

UNITED STATES PATENT OFFICE

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METHOD OF CLEANING INTERNAL-COMBUSTION ENGINES

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2 Claims. (Cl. 134-20)

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The present invention relates to a method of cleaning internal combustion engines and more particularly the interior parts thereof.

An object of the invention is to provide a method for quickly and effectively cleaning the combustion chambers of internal combustion engines.

Another object of the invention is to provide a method wherein foreign deposits, such as carbon, grease and gums are efficiently dissolved and discharged from the combustion chamber.

Still another object of the invention is to provide a method wherein heat and dissolving ingredients are employed to quickly and effectively remove foreign deposits from interior parts of an internal combustion engine.

Other objects and advantages of the invention will become apparent as the description progresses.

In carrying out the process a feature of the operation is to apply the composition while the engine is in operation and to disconnect the spark plugs or ignition devices from one or more cylinders of the engine while one or more others remain connected, to utilize the heat and compression generated in the engine operation to accelerate the solvent action.

The preferred specific operations consist in removing the air cleaner conventionally employed on the carburetor and then disconnecting the conductors from the spark plugs of one half of the cylinders of the engine, by grounding or by the use of jumper wires. The engine is then started and operated to attain an oil coolant temperature preferably 160° F., or higher. The throttle is then opened wide and approximately one pint of solvent composition introduced into the intake, advantageously by pouring the composition into the air intake of the carburetor. After such operation, for a short time (for example 2 minutes) the mixture is stopped and a reverse operation effected, that is, the previously disconnected spark plugs are connected and those previously connected are disconnected. Thereafter a second pint of the composition liquid is introduced through the carburetor, the throttle opened wide as in the first instance. Upon completion of this operation the motor is gunned to clear the matter from the cylinders through the exhaust.

The method is greatly enhanced by the use of a novel composition which includes, in addition to the kerosene base, isopropyl alcohol, acetone, carbon tetra-chloride and chloroform. I have

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found these ingredients highly effective in the following proportions by volume:

	Per cent
Deodorized kerosene.....	80.25
Chloroform	.05
Carbon tetra-chloride.....	.95
Acetone	6.25
Isopropyl alcohol.....	12.5
Coloring (trace).....	.0025

The ingredients may be mixed either at normal temperature, above or below, first mixing all ingredients except base and then adding base comprising the deodorized kerosene. No special pressure is required. Mixing by manual agitation is the usual procedure.

By the use of these constituents the kerosene functions as a carrier cleaner while the carbon tetra-chloride reduces the flash point to a minimum, with the latter inhibited by the chloroform to prevent chlorine or corrosive action. The cleaning action is substantially increased by the acetone and isopropyl alcohol.

Since the motor action and compression will provide a temperature of approximately 300° F. and higher the cleaning composition is forced into and quickly dissolves the carbon, grease, gums and the hardened glaze formed on the piston, cylinder walls, rings, grooves, valves, and valve guides. In this manner the foreign deposits are completely dissolved and separated so that the lubricant may again adhere to the metallic wall surfaces of the chamber, the glaze often interfering with proper and uniform coating of the walls.

By the use of the above described method in conjunction with the composition, cleaning of the interior parts of the engine can be accomplished in a very short time, usually a matter of minutes, with great improvement in engine performance.

What is claimed is:

1. The method of cleaning interior parts of an internal combustion engine which comprises, disconnecting the ignition devices of one-half of the total number of cylinders of the engine, operating the motor to heat the same, opening the throttle to effect rapid operation while introducing a cleaning liquid into the cylinders, repeating said operation by disconnecting the ignition devices of the cylinders previously connected and electrically connecting the ignition devices of the cylinders disconnected during the initial operation, introducing a cleaning fluid into the cylinders while operating the motor, and discharging the contents of the cylinders through the exhaust.

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2. The method of cleaning the combustion chambers of an internal combustion engine to remove foreign matter therefrom which comprises, detaching and grounding the conductors to the spark plugs of approximately one-half of the cylinders of the engine, operating the motor to attain an oil coolant temperature of at least 160° F. in the combustion chamber, operating the engine at a greater rate of speed and introducing a cleaning liquid into the carburetor of the engine, disconnecting the spark plugs of the cylinders previously connected, and connecting those disconnected during the initial operation and operating the engine at a high rate of speed while introducing a cleansing liquid through the carbure-

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tor, and discharging the contents of the cylinders through the exhaust.

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