Jan. 4, 1938. A. ABRAMSON 2,104,315

CARBURETOR FOR COMBUSTION ENGINES

Filed Feb. 10, 1937

Fig. 1.

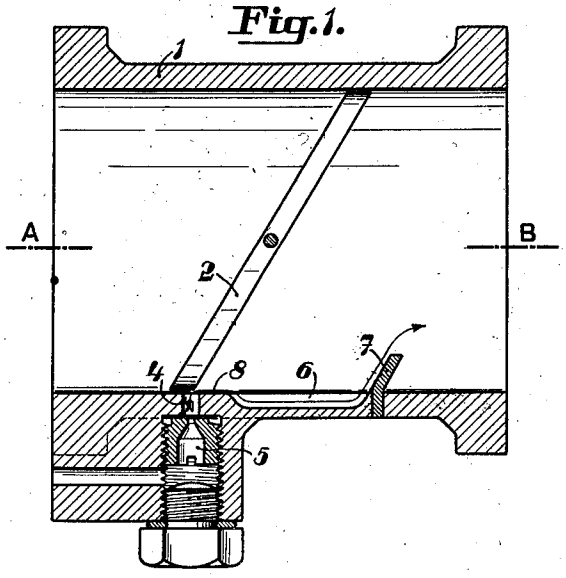
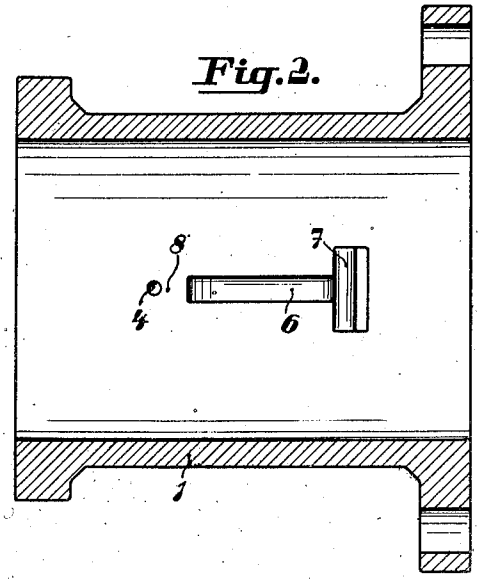


Fig. 2.



Alexander Abramson
INVENTOR
By Otto Munk
his ATTY.

Patented Jan. 4, 1938 2,104,315

UNITED STATES PATENT OFFICE

2,104,315

CARBURETOR FOR COMBUSTION ENGINES

Alexander Abramson, Prague, Czechoslovakia

Application February 10, 1937, Serial No. 125,162
In Czechoslovakia November 2, 1936

1 Claim. (Cl. 261—78)

This invention relates to the atomization of fuel leaving the starting- and no-load-nozzle of explosion motors.

The carburetor of every explosion motor, as is known, is provided with a throttle-valve which controls the air mixture sucked through the diffuser by the motor. The starting-nozzle, which at the same time forms the no-load-nozzle, of the motor opens into the wall of the carburetor at an orifice adjacent the place where the edge of the throttle-valve lies, when this is closed. Moreover the opening of the starting-nozzle is either covered partially by the edge of the throttle-valve in the closed position or it is placed somewhat higher above the edge of the valve so that it is free.

These arrangements of starting-nozzles have however the following disadvantages:

From aerodynamics it is known that the air flowing through a pipe is pressed by adhesion onto the pipe wall and then moves along it.

If the throttle-valve in existing carburetors takes up the position corresponding to the starting- and no-load of the motor the air sucked in by the motion of the piston flows through the slit between the edge of the throttle-valve and the suction-pipe wall and presses the fuel leaving the mouth of the starting-up nozzle onto the suction pipe wall to which the fuel adheres in increased quantity, as the adhesion of fluids to solid bodies is very great. The whole of the fluid leaving the mouth of the starting-up nozzle then flows along the suction pipe wall whereby the object of the starting-nozzle, to atomize the fuel flowing from it in the stream of air sucked in, is nullified completely or for the greater part. The fuel is carried over by the air stream instead into the motor cylinder in undivided condition.

In yet greater degree this appears in horizontal and down-draught carburetors, in which the operation of the air stream already described is exaggerated by the weight of the fuel.

This leads to an exceptionally high specific consumption of fuel and also to the abnormal running of the motor at no-load.

According to the present invention the fuel after leaving the nozzle-mouth is in the first place directed through a precise path along the wall of the suction pipe provided with the throttle-valve and then the kinetic energy of the flowing fuel is utilized in order to spray it on a baffle and thereby to atomize it in the part of the suction pipe containing the more air.

A complete and uniform atomization of the fuel is consequently effected, the fuel mixing well with the air sucked in, so that a uniform mixture is obtained throughout the whole flow area of the suction pipe thus securing a complete utilization of the fuel.

The deflection of the stream of air by means of a baffle may produce a local cavitation, but this phenomenon is quite harmless, as the proportions in the further sections of the suction-pipe are compensatory.

One form of construction of the device for carrying out the present invention is illustrated by way of example in the accompanying drawing wherein,

Fig. 1 is a section taken through the axis of the suction-pipe and the inlet nozzle, and

Fig. 2 is a section along the plane A—B in Fig. 1.

In the drawing the suction pipe **1** of the motor, is provided with a throttle-valve **2**, and a starting- and no-load-nozzle **5** opening at orifice or mouth **4** into the suction-pipe **1**. The fuel leaving the orifice **4** is pressed onto the wall **8** of the suction-pipe **1** by the air stream, the wall **8** being formed as an open canal **6** at a short distance from the orifice **4** of the inlet nozzle **5**. This canal **6** runs parallel to the axis of the pipe **1** and ends at a baffle **7** projecting from the wall of the pipe **1** into its flow-area. The fuel thus constrained as to direction by the canal **6** travels to the baffle **7** at which point it sprays, whereby an intimate mixture of the atomized fuel with air is obtained.

What I claim and desire to secure by Letters Patent is:—

In an apparatus for the atomization of fuel, a suction pipe having an orifice therein, a starting and no-load nozzle opening into said orifice, a throttle valve for said suction pipe adapted to form in its starting and no-load position, with the rearward edge of said orifice, a slit for the passage of incoming air, said suction pipe having a narrow, shallow longitudinal groove in its inner wall in alignment with said orifice, said groove running from a point spaced adjacent the orifice in the direction of the gas flow and a baffle at the opposite end of said groove, said baffle being arranged transversely of the groove and projecting from the wall of the suction pipe into the flow area thereof.

ALEXANDER ABRAMSON.