N. GAROFF.

CARBURETOR FOR INTERNAL COMBUSTION ENGINES.

APPLICATION FILED MAR. 31, 1917.

1,420,090. Patented June 20, 1922.

Fig. 1.

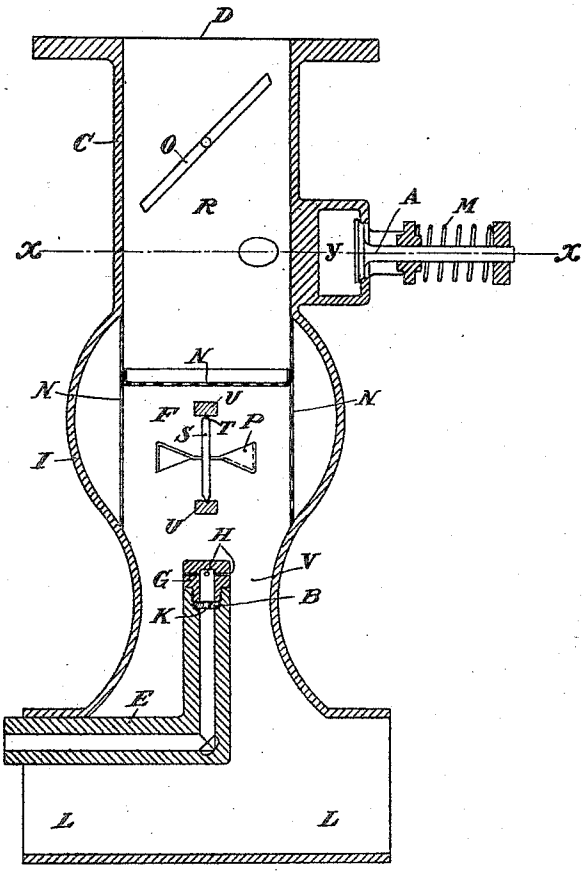
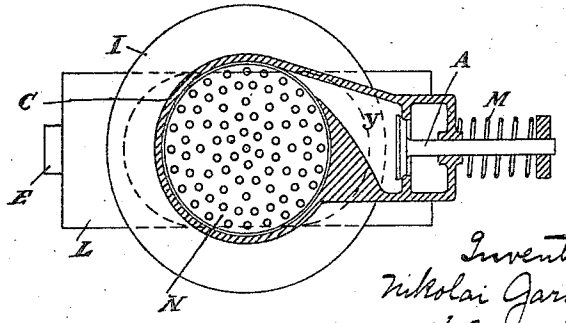


Fig. 2.



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UNITED STATES PATENT OFFICE.

NIKOLAI GAROFF, OF HELSINGFORS, FINLAND.

CARBURETOR FOR INTERNAL-COMBUSTION ENGINES.

1,420,090. Specification of Letters Patent. Patented June 20, 1922.

Application filed March 31, 1917. Serial No. 158,847.

To all whom it may concern:

Be it known that I, NIKOLAI GAROFF, residing at Helsingfors, Finland, have invented certain new and useful Improvements in Carburetors for Internal-Combustion Engines, of which the following is a specification.

This invention relates to mixers for internal combustion engines and consists in the construction and combination of parts hereinafter more particularly set forth and claimed.

On the accompanying drawing Fig. 1 is a vertical longitudinal section, and Fig. 2 a horizontal transverse section on line X—X in Fig. 1 of a carburetor according to the present invention.

C indicates the casing of the carburetor, which at D is connected to an internal combustion engine, the said casing enclosing an elongated vertical mixing chamber, which is divided into a lower compartment F and an upper compartment R by a screen N. L indicates an air inlet channel to said casing, said air being caused to flow through the casing owing to the suction of the piston of the engine. Through the pipe E liquid fuel enters the interior of the casing C in the lower part of lower mixing compartment F, which is contracted at V, so that the velocity of the air current is augmented and the flow of the fuel through the openings H is facilitated. The openings H are provided radially in a nozzle G, screwed on the upper end of the pipe E. The flow of fuel is controlled by means of a hole K in a removable disc B, inserted in the pipe E and secured in place by means of the nozzle G.

At I the casing C is enlarged, and in this enlargement a fine screen N is fixed so as to be held motionless, preferably being cylindrically formed, as shown. The lower compartment F, formed by the enlargement I, is covered by the top of screen N, this screen-top being arranged below the upper end of the hollow cylindrical body of screen N, permitting the annular upper part of said body to extend above said top to the wall of the casing at the upper end of the expansion I. The said top and the said annular part of the screen body together divide the lower compartment F of the mixing chamber from the upper compartment R thereof. The said annular upper part of the screen body above the screen top serves to screen any material flowing laterally inward and upward from the enlarged part of the lower compartment F into the upper compartment R while the screen top screens the mixture flowing directly upward from the former compartment to the latter. The mixture of air and fuel flowing laterally inward into upper compartment R as above stated will be doubly screened, first by the cylindrical part of the body of screen N below said top and afterward by the annular part of the body of said screen above said top. The screening action is manifestly very effective. In the enlargement I and centrally over the nozzle G of the inlet pipe E is provided a fan P on a shaft S, which is mounted in bearings U by means of points T or the like.

A is an automatic air inlet valve, opening into the channel Y against the action of the spring M owing to the suction of the piston of the engine. The channel Y opens tangentially in the upper compartment R of the mixing chamber R above the enlargement I for the purpose described below. O is a throttle valve for controlling the flow of fuel and air mixture to the engine cylinder.

The carburetor works in the following manner.

Air enters the interior of the casing C through the inlet channel L owing to the suction caused by the movement of the piston of the engine. The air current produced thereby increases in velocity when passing the contraction V. Owing to the injector action thus caused by the air current, when passing the contraction V, and acting upon the fuel in the pipe E, the fuel flows out through the openings H, which are radially provided in the nozzle G, and is mixed with the air in the lower compartment F of the mixing chamber, whereby the fan P, which is put in rotation by the suction of the piston of the engine, throws the mixture of air and fuel against the screen N. The fuel hereby adheres to the screen in the form of a thin film, and owing to the large surface, which the screen offers and the special construction hereinbefore described, a complete comminution of the fuel and partial mixture with the air take place at each stroke of the piston.

From said lower compartment the fuel and air mixture enters the upper compartment R, in which the channel Y opens tangentially. The air current, flowing through the valve A owing to the suction of the piston of the engine and controlled by the spring

M, communicates a helical, rotating motion to the fuel and air mixture on account of the tangential direction of the channel Y in the upper compartment R, whereby an intimate mixture of the fuel and the air is accomplished. Said fuel and air mixture thereafter enters the cylinder of the engine and is ignited in the usual manner.

Having thus described my invention what I claim is:

For the purpose stated, a mixing chamber having an enlarged part, in combination with a hollow fixed screen dividing said chamber into an upper compartment and a lower compartment and having an upper part extending above the screen top to the upper end of said enlargement for double screening, means for discharging fuel and air into said lower compartment within said screen, and an outlet from said upper compartment.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NIKOLAI GAROFF.

Witnesses:
MUSTAFSSAN,
S. LINDROOS.