

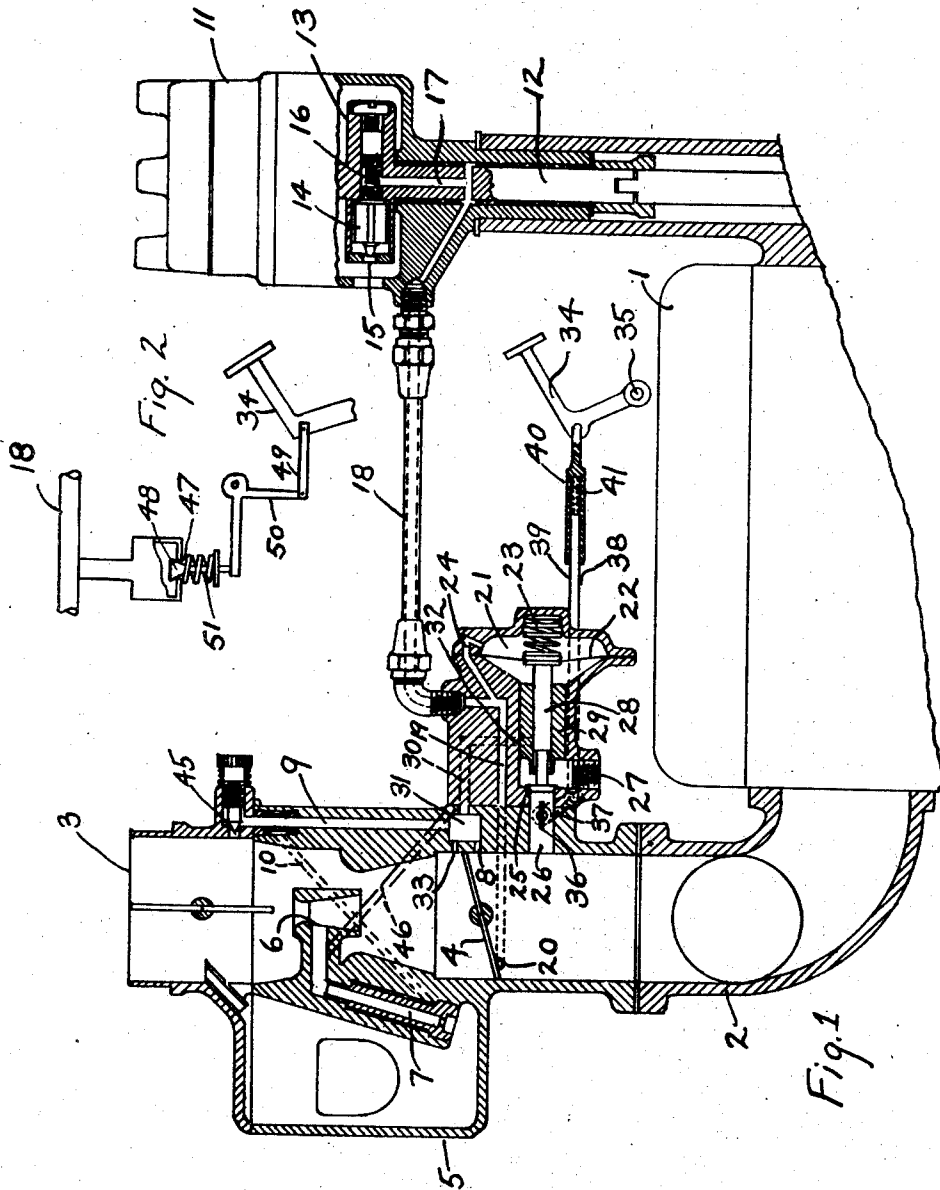
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DEGASSER FOR AN INTERNAL COMBUSTION ENGINE

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DEGASSER FOR INTERNAL-COMBUSTION
ENGINES

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22 Claims. (Cl. 192—3)

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This invention relates to means for admitting a non-combustible charge into the manifold of an internal combustion engine when the vehicle is being decelerated on closed throttle and at the time the vehicle is driving the engine instead of the engine driving the vehicle. Such a device is commonly called a degasser for an internal combustion engine. Ordinarily under such conditions the vacuum increases tremendously in the intake manifold which makes the idle mixtures of the carburetor overly rich as well as creating excessive vacuum on top of the pistons to draw up oil. The overly rich mixture and oil vapors passing out of the exhaust are not only a waste of gasoline and oil but obnoxious odors are liberated.

