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PATENTED MAR. 19, 1907.

J. M. MILLER.

AIR SHIP.

APPLICATION FILED OCT. 3, 1906.

FIG. 1.

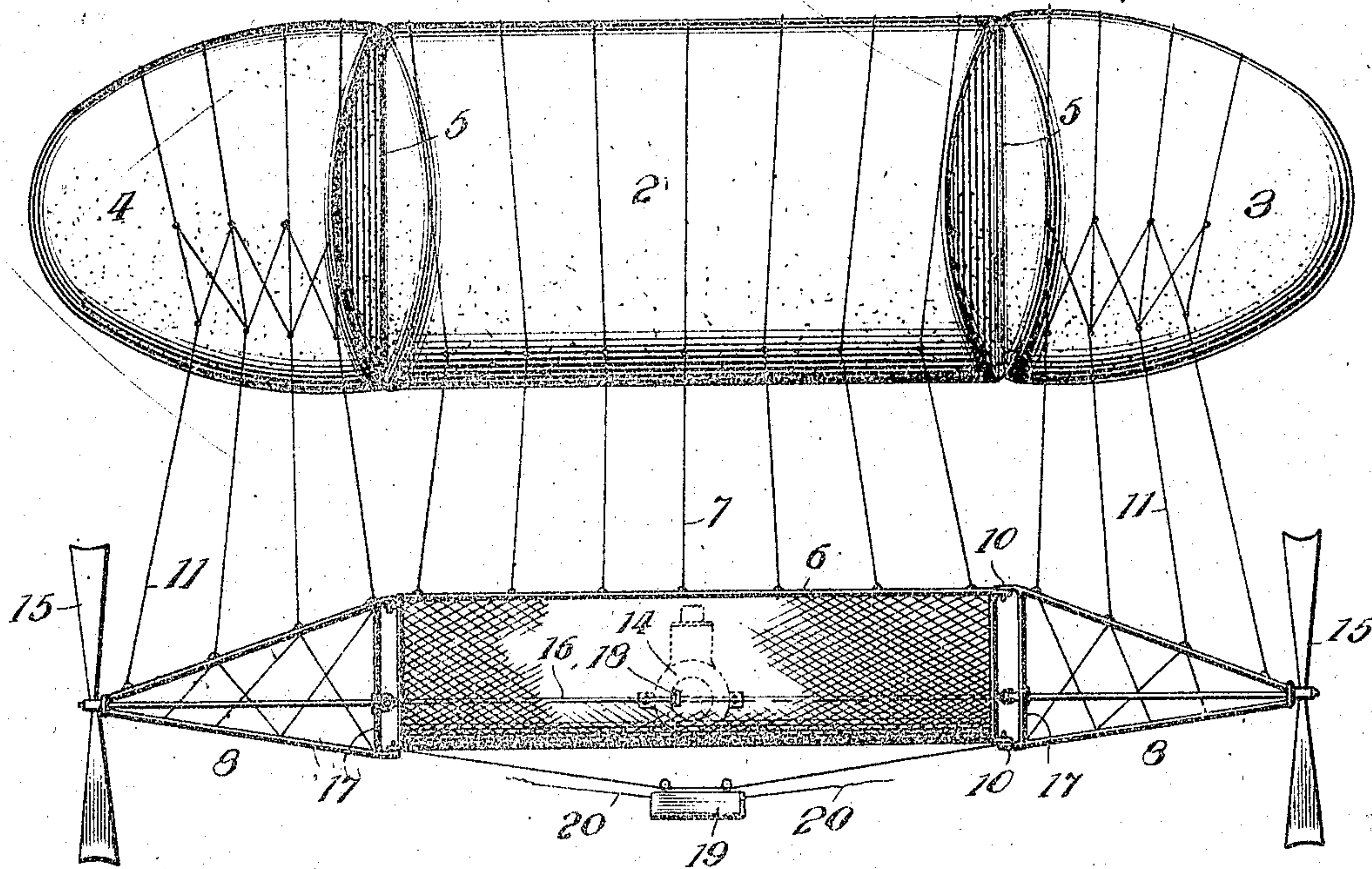
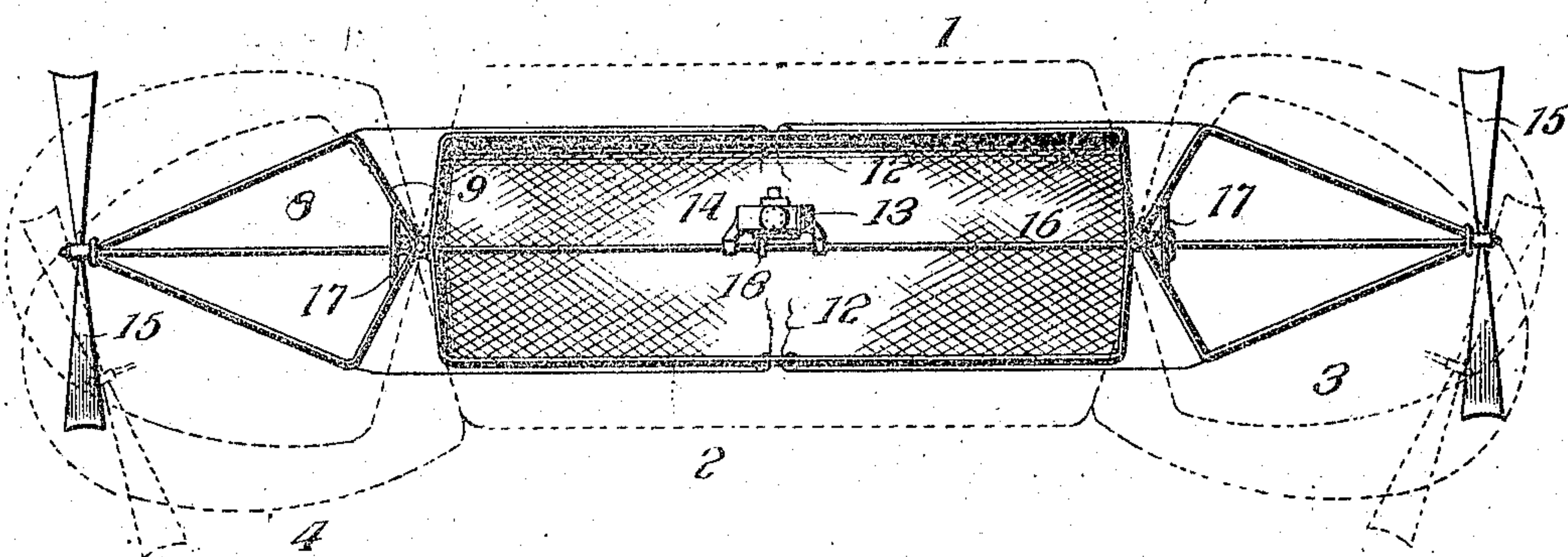


