

No. 888,301.

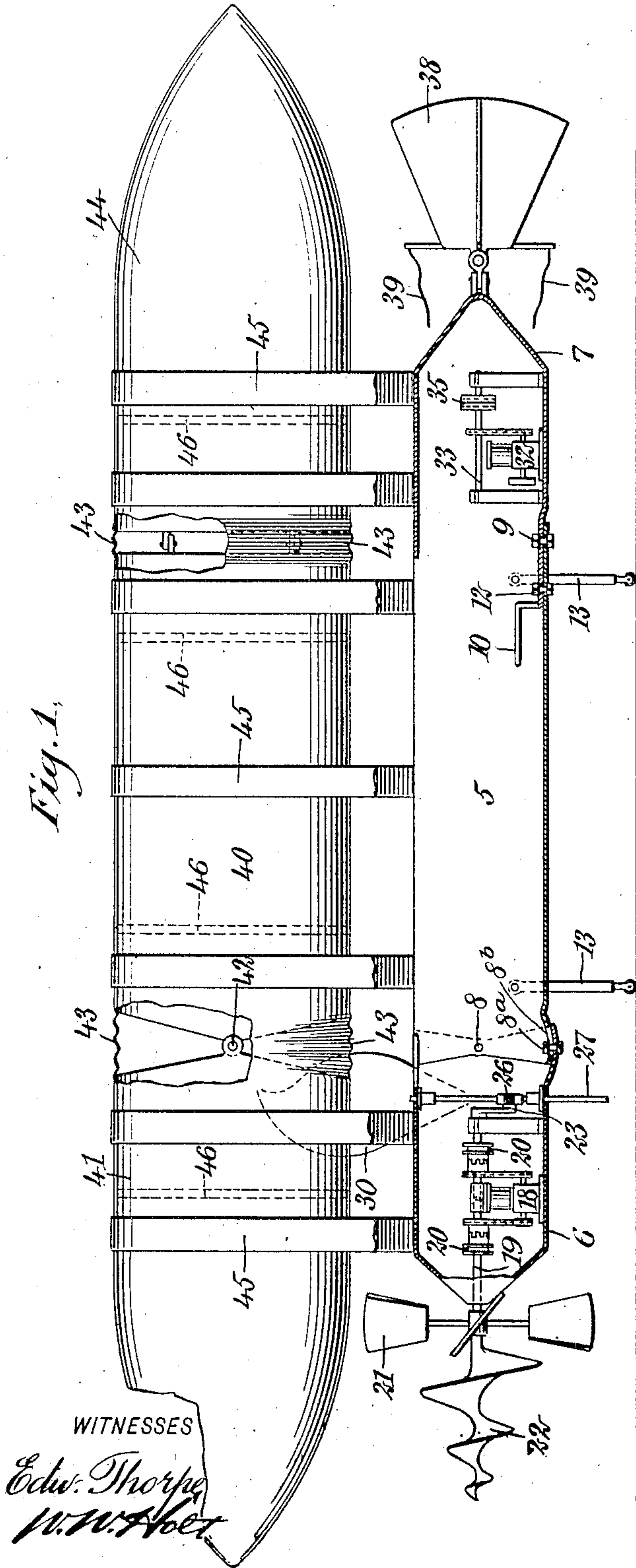
PATENTED MAY 19, 1908.

G. BOLD.
AIR SHIP.

APPLICATION FILED NOV. 7, 1907.

