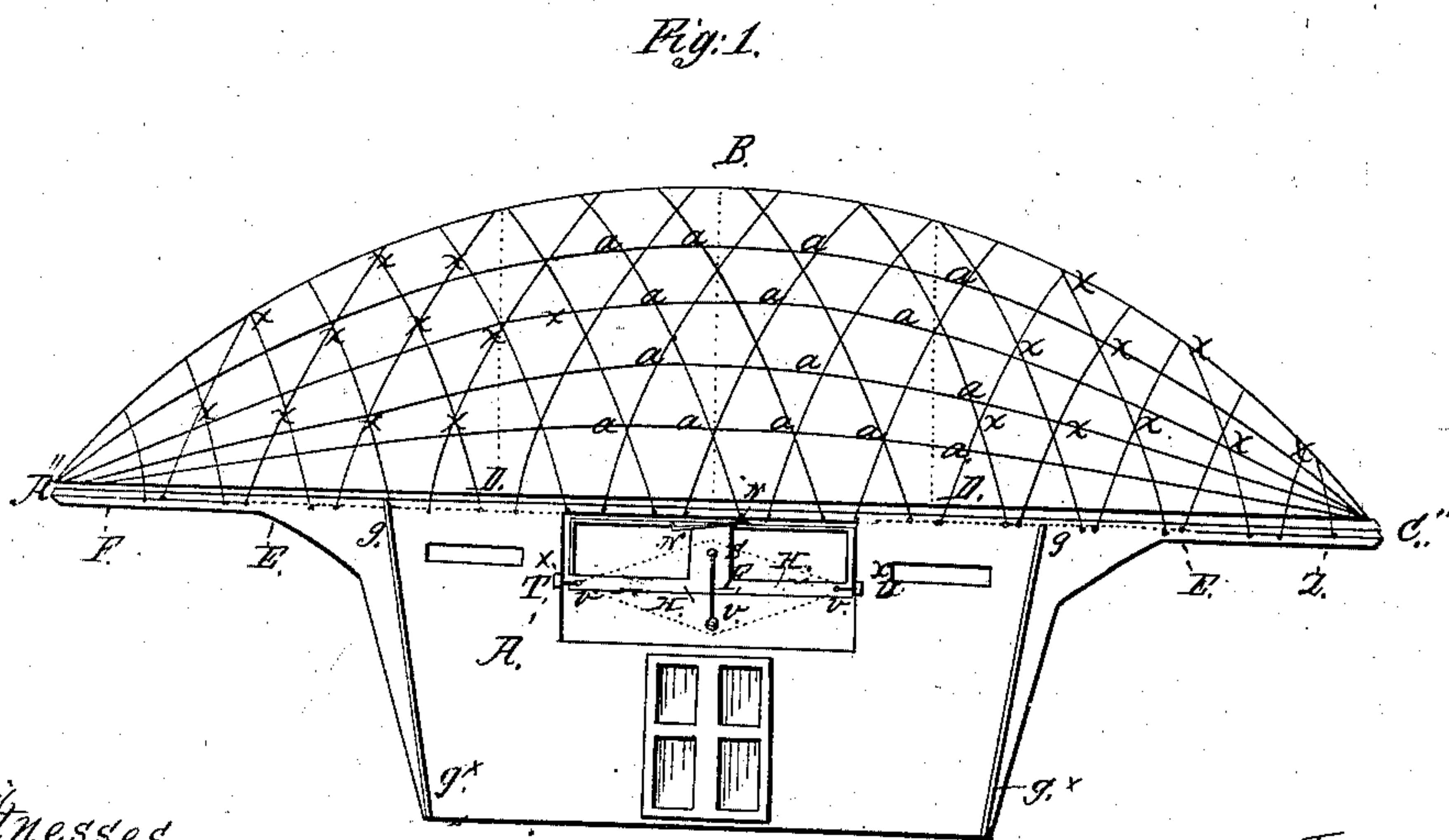
