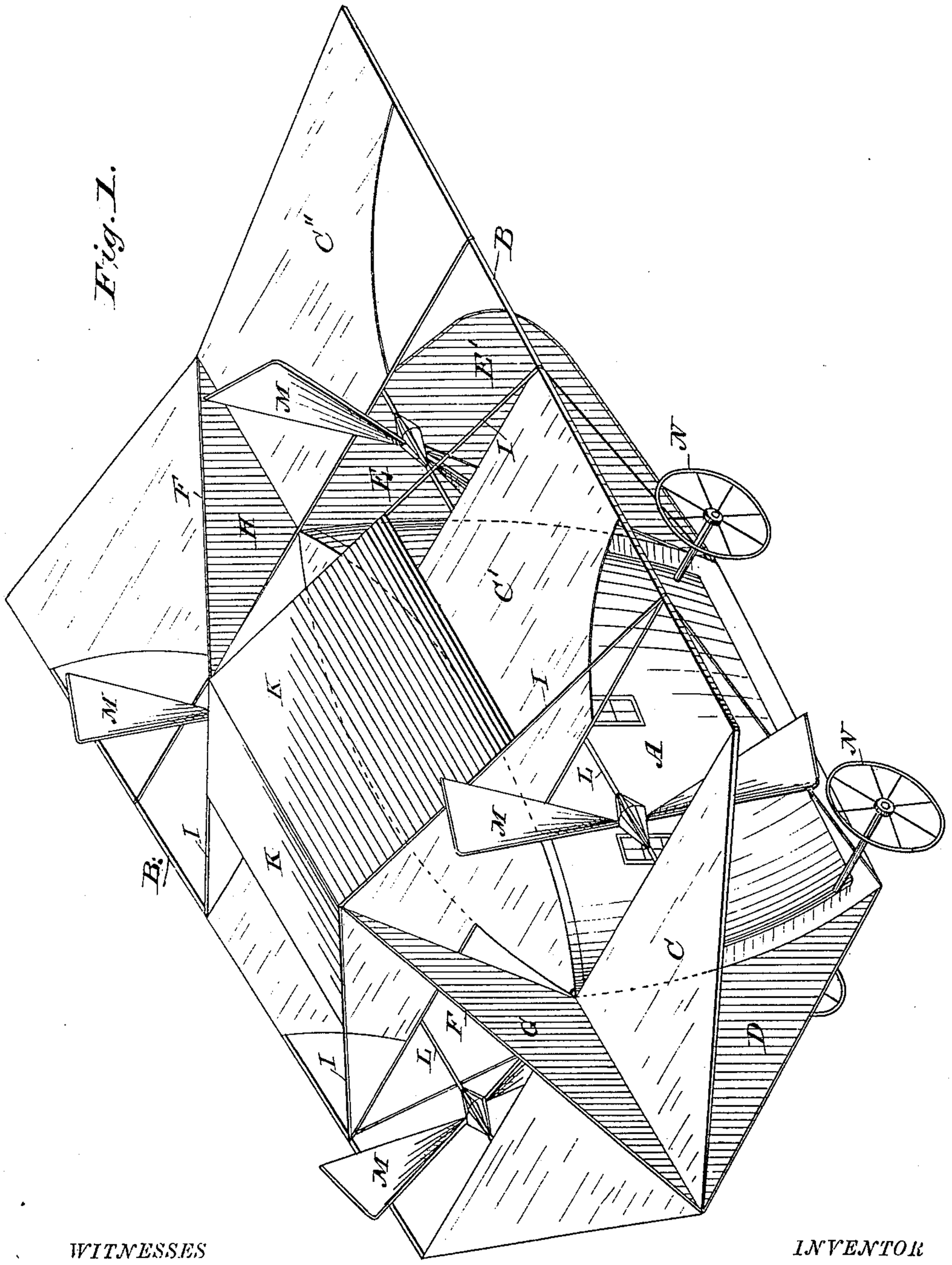
(No Model.) 2 Sheets—Sheet 1.

