V. BREUER.

AEROPLANE.

APPLICATION FILED JAN. 16, 1912.

1,026,490.

Patented May 14, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

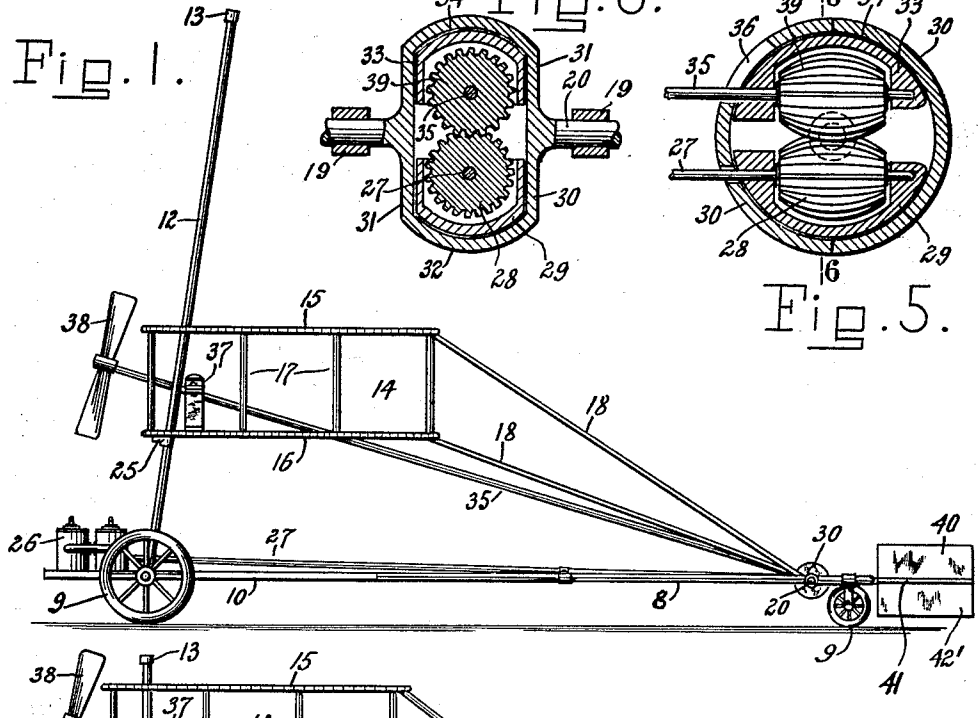

Fig. 6.

Fig. 5.

