W. B. CLEMENTS.

FLYING MACHINE.

APPLICATION FILED APR. 26, 1910.

1,035,858.

Patented Aug. 20, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

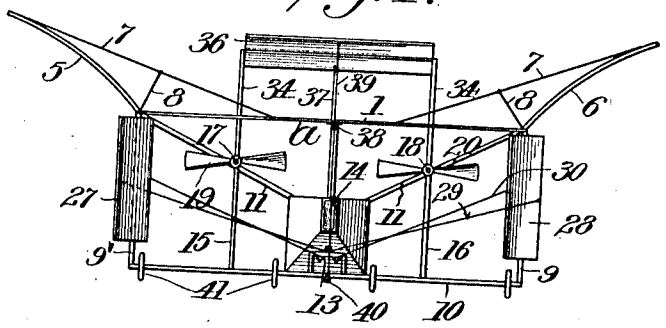
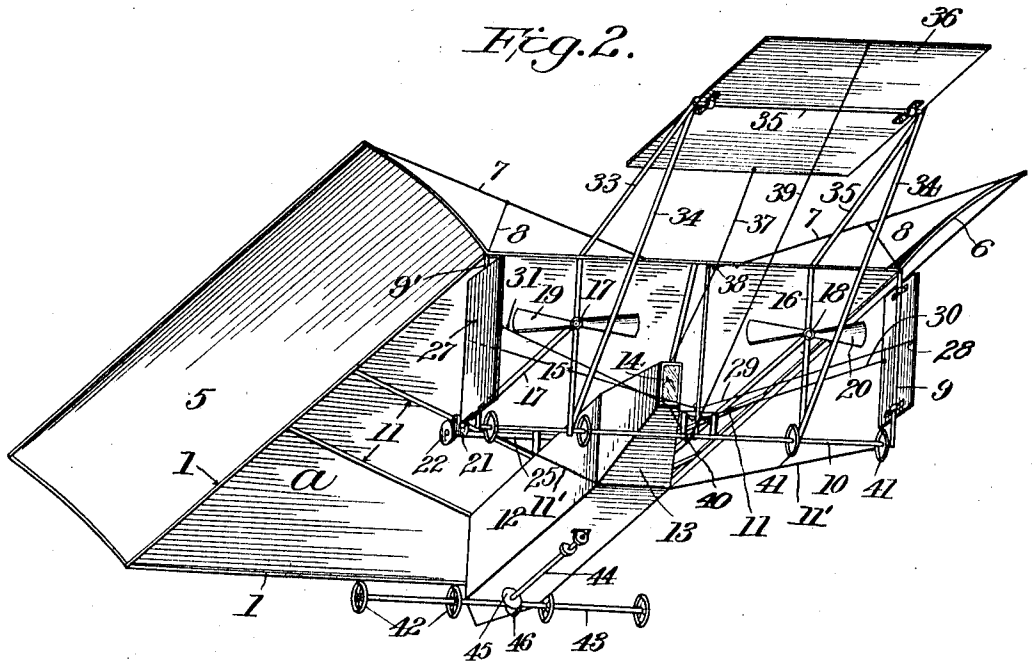