2 SHEETS—SHEET 1.

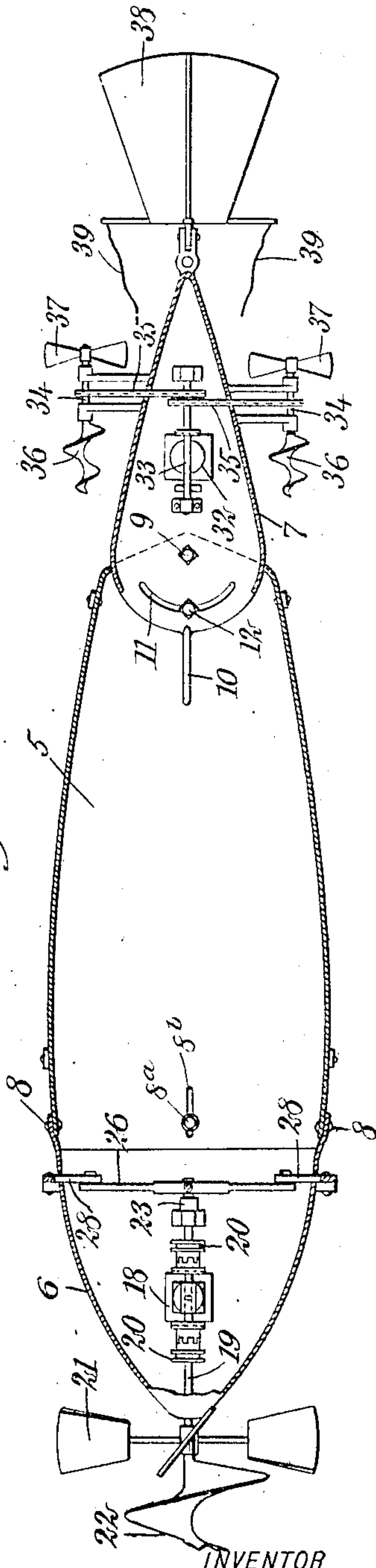
Fig. 1.



WITNESSES

Edw. Thorpe
W. W. Hoet

Fig. 2.



INVENTOR

George Bold

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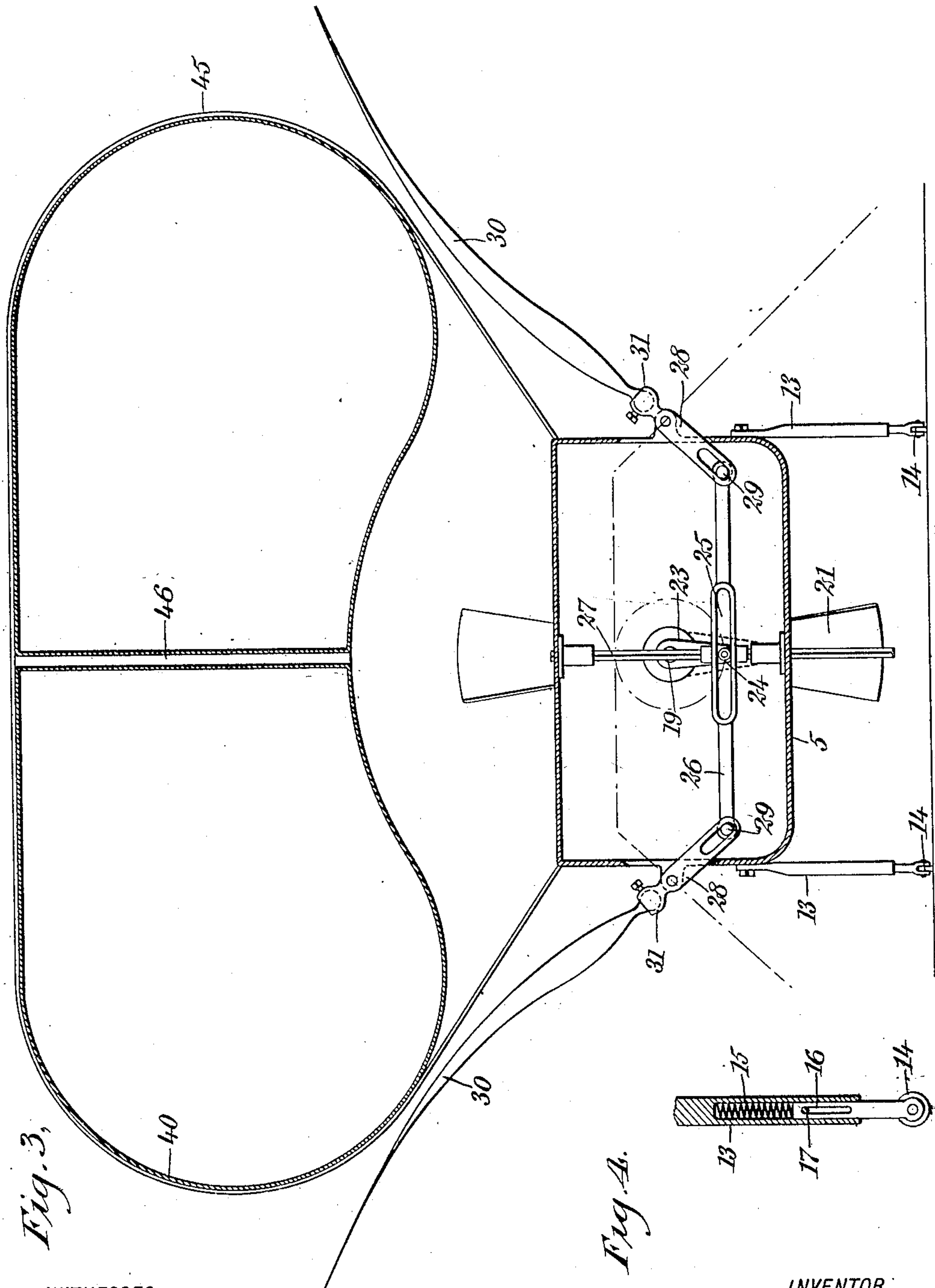
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WITNESSES
Edward Thorpe
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UNITED STATES PATENT OFFICE.

