

1,060,200.

3 SHEETS—SHEET 1.

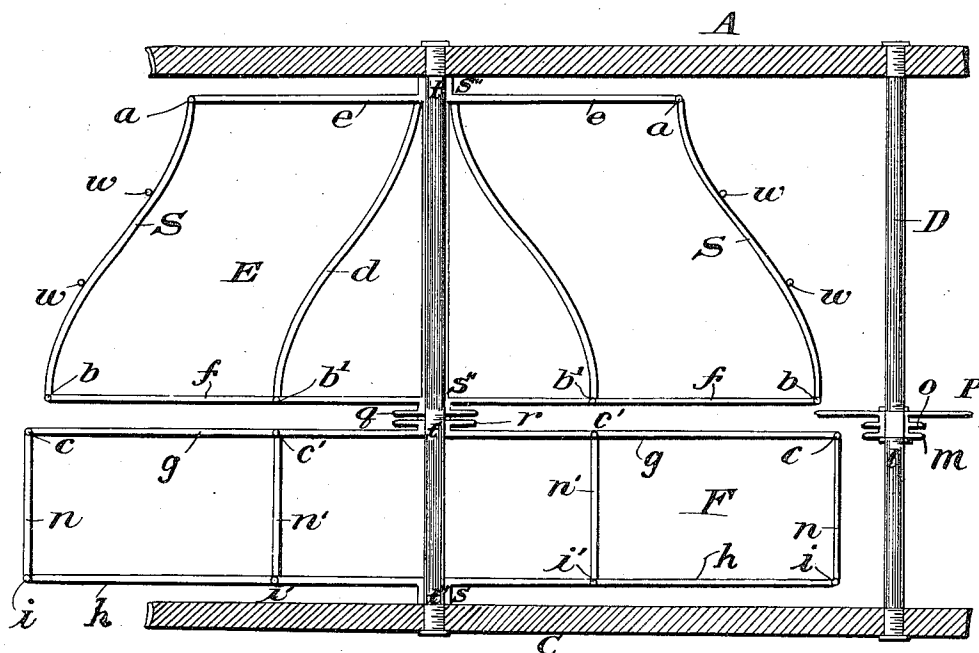


Fig. 1.

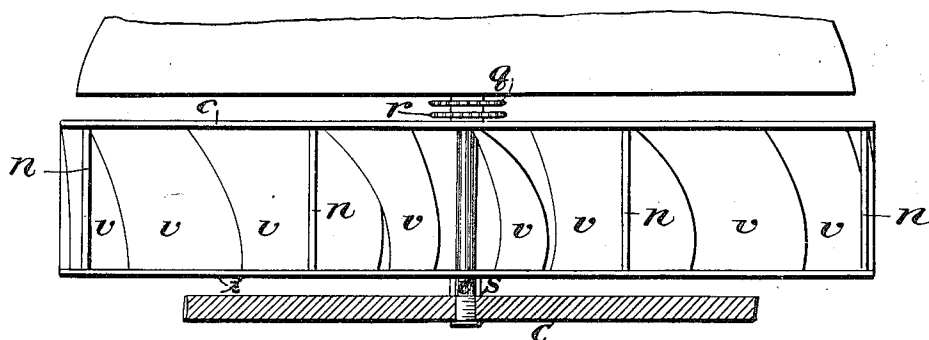


Fig. 2.