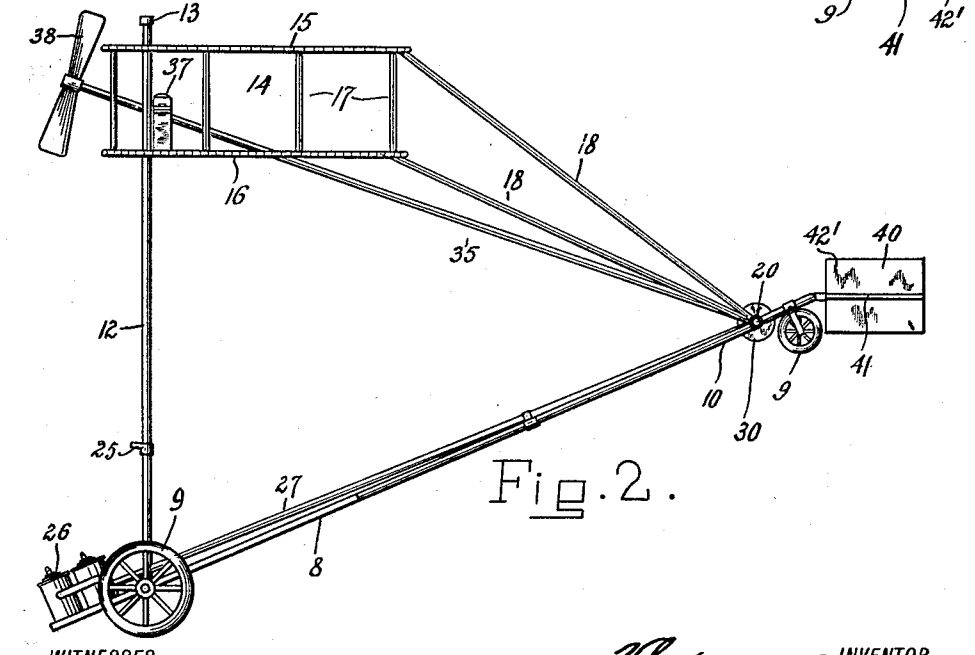

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

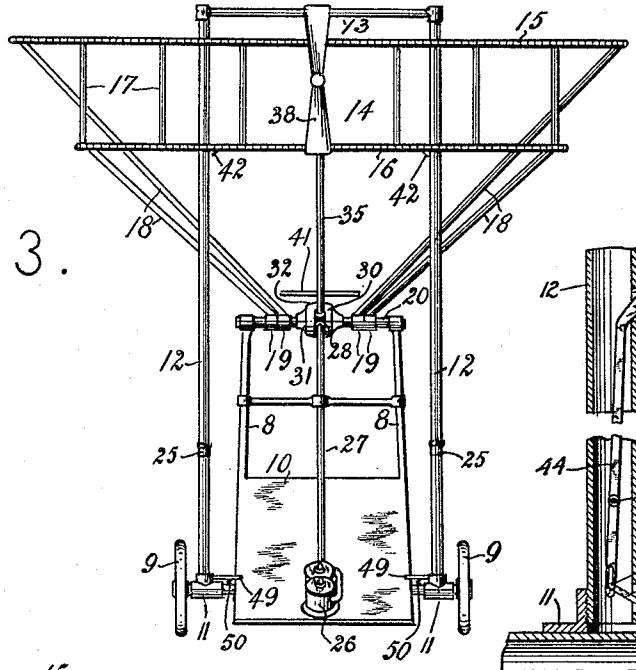
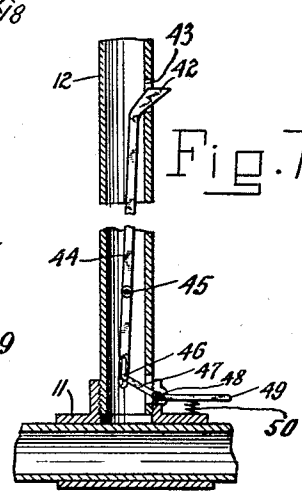


Fig. 7.



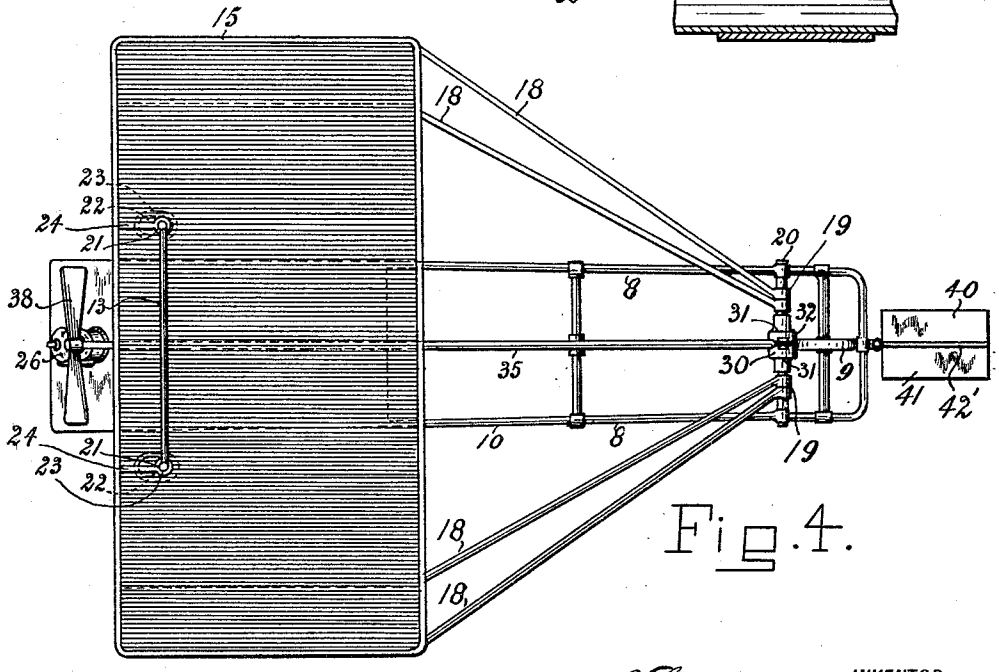


Fig. 4.

