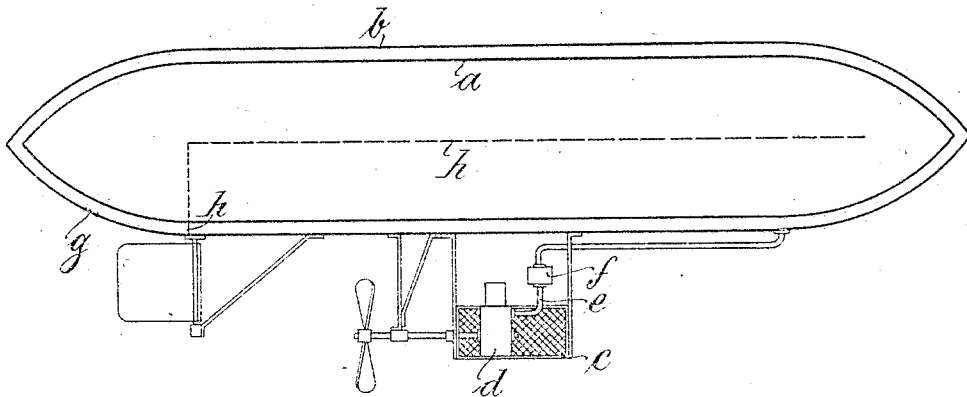


J. SCHILLING.
BALLOON.

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954,215.

Patented Apr. 5, 1910.



Witnesses:

Alon Greenwald.

Alfred Lyons.

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UNITED STATES PATENT OFFICE.

JOHANNES SCHILLING, OF COLONIE GRUNEWALD, NEAR BERLIN, GERMANY.

BALLOON.

954,215.

Specification of Letters Patent.

Patented Apr. 5, 1910.

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To all whom it may concern:

Be it known that I, JOHANNES SCHILLING, a subject of the King of Prussia, and resident of 1 Winklerstrasse, Colonie Grunewald, near Berlin, German Empire, have invented certain new and useful Improvements Relating to Balloons, which the following is a specification.

This invention relates to balloons, airships and the like and is specially applicable to motor driven air ships. It is known to provide such balloons with a covering which is intended to prevent fluctuations of the temperature of the contents of the balloon and to prevent the access of radiant heat to the said contents. For this purpose an air filling was provided between the outer cover and the balloon cover proper. This layer however is a source of considerable danger as the gas and air are apt to permeate through the coverings, so that eventually an explosive mixture may be formed in one or other of the compartments, that is either in one of the compartments of the balloon proper or in the insulating covering.

The object of the present invention is to avoid this danger and to this end I fill the insulating cover or jacket with an inert gas. Such an inert gas is for instance nitrogen or products of combustion. The necessity is of course that all or practically all the free oxygen has been extracted from the gaseous fluid which is used to fill the jacketing.

The invention is illustrated in one convenient form in the accompanying drawing which is a diagrammatic section through an air ship provided with an insulating jacketing according to the present invention. In this drawing the invention is illustrated as applied to a motor-driven air ship but of course I do not wish to confine the invention to motor-driven balloons or air-ships.

In carrying the invention into effect according to the form shown the inner balloon *a* is filled with gas. Around the inner balloon *a* there is an outer covering *b* which is held a short distance from the exterior of the balloon *a*. From the balloon there is supported in any convenient method a platform *c* on which the motor *d* is mounted. From the motor *d* the exhaust pipe *e* is led to open into the space between the outer cover *b* and the inner cover *a*. The exhaust pipe *e* may be led through a box *f* containing a suitable material such as quick lime

for extracting all moisture and heavy gases from the gaseous fluid passing from the pipe *e*. In this way by extracting all heavy gaseous material the buoyancy of the balloon is not in any way reduced. The carbonic acid contained in the gases may if desired, also be extracted. The inert gas passing through the pipe *e* and entering into the space between outer cover *b* and the inner cover *a* are caused to fill the whole space between said covers and may find their exit at *g* in the rear end of the balloon. So as to cause the said gases to fill the whole space between the said covers I may arrange a wall *h* extending as shown by the dotted lines from near the rear end of the balloon to the region of the front end of the same. The gases are thereby caused to fill the lower half of the space between the two covers, before they pass into the upper half of said space.

It will be understood that if desired the space between the cover *a* and the cover *b* may be filled with the inert gas before the journey is started and the exhaust from the motor may pass into the air in the usual manner.

I claim:—

1. The method of insulating balloons and the like which consists in providing a jacket around the gas chamber of the balloon or the like and filling said jacket with an inert gas.

2. The method of insulating balloons and the like which consists in providing a jacket around the gas chamber of the balloon or the like and filling said jacket with a gaseous fluid freed from oxygen.

3. The method of insulating balloons and the like which consists in providing a jacket around the gas chamber of the balloon or the like and filling said jacket with the exhaust gases from a motor.

4. The method of heat insulating balloons and the like which consists in providing a jacket around the gas chamber of the balloon and passing the exhaust gases from the explosion motor through a layer of material adapted to free the said gases from moisture and heavy gases and then leading the said purified inert gaseous fluid to the said jacket.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHANNES SCHILLING.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.