Witnesses

Hugh E. McLaughlin
Selden B. McLaughlin

Inventor

Robert J. McLaughlin

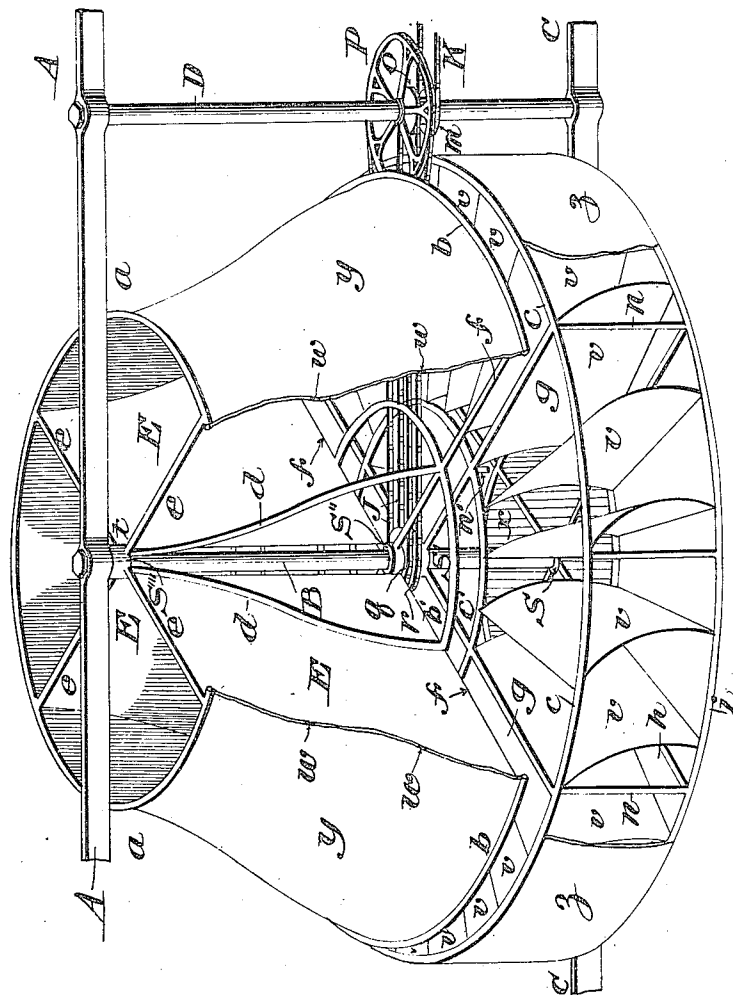
R. J. McLAUGHLIN.
CENTRIFUGAL AEROCYCLE.
APPLICATION FILED JUNE 15, 1912.

1,060,200.

Patented Apr. 29, 1913.

3 SHEETS—SHEET 2.

Fig. 3.



Witnesses

Hugh E. McLaughlin
Selden B. McLaughlin

Inventor

Robert J. McLaughlin

R. J. McLAUGHLIN.
CENTRIFUGAL AEROCYCLE.
APPLICATION FILED JUNE 15, 1912.

1,060,200.

Patented Apr. 29, 1913.

