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MOTOR FUEL.

No Drawing.

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This invention relates to low compression fuels such as kerosene and gasoline, and its principal object is to improve the fuel so as to prevent a fuel knock.

5 This application is a continuation in part of our application Serial No. 563,040, filed April 15, 1922, which discloses the use in a low compression motor fuel of amino compounds including those having one or more aromatic closed chains. The present appli-
10 cation is directed to the use of amino compounds having at least two aromatic closed chains.

These compounds constitute a special class
15 of aromatic amines with which we include mixed aromatic-aliphatic amines, and the primary, secondary, and tertiary amines in which one or more of the hydrogen atoms of ammonia have been replaced by an aromatic-
20 hydrocarbon radical, the total number of aromatic closed chains being at least two. Examples of these sub groups are the primary amines, including 4-phenyl naphthyl-
25 amine, and amino-diphenyl; the secondary amines, including mono-ethyl and mono-methyl naphthylamine, both alpha and beta, and di-phenyl amine; and the tertiary amines including tri-phenyl amine. Certain
30 of these examples, such as 4-phenyl naphthylamine and tri-phenyl amine, contain more than two aromatic closed chains.

By way of an example of one method of carrying out our invention we may add, by
35 volume, $3\frac{1}{2}$ percent of naphthylamine to gasoline, agitate the liquid mass to make it homogeneous, mix the resulting fuel (which now has a higher critical compression pressure) with air, preferably by passing it
40 through a carburetor, and burn the gaseous mixture, as in an internal combustion engine, under a pressure greater than the critical compression pressure of the low compression fuel. The $3\frac{1}{2}$ percent of naphthyl-
45 amine will permit an increase of about 25 pounds in engine or mixture compression without a fuel knock.

The naphthylamine will remain in solution at room temperatures but if it is found desirable to use a blending agent to avoid

a freezing out of the naphthylamine or to 50 assist in making the liquid fuel homogeneous an equal quantity by volume of benzol, amyl acetate or amyl alcohol may be used as a blending agent.

The process may be varied by injecting 55 the naphthylamine into the intake or cylinder of an engine and by employing in place of the naphthylamine other NH_2 hydrocarbon derivatives having at least two closed chains.

What we claim is:

1. A composition of matter comprising a low compression motor fuel and a compound having more than one aromatic closed chain and consisting of the substitution of at least 65 one aromatic hydrocarbon radical for a hydrogen atom of ammonia.

2. A composition of matter comprising a low compression motor fuel and a compound having two aromatic closed chains and con- 70 sisting of the substitution of two aromatic hydrocarbon radicals for two hydrogen atoms of ammonia.

3. A composition of matter comprising a low compression motor fuel, a compound 75 having more than one aromatic closed chain and consisting of the substitution of at least one aromatic hydrocarbon radical for a hydrogen atom of ammonia, and a blending agent.

4. A composition of matter including a low compression fuel and naphthylamine. 80

5. A composition of matter including a low compression fuel, naphthylamine, and a blending agent. 85

6. A motor fuel consisting of gasoline and naphthylamine in solution.

7. A motor fuel consisting of naphthylamine, benzol and gasoline.

8. A motor fuel consisting of a one-to-one 90 solution of naphthylamine and benzol combined with gasoline, the amount of gasoline preponderating over the solution of naphthylamine and benzol.

In testimony whereof we hereto affix our 95 signatures.

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