

I. ALLEN.
AIRSHIP.

APPLICATION FILED MAY 6, 1909.

1,020,870.

Patented Mar. 19, 1912.

3 SHEETS-SHEET 1.

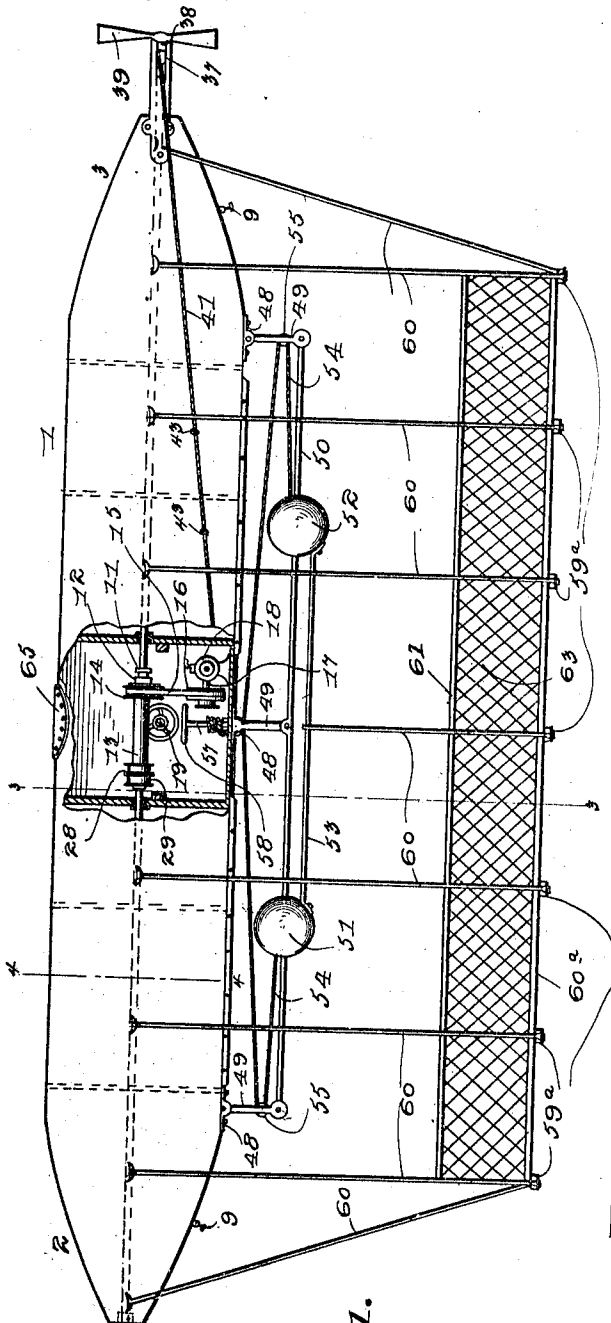


Fig. 1.

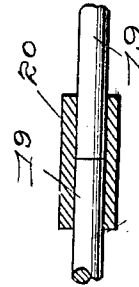


Fig. 6

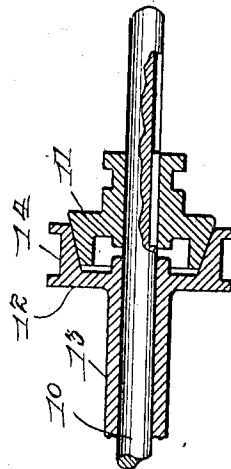


Fig. 5

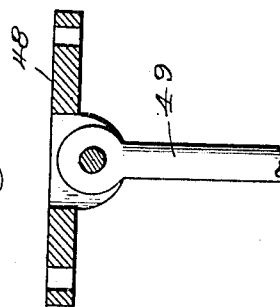


Fig. 4.

Witnesses

J. W. Wells

H. J. Goodrich

Inventor

Ira Allen.

