The object of my invention is to provide a fuel which is especially adapted for use in aeroplanes, although it is also applicable for use in internal combustion engines in general.

It is necessary that fuels which are to be used in aeroplane motors shall have great dependability, inasmuch as any uncertainty in the operation of the aeroplane, by reason of variability in the character of the fuel or failure of the fuel to perform its intended work, may bring about disastrous consequences.

For this reason, it is desirable to avoid using in such fuels large percentages of petroleum products, inasmuch as commercial petroleum products do not ordinarily have a constant composition, and are usually comprised of varying quantities of a number of different constituents.

It is, therefore, the object of my invention to provide an aeroplane fuel avoiding these disadvantages and taking into account the circumstances above referred to.

Still a further object of my invention is to provide fuels of the above character by the use of benzol, and the constituents of which are chosen in such a manner as to obviate any tendency of the benzol to crystallize out at the range of atmospheric temperatures to which aeroplane motors are subjected at the varying altitudes in which aeroplanes operate.

Further objects of my invention will appear from the detailed description thereof contained hereinafter.

While my invention is capable of being carried out in different ways, for the purpose of illustration I shall describe only certain ways of carrying out the same herein.

For example, a fuel made in accordance with my invention may be comprised of: 40 parts by volume of ethyl alcohol, 30 parts by volume of benzol, 30 parts by volume of gasolene or naphtha having a specific gravity of from 52° to 66° Bé, and 5 parts by volume of sulphuric ether.

The percentages of the above constituents may vary to some extent beyond the percentages herein mentioned, if desired. For example, the alcohol may vary from 40 to 60%, the benzol from 25 to 55%, the gasolene or naphtha from 30 to 50%, and the sulphuric ether may range in percentage from 5 to 20%, although I have obtained the best results by the specific composition above given.

The ethyl alcohol in the above composition may be the ordinary alcohol having a strength of 95%, but I may, if desired, use an alcohol having a greater strength.

By the use of the ether I avoid the necessity of using alcohol having a greater strength than 95%, as the ether itself will prevent the benzol from crystallizing out at very low temperatures.

Instead of the ethyl alcohol, however, I may use methyl alcohol or butyl alcohol, and instead of the benzol I may use toluol, and instead of the sulphuric ether I may use butyl ether. By the term “lower alcohols” in the claims I mean to cover ethyl alcohol, methyl alcohol, butyl alcohol, and such other members of the alcohol series as have fairly low boiling points and are similar in properties to the alcohols above named.

Aeroplane fuels made in the manner described above can be used with greatest reliability in the operation of aeroplanes, notwithstanding the varied atmospheric conditions to which aeroplane motors are subjected.

Furthermore, the percentage of light petroleum distillate, that is gasolene or naphtha, therein is sufficiently low to prevent the variations in the composition thereof.
thereof from having any appreciable effect upon the operation of internal combustion engines operated thereby.

Nevertheless, all of these fuels are of such a nature that they may be readily used in internal combustion engines generally whether used for operating aeroplanes or not.

While I have described my invention above in detail, I wish it to be understood that many changes may be made therein without departing from the spirit thereof.

I claim:

1. A homogeneously blended fuel comprising from 40 to 60 parts of ethyl alcohol, 30 to 50 parts gasoline, about 25 parts benzol and from 5 to 20 parts ethyl ether.

2. A homogeneously blended fuel comprising ethyl alcohol, about 40 parts gasoline, about 25 parts benzol and about 5 parts ethyl ether.

3. A homogeneously blended fuel comprising about 40 to 60 parts of alcohol, 30 to 50 parts light petroleum distillate, 5 to 20 parts of ether, and benzol.

4. A homogeneously blended fuel comprising a lower alcohol, a light petroleum distillate, benzol, and at least 4 per cent of ether.

5. A fuel, the constituents of which are homogeneously blended and will not separate out at low temperatures, comprising a light petroleum distillate, a lower alcohol, benzol, and at least 4 per cent of a fourth constituent which has the property of high volatility and of preventing the separation of the benzol.

In testimony that I claim the foregoing I have hereunto set my hand.

WALTER T. SCHREIBER.

Witnesses:

JOHN P. GISCHEL,
ARTHUR WRIGHT.