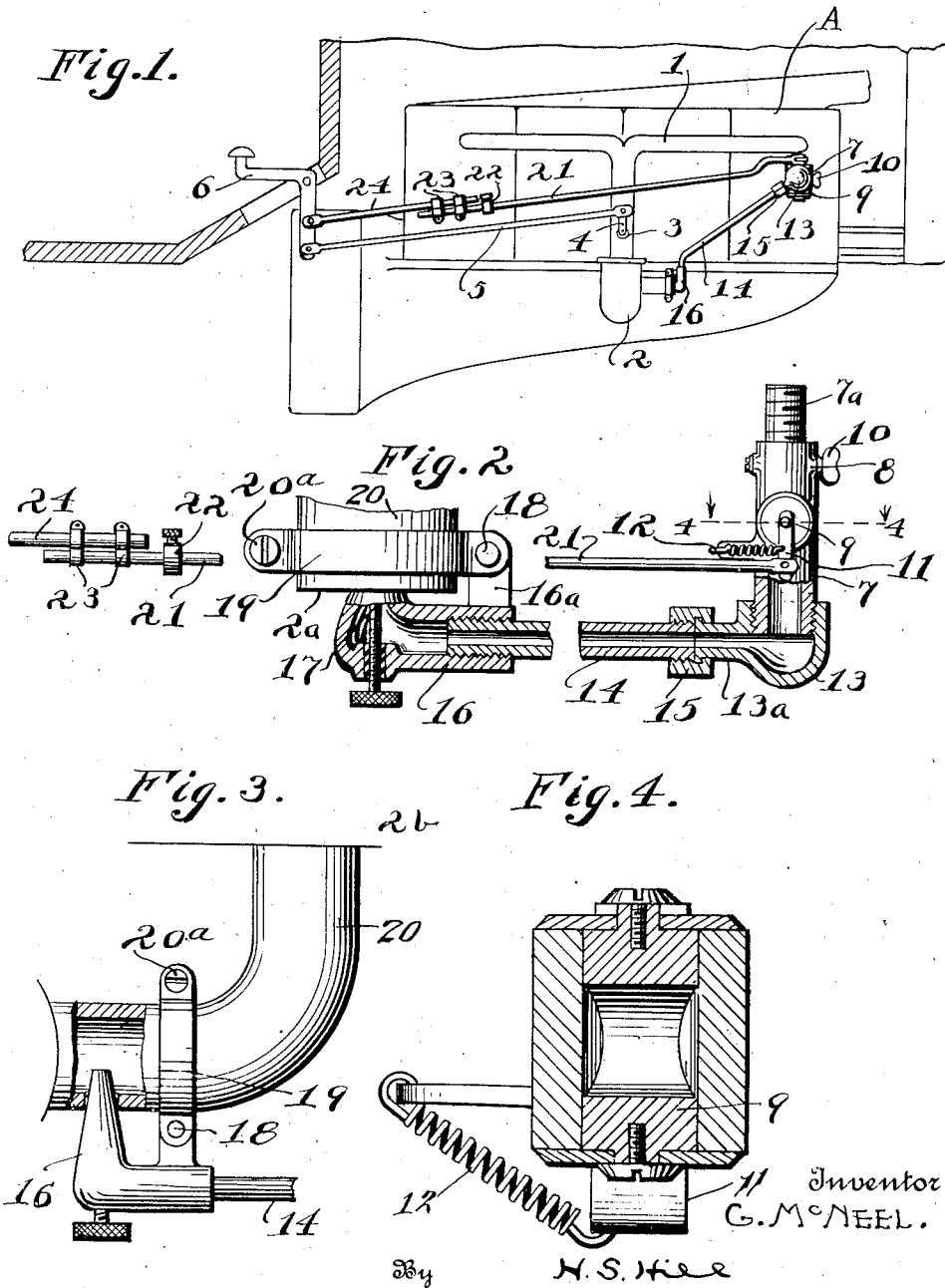


G. McNEEL.
 DECARBONIZER ATTACHMENT FOR ENGINES.
 APPLICATION FILED SEPT. 26, 1918.

1,338,993.

Patented May 4, 1920.



Inventor
 G. McNEEL.

H. S. Hill

Attorney

UNITED STATES PATENT OFFICE.

GRANT McNEEL, OF NORTH PLATTE, NEBRASKA.

DECARBONIZER ATTACHMENT FOR ENGINES.

1,338,993.

Specification of Letters Patent.

Patented May 4, 1920.

Application filed September 28, 1918. Serial No. 255,773.

To all whom it may concern:

Be it known that I, GRANT McNEEL, a citizen of the United States, residing at North Platte, in the county of Lincoln, State of Nebraska, have invented a new and useful Decarbonizer Attachment for Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to a decarbonizing and fuel saving attachment for internal combustion engines, and has for its object to provide a device of this character which embodies novel feature of construction whereby a fine spray of warm water is delivered into the horn or intake of the carbureter when the engine is running at high speeds, thereby obtaining a moist mixture which will give increased power to the engine and keep the cylinder heads and valve chambers clear of carbon deposits.

Further objects of the invention are to provide an attachment of this character which can be readily applied to any conventional water cooled internal combustion engine, and which is automatically governed in its action by the throttle control lever so that there is no moisture applied to the carbureter when the engine is running at low speeds, although the supply of water automatically starts when the throttle is opened a predetermined amount and increases as the throttle is still further opened to speed up the engine.

With these and other objects in view, the invention consists in certain novel combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a side elevation of an automobile engine provided with a fuel saving and decarbonizing attachment constructed in accordance with the invention.