3 SHEETS—SHEET 3.

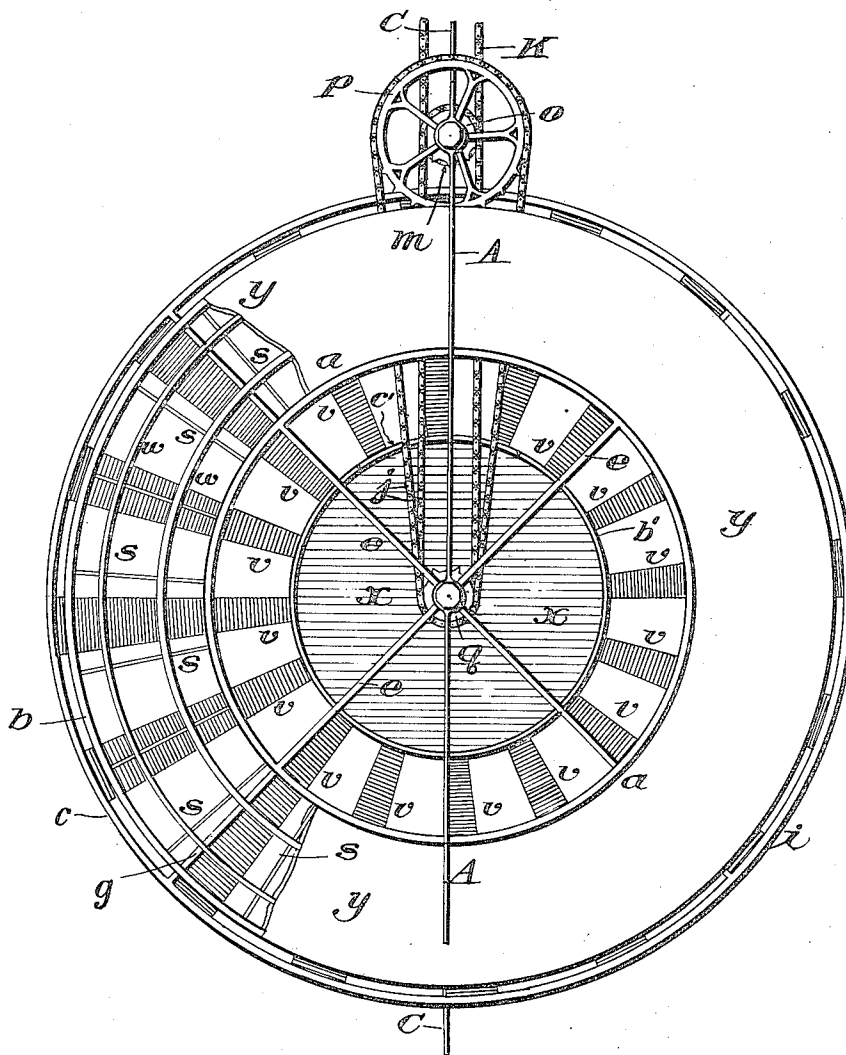


Fig. 4.

Witnesses

Hugh E. McLaughlin
Selden B. McLaughlin.

Inventor

Robert J. McLaughlin

UNITED STATES PATENT OFFICE.

ROBERT J. McLAUGHLIN, OF NEW YORK, N. Y.

CENTRIFUGAL AEROCYCLE.

1,060,200.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed June 15, 1912. Serial No. 703,910.

To all whom it may concern:

Be it known that I, ROBERT J. McLAUGHLIN, a citizen of the United States, residing at 528 Fordham road, borough of the Bronx, in the county of New York and State of New York, have invented a new and useful Centrifugal Aerocycle, of which the following is a specification.

My invention relates to two air chambers revolving around the same vertical axis, geared together, discharging air downward and receiving an upward reacting thrust; and the object of my invention is to provide a lifting device for airships whereby they may rise, descend, or be sustained in air with or without lateral motion. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire machine; Fig. 2 is a detailed side view in perspective of the lower cylindrical vessel with the covering removed showing the vanes; Fig. 3 is a view in perspective of the entire machine with part of the wall of the upper vessel torn out showing the interior arrangements, and with the covering of one of the radial vertical vanes removed showing the frame work and gearing device, and with part of the covering of the lower cylindrical vessel removed showing the vanes and circular plate. Fig. 4 is a top view with part of the covering removed from the upper bell shaped vessel showing the frame work, vanes, circular plate and gearing device.

Similar letters refer to similar parts throughout the several views.

The flat braces A and C rigidly connected to the vertical hollow bar shafts B and D constitute the frame work of the machine. On the bearings $t\ t'$ the upper bell shaped vessel revolves around the shaft B driven by the gear wheels q and p .

The vertical radial vanes E, shown in Fig. 3 partition the upper bell shaped chamber into four compartments and carry the air around the bar B as the machine revolves in a counter-clockwise direction. This revolution excites in the air about the chamber's axis a partial vacuum by the action of centrifugal force, and induces a current from above since the circular plate x shown in Figs. 3 and 4 prevents the inrush of air along the axis from below. Centrifugal force likewise drives the air laterally against the inner surface of the wall y down which

it slides exerting at the same time a reacting upward thrust upon the upper bell shaped vessel.

When the air is discharged into the lower cylindrical vessel it is moving spirally by virtue of its rotary and vertical motions.

The curving braces d shown in Fig. 3 are struts which transmit the upward thrust exerted on the cross pieces f to the central shaft B. Each of the radial vertical vanes E consists of two coverings of cloth wrapped around the cross braces e and f leaving a hollow space between the two layers of cloth.

