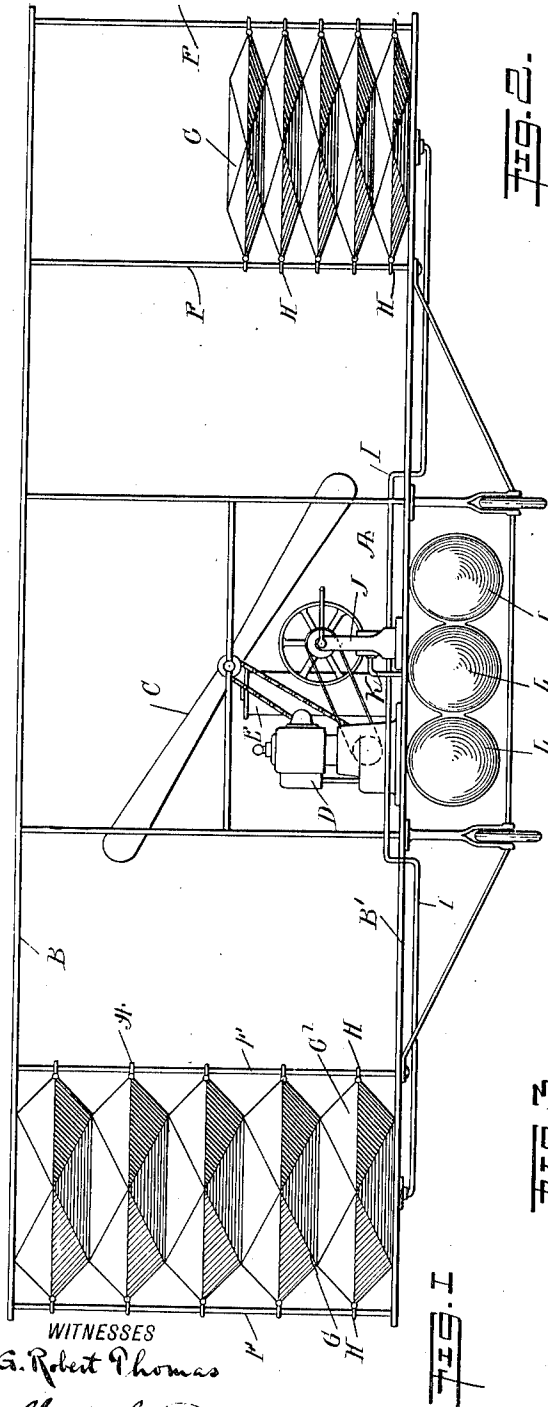


M. KALABA.
AEROPLANE.

APPLICATION FILED MAY 16, 1911.

1,012,559.

Patented Dec. 19, 1911.



WITNESSES
G. Robert Thomas
Geo. J. West

FIG. 2.

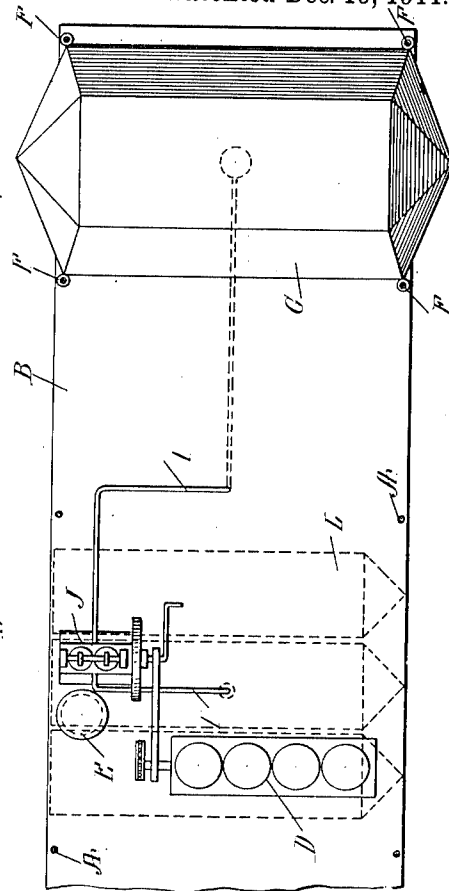
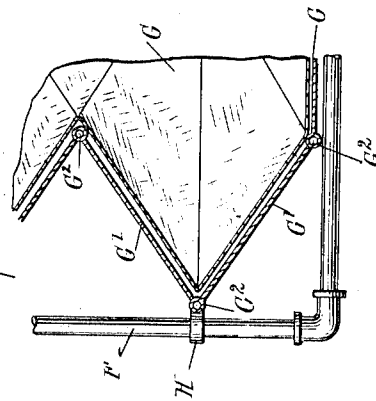


FIG. 3.



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MORRIS KALABA, OF NEW ROCHELLE, NEW YORK.

AEROPLANE.