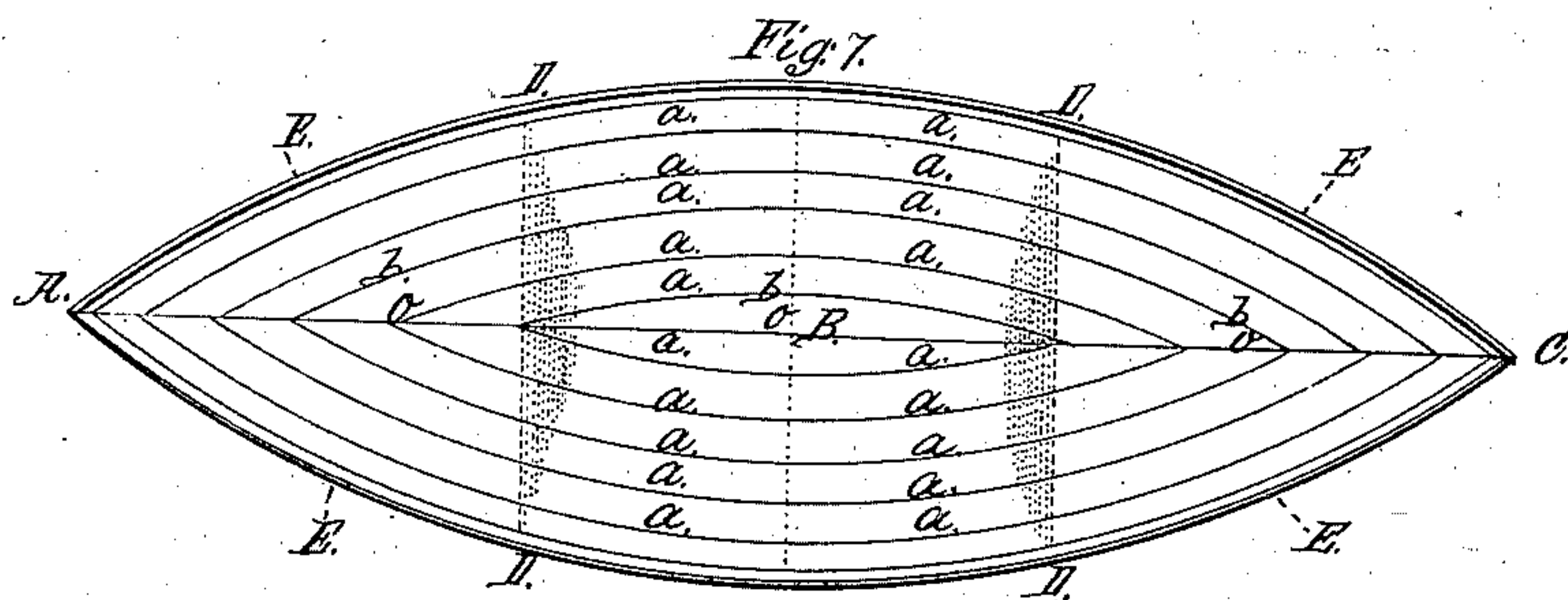
