

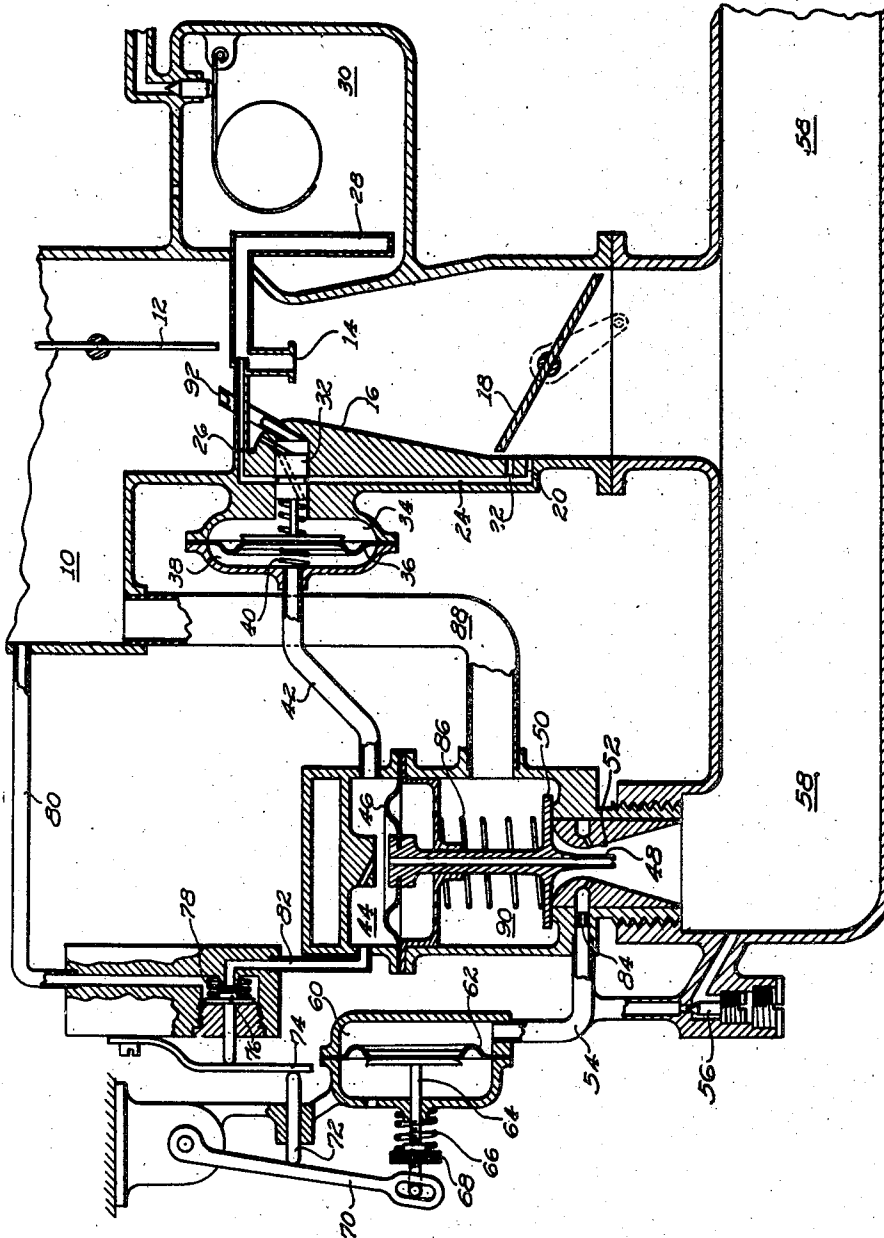
Feb. 11, 1947.

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2,415,491

DECELERATOR

Filed Sept. 29, 1945



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UNITED STATES PATENT OFFICE

2,415,491

DECELERATOR

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Application September 29, 1945, Serial No. 619,332

2 Claims. (Cl. 261-41)

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The object of this invention is to supply air to the inlet manifold of an automobile engine whenever the throttle is closed and the car is running at some considerable speed so as to create a high vacuum in the inlet manifold and to hold the valve open that admits the air to the manifold until the depression in the inlet manifold has dropped considerably below the suction at which the decelerating valve is first opened to admit air during deceleration.

An additional object is to cut off the supply of low-speed fuel during deceleration.

The drawing shows the preferred form of my invention.