Fig. 1 is a sectional view showing my device in combination with a carburetor and ignition system for an internal combustion engine.

Fig. 2 is a showing of a detailed modification of my device.

I realize many devices have been proposed and tried to overcome the above difficulty but none of them so far has been the solution.

The engine is referenced 1, the intake manifold 2, the air inlet for the carburetor 3, the butterfly throttle valve 4, the fuel float bowl 5, the main fuel nozzle or jet 6 connected by passageway 7 with the float bowl, idle orifice 8 connected by passageways 9 and 10 with the float bowl, distributor 11, distributor shaft 12 driven by the engine 1, centrifugal valve housing 13, centrifugal valve 14 controlling orifice 15 to atmosphere, tension spring 16 tending to hold valve 14 open, passageway 17 in shaft 12 which communicates through conduit 18 and passageway 19 with orifice 20 positioned just below the throttle valve 4 when in idle position, suction chamber 21, flexible diaphragm 22, compression spring 23, passageway 24 which connects suction chamber 21 into passageway 19, valve 25 which controls passageway 26 into the intake manifold passageway 27 to atmosphere which connects with passageway 26 when valve 25 is opened, valve stem 28 connected to valve 25 and to flexible diaphragm 22, valve guide 29, passageway 30 which connects chamber 31 with passageway 27 when valve 25 is opened, orifice 33 connecting the intake passageway with chamber 31, brake pedal 34 pivoted as at 35, butterfly valve 36 connected by crank arm 37 and link 38 with brake lever 34. Link 38 is a telescopic link comprising a rod 39, a sleeve 40 and a compression spring 41 between the end of rod 39 and the bottom of sleeve 40.

The operation of the device is as follows:

Assuming the engine is idling, the centrifugal

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valve 14 will be open, as shown, and the carburetor throttle valve 4 will be almost closed, as shown. Orifice 20 is now located on the engine side of the throttle but as centrifugal valve 14 is open, the suction in chamber 21, applied to the diaphragm 22 is bled down to a point that it does not have enough power to overcome spring 23 and open valve 25. Naturally, the engine is idling on its normal mixture through fuel channels 10, 9 and orifice 8. Adjustable orifice 45 and orifice 33 are air bleeds to the idle system. In the event the engine is accelerated by opening throttle 4, orifice 20 will pass into the atmosphere. Then both orifices 20 and 15 will be bleeding a slight amount of air to suction chamber 21 and valve 25 will remain closed. When the engine reaches a speed considerably above idle; say the idle speed was 400 R. P. M. and the engine speed was increased to 800 R. P. M., centrifugal valve 14 will close orifice 15. However, if the engine speed is above 800 R. P. M. and pulling the vehicle, throttle 4 will be open wide enough to place orifice 20 in the atmosphere, which bleeds air into chamber 21 and prevents valve 25 from opening even though valve 14 has closed orifice 15. If the engine is decelerated from any speed above 800 R. P. M. with throttle 4 closed, orifice 20 will be in a high vacuum zone and valve 14 will have orifice 15 closed. Naturally, there will be a high suction in chamber 21 which will hold valve 25 open, permitting air to flow through port 26 which reduces the vacuum in the intake manifold between the throttle 4 and the engine and prevents excessive oil from being drawn up from the crankcase by the pistons.

