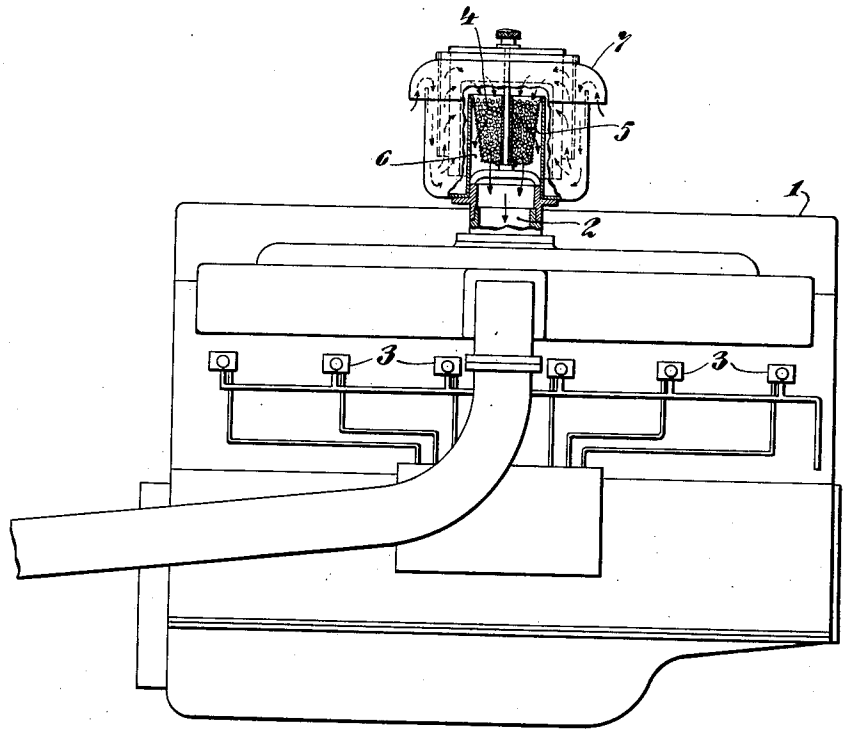
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DIESEL ENGINE

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INVENTOR.
Denis T. O'Sullivan,
BY
Philip S. Moffam
ATTORNEY.

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DIESEL ENGINE

Denis T. O'Sullivan, West Orange, N. J., assignor of one-half to Philip S. McLean, Bloomfield, N. J.

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2 Claims. (Cl. 123—198)

The invention herein disclosed relates to engines operating on the Diesel, fuel-injection principle. This patent application is a partial continuation of the copending application for patent Ser. No. 746,511 filed October 2, 1934.

Objects of this invention are to improve the operation of Diesel engines, particularly in eliminating formation of carbon, preventing knock and hammer and in general smoothing out the action of the engine.

These and other desirable objects are attained by the novel combination and method of operation hereinafter fully disclosed and broadly claimed.

The drawing accompanying and forming part of the following specification illustrates a typical embodiment of the invention. Structure, it will be understood, may be modified and changed in various ways, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

In the drawing, the single view is a broken part sectional illustration of a Diesel engine utilizing and having the invention incorporated therein.

The engine 1, is shown as of typical Diesel design, having an air intake 2, common to the several cylinders and provided with fuel injecting means 3, for each cylinder. The air intake and fuel injection is effected and controlled in accordance with the operating design of the engine, but whether it be two cycle or four cycle, or otherwise, the valving is such that a charge of air is taken in and compressed and the fuel injected into the intake highly compressed charge of air. The ignition may be effected by the heat of compression, electric spark or a combination of these, or otherwise.

The fuels employed in such engines are relatively heavy, usually in the range of the intermediate distillates known commercially as "fuel oil", varying more or less in composition due to different methods of refining and sources of the crude. These variables are particularly detrimental to uniform and efficient operation of Diesel engines.

The present invention consists in introducing a derivative of coal tar distillation having the characteristics of the carbo cyclic compound naphthalene ($C_{10}H_8$) into the air stream prior to its admission to and compression in the engine and thus before combination with the injected fuel. This highly compressed naphthalenated air mixes more readily with the fuel, largely or completely eliminating carbon formation and reduces or eliminates the knock and hammer quite common in engines of the Diesel or semi-Diesel type.

The combination of the compressed naphthalenated air with the injected fuel produces smoother, more uniform operation and may reduce the proportion of fuel required. The compressed naphthalenated air further has a stabilizing effect, seemingly compensating to an extent for the varying characteristics mentioned above, found in commercial fuel oils.

While the air which is admitted to the cylinder may be naphthalenated in various ways, one practical method, as illustrated, is to support a mass or body of naphthalene 4, in the solid so-called "moth ball" state, in a basket or like container 5, screened, or of a suitable mesh to hold back small particles, removably engaged in the main air passage 6, of the air cleaner 7. A special advantage of this particular combination lies in the fact that this air cleaner is usually mounted directly over the head of the engine, where it is well heated and which heat materially promotes sublimation of the naphthalene. In this relation, the naphthalene balls are warmed and the air is warmed before it strikes them to produce naphthalene vapor or fumes which, compressed and further heated in the cylinder, combine to advantage with the injected heavy fuel oil. This particular combination in addition to other advantages mentioned, keeps the valves and cylinder parts clean and by its beneficial effect on the fuel enables lower grade fuels to be successfully employed. Possibly due to more complete combustion resulting from this novel combination, smoke and objectionable odor are largely or completely eliminated from the exhaust.

The references herein to Diesel engines are intended to contemplate semi-Diesels and engines generally of the fuel injection type.

What is claimed is:

1. An engine of the Diesel type, having an air cleaner in the air intake and arranged immediately over the head of the engine to derive heat therefrom, a screen in said air cleaner for the main air passage into the engine and said screen being adapted to support naphthalene.

2. In combination with an internal combustion engine having a downwardly directed air intake in the head portion of the engine and thereby subjected to the heat in the head of said engine, an air cleaner connected with said heated air intake and having a screened holder in the path of air flow down into said air intake and said screened holder being adapted to confine and support a body of naphthalene in the air stream in said air intake.

DENIS T. O'SULLIVAN.