W. G. KRUEGER.

AIR SHIP.

No. 252,955. Patented Jan. 31, 1882.

Fig. 1.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

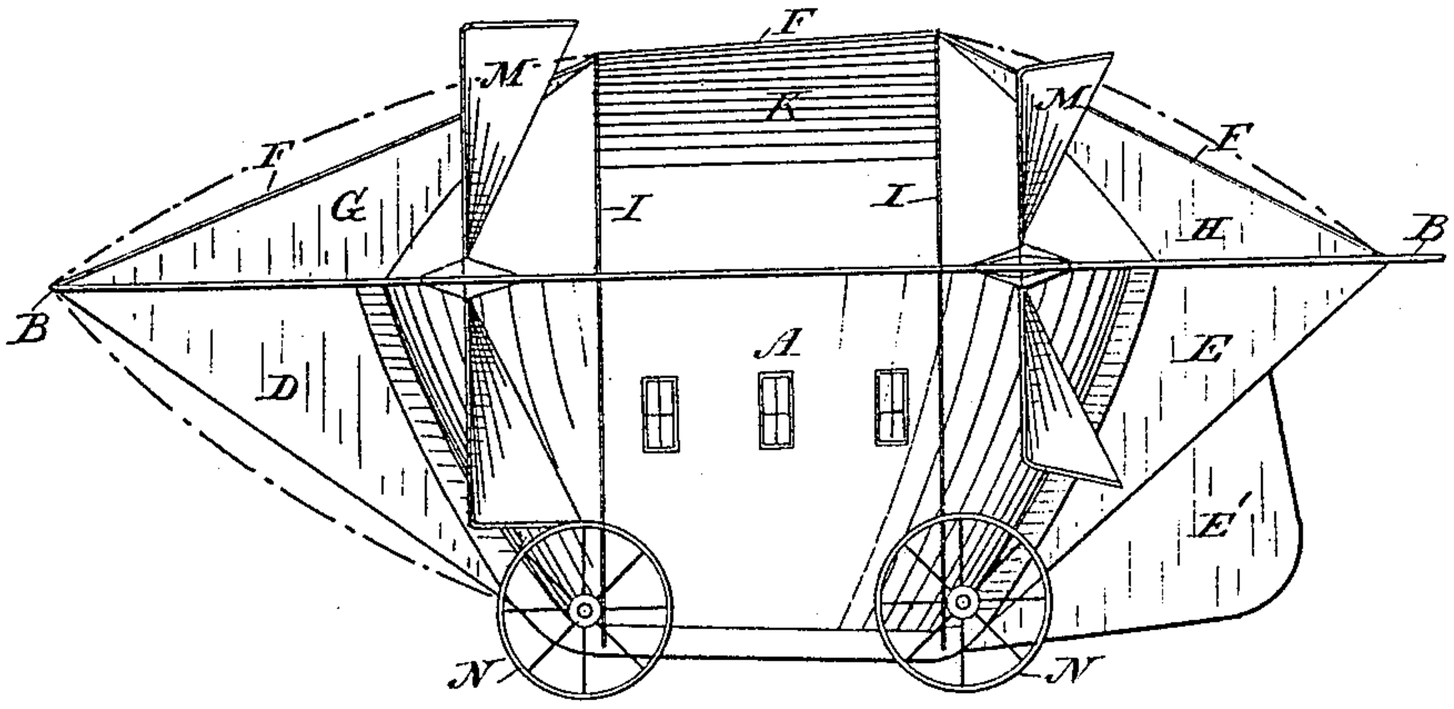


Fig. 3.