By E. E. Bloomer, Attorney

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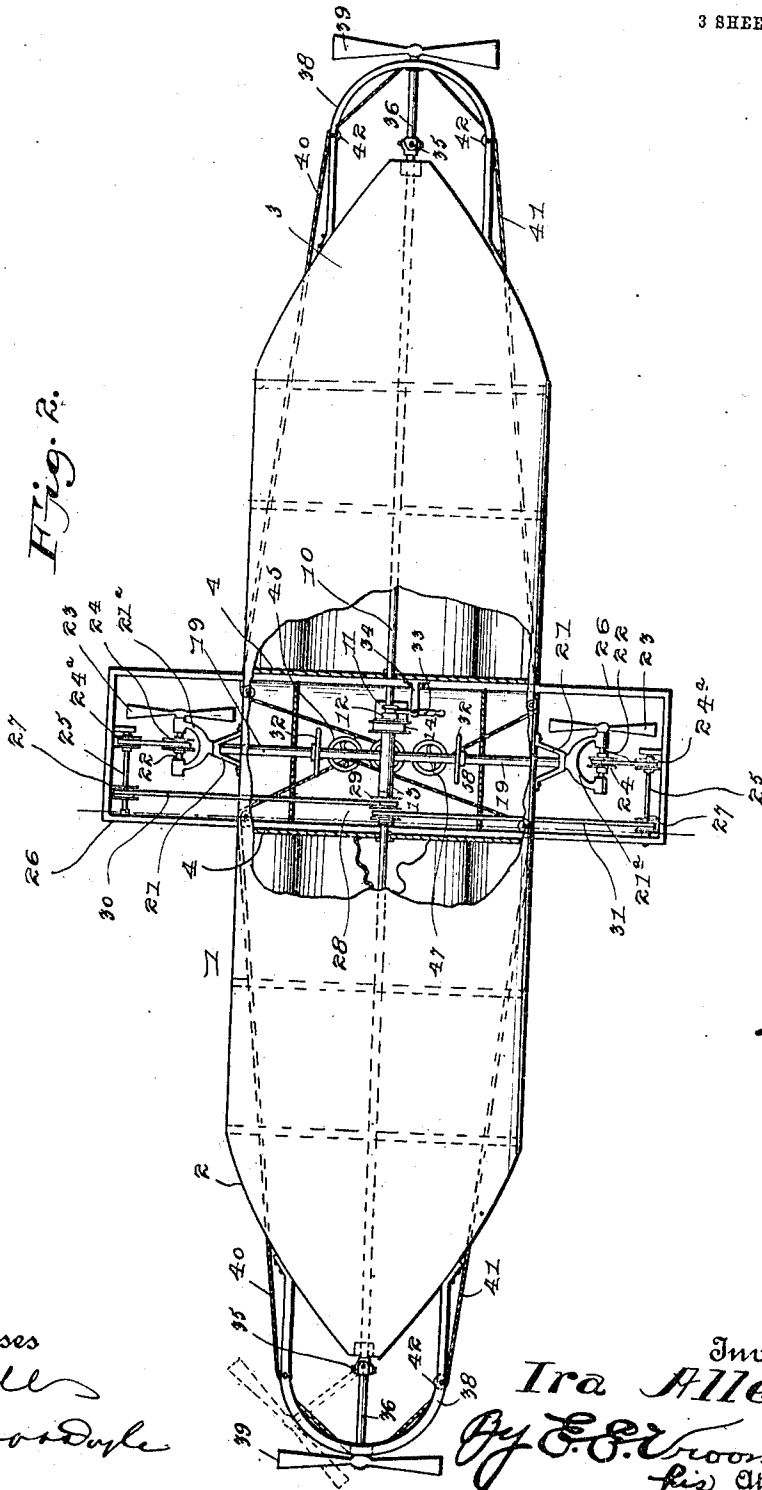
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3 SHEETS-SHEET 2.

Fig. 2.



Witnesses
J. W. Allen
H. J. Woodruff

Inventor
Ira Allen.
By E. E. Vrooman
his Attorney

1,020,870.

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AIRSHIP.

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3 SHEETS-SHEET 3.

