METHOD OF PRESERVING COMBUSTION CHAMBERS OF ENGINE FROM CORROSION DURING STORAGE
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since preservative materials may be added to the fuel before it is introduced into the engine. In this respect it should also be noted that when it is desired to preserve an engine which utilizes a volatile fuel, it may be desirable to add a vapor corrosion inhibiting agent to the fuel before it is introduced into the engine.

While it is contemplated that the distribution of the inert gas throughout the interior of the engine will normally be accomplished by the inertia of the moving engine parts, it should also be observed that this may be accomplished by turning the engine over with the starter, by turning the engine over with an external power source, or by even manually rotating the engine crankshaft. Depreservation of an engine preserved by the present process is accomplished by merely removing the barriers from the tailpipe and air intake and turning the engine over to flush the inert gas from the interior.

As an illustration of the above process a direct starting six-cylinder diesel engine was tested. The engine was allowed to run at a no-load speed of 2100 r.p.m. and inert gas was introduced into the engine through its air intake. Combustion was stopped immediately as shown by the discharge of a white vapor from the exhaust, instead of the usual black combustion gases, and the engine completed 36 inertial revolutions in .07 minute, using 18 cubic feet of nitrogen to flush the corrosion producing materials from the inaccessible voids in the interior of the engine.

The corrosion inhibiting tendencies of the present invention will be best understood from the tests hereinafter set forth illustrating one embodiment of the present invention:

**Example 1**

A six-cylinder spark ignition engine using ordinary gasoline as a fuel was run at 1050 r.p.m. for 35 minutes. The engine was then conventionally stopped without adding any preservatives into the interior of the engine. All entries to the manifold systems and water jacket were immediately sealed with two or more layers of pressure-sensitive tape, and the engine was put on a rack, shrouded with reinforced asphalt laminated paper, and placed on a wooden pallet outdoors in an unsheltered area.

**Example 2**

A six-cylinder spark ignition engine, identical to the engine of Example 1, using ordinary gasoline as a fuel, was run at 1050 r.p.m. for 35 minutes. Dry nitrogen was then introduced to the intake manifold through the carburetor by manually applying the funnel 23 to the carburetor air-intake port. The engine stopped eleven revolutions after application of the inert gas. All entries to the manifold system and water jacket were immediately sealed with two or more layers of pressure-sensitive tape, and the engine was then put on a rack, shrouded with reinforced asphalt laminated paper and placed on a wooden pallet outdoors in an unsheltered area.

After over eight months exposure both engines of Examples 1 and 2 were brought indoors, allowed to come to room temperature, and were inspected. As could be expected, the exposed unpainted surfaces of both the preserved and unpreserved engines were heavily rusted. All of the cylinder walls of the unpreserved engine of Example 1 were also rusted, the rust varying in intensity from light to heavy. However, the cylinder walls of the preserved engine of Example 2 were generally clean and free from rust, and the internal surfaces were in such condition that the engine was ready for immediate use.

These results illustrate the advantages to be obtained in preserving internal engine surfaces with an inert gas, and it will readily be appreciated that the present invention admirably fulfills all of its objects. Obviously many modifications and variations of the present invention are possible in the light of the above disclosure. Anyone skilled in the art of preserving machinery can readily see that this method could equally preserve compressors, pumps, steam engines, and turbines or the like, having difficulty accessible voids and moving valves or closures to control flow of gases. It is therefore to be understood, that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. The method of inhibiting corrosion on the interior surfaces of an internal combustion engine during storage comprising the steps of: introducing a dry inert gas into the interior of a running internal combustion engine through the air intake of said engine, said inert gas becoming intimately admixed with the engine fuel as it enters said engine, forcing said inert gas throughout the interior of said engine so as to inherently stop the engine by purging oxygen so as to prevent further combustion, said inert gas purging the corrosion producing materials as it is dispersed into said interior, said engine fuel becoming coated upon said internal surfaces as said inert gas is forced throughout said interior, and retaining said inert gas and admixed fuel in said interior whereby corrosion on said internal surfaces is prevented.

2. The method set forth in claim 1 wherein said inert gas is nitrogen.

References Cited by the Examiner

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