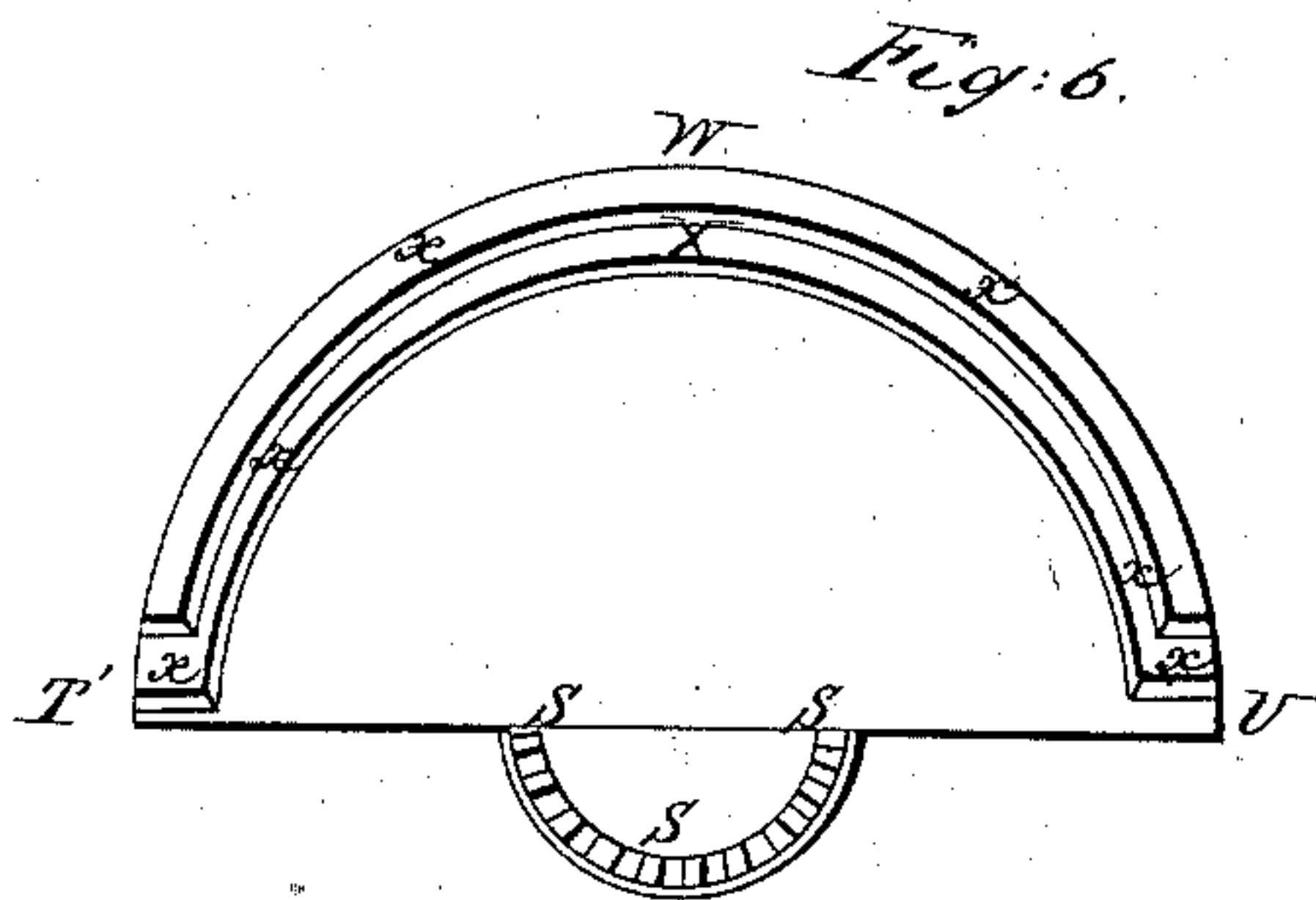