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UNITED STATES PATENT OFFICE.

VLADIMIR BREUER, OF NEW YORK, N. Y.

AEROPLANE.

1,026,490. Specification of Letters Patent. Patented May 14, 1912.

Application filed January 16, 1912. Serial No. 671,514.

To all whom it may concern:

Be it known that I, VLADIMIR BREUER, a subject of the Emperor of Austria-Hungary, and resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

The present invention relates to airships, and more particularly to those of the aeroplane type.

One of the objects of the invention is to produce an aeroplane having efficient balancing means to maintain its equilibrium.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claim and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and minor details of construction within the scope of the appended claim without departing from the spirit or sacrificing any of the advantages of the invention.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the improved aeroplane with the parts in their relative positions when upon the ground; Fig. 2 is a similar view with the parts in position when the vessel is floating in the air; Fig. 3 is a front elevation of the device as shown in Fig. 2; Fig. 4 is a plan view thereof; Fig. 5 is a horizontal sectional view of the power transmitting apparatus of the vessel; Fig. 6 is a section taken on line 6—6 of Fig. 5; and Fig. 7 is a vertical sectional view of a detail of construction.

The herein described embodiment of the aerial vessel comprises a main frame 8, made of any suitable rigid and light material, and mounted upon a plurality of wheels 9, 9, facilitating the transportation of the apparatus and aiding the ascent of the same. This main frame comprises a base 10, to the front portion of which are pivotally secured at 11, 11 uprights 12, 12 of considerable height, which uprights are connected at their upper ends by a transverse bar 13.

The poiser or glider frame of the vessel comprises a box-frame 14, consisting of two parallel aeroplane frames 15 and 16, having suitable coverings of silk or other material. These two frames are connected by vertical bars 17, 17 to form a rigid structure. The box-frame is fixedly attached to a plurality of rods 18, 18, which are in a similar manner fastened to collars 19, 19, the latter being oscillatably mounted upon the rear transverse rod 20 of the main frame. The upper aeroplane 15 is provided with two holes 21, 21, and the lower aeroplane 16 is provided with slots 22, 22. Around the holes 21 and the slots 22 are formed metallic rings 23, 23, which are connected with the frames 15 and 16, respectively, by braces 24, 24. The holes 21 and slots 22 are in sliding engagement with the uprights 12, 12.

Normally, when the vessel rests upon the ground, the uprights 12, 12 are arranged in inclined positions, and the box-frame supported in its lower position by stops 25, 25 upon said uprights. Upon the base 10 of the main frame is mounted a suitable source of power for actuating the propelling means of the vessel, said source of power comprising in the present case an internal combustion engine 26, which has a plurality of cylinders, the number of which may be varied according to the requirements. In rear of the motor may be arranged the operator's seat (not shown in the drawings). The crankshaft of this motor actuates a driving shaft 27, extending toward the rear of the main frame, and having mounted upon its rear end a substantially ellipsoid shaped gear 28. The rear end of the shaft 27 is rotatably mounted in a block 29, which is arranged, together with the gear 28, in a gear-box 30, the latter being fixedly attached to or made integral with the transverse rod 20 of the main frame. This gear-box comprises sides 31, 31 and a mantle-portion 32, which forms part of a spherical body. In the gear-box is furthermore shiftably arranged a block 33, having a surface 34 conforming in shape to the spherical portion of the gear-box. In the block 33 is rotatably mounted one end of the propeller shaft 35, which projects through a slot 36 in the gear-box and extends toward the box-frame 14, where it is journaled in a bearing 37, which is carried by the lower aeroplane 16. The propeller shaft 35 extends beyond the bearing 37, and has keyed or otherwise attached thereto in front of the aeroplanes a propeller 38 of the required size and pitch,

and acting in a manner well known in the art. A gear 39, similar in configuration to the gear 28 above described, is mounted upon the propeller shaft 35 within the gear box, and meshes with the gear 28.

