(No Model.)

# J. RAY.

## AERIAL VESSEL.

No. 270,122. Patented Jan. 2, 1883.

fig. 1.

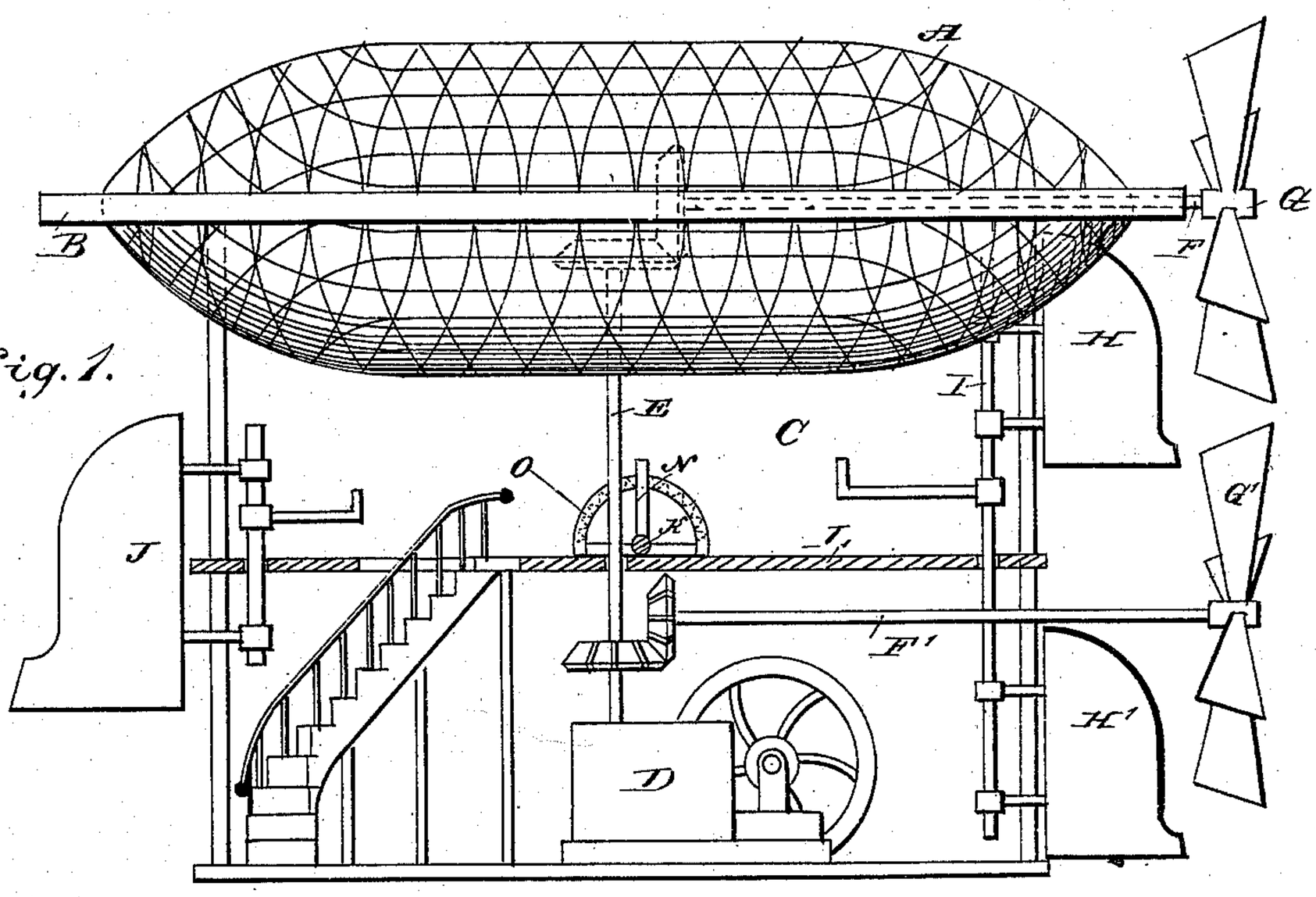
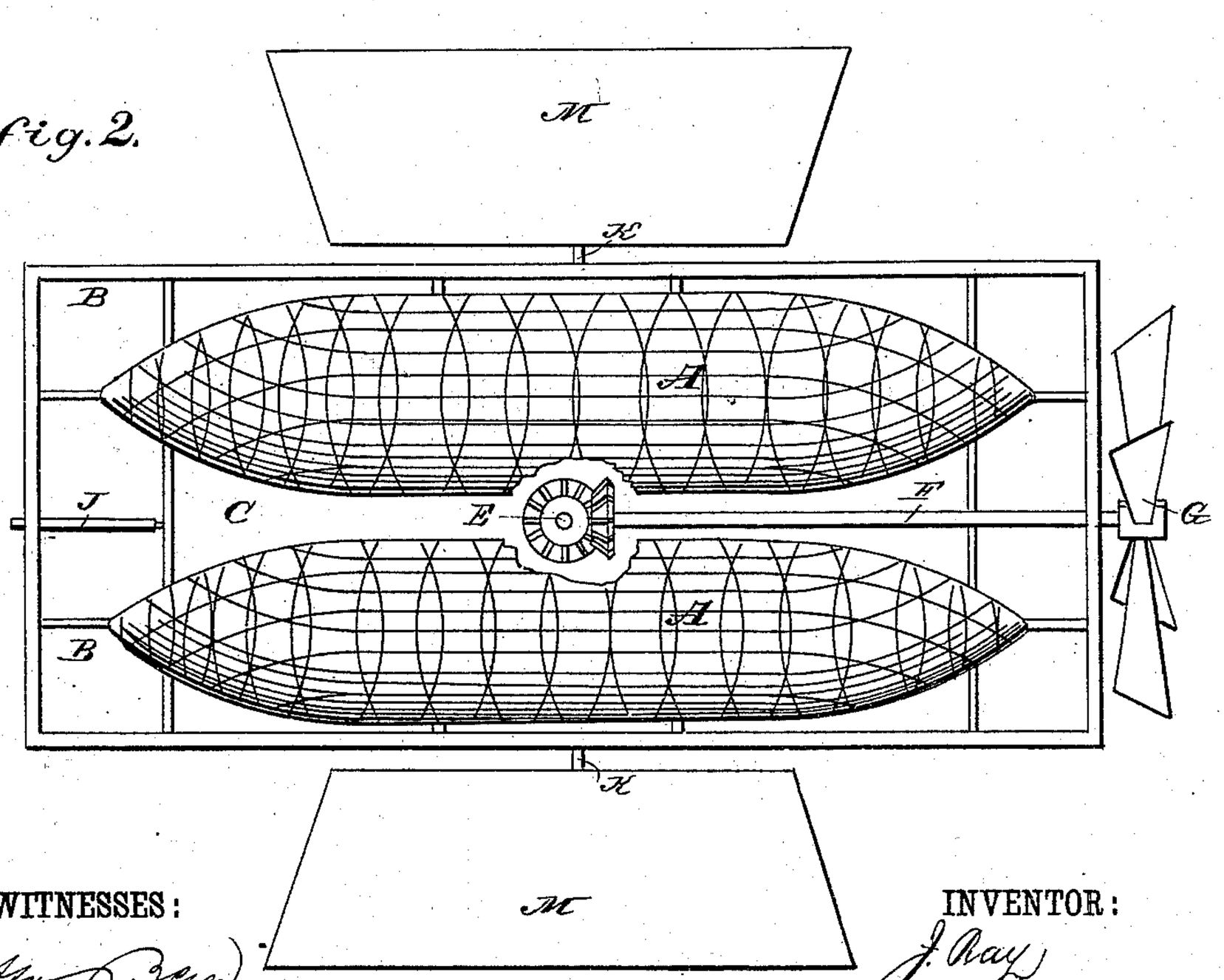