M. BRAUN.
AERIAL SHIP.

2 SHEETS—SHEET 1



Witnesses.
L. Wailer.
Shil S. Dodge.

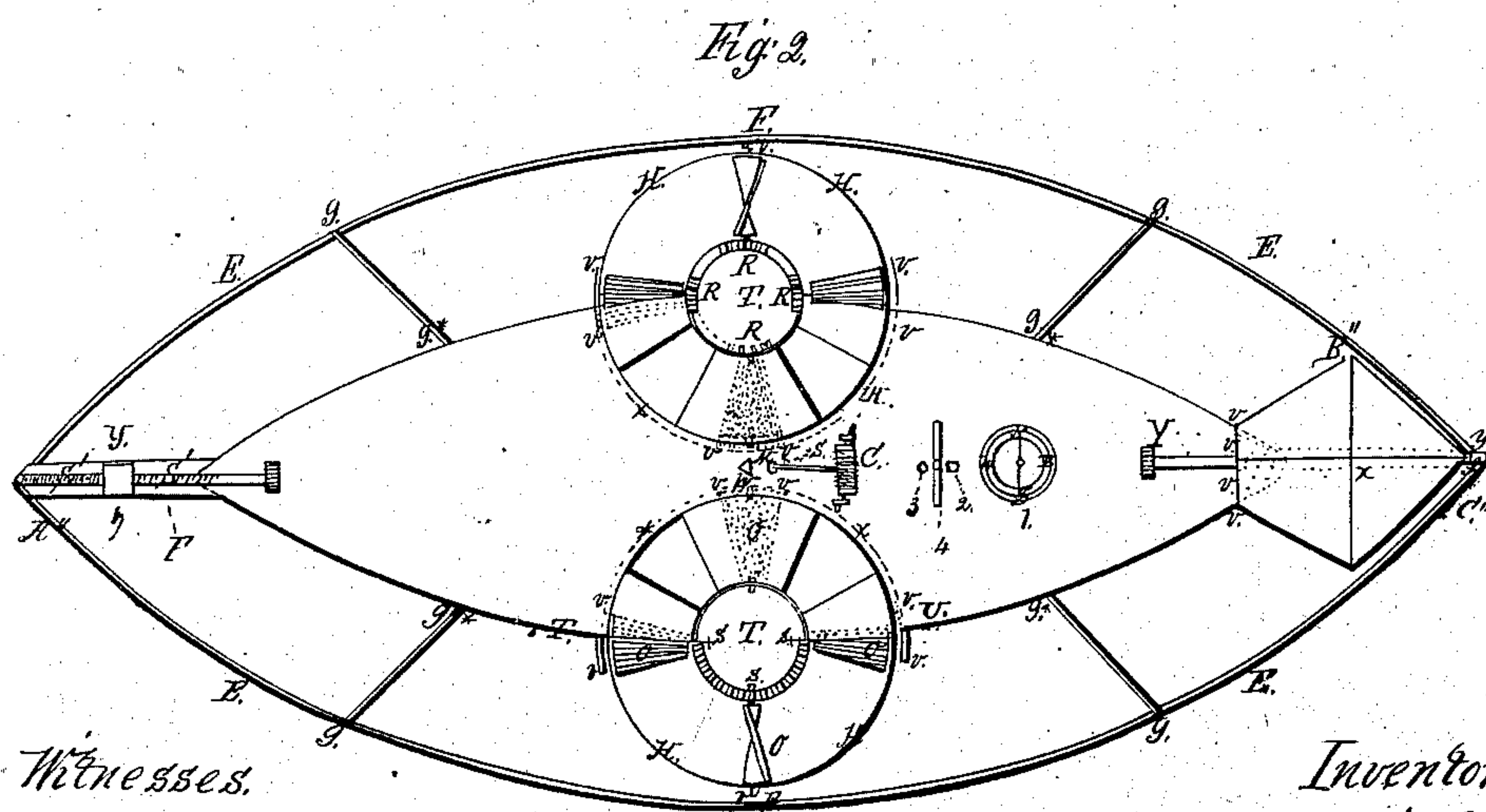
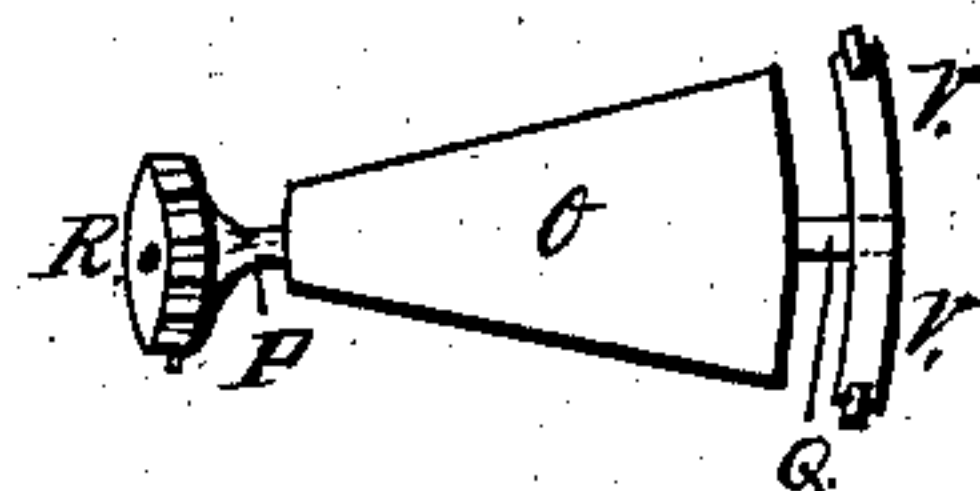
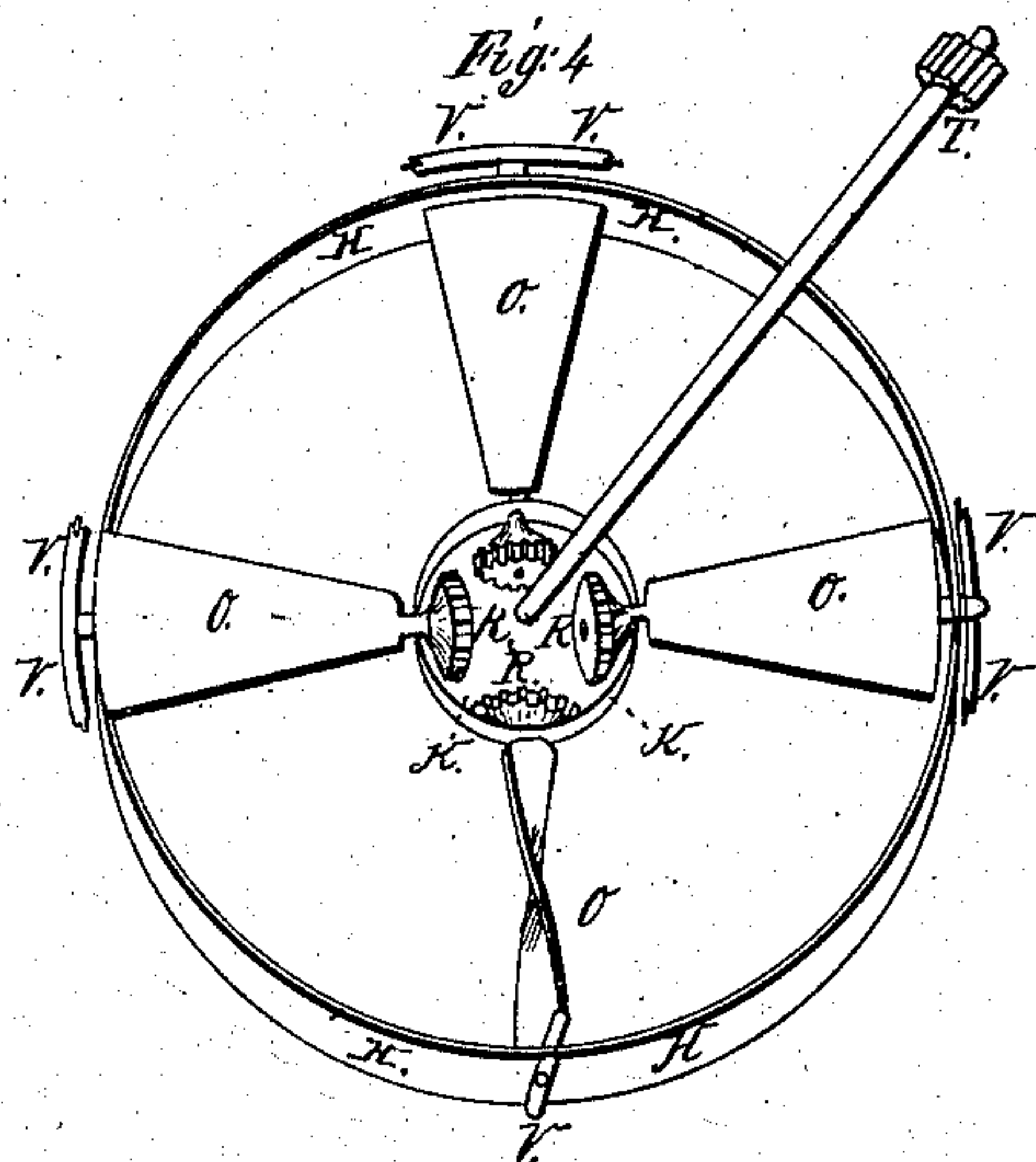