In addition to admitting air into the manifold, air is admitted into chamber 31 through channel 30 because when suction device opens valve 25, the guide 29, which is rigidly fastened to valve stem 28, uncovers port 32 and air is admitted through port 32 to chamber 31, which nullifies the suction of orifice 8 and in turn stops the idle flow of fuel. This condition will be maintained as long as throttle 4 is left closed and the vehicle is driving the engine; that is, until the engine speed drops to 800 R. P. M. At this point, valve 14 opens orifice 15. In other words, admits air to suction chamber 21 permitting valve 25 to close passageway 26. It is very important to use the speed control means to bring the carburetor system back to normal before the engine reaches an idle speed or a speed lower than that because if valve 25 and port 32 did remain open, the engine would finally stall when it reached a real low speed especially if the clutch was disengaged.

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In the event the engine is accelerated at speeds above 800 R. P. M. by opening throttle 4, valve 25 and port 32 will immediately close due to the fact that it is necessary to open the throttle to accelerate the engine and to do this port 20 is placed into the atmosphere, which nullifies the suction in chamber 21 permitting valve 25 and port 32 to immediately close. There are great advantages in the control of this system over the ones where the high vacuum on deceleration alone is used to open a valve. For example, if conduit 18 was not used and the suction device was not connected to a remote controller, the full benefits could not be had because when the high vacuum compressed spring 23, valve 25 would immediately open admitting air to the manifold but by admitting air, the vacuum in the manifold would immediately drop and valve 25 would immediately close. There would be a surging effect of valve 25. The engine would not idle unless spring 23 was strong enough to hold valve 25 closed when idle vacuum existed in chamber 21. Naturally, the device would have to be adjusted so that it would not open unless the vacuum in the intake manifold increased higher than idle vacuum, which is generally 19 inches of mercury but with my device the vacuum in the manifold can be bled down very low without affecting the operation of the engine.

If valve 25 remained opened when the car brakes were applied, the large amount of air vented through passageway 26 into the manifold would decrease or break the engine vacuum and consequently the engine would not assist the wheel brakes in braking the car. In my system the large amount of air that passes into the manifold is reduced or shut off when the brake is engaged but air still passes in to prevent gasoline from flowing into the engine until centrifugal valve 14 opens port 15. As soon as brake pedal 34 is applied to brake the car wheels, link 38 acting through arm 37 closes butterfly valve 36 to thereby shut off the flow of air from atmosphere through passageway 26 into the intake manifold. This permits the engine to be used as a brake but at the same time no gasoline flows through idle orifice 8 because the main jet 6 is bled through passageway 46 which runs from passageway 30 into passageway 7 and the idle jet 8 is air bled through channel 30 because when the brake is engaged, although the main air is shut off by butterfly valve 36, the suction in chamber 21 acting through diaphragm 22 holds valve 25 open and thereby port 32 communicates with atmosphere through outlet 27 and receives air for bleeding the main and idle jets down. It is understood that valve 26 can be operated off of the brake pedal by a switch and an electromagnet similar to the conventional stop light that comes on when the brake is engaged.

In Fig. 2 there is shown another arrangement for cutting off the degasser whenever the brakes are applied. In this case conduit 18 is bled to atmosphere through orifice 47 controlled by valve 48. Each time the brake is applied through pedal 34, link 49 pivots bell crank 50 to raise valve 48 against compression spring 51 and bleed air into conduit 18. Air bleeding to atmosphere of conduit 18 acts through passageway 24 to bleed suction chamber 21 to raise the pressure in chamber 21 and permit spring 23 to close valve 26. This nullifies the action of the entire degasser.

Obviously the speed at which centrifugal valve 14 will close can be varied to suit the requirements of the specific engine with which my degasser is

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used and the above-mentioned speeds of 400 R. P. M. and 800 R. P. M. were given for descriptive purposes only.

I claim:

1. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, a conduit connecting said pressure actuated means with the intake passageway on the engine side of the throttle valve when in idle position, and a speed controlled air bleed to atmosphere for said conduit arranged to close said air bleed whenever the engine exceeds a predetermined speed whereby whenever the vacuum in the intake passageway on the engine side of the throttle valve exceeds a predetermined vacuum and said air bleed is closed said pressure actuated means actuates said second valve to open position and admit air into the intake passageway on the engine side of said throttle valve.

2. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, a conduit connecting said pressure actuated means with the intake passageway on the engine side of the throttle valve, and centrifugal means actuated in response to a predetermined engine speed for modifying the pressure in said pressure actuated means whereby said second valve opens and bleeds air into said intake passageway on the engine side of said throttle valve when the throttle valve is closed and the engine is operating above a predetermined speed.

3. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, an orifice in the intake passageway positioned on the engine side of the throttle valve at idle and arranged to pass on to the atmosphere side of the throttle valve when the throttle valve is moved toward open position, a conduit connecting said pressure actuated means with said orifice in the intake passageway, and means actuated in response to a predetermined engine speed for modifying the pressure in said pressure actuated means whereby when said throttle valve is in idle position said second valve opens and bleeds air into said intake passageway on the engine side of said throttle valve when the vacuum in the intake passageway exceeds a predetermined vacuum and the engine is operating above a predetermined speed.

4. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, a conduit connecting said pressure actuated means with the intake passageway

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on the engine side of the throttle valve, an air bleed to atmosphere for said pressure actuated means, a centrifugally unbalanced valve operated in accordance with the engine speed for shutting off the air bleed when the engine exceeds a predetermined speed whereby said second valve opens and bleeds air into said intake passageway on the engine side of said throttle valve when the throttle valve is in idle position and the engine is operating above a predetermined speed.

5. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a fuel jet in said intake passageway through which fuel flows in response to suction at the jet, an air bleed to atmosphere for said jet, means actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for controlling said air bleed to atmosphere for said jet, a conduit connecting said pressure actuated means with the intake passageway on the engine side of the throttle valve, an air bleed to atmosphere for said pressure actuated means, a centrifugally unbalanced valve operated in accordance with the engine speed for shutting off the air bleed when the engine exceeds a predetermined speed whereby said pressure actuated means is actuated to open said air bleed to atmosphere for said fuel jet and thereby stop the flow of fuel from said jet whenever the throttle valve is in idle position and the engine is operating above a predetermined speed.

6. The combination as set forth in claim 2 including a fuel jet in the intake passageway through which fuel is drawn by sub-atmospheric pressure obtaining in the intake passageway, an air bleed to atmosphere for said fuel jet, and valve means for controlling said air bleed to the fuel jet, the said valve means being controlled by said pressure actuated means and arranged to open said air bleed to stop the flow of fuel into the intake passageway whenever the second valve opens.

7. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, a conduit connecting said pressure actuated means with the intake passageway on the engine side of the throttle valve, and means actuated in response to a predetermined engine speed for modifying the pressure in said pressure actuated means whereby said second valve opens and bleeds air into said intake passageway on the engine side of said throttle valve when the vacuum in the intake passageway exceeds a predetermined vacuum and the engine is operating above a predetermined speed, and means operatable independently of said pressure actuated means for bleeding air into said conduit and thereby close said air bleed into the intake passageway on the engine side of the throttle valve irrespective of the speed at which the engine is operating.

8. The combination as set forth in claim 2 including a brake lever and a valve controlled air bleed to atmosphere for said conduit connected to said brake lever and opened when said brake lever is moved toward brake applying position to thereby bleed air into said conduit and cause said pressure actuated means to close the air bleed into the intake passageway.

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9. In an internal combustion engine having an air and fuel intake passageway, a throttle valve in said passageway, a fuel jet in said passageway, pressure responsive means for controlling the flow of fuel from said jet, centrifugal fluid bleed means actuated in response to engine speed to modify the pressure in said pressure responsive means to render said pressure responsive means ineffective to stop the flow of fuel from said jet when the engine is idling and to render said pressure responsive means effective to stop the flow of fuel from said jet when the engine is running at a speed above idle speed with the throttle valve substantially closed, and means controlled by the movement of the said throttle valve to render the pressure responsive means ineffective to stop the flow of fuel from said fuel jet when the throttle is open further than idle position, whereby the pressure responsive means operates to stop the flow of the fuel from said jet only when the engine is operating at a speed above idle and the throttle valve is substantially closed.