FIG. 2.



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## AIR-SHIP.

No. 847,965.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed October 3, 1906. Serial No. 337,285.

*To all whom it may concern:*

Be it known that I, JAMES M. MILLER, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Air-Ships, of which the following is a specification.

The invention relates to an improvement in air-ships comprehending specifically a construction tending to a positive dirigable control of the air-ship.

The main object of the invention is the provision of a supporting medium or gas-bag constructed in independent sections, provision being made for the control of the sections at the will of the operator by means of the car mechanism to provide for deflecting either or any of said sections from the line of travel of the air-ship, whereby to utilize said section or sections as an auxiliary steering medium.

Another object of the invention is the provision of means whereby the propelling mechanism of the air-ship may be varied with respect to the speed thereof without interfering with the constant and continuous rate of speed of the motive power, whereby the power of the propelling mechanism may be readily controlled at the will of the operator without necessitating a corresponding government of the motor.

The invention in its preferred details of construction will be described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a view in elevation of an air-ship constructed in accordance with my invention; and Fig. 2 is a plan of the car, illustrating particularly the means for controlling its sections and the sections of the gas-bag and the means for controlling the car mechanism and the propelling medium, the gas-bag being shown in dotted lines.

Referring to the drawings, in which like reference-numerals refer to like parts throughout the several views, my improved air-ship comprises a gas-bag 1, which for the purposes of the present invention may be of any approved material or in any desired form in cross-section. The gas-bag is divided into three sections: a main or central section 2 and end sections 3 and 4; as shown. The end sections, hereinafter referred to as the "auxiliary steering-sections," are wholly distinct and separate from each other and from the main section, so far as communica-

tion is concerned, being connected to the main section by any preferred form of joint connection, as 5, so constructed and arranged as to permit independent lateral movement of the steering-sections relative to the main section.

As above described, it is to be understood that the gas-bag forming the supporting medium for the air-ship is, in effect, a plurality of independent gas-receptacles connected at their ends by a pivotal connection which will permit a free swinging movement of each of the sections.

A car or cage 6 of any form or material is rigidly supported from the main or middle section of the gas-bag by metallic or other straps 7, said straps being preferably continued to provide a reinforcing-frame for the main section of the gas-bag. To each end of the car is pivotally connected a steering-frame 8, preferably cone shape, as shown, and provided next the adjacent end of the car with a cone-shaped base 9. The apex of the base 9 is pivotally connected, through the medium of connections 10, with the proximate end of the car, said connections permitting a swinging movement of the section 8 relative to the car proper. Each steering-section 8 is directly connected, through the medium of a rigid framework 11, with the auxiliary steering-section of the gas-bag lying immediately above it, the connection being such that any movement of the steering-section 8 necessitates a corresponding movement of the auxiliary steering-section of the gas-bag. The movement of the steering-sections of the car is controlled by the operator by cables 12, connected to the respective outermost points of each of the steering-sections 8 and projecting within the car proper, being guided throughout their length in suitable guide-rollers.