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

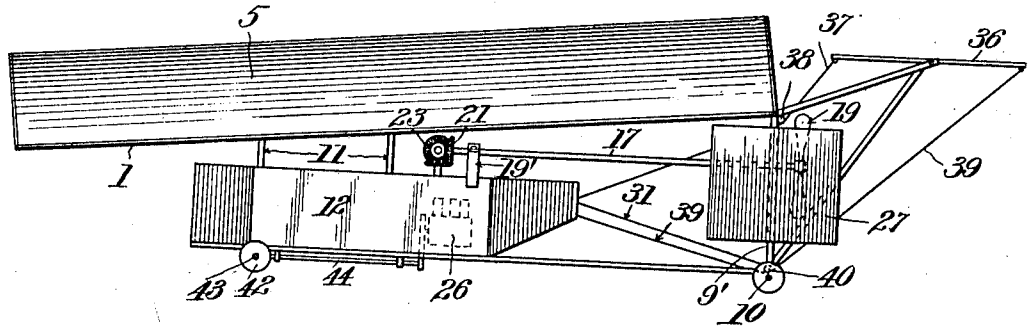
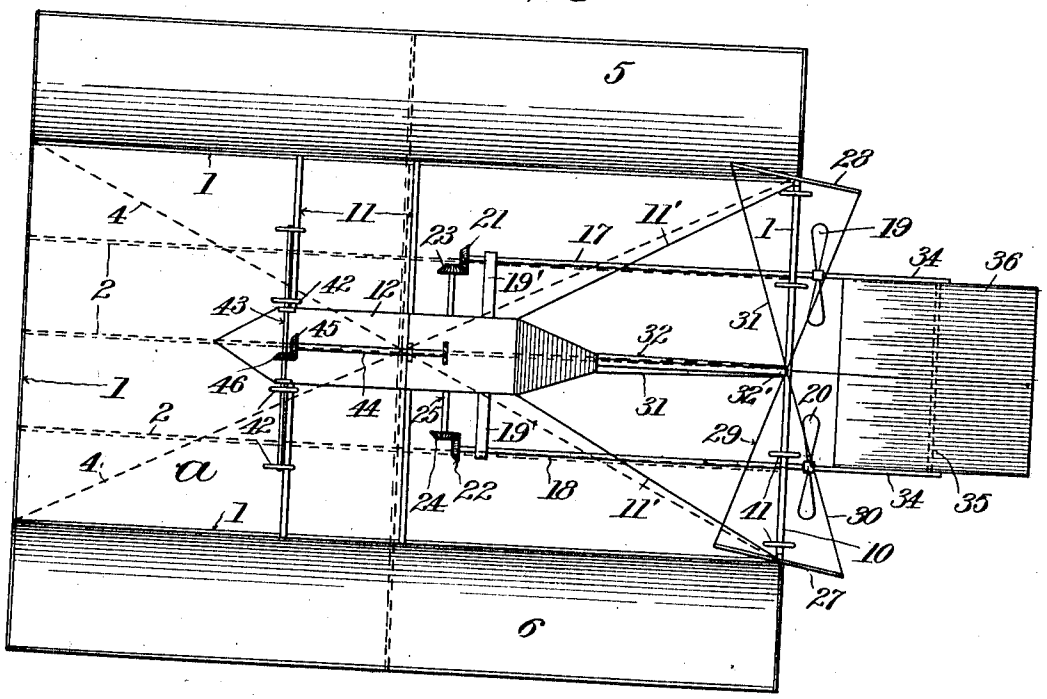


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FLYING-MACHINE.

1,035,858. Specification of Letters Patent. Patented Aug. 20, 1912.

Application filed April 26, 1910. Serial No. 557,822.

To all whom it may concern:

Be it known that I, WILLARD B. CLEMENTS, a citizen of the United States, residing at Veedum, in the county of Wood and State of Wisconsin, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification.

This invention relates to flying machines. One object of the invention is to provide a flying machine embodying such characteristics that it may automatically right itself in the event of a tendency to tilt to one side.

Another object of the invention resides in the provision of a flying machine embodying such a construction and arrangement of parts that the lifting power of the machine is considerable and is maintained automatically.

A still further object is to provide a flying machine capable of starting by its own power and maintaining great speed without danger of undue tilting, the car being arranged in the center of the machine so that if either end of the machine is raised, the center of gravity will change toward that end, and thus automatically bring the machine back to its normal position.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a front view of the machine. Fig. 2 is a perspective view looking toward the bottom of the machine. Fig. 3 is a side elevation. Fig. 4 is a bottom plan view.

Referring now more particularly to the accompanying drawings, the reference character 1 indicates a rectangular shaped frame composed preferably of tubular members braced by the plurality of tubular braces 2, which are crossed by another tubular brace 3, there being wire cables 4 crossing each other and secured to opposite sides of the frame 1, as clearly shown. The connections between the cross bars 3 and 4 and the frame 1 are reinforced. The frame 1 is secured to the main plane *a* for proper lifting of the machine. The main plane *a* is comparatively broad and flat and secured to the sides of the rectangular shaped frame 1 to which the sides of the main plane are secured, are wings 5 and 6. These wings are preferably curved transversely and are braced at the ends of the frame 1 by means of braces 7 and 8, these wings 5 and 6 extending upwardly throughout the length of the frame 1, to aid in lifting and to prevent undue tilting.