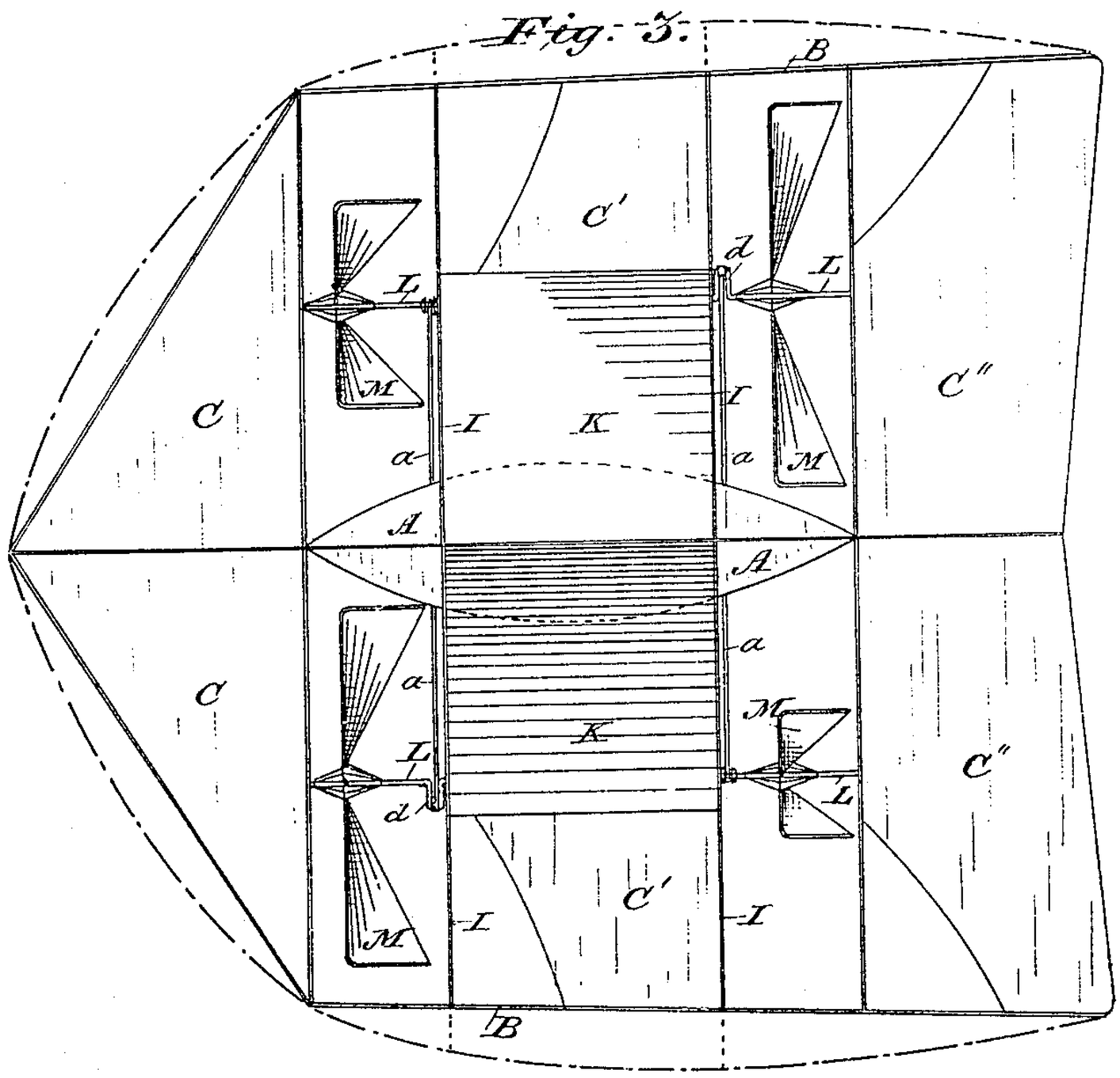
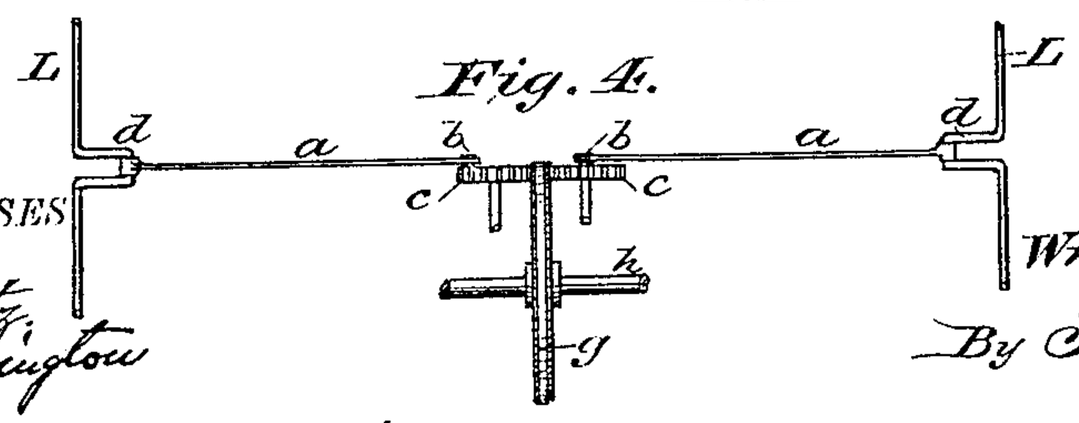


