UNITED STATES PATENT OFFICE.

ARNO BOERNER, OF SCHEVENINGEN, NETHERLANDS.

SYSTEM OR METHOD OF FEEDING COMBUSTION ENGINES FOR AIRSHIPS.

1,423,987. Specification of Letters Patent. Patented July 25, 1922.

No Drawing. Application filed June 3, 1919. Serial No. 301,589.

To all whom it may concern:

Be it known that I, ARNO BOERNER, having no nationality, residing at Scheveningen, the Netherlands, have invented certain new and useful Improvements in a System or Method of Feeding Combustion Engines for Airships, of which the following is a specification.

This invention comprises a system or method of feeding internal combustion engines for airships.

It is not new feeding such prime movers with air mixed lift lifting gas (coal gas, hydrogen, etc.) drawn from the balloon. When this method is employed the balloon is held taut by forcing air into one or a plurality of air-bags inside the balloon proportionate to the consumption of lifting gas. This method has for its object to reduce the load or ballast of the balloon in the form of liquid fuel, but it has become obsolete owing to the inconvenience arising from the lifting power of the balloon decreasing as the lifting gas is consumed.

It has also been suggested to admit the oxygen necessary for the combustion in internal combustion motors in liquid condition, for instance, in the form of liquid air, or in the form of compressed gas produced by the evaporation of liquid air, and it has further been proposed to use such engines for driving airships. However, when employing such prime movers for the purpose stated the inconvenience is experienced that the gradual consumption of the liquid or compressed air and of the liquid fuel during the voyage entails a decrease of the balloon load which can only be compensated by the outlet of an adequate volume of valuable lifting gas into the atmosphere.

The present invention, which may be considered as the combination of said known principles, consists in that the combustion chambers of the internal combustion engines of airships are charged with lifting gas derived from the balloon, and with oxygen admitted in the form of liquid oxygen, of a liquid containing liquid oxygen, or of compressed gas produced by evaporating liquid oxygen or a liquid containing liquid oxygen, it being understood that the mixing of the gas with the oxygen may take place either in or outside the combustion chamber, and that the balloon should be kept taut in some convenient manner.

My new method has the advantageous feature that the decrease in lifting power of the balloon caused by the consumption of lifting gas is compensated by the decrease in the load of the balloon due to the consumption of oxygen, either pure or mixed with other gases, stored, for instance, in steel bottles; consequently it ensures a practically constant lifting power of the balloon without necessitating the outlet of lifting gas into the atmosphere.

What I claim as my invention is:

The method of feeding internal combustion engines for airships which consists in charging the combustion chambers of the engines with lifting gas drawn from the balloon and a compressed gas containing oxygen, the compressed gas containing the oxygen being obtained from a supply of the same on the balloon, the compressed gas being supplied in such quantities as to compensate by loss in weight the loss in buoyancy caused by the use of the lifting gas, substantially as set forth.

In testimony whereof I affix my signature.

ARNO BOERNER.