

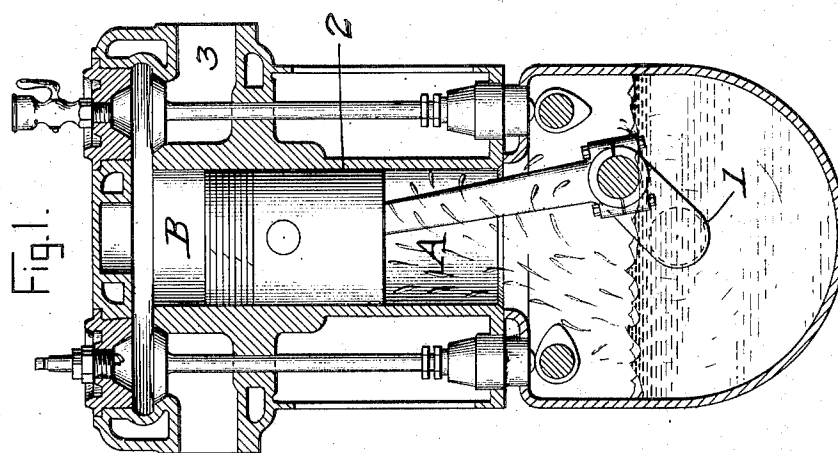
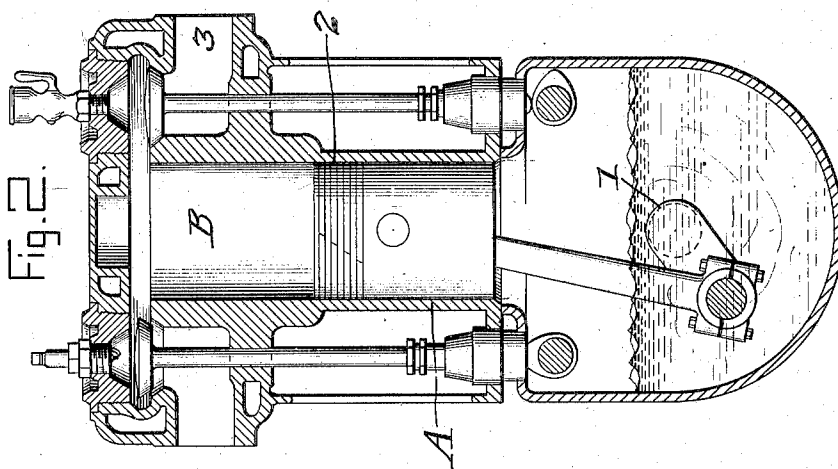
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FUEL OIL COMPOUND.

APPLICATION FILED JULY 29, 1918.

1,325,907.

Patented Dec. 23, 1919.



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GEORGE E. PETTEY AND HARRY LANG, OF MEMPHIS, TENNESSEE.

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Specification of Letters Patent.

Patented Dec. 23, 1919.

Application filed July 29, 1918. Serial No. 247,283.

To all whom it may concern:

Be it known that we, GEORGE E. PETTEY, a citizen of the United States, residing at Memphis, Shelby county, and State of Tennessee, and HARRY LANG, a citizen of the United States, residing at Memphis, Shelby county, and State of Tennessee, have invented and discovered certain new and useful Improvements in Fuel-Oil Compounds, of which the following is a specification.

In the operation of internal combustion engines two serious troubles are recognized by mechanics, one, incomplete lubrication of the upper ends of the cylinder chambers, resulting in more or less friction and wear, and the other, incomplete combustion of all the fuel oil in the time between the strokes of the piston, resulting in carbon deposits with consequent troubles. The common lubricating system employed comprises a crank case partly filled with oil through which the crank revolves and splashes the oil up against the piston head and into the lower open end of the cylinder chamber. These parts are thus thoroughly lubricated. The upper part of the chamber and the parts connected therewith, however, only receive such lubrication as results from the small quantity of oil working its way past the piston. As the piston packing rings are constructed to fit tightly it follows, as a matter of course, that but only the minutest quantity of oil can pass them and reach said upper chamber. Therefore, during each stroke of the piston the piston rings glide over a well oiled surface during a part of their course of travel but during the remainder of the stroke are in frictional contact with a comparatively dry and poorly lubricated surface, which resists their free movement. This not only makes the stroke of the piston through the upper part of the cylinder more difficult, resulting in a considerable waste of power, but in addition, this friction causes overheating of the motor, which interferes with its effective operation and reduces its wearing and resisting qualities. The incomplete combustion results in carbon deposits, forming a semi-crystalline substance which accumulates on the piston heads, valves, spark plugs and upper cylinder walls, and causes many of the troubles experienced in the operation of the engine.

The purpose of our said invention is to

provide a compound which may be introduced into the fuel oil (gasolene or other fuel oil) in proper proportion and will properly diffuse through said fuel oil in minute but uniform quantities, which composition is comprised of lubricating and carbon solvent elements, to the end that the troubles above referred to are overcome.

The accompanying drawing is illustrative only, and intended to show in section an internal combustion engine of a common type, Figure 1 showing the piston on compression stroke, and Fig. 2 on exhaust stroke, to make more clear an understanding of the use of our said invention, and to make clear the parts referred to when the upper and lower ends of the cylinder are referred to herein. The movement of the crank 1 causes oil to splash into the lower part A of the cylinder up to about point 2, the portion B above point 2 receiving almost no lubrication. By our invention lubricating oil mixed with fuel enters at 3 imparting lubrication to the walls B and the piston head, and also aids in the prevention of incrustation of carbon on the cylinder walls.