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To all whom it may concern:

Be it known that I, MORRIS KALABA, a citizen of the United States, and a resident of New Rochelle, in the county of Westchester and State of New York, have invented new and useful Improvements in Aeroplanes, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in aeroplanes whereby the desired balance or stability is obtained, the lifting power is increased, and in case of accident to the motor or other parts the aeroplane is readily sustained in the air. For the purpose mentioned use is made of inflatable bags mounted on the aeroplane and connected with means under the control of the aviator for inflating the bags wholly or partly according to circumstances.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of an aeroplane provided with the improved stability devices; Fig. 2 is a sectional plan view of the same; and Fig. 3 is an enlarged sectional side elevation of part of one of the bags.

The aeroplane shown in the drawings is in the form of a biplane of any approved construction, having a framework A, spaced sustaining planes B, B', a propeller C, a gasolene tank E for supplying the motor with an explosive gas, and other parts and devices, such as are usually found in aeroplanes of this type, although it is expressly understood that my stability devices presently to be described in detail are applicable to other forms of aeroplanes, and hence I do not limit myself to applying my devices to any particular type of aeroplane.

On the sides of the aeroplane, and preferably between the sustaining planes B and B', are arranged guide rods F for guiding inflatable bags G on inflating and deflating the same. Each of the bags G is made of rubber, silk or other suitable fabric in the form of bellows, inclosed in a cover or shell formed of metallic plates G', preferably aluminum, and connected with each other by hinges G², the plates G' overlying the corresponding folds of the bag G, and the

hinges G² at the sides being pivotally connected with rings H mounted to slide on the guide rods F. Thus by the arrangement described the bags G can be readily inflated or deflated, and at the same time are thoroughly protected by the cover made of hinged sections. A pipe I connects with the bottom of each bag G and leads to a pump J driven from the motor D or operated by hand, and the pump J has a pipe connection K with one or a series of tanks L filled with a light gas, such as hydrogen gas, either manufactured by suitable apparatus located on the framework A or the tanks L are filled with gas prior to using the aeroplane for an ascent. By the arrangement described the pump J is used for pumping gas from the tanks L into the inflatable bags G, to inflate the same to any desired extent, that is, wholly, as shown to the left of Fig. 1, or partly, as indicated on the right of Fig. 2. If it is desired to deflate the bags G, the pump J may be used for pumping the gas from the bags G back into the tanks L, it being understood that for this purpose suitable valves are arranged on the pump for the purpose mentioned. It is also understood that the pump J may be in the form of an air pump for pumping air into the bags G instead of hydrogen gas to inflate the said bags or deflate the same, as the case may be.

By making the inflated bags in the form of bellows, a large sustaining surface is obtained, so as to insure stability of the aeroplane, and in case of accident to the motor to present sufficient resistance to the air to prevent rapid falling of the aeroplane, thus rendering the aeroplane exceedingly safe.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. An aeroplane, comprising a framework, spaced planes one above the other, guides between the said planes, and inflatable and deflatable bags mounted on the said guides and formed bellows-like for extensible and contractible movement under the effect of inflation and deflation.

2. An aeroplane, comprising a framework, spaced planes one above the other, guides between the said planes, inflatable and deflatable bags mounted on the said guides and formed to increase and decrease in length in a vertical direction under the effect

of inflation and deflation, gas supply tanks on the said framework, and a pump on the framework and connected with the said bags and the tanks for inflating and deflating the bags.

3. An aeroplane, comprising a framework, sustaining planes one above the other and mounted on the said framework, guides on the said framework, extensible and contractible bellows-like bags mounted on the said guides, and means under the control of the aviator for inflating or deflating the said bags wholly or partly.

4. An aeroplane, comprising a framework, sustaining planes one above the other and mounted on the said framework, guides on the said framework, inflatable bags in the form of bellows and provided with a sheet metal cover made in sections hinged together, and rings slidable on the said guides and on which the hinged cover sections are pivoted, and means under the control of the aviator for inflating the bags.

5. An aeroplane provided with guides, and an inflatable bag of bellows shape and having a cover formed of sheet metal sections hinged together, the cover sections overlying the folds of the bag, and rings on

the said guides and on which sundry of the sections are pivoted.

6. An aeroplane provided with an inflatable bag of bellows shape, and a metal cover for the same formed of plates overlying the folds of the bag and pivotally connected one with the other.

7. An aeroplane provided with an inflatable bag of bellows shape and a metal cover for the same formed of plates overlying the folds of the bag and pivotally connected one with the other, and guides for the said cover.

8. An aeroplane provided with sustaining planes, a framework, guides, extensible and contractible bellows-like bags mounted on the said guides, and means under the control of the aviator for filling the said bags with a gas to extend the same or for discharging the gas from the bags to deflate the same.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MORRIS KALABA.

Witnesses:

JAMES D. FERRIS,
THOMAS B. SHEEHAN.