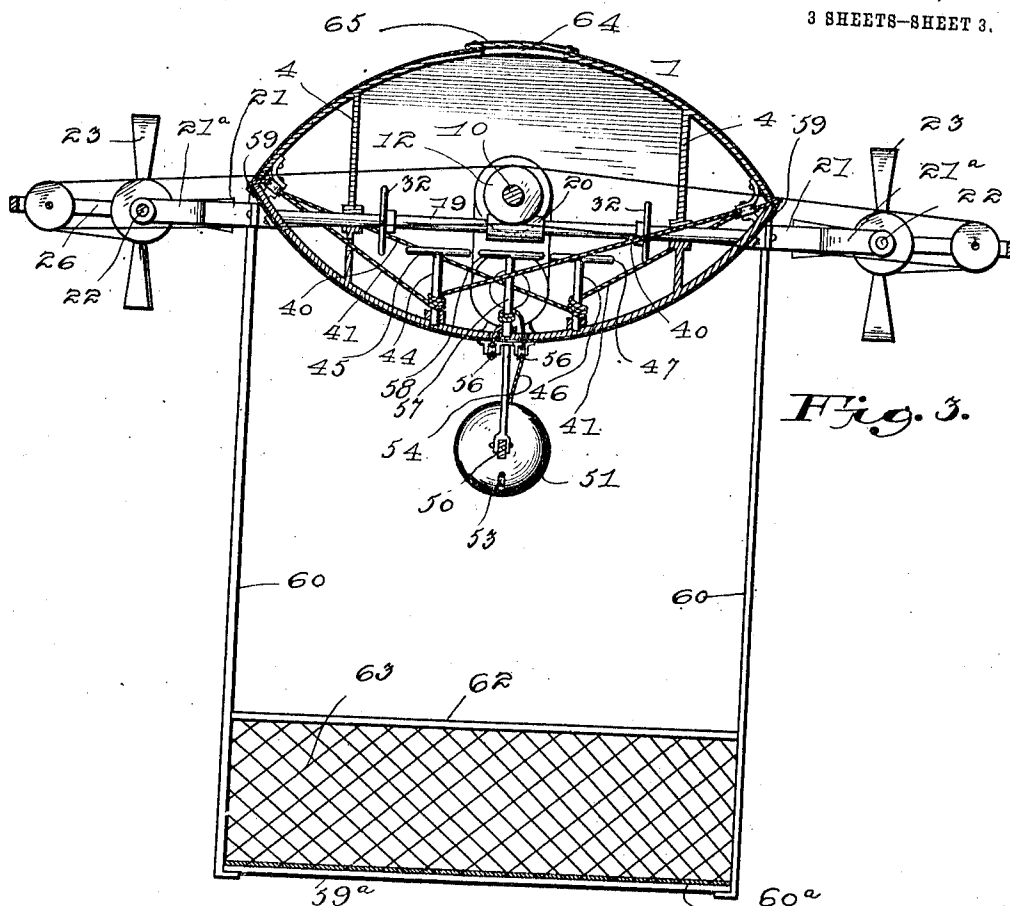
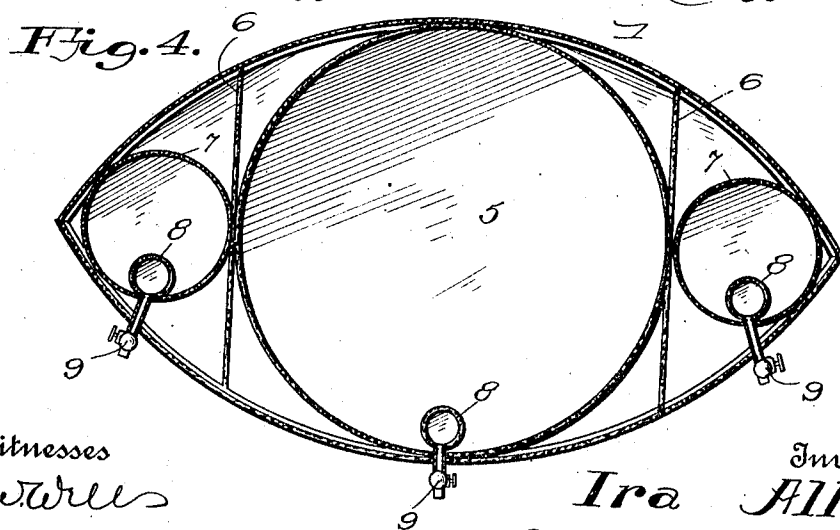


Fig. 3.



Witnesses
J. W. Wells
H. J. Wood-Dorland

Inventor
Ira Allen.
By E. C. Wigoman,
Attorney.

UNITED STATES PATENT OFFICE.

IRA ALLEN, OF DANSVILLE, NEW YORK.

AIRSHIP.

1,020,870.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, IRA ALLEN, a citizen of the United States, residing at Dansville, in the county of Livingston and State of New York, have invented certain new and useful Improvements in Airships, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to air ships, and the principal object of the same is to provide a novel body or casing equipped with gas chambers, and also with a compartment for the aviator in which controlling mechanism is mounted for regulating the operating of front and rear propellers and lifting propellers carried by the side of said casing, said mechanism being connected with said propellers so that their angles may be readily changed so as to facilitate steering in both forwardly and rearwardly movements, and also in ascending and descending. The invention also contemplates the employment of novel balancing means which are controlled from the aviator's compartment, and further, the invention contemplates the employment of a novel shape of body or casing which will offer the least resistance to the atmosphere, and which is so constructed that it will float upon water and be propelled therethrough.

In the practical application of the invention it will, of course, be readily understood that the essential features of the same are susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of the improved air ship, part of the central portion thereof being broken away. Fig. 2 is a top plan view, also having a part broken away. Fig. 3 is a transverse sectional view taken on the line 3—3, Fig. 1. Fig. 4 is a similar view taken on the line 4—4, Fig. 1, the car being omitted. Fig. 5 is a detail sectional view of the clutch connection carried by the main shaft. Fig. 6 is a similar view showing the sleeve connection between the adjusting shafts of the lifting propellers. Fig. 7 is a detail view of one of the pivotal hangers for the balancing weights.