10. In an internal combustion engine having an air and fuel intake passageway, a throttle valve in said passageway, a fuel jet in said passageway, pressure responsive means for controlling the flow of fuel from said jet, an orifice in the intake passageway adjacent said throttle valve, said throttle valve passing from one side to the other side of said orifice as said throttle valve is opened from idle position, a conduit connecting said orifice with said pressure responsive means whereby the pressure responsive means is subjected to intake passageway pressure, centrifugal fluid bleed means actuated in response to engine speed to modify the pressure in said pressure responsive means to render said pressure responsive means ineffective to stop the flow of fuel from said jet when the engine is idling and to render said pressure responsive means effective to stop the flow of fuel from said jet when the engine is running at a speed above idle speed with the throttle valve substantially closed, the said throttle valve by passing from one side to the other of said orifice as it opens from idle position effecting a change in pressure in the pressure responsive means whereby the pressure responsive means is ineffective to stop the flow of fuel from said fuel jet.

11. In an internal combustion engine having an air and fuel intake passageway, a throttle valve in said passageway, a fuel jet in said passageway, means actuated through changes of pressure in the intake passageway for controlling the flow of fuel from said jet, an orifice in the intake passageway positioned adjacent said throttle valve and on the engine side of the same when the throttle is closed for idle, said orifice passing on to the atmosphere side of said throttle valve as the same is opened from idle, a conduit connecting said pressure actuated means with said orifice, an air bleed to atmosphere for said pressure actuated means including a centrifugally unbalanced valve rotated in accordance with the speed of the engine and arranged to close said air bleed whenever the speed of the engine exceeds a predetermined speed higher than idle speed whereby said pressure actuated means is effective to stop the flow of fuel from said jet only when the engine is running at a speed above idle speed and the throttle valve is substantially closed.

12. The combination as set forth in claim 11 including a port on the engine side of said throttle valve for bleeding air into said intake passageway, a second valve controlling said port and

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operatively connected with said pressure actuated means whereby the pressure actuated means opens said valve to admit air through said port into the intake passageway only when the engine is operating at a speed above idle and the throttle valve is substantially closed.

13. In an internal combustion engine having an air and fuel intake passageway, a throttle valve in said passageway, a fuel jet in said passageway, a pressure responsive device, a valve actuated by said pressure responsive device, centrifugal means actuated in response to engine speed to cause the pressure responsive device to position said jet control valve when the engine is idling so that fuel will flow from said jet and to position said jet control valve when the engine is running at a speed above idle speed with the throttle valve substantially closed so that the flow of fuel from said jet is stopped, and means operated by movement of said throttle valve to nullify the effect the centrifugal means has on the pressure responsive device when said throttle is open further than idle position, whereby the pressure responsive device operates said valve for controlling the fuel jet to stop the flow of fuel from said fuel jet only when the engine is operating at a speed above idle and the throttle valve is substantially closed.

14. In an internal combustion engine having an air and fuel intake passageway, a throttle valve in said passageway, a fuel jet in said passageway, pressure responsive means, a valve associated with said pressure responsive means for controlling the flow of fuel from said jet, an orifice in the intake passageway adjacent said throttle valve, said throttle valve passing from one side to the other side of said orifice as said throttle valve is opened from idle position, a conduit connecting said orifice with said pressure responsive means whereby the pressure responsive means is subjected to intake passageway pressure, centrifugal fluid bleed means actuated in response to engine speed to modify the pressure in said pressure responsive means to render said pressure responsive means and associated jet control valve ineffective to stop the flow of fuel from said jet when the engine is idling and to render said pressure responsive means and associated jet control valve effective to stop the flow of fuel from said jet when the engine is running at a speed above idle speed with the throttle valve substantially closed, the said throttle valve by passing from one side to the other of said orifice as it opens from idle position effecting a change in pressure in the pressure responsive means whereby the pressure responsive means and associated jet control valve are ineffective to stop the flow of fuel from said fuel jet.