GEORGE BOLD, OF PLAINFIELD, NEW JERSEY.

AIR-SHIP.

No. 888,301.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed November 7, 1907. Serial No. 401,104.

To all whom it may concern:

Be it known that I, GEORGE BOLD, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented a new and Improved Air-Ship, of which the following is a full, clear, and exact description.

This invention has reference to improvements in air ships of the dirigible balloon type, and having for objects, among others, the provision of a ship in which both the car or hull and the gas-bag are composed of a plurality of jointed sections, the adjacent sections of the hull and bag being connected together, forming the ship into a plurality of sectional parts movable in relatively different planes, whereby considerable flexibility is afforded, making it possible to change the direction of flight both horizontally and vertically, with facility.

The invention further contemplates other novel features of construction which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of an air ship embodying my improvements, partly in vertical section; Fig. 2 is a sectional plan of the same; Fig. 3 is a cross-section through the forward portion of the ship; and Fig. 4 is a vertical section through one of the supporting legs of the hull.

The ship embodies in its construction a car or hull 5, which is constructed of suitable material as, for example, thin sheet steel, and is substantially cigar-shaped, as viewed in plan, with the enlarged portion thereof arranged at the front. Both the forward and stern portions 6 and 7 respectively, of the hull, are hinged or pivotally connected to the intermediate portion thereof, forming the hull into a plurality of sections. The forward portion or section 6 telescopes with the intermediate part of the hull, and is pivoted at opposite sides at the points 8, whereby it may be swung in a vertical plane. The telescoping portions of the section 6 and the intermediate part of the hull, it will be observed in Fig. 1, are curved at the bottom of the hull with the center of curvature coinciding with the pivots 8, whereby they will al-

ways be in substantial contact within the limits of relative movement; this movement being limited in each direction by a bolt or pin 8^a passing through a slot 8^b, thus making the bottom of the ship unbroken at all times. The stern section 7 of the hull projects into the intermediate portion thereof and is pivoted thereto by the bolt 9, making it movable in a substantially horizontal plane; and is controlled by any convenient means such, for example, as the off-set handle 10, the same being limited in its swinging movement in each direction by an arc-slot 11, receiving a bolt 12; the said slot being concentric with the pivot 9.

The ship is supported when on the ground by legs 13 arranged at the opposite sides of the hull, each leg being composed of an upper and lower telescoping member, as shown in detail in Fig. 4, with the upper member rigidly connected to the intermediate section of the hull, and the lower member carrying a roller 14 at its lower end. A spring 15 is interposed between the two members of each leg, and the lower member is provided with a longitudinally-arranged slot 16, through which passes a pin 17 serving to limit the movement of the lower member of the leg in each direction. This construction of the legs operates to break the force of the ship in landing, and serves to assist the ship in taking flight.

In the forward section 6 of the hull, a motor 18 is carried, which drives a longitudinal shaft 19 controlled in any well known manner at the opposite sides of the motor by clutches 20. The shaft 19 passes through the forward end of the hull where it carries a bladed propeller 21, and is rigid with an auger propeller 22 arranged at the front and extending forward thereof. That portion of the shaft 19 at the opposite side of the motor carries a crank-arm 23 having a roller 24 at its outer end engaging in a slot 25 formed centrally in a cross-beam 26 which is guided in a vertical plane by guide-rods 27 slidable in bearings at the bottom and top of the hull. The sides of the hull directly opposite the cross-beam 26 are slotted and pivotally support arms 28 having slotted inner ends engaging with projections or rollers 29 carried by the beam 26. The opposite and outer ends of the arms 28 are connected to wings 30, the connection be-

tween these wings and the said arms being preferably effected by universal joints 31, whereby the wings may be adjusted in any desired direction. When circumstances are favorable, the motor 18, may be stopped and the propeller 21 used as a wind-wheel for driving the wings.