Referring to said drawings by numerals 1 designates the body or casing of the improved air ship which is of a flattened ellip-

tical shape in cross-section to provide the tapering sides, and whose ends 2 and 3 are of a tapering conical shape, thereby providing a structure in which no angles appear such as would offer obstructions to the atmosphere. Said casing may be of light metal, such as aluminum, or strong textile fabric. The central portion of the casing is divided by means of transverse partitions 4 to form a compartment for the aviator in which the controlling mechanism for the ship is located. Each end portion of said body is provided with enlarged central gas chambers 5 which are partitioned, as at 6, from smaller side gas chambers 7. And all of said gas chambers are preferably provided with flexible expansion bags 8 having inflating valves 9 which project through the casing. A main shaft 10 extends longitudinally through said casing the portion thereof within the aviator's compartment having splined thereto a clutch member 11 adapted for frictional engagement with a clutch member 12 carried by a sleeve 13 loosely mounted on said shaft. Said clutch member 12 has its periphery in the form of a grooved pulley 14 which has a belt connection 15 with a grooved pulley 16 mounted on a shaft 17 operated by a motor 18. A sectional shaft 19 extends transversely through said aviator's compartment, the sections of said shaft being connected by means of a coupling sleeve 20. The outer ends of said shaft sections project through the sides of the casing and through bracket journals 21 and have a yoke 21^a mounted thereon the ends of which form bearings for a shaft 22 one end of which projects to one side of said yoke and has mounted thereon a lifting propeller 23. The intermediate portion of said shaft 22 carries a grooved pulley 24 having a belt connection with a pulley 24^a on a shaft 25 journaled in a horizontally arranged skeleton frame 26 projecting from the casing 1. Said shaft 25 carries another grooved pulley 27. The sleeve 13 has its end opposite to the clutch member provided with two pulleys 28—29 which have a belt connection 30—31 with the pulleys 27 carried by the shaft 25 on each side of the casing 1. Each section of the shaft 19 is provided with a hand wheel 32 by means of which it may be rotated to alter the angle of the axis of the lifting propellers 23, as will be readily understood. The

clutch member 11 is forced to frictional engagement with the clutch member 12 by means of the lever 33 pivotally mounted in a bracket 34 carried by one of the partitions 5 of the aviator's compartment.

The outer ends of the main shaft 10 project through the ends of the casing and have a knuckle joint connection 35 with a propeller shaft 36 which projects through a bearing box 37 slidably mounted on a guideway 38 projecting from the ends of said casing. A propeller 39 is vertically mounted on said shaft 36. Steering ropes or cables 40-41 project from the opposite ends of said bearing box, said ropes being disposed on opposite sides of the casing and passing over pulleys 42 provided with grooves which are carried by the guideway and through guiding eyes 43 carried by the casing and enter the aviator's compartment, the steering ropes for one propeller being oppositely wound upon a shaft 44 equipped with a handwheel 45, and the ropes from the other propeller being oppositely wound upon another shaft 46 also equipped with a handwheel 47.

The bottom of the casing is provided with regularly spaced apart plates 48 from which project hangers 49 the free ends of which are in engagement with the ends an intermediate portion of a balancing rod 50. Said balancing rod 50 is provided with two weights 51-52 which are connected by means of the bar 53, the weights being slidable on said rod 50. Each weight has a cable connection 54 with a grooved pulley 55 carried by the end hangers, said cables after passing over their respective end pulleys, passing over a double pulley 56 and entering the aviator's compartment and being oppositely wound upon a shaft 57 equipped with a handwheel 58.

The casing 1 is provided with side ribs 59 from which depend a plurality of hanger rods 60 the free ends of which are in rigid engagement with the ends of transversely

extending beams 59^a supporting a flooring 60^a provided with side and end rails 61-62, the latter being provided with netting 63. The hanger rods are preferably of metal and are close together and the floor 60^a may be formed of strong but light boards, the whole structure forming a car which may be used for passengers, freight &c. The casing 1 immediately above the aviator's compartment therein is provided with a manhole 64 and closure plate therefor 65, to facilitate entrance to said compartment.

From the foregoing it will be seen that when the shaft 10 is clutched to the sleeve 13 power will be communicated to said shaft to revolve the end propellers, the side propellers being continuously in rotation when the motor is in operation. And it will also be seen that the handwheels for adjusting the lifting propellers; the handwheels for shifting the end propellers for steering the ship, and the handwheels for shifting the balancing weights, as well as the lever for controlling the clutch of the main shaft, are all located within the aviator's compartment so as to be readily operated by the person therein.

What I claim as my invention is:—

In a flying machine, a body portion, a sectional shaft extending through said body, each section being independently rotatable a yoke at the outer end of each of the sections of said shaft, a propeller shaft carried by each of said yokes, a skeleton frame surrounding each of said yokes, driven shafts carried by said frames, means connecting said driven shafts with said propeller shafts, and driving means connected with said driven shafts.

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

IRA ALLEN.

Witnesses:

J. J. BAILEY,
J. W. HARTEN.