Secured to the front of the frame 1 and depending therefrom and reinforced in their connection therewith are the side bars 9′ and 9 of a front frame, which bars are connected at their lower ends by a bar 10 having reinforced connection with the side bars 9′ and 9.

Suspended from the frame 1 of the plane *a* by means of the inclined braces 11 is the car 12, both ends of which are preferably pointed, the bottom at the forward end, as at 13, being inclined upwardly, as shown, there being a window 14 in the front of the car through which the pilot may look in the operation of the machine. The car is further supported by the braces 11′ diverging forwardly and connected to the frame.

The characters 15 and 16 indicate tubular braces having connection with the main frame 1 and the part 10 of the second mentioned frame, the connections between the first and second mentioned frames of these bars 5 and 6 being reinforced. These brace rods 15 and 16 have bearings adapted to support the outer ends of the propeller shafts 17 and 18, respectively, which latter are also journaled in the support 19′ carried by the car 12, there being propellers 19 and 20 mounted upon the propeller rods 17 and 18, respectively, and operable thereon upon opposite sides of the window 14 of the car and in such relation to the latter as not to interfere with the view of the operator from the car. These rods 17 and 18 have beveled gears 21 and 22 secured to their inner ends and in mesh with the beveled gears 23 and 24 carried by the shaft 25 of the engine 26 carried by the car 12 preferably in the rear of the pilot house of the car, so that upon operation of the engine, the propellers are operated to throw wind against the main plane *a* to effect proper lifting of and maintaining said machine in the air.

Swingingly mounted upon the side bars 8 and 9 are the rudders 27 and 28, respec-

tively, which are connected together by any suitable flexible connection 29 and which also have cables 30 and 31, respectively, leading over a sheave 32 back to the pilot house of the car for manipulation, as will be understood.

Extending forwardly from the frame 1 is a pair of braces 33 and extending forwardly from the bar 10 of the second frame is a pair of braces 34, which pairs of braces are connected together at their upper ends and adapted to receive the pintle 35 of the horizontal rudder 36, which latter is controlled from the pilot house by means of a cable 37 leading from one edge of the rudder over a sheave 38, and back to the pilot house, and by a cable 39 leading from the opposite side of the rudder over a pulley 40 and back to the pilot house.

Mounted upon the part 10 of the second mentioned frame is a plurality of ground engaging wheels 41 adapted to cooperate with the ground engaging wheels 42, carried on the axle 43 secured to the car 12, to permit the machine to be transported over ground, and also to provide means for moving the machine in the starting operation, the machine being started by first setting the engine 26 in operation, which causes the shaft 44 to rotate and by virtue of the beveled gear 45 of the shaft 44 meshing with the gear 46 on the axle 42, the machine is driven over the ground until the operation of the propellers 19 and 20 create such wind power as to act upon the main plane *a* and insure lifting of the machine into the air.

What I claim is:—

1. In a flying machine, a rectangular shaped frame, a flat plane secured to the frame, the plane including upwardly and outwardly, slightly curved wings extending throughout the length of the plane and frame, a second frame depending from the aforesaid frame at the front end of the latter, a pair of brackets secured to said frames and projecting forwardly thereof, a horizontally operable rudder mounted between and supported by said pair of brackets, a vertically operating rudder secured to each end of the second mentioned frame, propellers journaled in said second frame, a car suspended from the first mentioned frame, and means for operating said rudders.

2. In a flying machine, a rectangular shaped frame, a flat plane secured to said frame and at its sides provided with upwardly and outwardly curved wings which extend throughout the length of the plane and frame and which balance and prevent rolling of the machine, a car suspended from the frame, a second frame at the forward end of the first mentioned frame and of a length substantially equal to the width of the first frame, propellers journaled in the second mentioned frame, a horizontally operating rudder mounted in advance of the second mentioned frame with its axis slightly above the first mentioned frame, vertically operating rudders secured to the second mentioned frame, and means for operating the rudders.

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

WILLARD B. CLEMENTS.

Witnesses:
Mrs. Thos. J. Crowley,
T. J. Crowley.