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MOTOR FUEL

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3 Claims. (Cl. 44—9)

My invention relates particularly, although not exclusively to a fuel which is designed to be used in internal combustion engines and particularly to a combination of elements, deriving their source principally from farm and vegetable products, and from waste materials. It is the principal object of the present invention to provide a liquid compound which may be satisfactorily used as a substitute for commercial gasoline or other hydrocarbon oil in providing a fuel for explosive engines and other industrial processes, said compound possessing all of the desirable qualities of gasoline and like mineral hydrocarbon oils, and at the same time being of such character as to be independent of mineral oil shortage, less expensive than hydrocarbon fuel, and utilizing farm products and waste materials as a source of production.

In producing my improved liquid compound, I employ raw or low grade vegetable ingredients, many of which are ordinarily raised on the farm. These ingredients are reduced to chemicals and the latter used in the following approximate proportions.

	Per cent
Normal butyl alcohol.....	53
Acetone.....	30
Sulphuric ether	10
Corn oil.....	7

These ingredients are thoroughly mixed together and are then ready for use. The sulphuric ether increases the vapor pressure and renders the composition more volatile. The corn oil renders better distribution of the fuel throughout the manifold of the engine, acts as a lubricant, and assists in preventing solvent action upon enamel, paint and varnish. The acetone and normal butyl alcohol provide power and high volatility to the product. The ingredients are produced by fermenting and distilling vegetable products, such as corn, corn cobs, corn stalks, table refuse, spoiled crops, wood saw dust, wood chips, wood shavings, wheat, rye, oats, barley, rice, beet roots, potatoes, sweet potatoes, peanut hulls, oat hulls, horse chestnuts and other fermentable products, thus effecting an economical saving.

An analytical test of my improved fuel shows the following characteristics:

Acidity.....	Neutral
Gravity at 50 degrees F. O. 8170.....	41.7 A. P. I.

Corrosion (122 degrees F. for 3 hrs.)—Negligible
Distillation test:

Initial boiling point.....	121 F.	
10% over at.....	133 F.	
30% over at.....	138 F.	5
50% over at.....	146 F.	
70% over at.....	321 F.	
90% over at.....	339 F.	
End point.....	372 F.	
Recovery.....	98.0%	10
Flash Point, Pensky-Martens close up below.....	50 F.	
Sulphur (S).....	Trace	
British thermal units.....	13.890	
Gum.....	13.2 mgs.	15
Reid vapor pressure	4.1	
Nitrogen.....	0.07%	
Octane number (ASTM D 357—33T) ..	78.3	

As a result of economy road tests I have found that my improved combination of ingredients has marked advantages over combinations of ingredients heretofore employed, among which are the following:

1.—No overheating effect is produced by the use of my fuel in an internal combustion engine, the engine producing good heavy pulling characteristics with less heating than with gasoline and other fuels.

2.—Practically no carbon deposit upon the inner surfaces of the cylinder, piston head and valves or carbon knock results by the use of my fuel.

3.—Substantially no carbureter adjustment is required for economical operation of an internal combustion engine when my improved fuel is used.

4.—Substantially no corrosion results from the use of my fuel.

5.—The operation of an engine by my improved fuel is smooth, while power out-put is good and fuel consumption comparatively low.

6.—The fuel compound can be compressed to greater extent than by the use of gasoline or other combinations of ingredients heretofore employed.

7.—My improved fuel compound has a high flash test.

8.—My improved mixture of ingredients is permanent and will not separate after long standing or being subjected to ordinary changes of temperature and is substantially completely consumed by combustion when used.

9.—My improved fuel is more economical than other fuels, when used to operate internal combustion engines and may be used in place of gasoline and other fuel oil more effectively.

- By an admixture of substantially not exceeding 7% and not less than 2% of corn oil or some other light vegetable oil, a more even distribution of the air-fuel mixture using my improved fuel, results. This is of considerable practical importance, because much engine roughness is due to the uneven distribution of the air-fuel mixture, caused by incomplete vaporization at the carbureter and the unequal distances to the various cylinders of an internal combustion engine. I have found that by the addition of a light vegetable oil to my improved fuel mixture that a marked improvement in air-fuel distribution is traceable to this oil addition.
- 15 I have stated generally the ingredients and proportions thereof of which my improved fuel may be composed, but I wish to have it understood that these ingredients may, within the doctrine of equivalents be varied in proportion and

otherwise, within the scope of the following claims and within the spirit of my invention.

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

1. A fuel, comprising normal butyl alcohol, acetone, sulphuric ether substantially not exceeding 10% of the whole mixture, and corn oil substantially not exceeding 7% of the whole mixture.

2. A fuel, comprising, normal butyl alcohol substantially 53 parts, acetone substantially 30 parts, sulphuric ether substantially 10 parts, and corn oil substantially 7 parts. 10

3. A fuel, employing a mixture of ingredients fermented and distilled from vegetable products, consisting of butyl alcohol, acetone, and ether not exceeding substantially 10% and light vegetable oil not exceeding substantially 7%, of the whole mixture.

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