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM G. KRUEGER, OF ST. LOUIS, MISSOURI.

AIR-SHIP

SPECIFICATION forming part of Letters Patent No. 252,955, dated January 31, 1882.

Application filed January 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. KRUEGER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Air-Ships; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in air-ships or flying-machines; and the object of my invention is to construct an air-ship or flying-machine in which passengers, and also freight, if desired, can be easily, cheaply, and quickly transported from one place to another with perfect safety and reliability, as well as convenience to passengers.

The invention consists in attaching to a suitably shaped ship, vessel, or carrier, of proper size and shape, a light but very strong and properly-braced frame, to which are secured movable horizontal planes of strong, light, and flexible material, and extending transversely over the vessel or carrier, by which planes said vessel is supported when in the air and moving through it.

It also consists of vertical planes constructed of strong flexible material pivoted or hinged to the stern and bow of the vessel, and by operating these to one side or the other the course of the vessel can be changed, and it is guided in any direction desired, also serving to steady the vessel.

It also consists in arranging on each side of the vessel, in suitable bearings in the frame, four (more or less) propellers made of a light pliant frame covered with flexible material. Said propellers are to be operated by any proper means or mechanism from the interior of the vessel. The propellers are preferably arranged in line with the horizontal planes.

It also consists in arranging over the central part of the vessel inclined or arched planes extending transversely, and they are to be operated from the interior of the vessel. They are made so that they can be extended or contracted in case it is desired to descend, or in case of an accident will act as a parachute, and will thus ease the descent of the vessel and prevent danger to the passengers.

It also consists in providing the vessel with light wheels, upon which it is run on the ground for a short distance until the propellers have acquired sufficient velocity to raise and move the vessel through the atmosphere.

It also consists in certain details of construction, as will be more fully described hereinafter, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the accompanying drawings, Figure 1 represents a perspective view of my improved air ship. Fig. 2 is a side view of the same. Fig. 3 is a top or plan view of the same. Fig. 4 is a detail view, showing a manner of operating the propellers from the inside of the vessel.

In the drawings, A represents a ship, vessel, or carrier provided with suitable windows, doors, seats, and other accommodations for passengers. To offer as little resistance to the air as possible the vessel is made narrow, deep, and long. The size is varied according to the number of passengers or the amount of freight to be transported. The vessel is made of light and strong material, and can be made of any desired shape. To the upper part of this ship or vessel is secured a strong frame, B, projecting all around the ship in a horizontal manner, and it is properly braced in all directions required. The horizontal planes C C′ C″, made of flexible and strong material of any kind—such as oiled silk, &c.—are attached to the frame B and the sides of the ship. The front pair of planes, C, is formed into a sharp point, while the rear pair is formed in reverse manner and formed similar to the tail of a swallow. When the planes C C″ are elevated or depressed, which is done by ropes or rods from the interior of the vessel, and connected to them, it will be guided and move upward or downward. A vertical plane, D, is attached or hinged to the bow of the vessel, and is made of the same material as the other planes, and to the stern of the vessel is secured in a similar manner a vertical plane, E, the lower part, E′, acting as a rudder for the purpose of steering the vessel. A frame-piece, F, extends over the entire vessel, and is connected to the frame B, acting also as a brace to the entire structure. To both ends of this brace F are attached the vertical movable planes G H—one at the bow