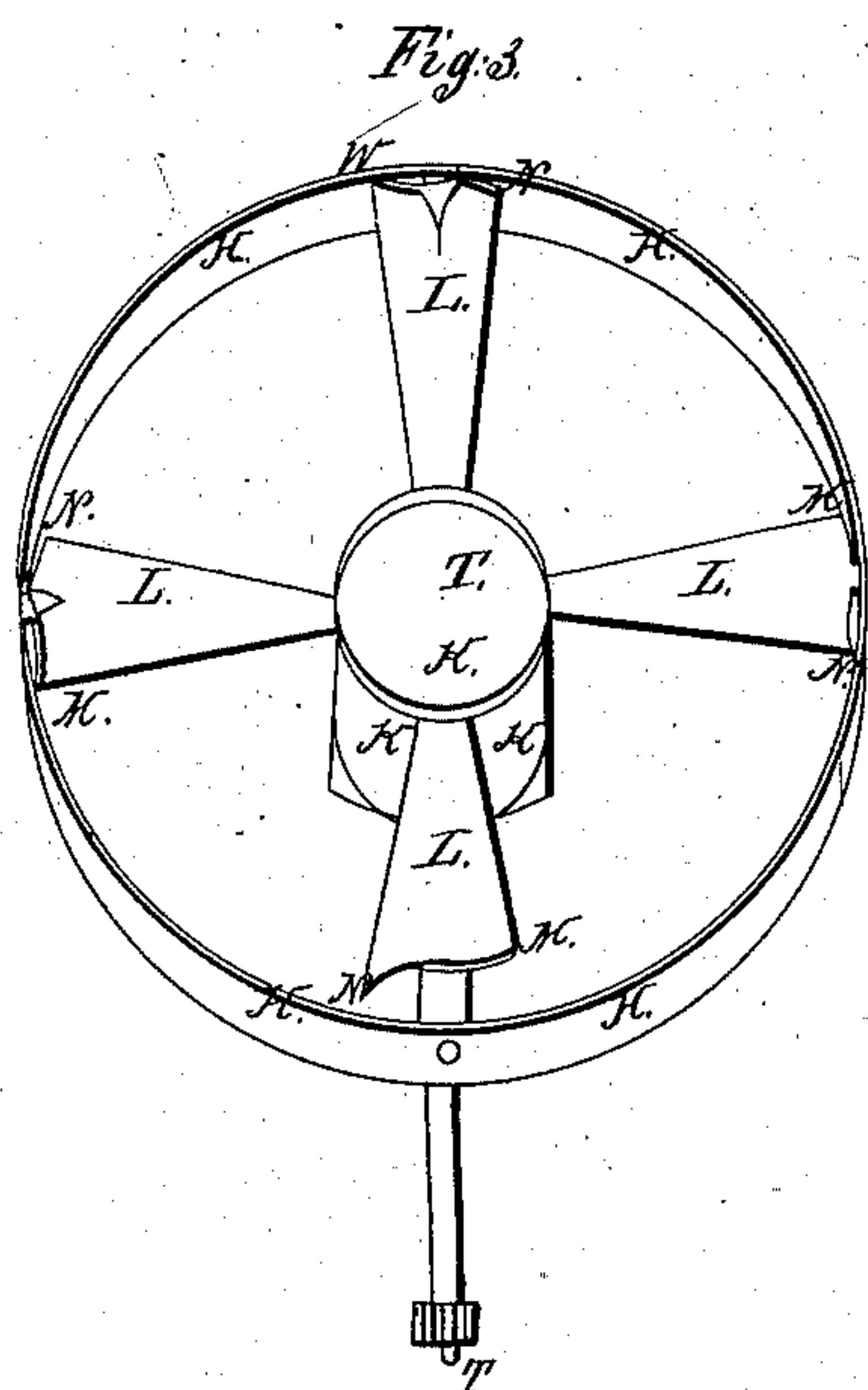
Inventor.
M. Braun.
by Dodge & Mann,
his attys.