The air enters at 10 and flows by the choke valve 12 and then by a fuel nozzle 14, which discharges into the throat of the venturi 16. Air then flows by a throttle 18, which controls an idling outlet 20 and a second low-speed outlet 22, both idling outlets being connected through the low-speed fuel passage 24, which is connected to the idling fuel passage 26, which draws fuel from the fuel nozzle 14. The nozzle 14 is supplied with fuel from the main fuel-supply passage 28, which is in restricted communication with the float chamber 30. 32 is a valve which serves, when moved to the left, to block the passage 26 from the passage 24. The chamber 34, to the right of the diaphragm 36, is in communication through a passage in the valve 32 and through the impact tube 32 with the air entering the carburetor at 10. The diaphragm 36 forms the left-hand wall of chamber 34 and the right-hand wall of the air chamber 38, which is connected through the passage 42 with the chamber 44. A compression spring 40 keeps the valve 32 in the open position shown. Chamber 44 communicates through the restricted passage 48 with the inlet manifold 58. The tube 48 forms a central passage in a valve 50, which is the valve which closes the entrance to a venturi 52. A spring 86 seats the valve 50 under normal conditions.

Restriction 84 connects the throat of the venturi 52 with the passage 54, which communicates with the chamber 60, to the right of the diaphragm 62. The left-hand side of the diaphragm 62 is exposed to atmospheric pressure. A rod 64, a compression spring 66, a compression spring adjustment 68 and a lever 70, connected to the rod 64, operate through a pin 72, which pushes against a spring 74, which spring 74 moves a valve 76 and compresses a spring 78, so as to interrupt the connection between a passage 80 and a passage 82. This passage 80-82 connects the air entrance 10 with the chamber 44. An

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adjustable needle 56 controls a connection from the inlet manifold 58 to the passage 54. Clean air for the air entrance venturi 52 is provided by a passage 88.

Operation

When the throttle 18 is closed to the position shown, a high suction is developed in the manifold 58 whenever the car drives the engine, that is, during the deceleration period. This high suction moves the diaphragm 62 to the right. Parts 64, 66, 68, 70, 72, 74, 76 and 78 all move to the right under the influence of the movement of the diaphragm 62. Thereupon, the valve 76 closes the connection between passage 80 and passage 82. High suction is immediately developed in the chamber 44 from the restricted passage 48, which is in communication with the inlet manifold 58. The spring 86 is compressed as the valve 50 rises, atmospheric pressure acting under the diaphragm 56.

The flow of air through venturi 52 keeps the valve 76 closed long after the suction in manifold 58 has fallen below the suction at which the valve 50 opened. If this valve 76 remains closed too long, then the engine will stall; hence, the adjustment 56 makes it possible to determine the critical value of the depression in 58 up to which value it is safe to keep the valve 50 open.

Stalling will result when the vacuum in the inlet manifold 58 reaches 10 or 11" Hg, for example. During the time that the valve 76 is closed, and during the time that the valve 50 is open, valve 32 is closed. This results from the fact that the pipe 42 applies the Venturi suction to the chamber 38 whenever the valve 76 is closed. The Venturi suction in the chamber 38 acting on the diaphragm 36, compresses the spring 40 and moves the valve 32 to the left. Atmospheric pressure acts on the tube 32 and is transmitted through the valve 32, which has a passage through it, to the chamber 34 to the right of the diaphragm 36.

What I claim is:

1. In a carburetor for an internal combustion engine having an air entrance, an air passage, a fuel supply means, a fuel nozzle connected therewith and discharging into the air passage, a throttle valve controlling the flow of mixture out of said passage, an additional air entrance on the engine side of said throttle, a venturi in said additional air entrance, an air valve controlling the additional air entrance leading to said venturi, a moving wall mechanically connected to

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said valve, a chamber associated therewith, a passage connecting said chamber with the atmosphere, a control valve in said passage, a passage connecting said chamber with the throat of said venturi so that the suction in said throat acts to open said air valve, a second chamber, a second moving wall forming a wall of said second chamber, a passage connecting the second chamber with said Venturi throat, a mechanical connection from said second moving wall to said control valve whereby the control valve is first closed by the suction on the engine side of said throttle valve and is thereafter held shut by the suction created in the throat of said venturi by the air flowing therethrough.

2. A device as set forth in claim 1 in which there is a low-speed fuel passage leading from the fuel nozzle to the engine side of said throttle valve, a fuel valve in said passage, means responsive when there is no flow through said ven-

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turi first to the suction on the engine side of the throttle for first moving said fuel valve into the closed position, and, when the air valve controlling the air entrance to said venturi is open, to hold the fuel valve in its closed position during the deceleration period by the suction in said venturi.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

15	Number	Name	Date
	1,176,627	Ver Planck	Mar. 21, 1916
	1,895,279	Constensoux	Jan. 24, 1933
	2,095,746	Jacobs	Oct. 12, 1937
	2,312,816	Hefler	Mar. 2, 1943
20	1,067,502	Browne	July 15, 1913