Fig. 2 is an enlarged top plan view of the attachment, portions being broken away and shown in section.

Fig. 3 is a detail view showing the manner of applying the nozzle to a carbureter having a closed air intake or horn.

Fig. 4 is an enlarged sectional view on the line 4—4 of Fig. 2, looking in the direction of the arrows.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, which illustrate one embodiment of the invention, the reference character A designates a fragmentary portion of a water cooled internal combustion engine which may be of any conventional construction, the cylinders of the engine receiving explosive charges through a manifold 1 which leads from a conventional carbureter 2. A throttle valve 3 is arranged in the manifold 1 for controlling the supply of the explosive mixture to the engine in the usual manner, said throttle valve being provided with a crank arm 4 which is operatively connected in some suitable manner as by means of a link 5 to a throttle control lever 6. This is all of the conventional construction, and no claim to novelty is based thereon.

In carrying out the invention an opening is drilled in the water jacket of the engine A and the threaded end 7^a of a tubular plug 7 screwed into the opening so that the plug is in communication with the water jacket. This plug is provided at an intermediate point in its length with a cut out valve 8 and also with a control valve 9. A finger piece 10 is applied to the cut out valve and provides a convenient means for manually opening and closing the same, while the control valve is provided with a crank arm 11 which is operatively connected to the throttle control lever 6 so that the control valve remains closed until after the throttle valve has been opened a sufficient amount for the engine to obtain a comparatively high speed. Any suitable means such as a spring 12 may be provided for normally holding the control valve in a closed position and causing it to return to a closed position as soon as it is released by the mechanism for opening the same. A cap 13 is fitted upon the outer end of the tubular plug 7, said cap being formed with a comparatively small lateral arm 13^a to which one end of a small water conduit 14 is connected by a suitable coupling 15.

A laterally projecting nozzle 16 is applied to the opposite end of the water conduit 14, said nozzle being adapted to enter

the air horn or intake 20 of the carbureter, and being provided with a needle valve 17 which controls the flow of water through the same. Means is preferably provided for clamping the nozzle 16 in operative position upon the air intake of the carbureter, and for this purpose the head of the nozzle may be formed upon one side with an ear 16^a having pivot pins 18 projecting laterally therefrom. A split clamping collar 19 has the back thereof pivotally mounted upon the pins 18 so that the collar can be swung into a position at right angles to the body of the nozzle or into a position parallel with the body of the nozzle. When the air horn or intake of the carbureter is open ended, as indicated at 2^a on Fig. 2, the nozzle 16 is arranged to project into the open end of the air horn and the clamping collar 19 rotated into the position parallel to the body of the nozzle so that it can be fitted around the air horn. The arms of the split clamping collar may be formed in telescoping sections, if desired, so that the clamping collar can be made larger or smaller, and the free ends of the arms of the clamping collar are connected by a bolt 20^a by means of which the clamping collar can be drawn tightly in position upon the air intake. Where the air horn of the carbureter is closed, as indicated at 2^b on Fig. 3, an opening is drilled in the horn to receive the nozzle 16 and the split clamping collar 19 is rotated about the pivot pins 18 into a position at substantially right angles to the body of the nozzle so that it can be fitted around the air intake and fastened in position thereon.

The connection between the control valve 9 of the attachment and the throttle control lever 6 includes a rod 21 which has one end thereof secured to the crank arm 11 of the control valve, while the opposite end thereof is provided with an adjustable set collar 22 and is slidably received within guides 23 upon a rod 24 which is connected to the throttle control lever 6. The adjustment is such that when the throttle valve 6 is only slightly opened and the engine is running at a low speed the guides 23 of the short rod 24 do not engage the set collar 22 and the rod 21 is not moved to open the control valve 9. However, when the throttle valve 3 has been opened a sufficient amount for the engine to obtain a predetermined speed, the guides 23 engage the set collar 22 so that a further opening of the throttle valve is accompanied by an opening of the control valve 9. Warm water from the water jacket

of the engine will flow through the tubular plug 7 and water conduit 14 so as to be sprayed into the air intake of the carbureter when the control valve 9 is opened. When the engine is running slowly and requires a rich mixture the control valve 9 remains closed, so that no water enters the carbureter; although when the throttle valve is opened a sufficient amount for the engine to speed up the control valve is opened. The amount of water supplied to the carbureter and entering into the mixture thus increases as the throttle is opened to speed up the engine, although the supply of water is entirely cut off when the engine is running at low speeds. The ordinary gas and air mixture is too dry for complete combustion, and as engine speeds increase more moisture is required to give the best results. The attachment works automatically and requires no attention after being installed and adjusted. The use of the attachment not only enables greater power to be obtained from the engine owing to the fact that a better mixture is furnished at high speeds, but results in a thorough cleaning of a carbonized motor and the prevention of subsequent carbon deposits in the cylinder heads or valve chambers.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:—

The combination with a water cooled internal combustion engine, including its carbureter and throttle valve, of a water conduit leading from the water jacket of the engine to the air intake of the carbureter, a control valve for the conduit, a throttle control lever, a pair of rods slidably engaging each other and operatively connected to the control valve and throttle control lever, respectively, stop means for limiting the sliding movements of the rods and causing the control valve to open after the throttle lever has been moved a predetermined amount, and a rod connecting the throttle control lever to the throttle, the stop means associated with the pair of slidable rods being arranged so that the control valve is not moved until after the throttle valve has been opened a predetermined amount.

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

GRANT McNEEL.

Witnesses:

A. N. DURBIN,
M. E. CROSBY.