The circular hoops a , b and w , shown in Fig. 4 are connected by the curving struts s , and the hoops and struts are covered by two layers of cloth constituting the wall y . The hoop b' serves as a brace. The inner edges of the vanes E, do not touch the shaft B. The cross braces e and f are connected to the central hubs s'' , s''' shown in Fig. 1 which revolve on their bearings around the shaft B. All struts, cross braces and hoops in the upper bell shaped vessel are of hollow bar.

The gear wheels $p\ o$ and m are one piece revolving on the bearing l of the bar D.

The wheels $p\ q$ and $r\ o$ are connected by the chains j . The wheel m is driven by the motor to which it is connected by the chain K.

On its bearings $t'\ t''$ the lower cylindrical vessel F, is geared to revolve in a counter-clockwise direction around the shaft B. It is driven by the gear wheels r and o and the chain j several times slower than the upper bell shaped vessel.

The vanes v are a series of rigid aluminum plates curving in the direction of motion and fastened to the hoops $c\ c'$ and $i\ i'$ in the annular space of the lower cylindrical vessel. Their function is to convert the spiral motion of the air descending against their concave sides from the upper bell shaped vessel into a vertical motion, at the moment of final discharge, which is the equivalent of the resultant motion of the vertical and rotary components of the motion of the air at the moment of discharge from the upper bell shaped vessel. The vanes also impart to the lower cylindrical vessel a lifting force and a rotary impulse in the direction of revolution. Their upper surfaces incline at the angle of the spiral descent of the air and may be set at forty-five degrees to the horizontal. Their lower surfaces curve back

from the direction of revolution and may be set at an angle of eighty degrees to the horizontal so that the air will be driven back just enough to overcome the revolving motion of the lower cylindrical vessel, and will be discharged vertically downward.

When the air enters the lower chamber it is rotating several times faster than the vanes against which it exerts all its lateral revolving thrust, thus giving back to the machine through the gearing device power which was expended in setting it in revolution in the upper vessel.

The circular plate *x* consists of two layers of cloth laid under and over the hoop *i'* and the cross braces *h h* where they lie inside the hoop *i'*. The plate is shown in Figs. 3 and 4 with the upper layer of cloth removed. The object of this plate is to prevent an inrush of air from below into the partial vacuum formed by centrifugal force around the bar B. A lifting thrust is exerted under plate *x* due to the inequality of atmospheric pressure on its lower and upper surfaces. The hoops *c c'* and *i i'*, the struts *n n'* and the cross pieces *g g* and *h h* constitute the frame work of the lower cylindrical vessel which is connected to the hubs *s s'* revolving on their bearings around the shaft B. All the members are made of hollow bar.

The wall *z* shown in Fig. 3 consists of two layers of cloth stretched between the hoops *c* and *i* inclosing these hoops and the struts *n n'* is shown in Fig. 3 broken off. It is one of four vertical struts bracing the inner hoops *c' i'*.

The whole machine is in equilibrium since

the tendency to clockwise rotation in the upper chamber due to rotating the air in a counter-clockwise direction is overcome by the tendency to counter-clockwise rotation in the lower cylindrical chamber due to checking the rotation of the air.

I claim:

1. A centrifugal bell shaped air vessel supported on a vertical bar about which it revolves having opposite circular openings above and below, whose wall tapers down from a cylindrical to a conical form and returns again to a cylindrical form at bottom, partitioned by vertical radial vanes substantially as set forth.

2. The combination and arrangement of a bell shaped centrifugal air chamber supported on a vertical bar about which it revolves having circular openings at top and bottom, whose wall tapers down from a cylindrical to a conical form and returns again to a cylindrical form at bottom, and partitioned by vertical radial vanes; with a lower cylindrical air chamber supported on the said vertical bar, and revolving at one third the velocity of the upper vessel, having a common gearing device, and an annular compartment open above and below, partitioned radially by curving vanes whose convex surfaces face in the direction of revolution, and having a circular plate centered about the axis of the chamber for the purpose specified.

ROBERT J. McLAUGHLIN.

Witnesses:

HUGH E. McLAUGHLIN,
SELDEN B. McLAUGHLIN.