No. 99,629.

PATENTED FEB. 8, 1870.

M. BRAUN.
AERIAL SHIP.

2 SHEETS—SHEET 2.



Witnesses.
L. Wiler.
Phil. S. Dodge.

Inventor.
M. Braun.
by Dodge & Munn,
his attys.

United States Patent Office.

MARTIN BRAUN, OF CAPE VINCENT, NEW YORK.

Letters Patent No. 99,629, dated February 8, 1870.

IMPROVEMENT IN AERIAL SHIPS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, MARTIN BRAUN, of Cape Vincent, in the county of Jefferson, and State of New York, have invented a new Machine for Navigating the Air; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my aerial ship;

Figure 2 is a top plan view of the same, with the gas-holder removed;

Figure 3 is a view of one of the elevating-wheels;

Figure 4 is a view of one of the propellers;

Figure 5 is a view of one of the propeller-wings or blades, detached;

Figure 6 is a view of a part detached; and

Figure 7 is a bottom plan view of the gas-holder, showing the three compartments into which it is divided, and also the metal frame secured around its outer edge.

The nature of my invention consists—

First, fastening a boat directly to the gas-holder by short cords, instead of by long ropes, as in the ordinary balloon, so as to compel the gas-holder to follow every movement and impulse of the boat.

Second, in making the gas-holder or balloon of the form of a bisected oval, and of such a size that in descending, its base will present a larger surface than the boat, and thus enable me, with the aid of proper balances, to give the proper course or direction to the boat.

Third, in constructing and attaching to the boat certain devices, by the operation of which I am enabled to raise the ship above or depress it below its natural floating-level or point of suspension in the air.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

The ship consists of three principal parts, viz: the gas-holder or balloon; the boat or body; and the mechanism by which it is elevated, propelled, and steered.

The gas-holder or balloon I make of a form approximating that of a double cone or rhomboid, bisected longitudinally, as shown in figs. 1 and 7, and it is arranged, when in operation, with its flat side down.

I make the gas-holder of the best vulcanized rubber silk cloth, the sutures being shown at *a a*, figs. 1 and 7.

I divide the gas-holder into three or more separate gas-tight compartments, for the purpose of greater security against accidents, and also to allow the ends, after exhausting the gas, to be compressed, thus making the gas-holder smaller, and less buoyant.

The under, flat side of the gas-holder I sew tightly to a wire, or other metal frame, *A E E C*, running

around its outer edge, as shown in figs. 1 and 2. Over the gas-holder I place a network, *X X*, and secure its lower edges to the metal frame. By means of short cords I secure the gas-holder to the car. These cords may connect the two in any suitable manner, so as to hold them securely together.

The metal frame of the gas-holder I connect with the lower corners of the car, by four stays, *g*, as shown in figs. 1 and 2.

The elevators, of which there may be one or more pairs, consist each of a series of inclined blades, attached to a vertical revolving shaft, and resembling very much the ordinary screw-propeller, as used in marine vessels. These propellers, and their manner of operation, are clearly shown in figs. 2 and 3, *T* being their shafts, one located on each side of the boat, and *L* being the inclined or oblique blades.

Around the outer ends of the blades *L*, I secure a rim, *H*, which extends below the lower edges of the blades, so as to support another series of blades, hereinafter described.

To each of the shafts *T*, below the elevating-blades, I secure a square box, *K*, which turns with the shaft. Through the sides of these boxes *K*, I insert the journals of blades *O*, and to these journals, inside of the box, attach bevel-pinions *R*, as shown in fig. 4.

The outer ends of these blades are also provided with journals, bearing in the rim *H*, so that the blades are left free to turn over.

The journals at the outer ends of the blades I cause to project outside of the rim *H*, and attach to each of them a bar or head, *V*, having a projecting roller in each end, as shown in fig. 4.

Around each of the shafts *T*, immediately below the blades *O*, I secure a platform, *T' U W*, fig. 6, having on its upper side a semicircular row of cogs, *s*, over which the pinions *R* are carried, as the shaft *T* revolves. The cogs in each of the semicircular rows I make half as many in number as the teeth on each pinion.