The composition consists of—

Oil petrolatum, refined, neutral,	
sp. gr. Baumé 26.3.....	744 Pts.
Carbon tetrachlorid	246 "
Nitro-benzol	10 "

It will be understood that these proportions may be varied without departing from our said invention, the proportions above defined being those that have been found to produce the most perfect composition for the purpose desired. For instance, the proportion of oil petrolatum may vary between 725 and 775 parts and the carbon tetrachlorid between 225 and 275 parts or even through a wider range within our invention.

The said substances are thoroughly combined and mixed together, and put up in cans or bottles containing given quantities, such as will make packages of a convenient size for handling, and for use in connection with the operation of automobiles, motor trucks, tractors, motor boats, and other internal combustion engines.

In use 1 ounce of the composition to each 5 gallons of gasolene is placed in the tank and becomes diffused and mixed with the gasolene and is drawn into the engine cylinder through the intake manifold, as the gasolene itself is drawn in.

The oil petrolatum, while combustible, is capable of resisting a considerable higher degree of heat than the gasolene or fuel oil so that the time required for the complete combustion of the gasolene is so much less than the time required for the combustion of the petrolatum that when the two elements are simultaneously introduced into a combustion chamber the gasolene is vaporized and burned before the petrolatum is materially affected by the heat. This difference between the physical properties of the two elements enables the petrolatum to remain in the combustion chamber in the upper end of the cylinder, above the pistons, and act as a lubricant, while the gasolene is burned in the usual way. This lubrication reduces the friction, diminishes the wear on the parts, and produces all the good effects due to the thorough lubrication of these and associated parts at the upper end of the cylinder.

The carbon tetrachlorid is non-combustible and a carbon solvent and serves to disintegrate the carbon and causes the removal of any that may have accumulated on the cylinder heads, walls, valves and spark plugs, and after the parts are once cleaned, maintains said parts in a clean condition. The carbon tetrachlorid being non-combustible, will remain in the cylinder as such even after the explosion and thus its action on the carbon deposits will take place for a longer period than if it were consumed by the explosion.

The nitro-benzol is a deodorant and at the same time an odorant. While it adds nothing to the intrinsic value of the composition, and may be omitted if desired, it is useful as a "flavoring" for the composition and also acts to conceal to a certain degree the carbon tetrachlorid.

The tetrachlorid remains in the cylinder in the form of a vapor and under the pressure existing therein will penetrate and soften any carbon which may be on the parts of the upper end of the cylinder chamber, resulting in such carbon deposits being blown out through the exhaust in a very short time. This allows perfect seating of the valves, stops leakage and waste of fuel, affords good compression, better starting, smooth running, and overcomes all the ill effects of carbon deposits.

In actual test, it has been found that the use of this composition, as and in the manner above described, increases the power to be derived from a given quantity of gasolene to a very large extent, as high as 35 to 36 miles running by a Ford car having been achieved with a gallon of gasolene so treated, whereas, 18 to 20 miles was the maximum run achieved by the same car under the same conditions with gasolene not so treated. It will thus be seen that the in-

vention is of much value in the conservation of fuel oil, such as gasolene, and at the same time results in further economic advantages in that the life of the engine is materially prolonged and the cost of keeping it in repair is materially reduced.

By the terms "carbon," "carbon solvent," etc., as used in the specification and claims we intend to include the incrustations formed in internal combustion engines and commonly called "carbon." These deposits are most likely, solid hydrocarbons having a pitch-like consistency, mixed with carbon or coke, the solvent having an action on the hydrocarbons thus loosening the coke mixed with the same.

Having thus fully described our said invention, what we claim as new and desire to secure by Letters Patent, is:

1. A compound for mixing with fuel oil for use in internal combustion engines, comprising a heat resisting lubricant and a non-combustible carbon solvent, substantially as set forth.
2. A compound for use with fuel oil for internal combustion engines comprising a high grade heat resisting lubricant and a non-combustible easily vaporized carbon solvent, substantially as set forth.
3. A compound for use in fuel oil for internal combustion engines comprising a heat resisting lubricant, a non-combustible carbon solvent, and a deodorant, combined and mixed together, substantially as set forth.
4. A fuel oil for internal combustion engines having a compound mixed therewith in the proportion of substantially one ounce to 5 gallons, said compound comprising a heat resisting lubricant and a non-combustible carbon solvent, substantially as set forth.
5. The combination of fuel oil for internal combustion engines, a lubricant mixed therein and capable of resisting heat to a higher degree than the fuel oil, and a non-combustible solvent also mixed therewith, substantially as set forth.
6. A compound for mixing with fuel oil containing lubricant and carbon solvent, substantially as set forth.
7. The method of lubricating and de-carbonizing internal combustion engines which comprises the use of the fuel oil as a carrier for a lubricant and a carbon solvent, substantially as set forth.
8. A compound for use with fuel oil for internal combustion engines comprising a non-combustible easily vaporized carbon solvent.
9. A compound for use with fuel oil for internal combustion engines comprising carbon tetrachlorid.
10. A compound for use with fuel oil for internal combustion engines comprising

about three parts oil petrolatum to one part carbon tetrachlorid.

11. A compound for use with fuel oil for internal combustion engines comprising oil
5 petrolatum 744 parts, carbon tetrachlorid 246 parts, and nitro-benzol 10 parts.

In witness whereof we have hereunto set our hands and seals at Memphis, Tennessee,

this 22 day of July, A. D., nineteen hundred and eighteen.

GEORGE E. PETTEY. [L. S.]
HARRY LANG. [L. S.]

Witnesses:

H. H. LANG,
JOHN W. FARLEY.