To the rear of the main frame 8 is pivotally mounted a tail 40. This tail is formed of a horizontal plane 41 and a vertical plane 42′, which serve as steering means of the vessel and are actuated in a well known manner. The means for operating said tail have not been shown in the drawings.

As has been mentioned hereinbefore, the aeroplane frames are, when the vessel is resting upon the ground, in the positions shown in Fig. 1 of the drawings. When floating in the air, the aeroplanes will be brought into the positions shown in Fig. 2 of the drawings for the reason and in a manner hereinafter to be described. In order to hold the aeroplanes in their upper positions, stops 42, 42 are provided, upon which the lower aeroplane frame 16 will rest. These stops are carried by the uprights 12, 12, and, as the construction of both is the same, only one of the same will be described herein. As shown in Fig. 7, a stop 42 projects through a slot 43 in the upright 12, and is attached to a rod 44, which is pivoted at 45 to the upright. This rod extends toward and to the base of the frame, and is pivoted at its lower end at 46 to a bellcrank lever 47, which is fulcrumed at 48 to lugs carried by the upright 12. The arm 49 of the bellcrank lever is made in the form of a treadle, and kept normally in its upper position by a spring 50. When this treadle is in its upper position, the stop 42 projects through the slot 43 in the upright 12, constituting thereby means upon which the lower aeroplane 16 is adapted to rest.

The operation of the device is as follows: When the vessel rests on its wheels upon the ground, the box-frame 14 occupies its lowermost position, in which case the lower aeroplane frame 16 rests upon stops 25, 25. In starting the glide of the vessel, the motor is put in operation, which gives the desired speed to the screw propeller. The operation of the propeller causes the box-frame 14 to rise to the position shown in Figs. 2 to 4, inclusive, of the drawings and causes the machine to be floated. It will be observed that, as the aeroplane moves upward, the rings 23, 23 will force the stops 42, 42 into the uprights 12, 12. As soon as, however, the rings 23, 23 of the lower aeroplane 16 slide over the stops 42, 42, the springs 50, 50 will cause said stops to project through the slots 43, 43 in the uprights 12, 12, and will then serve as resting surfaces for the rings 23, 23 of the lower aeroplane frame 16, and keep thereby the box-frame in its uppermost position. As the vessel starts its glide, the base 10 of the main frame is brought into an inclined position and the uprights 12, 12 into a substantially vertical position. The center of gravity is thus considerably lowered, increasing thereby the stability of the vessel. It will be observed that the center of gravity of the vessel is arranged near the running wheels and the motor of the machine, whereby the front portion of the main frame of the vessel with the parts arranged thereon will act as a pendulum, and thus as a balancing means to maintain the equilibrium of the vessel. It will be observed that there is always a driving connection maintained between the crankshaft of the motor and the propeller of the vessel. As the glide of the vessel is started and the box-frame 14 rises, the propeller shaft 35 will shift the gear 39 in the gear-box 30, the two gears in said gear-box will, however, always be kept in engagement with each other owing to the peculiar shape of the same. It is to be noted that, while herein a particular type of power transmitting apparatus between the motor and the propeller shaft has been described, any other suitable means could just as well be employed. When the vessel is brought to the ground, the operator depresses the treadles 49, 49, whereby the stops 42, 42 are forced into the uprights 12, 12, which will permit the box-frame 14 to descend to its normal position, shown in Fig. 1 of the drawings. Of course, the stops 42 can be withdrawn automatically also, that is to say the treadles 49, 49 may be actuated automatically by any suitable mechanism when the vessel reaches the ground.

What I claim is:—

The combination with a main frame, of uprights pivotally attached to the front portion thereof, a poiser frame slidably arranged upon said uprights and pivotally attached to the rear portion of said main frame, a motor upon said main frame, a propeller mounted upon said poiser frame, a driving connection between said motor and said propeller, and means for arresting the sliding movement of said poiser frame upon said uprights when in its uppermost position.

Signed at New York, in the county of New York and State of New York, this 29th day of November, A. D. 1911.

VLADIMIR BREUER.

Witnesses:
M. FRIEDLANDER,
SIGMUND HERZOG.