Upon the platform *T' U W*, on the opposite side of the shaft from the cogs *s*, I form a raised semicircular track, *X*, over which the rollers of heads *V* traverse at each revolution of the shafts *T*.

The shafts *T* with their blades, I locate one on each side of the body, and in line with the outside of the same, so that one-half of the revolution of the arms is made outside, and the remaining half inside of the body. The platforms I arrange, with the tracks *X*, on the inner side, or within the body, as shown in fig. 2. When thus arranged, as the shafts *T* are put in motion, the arms *L* and *O* are revolved about them, and by means of the pinions and cogs, the blades *O* are revolved on their journals or feathered; that is to say, as they pass around outside of the body, they

are presented flatwise against the air, and as they pass inside, are presented edgewise to the same.

When the shafts T are revolved in one direction, the rigid arms, L, elevate the ship, and the feathering-arms O propel it forward, and *vice versa*.

For the purpose of balancing the ship fore and aft, and guiding its course of travel, I station at the bow of the boat a long projecting screw-rod, S, carrying a heavy weight, *y*, which, by turning the rod, may be drawn into or moved out from the boat, as necessary. The inner end of this screw-rod I extend into the interior of the body, and provide it with a suitable wheel, lever, or handle, for operating it. At the stern of the body, I locate a horizontal projecting rod or shaft, Y, which extends to the interior of the body, and is provided with a suitable handle or lever, and to this rod, outside of the boat, I attach a balancing device or rudder, B, as shown in fig. 2. When the ship is rising or falling, it may be turned in any desired direction by turning this rudder in one direction or the other; and it may also serve to aid in righting the ship fore and aft, by turning it horizontally, and thus causing one end of the ship to present more resistance than the other to the air.

By means of the devices, arranged as described, I am enabled to elevate and depress my ship at will, and guide and propel it in any desired direction.

The boat I construct of the lightest and strongest materials procurable, provide it with a door and windows, and also in the interior with suitable seats, lockers, &c., and arrange the various handles, levers, &c., in such positions that they may be conveniently reached from a common point.

I also arrange within the boat a compass, 1, a barometer, 2, a thermometer, 3, a spirit-level, 4, and make, through the bottom, an opening, 5, for observations of the country below.

For the purpose of landing or stopping the ship at any desired point, and for holding it when not afloat, I provide a windlass, carrying a rope or chain, provided with a grappling-hook, which may be let down through an opening in the bottom of the boat, and hooked on to any stationary object below, and then, by winding up the windlass, the ship hauled down.

It is obvious that the propellers and elevators may

be so arranged as that one may be run independently of the others, and thus the ship elevated without being propelled, and *vice versa*.

Any suitable engines may be employed to operate the shafts T, they not constituting any part of my invention.

It will be observed that the rudder serves to steer the ship only when the same is moving vertically, it being steered when moving horizontally by running one propeller faster than the other.

Having thus described my invention,

What I claim, is—

1. An aerial ship, consisting of the body A', the balloon A" B C" D, the elevating-blades L, and propelling-blades O, the screw-rod S, with its adjustable weight *y*, and the rudder B", all constructed, shaped, and arranged to be operated substantially as herein described.

2. The balloon A" B C" D, constructed of three or more gas-tight compartments, and shaped and connected to the body of an aerial ship, as herein described, and for the purpose set forth.

3. In combination with the balloon A" B C" D, the elevating-blades L, and vertical shaft T, when constructed and arranged to operate substantially as herein described, and for the purpose set forth.

4. The propelling-blades O, pinions R, and heads A, in combination with the shaft T and platform T' U W, with its row of cogs *s*, and track X, all constructed as herein described, and for the purpose set forth.

5. The screw-rod S, with its adjustable weight *y*, constructed and arranged to be operated as described, for the purpose of balancing the ship, as set forth.

6. The horizontal shaft Y, provided on its inner end with a handle or lever, and on its outer end with a steering or balancing blade or rudder B, shaped as shown, and arranged to operate as described and for the purpose set forth.

Dated Cape Vincent, Jefferson county, New York, August 1, 1867.

MARTIN BRAUN.

Witnesses:

JNO. H. MOORE,
H. J. CREVOLIN.