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ZACHARIAS OLSSON, OF WESTPORT, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BURGOYNE LIGHT & SIGNAL CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

LIQUID FUEL.

No Drawing.

Application filed December 20, 1922. Serial No. 608,100.

To all whom it may concern:

Be it known that I, ZACHARIAS OLSSON, a citizen of Sweden, and resident of Westport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Liquid Fuels, of which the following is a specification.

The present invention relates to improvements in liquid fuels; and is especially adapted for illuminating and heating purposes.

One of the objects of the invention is to provide a liquid fuel that is composed of a plurality of hydrocarbons, its main constituent being kerosene or the like and the other or others having the functions to increase the duration of burning of the kerosene, to increase or enrich the illuminating quality of the kerosene, and to decrease the inflammability of the kerosene.

The main constituents of kerosene are: C_5H_{12} and C_6H_{14} , that is to say pentane and hexane, both hydrocarbons of the C_nH_{2n+2} series or open carbon chain. These main constituents, known as saturated hydrocarbons or paraffins, all contain an excess of hydrogen, more than twice as much hydrogen as carbon, as appears from the formula above given.

In order to obtain the objects above-mentioned, there is added to the kerosene or paraffins a solid hydrocarbon, obtained from the medium or middle oil in the process of dry distillation of coal tar. This coal tar product is, preferably, of the naphthalene group, having the general formula C_nH_{2n-12} indicating that it is a carbocyclic compound, the nucleus of which consists of two benzene nuclei, having in common two carbon atoms occupying the ortho position. These hydrocarbons all contain an excess of carbon.

While the invention is capable of being carried out in many ways, for the purpose of illustration, two certain ways of carrying out the same will be described herein.

For example, a fuel made in accordance with the present invention may consist of: Kerosene, 90 parts by weight, and naphthalene, 10 parts by weight.

The naphthalene ($C_{10}H_8$), is dissolved in the kerosene in any suitable manner, whereby the fuel is ready for use. It will be seen that, by bringing these two constituents together, a burning fluid is obtained which

has the proper proportions of carbon and hydrogen. Or looking at it in another way, the carbon contents of the kerosene are increased, with the result that the luminosity of the flame is enhanced. The duration of the burning of the kerosene is also increased by adding thereto the solid hydrocarbon because the latter increases the specific gravity and decreases the viscosity of the kerosene, thereby causing a slower flow of the mixture through the wick. It has also been found that the inflammability of the kerosene is decreased by adding naphthalene. This is based upon the fact that the solid hydrocarbon used in the mixture, although slowly volatilizing at a normal temperature, has a considerably higher flashpoint than the kerosene or paraffins employed, and thus raises the flashpoint of the latter. The mixture above described has been found to have a specific gravity of 0.808, a flashpoint of 160° to 170° F., and a viscosity of 39 seconds, compared with water.

As another example of the invention, the fuel may consist of: Kerosene, 81 parts by weight; naphthalene, 9 parts by weight, and heavy paraffin oil, 10 parts by weight.

The last-mentioned hydrocarbon is of the paraffin series. The fuel so obtained has a specific gravity of 0.815, a flashpoint between 160° and 170° F., and a viscosity of 40 seconds, compared with water, the viscosity of water being 34 seconds.

From the foregoing it appears that the specific gravity of the mixture is higher than that of kerosene, so is also its flashpoint, while its viscosity is lower.

It will be understood that, instead of using the paraffins and solid hydrocarbon of the naphthalene series above-referred to, others may just as well be used without departing from the invention. It will also be understood that, while the invention has been described above in detail, changes may be made therein without departing from the spirit thereof.

What I claim is:—

A liquid fuel consisting of kerosene oil or its equivalent hydrocarbon, naphthalene, and a heavy paraffin oil.

Signed at New York, in the county of New York and State of New York, this 8th day of September, A. D. 1922.

ZACHARIAS OLSSON,