fig. 2.




WITNESSES:

C. Sedgwick

INVENTOR:

J. Ray

BY Munn & Co

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JOEL RAY, OF PHILADELPHIA, PENNSYLVANIA.

## AERIAL VESSEL.

SPECIFICATION forming part of Letters Patent No. 270,122, dated January 2, 1883.

Application filed May 13, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOEL RAY, of the city and county of Philadelphia, Pennsylvania, have invented new and useful Improvements in Aerial Vessels, of which the following is a full, clear, and exact description.

The object of my invention is to facilitate the propulsion and steering of aerial vessels.

The invention consists in an aerial vessel provided with two propellers, one above the other, and two rudders, one above the other at the rear end of the vessel, and a rudder at the front end of the vessel.

My invention further consists in certain details of construction, hereinafter more fully set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a longitudinal sectional elevation of my improved aerial vessel, and Fig. 2 is a plan view of the same.

Two inflated bags or balloons, A, are placed horizontally, and are united and held in a frame, B, from which the two-story car C is suspended.

A motor, D, of any suitable construction, contained in the lower compartment of the car, operates a vertical shaft, E, which, by means of bevel cog-wheels, operates two horizontal shafts, F and F′, each provided at its rear projecting end with a screw-propeller, G or G′. The upper screw-propeller, G, is at the rear end of the frame B, and the lower screw-propeller is at the rear of the car C, at about the middle of the height of the same.

Two rudders, H and H′, are pivoted to the rear of the car C, one rudder being above the other, and both rudders being attached to a vertical rudder-shaft, I, provided with a suitable arm for operating it.

A rudder, J, is pivoted to the front of the car C, at about the middle of the height of the same, and is also provided with a suitable arm for operating it.

A transverse horizontal shaft, K, is journaled on the intermediate horizontal partition or floor, L, of the car, and to the ends of this shaft, projecting from the sides of the car, wings M are attached.

An arm, N, projecting from the shaft K, is used to turn the same as may be desired, and can be locked in the desired position on a semicircular frame, O.

By providing two propellers—one at the upper part of the rear end of the vessel and the other near the lower part of the rear of the car—a steady movement of the aerial vessel is obtained, and pitching and rolling are avoided, which would take place if only one propeller should be provided.

If two rudders are provided at the rear of the vessel and one in front, the steering of the vessel will be vastly facilitated.

If the wings M are placed vertically, they do not interfere with the ascent or descent of the aerial vessel; but if they are inclined or placed horizontally they can be used very effectively to check the rapid descent of the vessel. The wings M may be made larger or smaller, according to the size of the vessel.

As the engine or motor is in the bottom part of the car, it acts as ballast, and assists in preventing swaying or rocking of the aerial vessel.

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

1. The combination, with an aerial vessel, of two propellers, one located above the other, and two rudders, one located above the other at the rear end of the vessel, substantially as herein shown and described, and for the purpose set forth.

2. The combination, with an aerial vessel, of two propellers, one located above the other, two rudders, one above the other at the rear end of the vessel, and a rudder at the front end of the vessel, substantially as herein shown and described, and for the purpose set forth.

3. The combination, with an aerial vessel, of the two rudders G G′, arranged above each other, the shaft I, with which these rudders are united, and devices for operating this shaft, substantially as herein shown and described, and for the purpose set forth.

4. In an aerial vessel, the combination, with the car C, of the transverse rock-shaft K, provided with wings M on its ends, and arm N and locking-frame O, substantially as described, and for the purpose set forth.

JOEL RAY.

Witnesses:
B. H. RAY,
C. RAY.