid or any other desired mechanism, which are connected in circuit with the battery 16 and controlled through the brake pedal 18 which closes the switch 20 to make the circuit through the brake actuating mechanism.

My improvement consists of means included in this circuit from battery 16 for cutting down the fuel supply going to the engine 14 through carburettor 22. On application of the brakes and consequent making of the electric circuit this fuel closing mechanism automatically becomes operative to shut off the supply of fuel to the engine to such an extent that the motor simply runs at idling speed.

In Fig. 2 I have illustrated the particular mechanism whereby the fuel supply is cut down automatically. A feed pipe 24 connects the vacuum tank 25 with the float chamber 26 of the carburettor, this float chamber being maintained filled to the proper level with fuel by means of the float control needle valve 28. The suction from the engine pistons draws the liquid from the float chamber through the passage 30 into the jet passage 32 into the mixing chamber 34, where it is mixed with a proper proportion of air. Its flow into the cylinders from the mixing chamber is regulated in the customary manner by means of the butterfly valve 36.

In the jet passage 32 is a needle valve 38 with a heavy iron plug 40 secured to its lower end. A coil or solenoid 42 surrounds the valve stem with sufficient clearance to permit free movement of the plug 40. When the brake pedal 18 is depressed and the electric circuit thus made through the closing of switch 20, the coil 42 becomes energized through the conductor 43 and ground lead 44 to cause the solenoid plunger, or iron plug 40, to be lifted to force the tapered portion 46 of the needle valve into the jet passage 32. The maximum movement of the plunger is limited by the lower extremity 45 of the wall of the jet passage 32 so that the tapered portion 46 of the valve does not quite close the jet passage, thus permitting a sufficient supply of fuel to pass to run the motor at idling speed.

When the solenoid is de-energized upon release of brake pedal 18 the weighted portion 40 causes the needle valve 38 to drop back into its normal position, thereby once again opening wide the fuel passage to the mixing chamber. The iron core 40 and solenoid coil 42 are held in place by means of a threaded cap 48 which may be rotated to adjust the size of the opening around the tapered portion 46 of the needle valve. It will be apparent that as the cap 48 is unscrewed to lower the seat of the needle valve 38, the normal stroke imparted to the said valve upon energization of the solenoid coils 42 will create a less restricted opening about the tapered point 46 of the needle valve immediately adjacent the fuel passage 30. In this way the idling speed of the engine may be predetermined.

While I have illustrated a preferred embodiment for the carrying out of the desired function, it is to be understood that other means for accomplishing the same purpose will be obvious to those skilled in the art and for that reason I intend to limit myself only within the scope of the appended claims.

1. Vehicle control mechanism including, in combination, an internal combustion engine, brakes and means for applying the same, engine fuel flow control means, and independently operable means constituting a part of such control means responsive to an electric circuit to cut down

the flow of fuel to the engine to a predetermined minimum.

2. Vehicle control mechanism including, in combination, an internal combustion engine, brakes and means for applying the same, engine fuel flow control means, independently operable means constituting a part of such control means responsive to an electric circuit to cut down to a predetermined minimum the flow of fuel to the engine, and means for automatically making such a circuit on application of the brakes.

3. Control mechanism for a vehicle having an internal combustion engine and brakes comprising brake operating means, a carburettor provided with a throttle valve operable to control the flow of the fuel mixture to the engine and provided with a fuel inlet having a valve controlling the flow of fuel therethrough, said latter valve being responsive to the functioning of the brake operating means.

4. Control mechanism for a vehicle having an internal combustion engine and brakes comprising manually operable brake operating means, a carburetor associated with said engine and including a primary and secondary valve, said primary valve being operable to limit the flow of fuel through said secondary valve to a predetermined minimum, means associated with said manually operable brake applying member and said primary valve automatically operable upon application of the brake to close the primary valve to the minimum flow position on application of the brakes and manually operable means coupled with said secondary valve for operating the latter at will.

5. Control mechanism for a vehicle having an internal combustion engine and brakes comprising manually operable brake operating means, a carburetor associated with said engine and including a primary and secondary valve, said primary valve being operable to limit the flow of fuel through said secondary valve to a predetermined minimum, means associated with said manually operable brake applying member and said primary valve automatically operable upon application of the brake to close the primary valve to the minimum flow position on application of the brakes and manually operable means coupled with said secondary valve for operating the latter at will, said primary valve being operable through gravity forces upon release of the brakes to permit free flow of the fuel to said secondary valve.

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