Within the car is disposed the motor 13, which may be of any type, designed to be constantly and continuously operated at a uniform rate of speed. The driving medium of the motor is in the form of a friction-disk 14. The propelling power of the air-ship consists in propellers 15 of ordinary form, mounted at the free end of each of the steering-sections 8, said propellers being supported upon a drive-shaft 16, extending longitudinally of the car and of the steering-sections, said shaft being divided by universal-joint connections at 17 to permit independent movement of the steering-sections 8 without interfering with



the revolution of the shaft, thus enabling the propellers attached to the steering-sections to positively control the direction of travel, either straight or circling, by reason of their adaptability to be set and operated either in alinement or at an angle to each other. A friction-disk 18 is feathered upon the drive-shaft and arranged for constant engagement with the friction-disk of the motor. Any ordinary form of mechanism, as a hand-lever or the like, is operatively connected with the friction-disk 18, whereby the operator may adjust said disk longitudinally of the drive-shaft and thereby regulate the speed of said drive-shaft by varying the operative path of the disk 18 relative to the center of the friction-disk 14, as will be obvious.

A weight 19 is suspended beneath the car, being arranged for travel longitudinally of the car at the will of the operator through the medium of a cable 20. The weight constitutes a shifting ballast by which the operator may depress either end of the car and cause the air-ship to ascend or descend without leaving his seat.

In operation the motor, being constantly and uniformly driven, is controlled to impart the desired speed to the propellers by the manual shifting of the friction-disk 18, as may be necessary. Should the operator desire to change the course of the air-ship, he will operate the cables 12 to deflect the forward or rear or both sections 8 of the car in the direction desired. This movement of the sections 8 compels a corresponding movement of the connected section of the gas-bag, thereby utilizing the resistance of said gas-bag section against the further straight travel of the air-ship and positively insuring the turning of the air-ship as desired.

It is of course understood that the propellers 15 operate in conjunction to exert a progressive effect upon the car in the same direction, the forward propeller being constructed for a drawing force and the rear propeller for a pushing force. Operation of the shifting ballast will depress either the forward or rear end of the car, as desired, with the effect to cause the propellers to drive the car in an upward or downward direction.

It is to be particularly understood that the specific form of the gas-bag or the car or of the steering-sections is wholly immaterial so far as the present invention is concerned, as the salient feature thereof resides in a gas-bag for air-ships having independent sections controlled for movement at the will of the operator to aid in steering the air-ship. Furthermore, the continuously and constantly driven motor, in connection with the end propellers and the means to control the speed of said propellers from the uniformly-driven motor, is another important feature of the present invention.

The air-ship of my improvement utilizes

the air-currents as an assistance in steering the ship, the resistance of the deflected section of the gas-bag serving of necessity to similarly deflect the path of travel of the air-ship. The air-ship described, it will be noted, may thus be positively steered, varied, as to speed without necessitating control of the motor, and deflected in an upward or downward direction without requiring the operator to move from his seat in the car.

In connection with the movable sections of the gas-bag it is to be particularly noted that the operator is thereby given an added control over the movement of the air-ship when navigating unusual air-currents, as he may so deflect either or both of said sections as to readily compensate for and thereby obviate the effects of any air-current tending to deflect him from his desired course.

While I have for purposes of illustration shown and described the gas-bag as comprising but three sections, I wish it to be understood that it is within the scope of my invention to employ any number of sections desired, as may seem consistent and necessary to meet the emergency arising.

Having thus described my invention, what I claim is—

1. An air-ship comprising a balloon having a movable section, and a propelling means supported by and movable with the balloon-section, whereby the power of the propelling means is always directed in line with the balloon-section.

2. An air-ship comprising a balloon having a movable steering-section, means for operating said steering-section, and balloon-propelling means having a relatively fixed connection with the section, whereby the line of power is always fixed with relation to the balloon-steering section.

3. An air-ship having independent steering-sections, and independent ship-propelling means each supported by and operative with one of the balloon-sections, whereby any particular propelling means is always operative in line with the particular balloon-section with which it is connected.

4. A balloon having independently-movable steering-sections, and a propelling means having fixed relation to each section, whereby the propelling power is always in line with the steering direction.

5. An air-ship comprising a balloon including movable sections, a car supported thereby and comprising movable sections connected to the movable sections of the balloon, and ship-propelling means carried by and movable with each car-section.

6. An air-ship comprising a balloon including movable sections, a car having movable portions connected to the respective sections of the balloon, and a ship-propelling means carried by and movable with each car-section, and means for adjusting the car-sections.



7. An air-ship comprising a balloon having movable end sections, a car supported by the balloon and having movable end sections connected to the respective end sections of the balloon, and simultaneously-operated propellers, each of said propellers being supported by and movable with one of the car-sections.

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

JAMES M. MILLER.

Witnesses:

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BURR N. EDWARDS.