This invention relates to new and useful improvements in fuel form charging means for internal combustion engines and more particularly to means for adding air to the charge under certain favorable operating conditions of the engine.

The principal object of the present invention is to provide an aid admission device for the intake manifolds of internal combustion engines with a view toward adding air increasingly as the engine warms up and acceleration takes place.

Another important object of the invention is to provide a device of the character stated which can be readily installed on internal combustion engines of modern design.

Other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings—

Figure 1 represents a fragmentary side elevational view showing an internal combustion engine with the present invention installed thereon.

Figure 2 is an enlarged sectional view taken substantially on the line 2-2 of Figure 1 and showing the mercury switch.

Figure 3 is an enlarged fragmentary sectional view taken substantially on the line 3-3 of Figure 1.

Figure 4 is a sectional view taken substantially on the line 4-4 of Figure 3.

Figure 5 is a vertical sectional view through the electro-magnetic valve.

Referring to the drawings wherein like numerals designate like parts, it can be seen that numeral 5 generally refers to a modern type automobile engine which has an air cleaner 6 and a down pipe 7 therefrom leading to the usual intake manifold 8.

A unit 9 is installed in the down pipe 7, it preferably being that the down pipe 7 is in two sections with the unit 5 bolted between the same by bolts or the like 10. The unit 9 has an opening therethrough aligned with the passageway through the down pipe 7 and is also formed with an internal circumferentially extending passageway 11, one wall of which has openings 12 therein for communicating the interior of the passageway 11 with the passageway of the down pipe 7.

The unit 9 has a laterally disposed formation 13 in which is a threaded bore 14 receiving a screw 15, the latter having a knurled head 16 at its outer end and a needle point valve 17 at its inner end, the valve being cooperative with a seat 18 in advance of a small port 19.

A port 20 communicates the passageway 11 with the bore 14, while the port 19 communicates the bore 14 with a small chamber 21 from which extends a short pipe 22 to one side of a valve body 23 in which is a seat 24 against which a valve element 25 is operative.

This valve element 25 has an upstanding stem 26 disposed into an electro-magnetic 27 located within a shell 28 secured by screws 29 to the top of the valve body 23.

Numerals 33 denotes a hollow bolt through which conductor wires can be disposed to the electro-magnet 27. This bolt 33 incidentally holds a dome-shaped cap 31 on the shell 28.

From the other side of the valve 23 which when opened admits air to the unit 9, is a pipe 35 which connects to the upper portion of the air filter pipe 7.

Numerals 34 denotes a rod for controlling a butterfly valve 35 in the down pipe 7, this butterfly valve 35 having a shaft 36 on which is an arm 37 connected to the rod 34. On the outer end of this shaft 36 is a mercury switch 38 of conventional design.

The electro-magnet 27, mercury switch 38, a thermostatic switch 39, a fuse 40, a switch 41 and a battery 42 are all connected in series as is clearly shown in Figure 1.

When the accelerating rod 34 is actuated to open the valve 35, the mercury switch 38 will be tilted to bridge the contacts therein. However, this will not affect the valve element 25 until such time as the engine heats up sufficiently to close the conventional thermostatic switch 38, whereupon the circuit will be completed including the battery 42, switch 41, fuse 40, thermostatic switch 39, mercury switch 38 and electro-magnet 27, lifting the valve element 25 so that additional air can be admitted to the intake manifold.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

In combination with an engine intake manifold, a throttle control member, a switch operated by the control member, an additional admission valve for the intake manifold, a source of current, said valve and switch being connected with the source for operation when the switch is closed, and a thermostatic switch in circuit with the electro-magnetic valve and switch.

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