W. MELTON, JR.

AIR INLET DEVICE.

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1,253,266.

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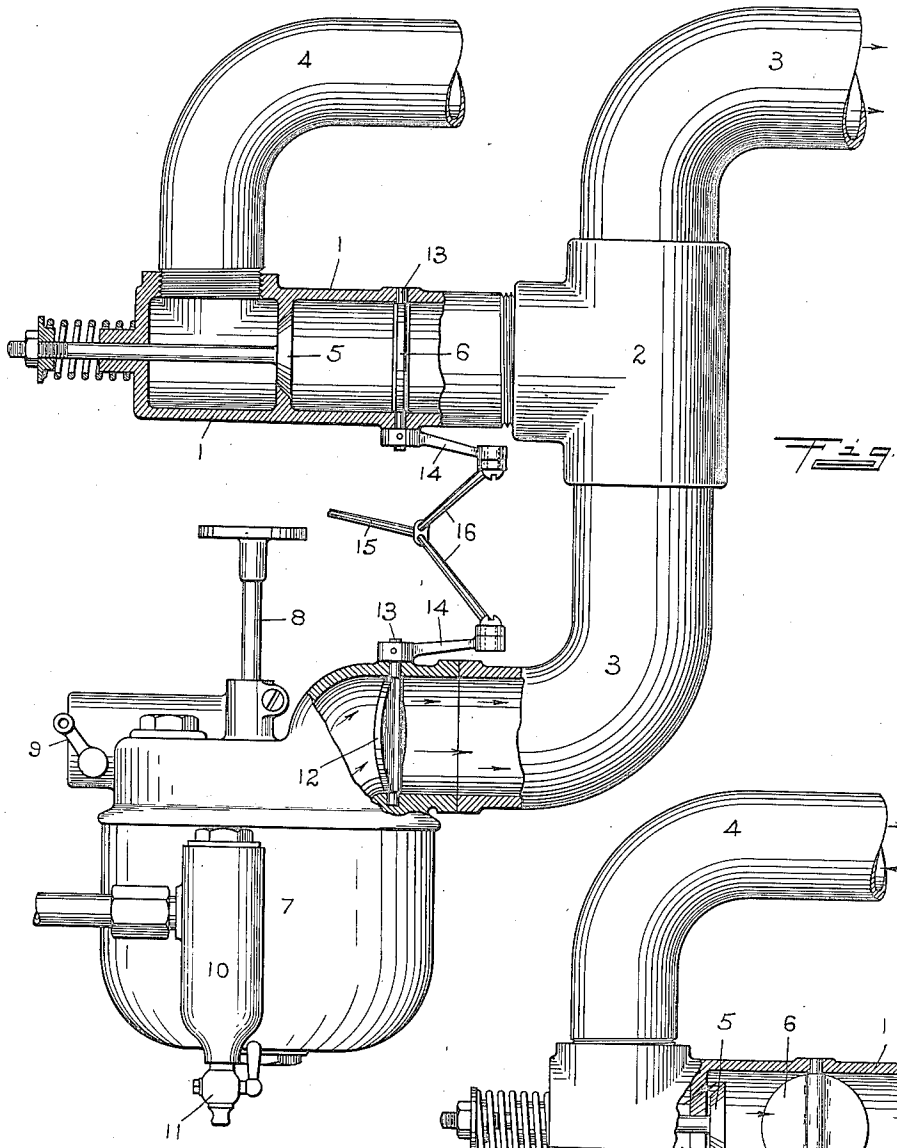


Fig. 1.

Fig. 2.

Witness

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WILLIAM MELTON, JR., OF NEOLA, IOWA.

AIR-INLET DEVICE.

1,253,266. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed May 31, 1916. Serial No. 100,830.

To all whom it may concern:

Be it known that I, WILLIAM MELTON, Jr., a citizen of the United States, residing at Neola, in Pottawattamie county, in the State of Iowa, have invented certain new and useful Improvements in Air-Inlet Devices for Internal-Combustion Engines, and have described the same in the following specification, illustrated by the accompanying drawings.

My invention relates to that class of auxiliary air inlet devices which are commonly employed, in connection with the carbureters and cylinders of internal combustion engines of automobiles, for the purpose of individually regulating according to the load and speed of such an engine the requisite composition of the explosive mixture supplied to its cylinders. It is well understood that the richness of this gaseous compound must vary with the speed of the engine inversely and with its load directly. To regulate such variation it has been common to employ two valves of independent admission to the intake manifold, one being a throttle located between the carbureter and the manifold, and operated by the driver, and the other being a compensating and self-closing auxiliary air valve operated, without additional or separate control, by the engine suction as affected by the throttle. It is the object of the invention to regulate the composition of the gaseous mixture with increased accuracy, as required by changes of speed and load; to apply separate positively acting means of control to the gas supply and to the auxiliary air supply respectively; to enable the driver of the vehicle to operate both of these means of control in concord simultaneously; to effect thereby an increased efficiency of the engine, and a saving of fuel; and in general to produce a superior inlet device of the specified class. To accomplish these results I incorporate in my improved inlet device as parts thereof both a throttle and a compensating valve, for the admission of air to the inlet manifold, a separate throttle for the admission of gas from the carbureter, and means for operating the throttles in unison.

In said drawings, illustrating the best manner in which I have contemplated applying the principles of my invention, Figure 1 is for the most part a side elevation of a carbureter and an associated air inlet device which is constructed in accordance with these principles. Fig. 2 is a like elevation of a portion of Fig. 1, showing the air valves in a different operative position.

In these drawings the air inlet proper comprises the tubular casing 1, the T 2, which unites the casing with the inlet manifold 3 of the engine not shown, the supply pipe 4 which leads from the external air into the free end of the casing, and the self-closing puppet 5 and butterfly throttle 6, which are individually adapted to open and close the passage through the casing. The carbureter 7, associated with this inlet device, and discharging into the receiving end of the manifold 3, may be of any usual and preferred type. As shown, it comprises the needle valve 8, the primary air inlet 9, the float-valve chamber 10, the drain cock 11, and the butterfly throttle valve 12. Relatively to the inlet manifold, the throttles 6 and 12 are thus arranged in parallel with each other, as an electrician might say; while the air valves 5 and 6 are arranged in series. These throttles have the spindles 13, provided with the rock-arms 14, which are operated in unison with each other by the pushrod 15 having the branches 16 pivoted terminally to the rock-arms respectively, as shown in perspective in Fig. 1. They are turned through approximately equal angles by any movement of the pushrod, but are connected therewith in such angular positions that both of the throttles are practically wide open together, and that the throttle 12 is slightly open when the throttle 6 is closed, as shown in Fig. 1.

Operating upon the recognized principle that an engine of this type must use a greater percentage of air at high speed than at low speed, whether the carbureter throttle is open little or much, and a greater percentage at high speed when that throttle is partly closed than when wide open, my invention controls the auxiliary air stream by the compensating valve 5, acting automatically in the usual manner when the engine is running at high speeds, and by the air throttle 6, operated by the pushrod in unison with the carbureter throttle 12, when the latter is nearly closed. In this way the auxiliary air stream is controlled by the air throttle when the compensating valve is

wide open, and by the latter when the former is wide open, and by both conjointly at other times.

I claim as my invention:

An inlet device of the specified class, comprising an air conduit, a compensating valve therein, a throttle between the compensating valve and the intake manifold, a throttle between the source of gas supply and the manifold, and means for connecting and operating the throttles together.

Witness my signature at Omaha, Nebraska, May 27th, 1916.

WILLIAM MELTON, JR.