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and the other at the stern. They act similarly to the jibs of an ordinary ship, and serve also to steady it in passing through the air.

The ropes or rods by which the movable planes are operated and manipulated are attached with proper blocks or pulleys to the longitudinal brace F. To the central part of the brace F are also secured two inclined frame-pieces, I, extending transversely toward the outer side of the frame B, to which they are connected. Upon the frame-pieces I are secured the inclined planes K, which I will call "parachute planes," being made so that they can be extended or contracted, and they act, when extended and closed at the ends, as a parachute when descending, and serve to ease the descent of the ship. It serves also as a safeguard against accidents.

Midway between the outer side of the frame B and the side of the vessel A are arranged, in proper bearings or journals, the shafts L, to which the propellers M are secured. They consist of a light, pliant, or flexible frame, to which the flexible material is fastened, and they are preferably made broader at their outer ends than at their inner ends, and are of a spiral or screw shape, so as to act against the air when revolving, similarly to an ordinary propeller revolving in the water. I consider it a very important feature of my invention that the propellers are made of pliant and flexible material.

The shafts L are provided with cranks *d*, to which the pitmen or connecting-rods are attached, while the other ends of said rods are connected to crank-pins *b* on the gear or friction-wheels *c*, which receive their motion from a main driving-gear or friction-wheel, *g*, on the shaft *h*. This shaft *h* receives its motion from any source of power, either hand or mechanical—such as electric, gas, or other motive engine—according to the size of the machine and the power required to drive it.

The vessel A is provided with four (more or less) light wheels, N, upon which it is carried on the ground until the propellers have acquired sufficient velocity to raise the machine from the ground, while at the same time the horizontal planes C C″ are properly manipulated.

The brace F and frame B may be arched, if desired, as shown by the dotted lines in Figs. 2 and 3.

I reserve unto myself the right to make a separate application for the propeller at some future time.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An air-ship having an extended frame, B, having sectional horizontal planes C C′ C″, in combination with vertical adjustable planes at bow and stern, and a central brace, F, provided with flexible inclined planes to act as a parachute, all substantially as shown and specified.

2. An air-ship having an extended frame, B, provided with horizontal planes C C′ C″, vertical planes D E, a longitudinal brace extending over the entire vessel, to which the parachute planes K are attached, and two or more propellers, arranged substantially as and for the purpose set forth.

3. An air-ship having an extended frame, B, provided with horizontal planes C C′ C″, in combination with vertical planes D E, brace F, vertical adjustable planes G H, and propellers M, all arranged substantially as specified.

4. An air-ship having an extended frame, B, horizontal planes C C′ C″, vertical planes D E, longitudinal brace F, parachute planes K, made extensible, and four (more or less) propellers, all arranged for operation substantially as described.

5. An air-ship having an extended frame, B, horizontal planes C C′ C″, vertical planes D E, brace F, vertical planes G H, parachute planes K, propellers M, and suitable driving mechanism, all substantially as shown and specified.

6. An air-ship having an extended frame, B, horizontal adjustable planes C C′ C″, vertical planes D E, brace F, vertical planes G H, parachute planes K, propellers M, and the wheels N, as and for the purpose herein set forth.

In testimony whereof I hereby affix my signature in presence of two witnesses.

WM. G. KRUEGER.

Witnesses:
A. H. BETZ,
D. P. COWL.