15. In an internal combustion engine having an intake passageway, a fuel jet in said intake passageway, a throttle valve controlling the flow of motive fluid through said passageway, a suction device operated by the pressures in the intake passageway, means for bleeding air into the fuel jet and into the intake passageway on the engine side of said throttle valve, an operative connection between said suction device and said air bleed means, an air bleed for said suction device, a centrifugally unbalanced valve driven by the engine for controlling the flow of air through said last mentioned air bleed into the suction device, said centrifugal valve controlling the flow of air through said air bleed into the suction device so that the suction device will operate to admit air to the fuel jet and into the

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intake passageway on the engine side of said throttle valve only when the throttle valve is closed and the engine is operating at a speed above idle speed.

16. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port in said intake passageway on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway for imparting movement to said second valve, an orifice in the intake passageway positioned on the engine side of the throttle valve at idle and arranged to pass on to the atmosphere side of the throttle valve when the throttle valve is moved toward open position, a conduit between said pressure actuated means and said orifice in the intake passageway whereby when said throttle valve is at idle position and the engine is operating above a predetermined speed the vacuum in the intake passageway at said orifice tends to establish itself through said orifice and conduit in said pressure actuated means and said pressure actuated means responds to said intake passageway vacuum and opens said second valve and bleeds air through said port into the intake passageway, and centrifugal means associated with said orifice, conduit and pressure actuated means and responding when said engine is operating below a predetermined speed to render said orifice and conduit ineffective to establish said intake passageway vacuum in said pressure actuated means and said pressure actuated means responds and closes said second valve thereby shutting off the air bleed into the intake passageway.

17. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port in said intake passageway on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway for imparting movement to said second valve, an orifice in the intake passageway positioned on the engine side of the throttle valve at idle and arranged to pass on to the atmosphere side of the throttle valve when the throttle valve is moved toward open position, a conduit between said pressure actuated means and said orifice in the intake passageway, and centrifugal means driven by said engine and responding at speeds above a predetermined engine speed to modify the pressure in said pressure actuated means whereby when said throttle valve is in idle position and the vacuum in the intake passageway exceeds a predetermined vacuum and the engine is operating above a predetermined speed then said second valve opens and bleeds air into the intake passageway through said port.

18. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port in said intake passageway on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway for imparting movement to said second valve, an orifice in the intake passageway positioned on the engine side of the throttle valve at idle and arranged to pass on to the atmosphere side of the throttle valve when the throttle valve is moved toward open position, a conduit between said pressure actuated means and said orifice in the intake passageway, and centrifugal means driven by said engine and asso-

ciated with said orifice, conduit and pressure actuated means and responding when said engine is operating above a predetermined speed to render said orifice and conduit effective to establish said intake passageway vacuum in said pressure actuated means and said pressure actuated means responds when the throttle valve is in idle position to open said second valve to bleed air into the intake passageway but when said throttle valve is opened to place said orifice on the atmosphere side of the throttle valve then even though the engine is operating above said predetermined speed the action of the centrifugal means is nullified and the pressure actuated means responds to close said second valve and cut off the said air bleed into the intake passageway.

19. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port in said intake passageway on the engine side of said throttle valve, a second valve controlling said port, means actuated through changes of pressure in the intake passageway for imparting movement to said second valve, an orifice in the intake passageway positioned on the engine side of the throttle valve at idle and arranged to pass on to the atmosphere side of the throttle valve when the throttle valve is moved toward open position, a conduit between said pressure actuated means and said orifice in the intake passageway whereby the pressure existing at said orifice tends to establish itself in said pressure actuated means, and centrifugal means actuated in response to engine speed for modifying the pressure in said pressure actuated means whereby when the throttle valve is at substantially idle position and the engine is operating below a predetermined speed the centrifugal means responds and renders said orifice and conduit ineffective to establish said intake passageway pressure in the pressure actuated means and said second valve closes the air bleed port and when the throttle valve is moved toward open position to place the orifice on the atmosphere side of the throttle valve then even when the engine is operating above said predetermined speed the action of the centrifugal means is nullified and substantially the pressure existing at said orifice is established in said pressure actuated means which responds to close said second valve.

20. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port for bleeding air into said intake passageway on the engine side of said throttle valve, a second valve controlling said port, said second valve being arranged with respect to said port whereby the vacuum in the intake passageway on the engine side of the throttle valve acts upon and tends to close said second valve, means including a movable wall actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, said pressure actuated means being connected into the intake passageway whereby the vacuum in the intake passageway on the engine side of said throttle valve acts through said pressure actuated means and tends to open said second valve, the said movable wall in said pressure actuated means having a greater area subjected to said intake passageway vacuum than said second valve whereby when said throttle valve is substantially at idle position and the engine is operating above a predetermined speed the vac-

uum in the intake passageway establishes itself in said pressure actuated means and said pressure actuated means responds thereto and opens said second valve and bleeds air through said port into the intake passageway, and means controlled in accordance with the speed of the engine and responding when said engine is operating below said predetermined speed to relieve said pressure actuated means from said vacuum whereby said second valve closes said port.

21. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port in said intake passageway on the engine side of said throttle valve, a second valve controlling said port, said second valve being arranged with respect to said port whereby the vacuum in the intake passageway on the engine side of the throttle valve acts upon and tends to close said second valve, means including a diaphragm actuated through changes of pressure in the intake passageway for imparting movement to said second valve, the said diaphragm in said pressure actuated means having a greater area subjected to said intake passageway vacuum than said second valve, an orifice in the intake passageway positioned on the engine side of the throttle valve at idle and arranged to pass on to the atmosphere side of the throttle valve when the throttle valve is moved toward open position, a conduit between said pressure actuated means and said orifice in the intake passageway whereby when said throttle valve is at idle position and the engine is operating above a predetermined speed the vacuum in the intake passageway at said orifice tends to establish itself through said orifice and conduit in said pressure actuated means and said pressure actuated means responds to said intake passageway vacuum and opens said second valve and bleeds air through said port into the intake passageway, and centrifugal means associated with said orifice, conduit and pressure actuated means and responding when said engine is operating below a predetermined speed to render said orifice and conduit ineffective to establish said intake passageway vacuum in said pressure actuated means and said second valve closes thereby shutting off the air bleed into the intake passageway.

22. In an internal combustion engine having an intake passageway and a throttle valve in said passageway, a port for bleeding air into said intake passageway on the engine side of said throttle valve, a second valve controlling said port, said second valve being arranged with respect to said port so that the suction in the intake passageway on the engine side of the throttle valve tends to hold the valve closed and the valve opens against said suction, means including a movable wall actuated through changes of pressure in the intake passageway on the engine side of said throttle valve for imparting movement to said second valve, said pressure actuated means being connected into the intake passageway whereby the suction in the intake passageway on the engine side of said throttle valve acts through said pressure actuated means and tends to open said second valve in opposition to the intake passageway suction acting on said second valve, the said movable wall in said pressure actuated means having a greater area subjected to said intake passageway suction than said second valve whereby when said throttle valve is substantially at idle position and the engine is operating above a predetermined speed the suction in the intake

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passageway establishes itself in said pressure actuated means and said pressure actuated means responds thereto and opens said second valve and bleeds air through said port into the intake passageway to thereby lower the vacuum in said intake passageway and pressure actuated means, said pressure actuated means being constructed and arranged so that it will hold said second valve open even under the influence of said lowered vacuum, and means controlled in accordance with the speed of the engine and responding when said engine is operating below said predetermined speed to nullify the action of said

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pressure actuated means whereby said second valve closes said port.

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