To all whom it may concern:

Be it known that I, ARTHUR A. BACKHAUS, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a certain new and useful Improvement in Liquid Fuels for Motors, of which the following is a specification.

My invention relates particularly to fuels designed to be used in aeroplane motors, but is applicable for use in internal combustion motors of all kinds used in flying or for other purposes.

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.

This is a divisinal application of my co-pending application upon motor fuel for aeroplanes, Serial Number 241,755, filed June 25, 1918.

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 butyl alcohol, 60 parts by volume of naphtha or gasoline having a specific gravity of from 82° Bé. to 66° Bé.

The percentages of the above constituents may vary to some extent, if desired. For example, the alcohol may vary from 25% to 50%, although I have obtained the best results by the specific composition above given.

The alcohol in the above composition is preferably a high-strength alcohol having a strength of at least 98%, but I may use an alcohol having even a higher strength, as, for example, an absolute alcohol.

Aeroplane fuels made in the manner described above can be used with the 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 gasoline or naphtha, therein is sufficiently low to prevent the variations in the composition 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 fuel comprising a petroleum distillate and a butyl alcohol having a strength above 98%.
2. A fuel comprising a petroleum distillate and from 25% to 50% of a butyl alcohol having a strength above 98%.
3. A fuel consisting of 60% of a petroleum distillate and 40% of a high-strength butyl alcohol.
4. A fuel consisting of 60% of naphtha and 40% of a high-strength butyl alcohol.
5. A fuel consisting of 60% of a petroleum distillate and 40% of an absolute butyl alcohol.
6. A fuel consisting of 60% of naphtha and 40% of an absolute butyl alcohol.
7. A fuel comprising a light paraffin hydrocarbon and a high-strength butyl alcohol.
from which fuel blending agents are substantially absent.

8. A fuel for internal combustion engines consisting of substantially anhydrous butyl alcohol and gasoline in about equal proportions.

9. A fuel consisting of a light paraffin hydrocarbon and a butyl alcohol having a strength above 98%.

In testimony that I claim the foregoing, I have hereunto set my hand this 12th day of May, 1931.

ARTHUR A. BACKHAUS.
Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,474,135, granted November 13, 1923, upon the application of Arthur A. Backhaus, of Baltimore, Maryland, for an improvement in "Liquid Fuels for Motors," errors appear in the printed specification requiring correction as follows: Page 1, line 93, claim 3, strike out "60% of", and line 94, strike out "40%" and insert instead from 25% to 50%; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of March, A. D., 1924.

[Seal.]

KARL FENNING,
Acting Commissioner of Patents.