The stern section 7 of the hull carries a motor 32, driving a horizontally-arranged shaft 33 which in turn drives shafts 34 through the intermediate chains 35. The shafts 34 are journaled in arms rigid with and laterally projecting from the outside of the section 7, each carrying a forward auger propeller 36 and a rear bladed propeller 37.

At the extremity of the section 7 of the hull, a rudder 38 composed of cross-blades, is pivotally supported in two directions, such that it may be swung in either a horizontal or vertical plane, and is controlled by cables 39 passing to any convenient point of the ship.

By the construction and arrangement of the hull and the motive mechanism carried thereon, it will be seen that considerable flexibility is afforded, enabling the direction of the ship to be readily changed, both horizontally and vertically, this being true from the fact that the maneuvering of the ship is not wholly dependent on the rudder 38, but is influenced to a great extent by the manipulation of the hull sections.

Above the hull 5 is a gas-bag 40, extending the full length thereof and likewise composed of a plurality of movable sections or independent gas-bags, the forward section 41 being pivoted at opposite sides to the intermediate section at 42, adapting it to move in a vertical plane, this movement of the sections being made possible by constructing them of a stiff sheet material, which is cut out in V-form at the opposite sides of their pivotal connection and covering the cut-out portions thereof with a foldable fabric 43.

The stern section 44 of the gas-bag is pivoted to the intermediate section thereof to swing in a horizontal plane, as in the case of the stern section of the hull, and all of said sections are each connected to the adjacent section of the hull by surrounding bands of relative wide and flat form, which enforce them to move as a unit.

As will be observed in Fig. 3, the gas-bag 40 is of flattened form, having the under face thereof convex in a longitudinal direction, whereby it will operate to collect the air in descent, and thus break the fall of the ship. The air is permitted to escape through the balloon when the ship is descending through central openings 46 in order that the ship may be maintained in an upright position.

The invention as shown and described while being the preferred construction and arrangement of my improved ship, may

nevertheless be modified in particulars within the scope of the claims annexed.

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

1. An air ship, including a hull and a gas-bag composed of a plurality of sections movable in relatively different planes.

2. An air ship, including a hull and a gas-bag and composed of a plurality of sections, one of said sections being movable in a substantially vertical plane, and the other of said sections being movable in a substantially horizontal plane.

3. In an air ship, a hull composed of a plurality of sections pivoted together and relatively movable in different planes.

4. In an air ship, a gas-bag composed of a plurality of sections pivoted together and relatively movable in different planes.

5. In an air ship, a hull having a pivoted forward section movable in a vertical plane, and a pivoted rear section movable in a horizontal plane, a gas-bag having a pivoted forward and a pivoted rear section correspondingly movable, and means connecting the adjacent sections of the gas-bag and hull together.

6. In an air ship, a gas-bag composed of a plurality of sections pivoted together and having V-shaped cut-out portions at the opposite sides of their pivotal connections, and a foldable fabric covering said cut-out portions.

7. In an air ship, a gas-bag having a forward section movable in a vertical plane, and a rear section movable in a horizontal plane.

8. In an air ship, a hull having a forward section pivotally connected to and overlapping the adjacent portion of the hull and movable in a vertical plane, and a rear section projecting within and pivoted to the adjacent portion of the hull and movable in a horizontal plane.

9. An air ship, having a hull cigar-shaped in horizontal section, with the small end thereof arranged at the rear of the ship, with its walls substantially continuous with those of the adjacent portion of the hull; and having a pivotal connection therewith.

10. In an air ship, a hull having a pivoted stern section projecting thereinto, a motor carried by said section, and propellers driven by the motor, journaled in bearings rigid with said section.

11. In an air ship, a hull having a stern section projecting thereinto and pivotally connected therewith to swing in a horizontal plane, said section having an arc-shaped slot concentric with its pivotal connection, and a bolt passing through said slot for limiting the movement of the section in each direction.

12. In an air ship, a hull having a forward

pivotal section movable in a vertical plane, a
motor carried by said section, a propeller ar-
ranged at the forward end of said section,
wings carried by said section at the opposite
5 sides thereof and at the rear of the propeller,
and means for driving the propeller and wings
from said motor.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

GEORGE BOLD.

Witnesses:

W. W. HOLT,

J. P. DAVIS.