

1,003,885.

Fig. 3.

Fig. 3.

[illegible]

Fig. 2.

Witnesses
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Fig. 1.

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UNITED STATES PATENT OFFICE.

JOHN JACOB DAY, OF MONTREAL, QUEBEC, CANADA.

FLYING-MACHINE.

1,003,885.

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To all whom it may concern:

Be it known that I, JOHN JACOB DAY, a subject of the King of Great Britain, and resident of 112 Agnes street, in the city and district of Montreal, in the Province of Quebec, in the Dominion of Canada, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification.

10 The invention relates to improvements in flying machines, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

15 The invention consists essentially in the novel construction and arrangement of parts, whereby the ship is lifted and floated by parallelly arranged planes and wings in conjunction with revolving mechanism and driven propellers, suitably arranged in the mechanism supported between said planes.

20 The objects of the invention are to devise a flying machine of the heavier than air type which shall be simple to elevate and stable in its floating properties, to provide a ship capable of poising, and generally to furnish a structure comparatively inexpensive to manufacture and simple in its operation.

30 In the drawings, Figure 1 is a perspective view of the machine showing the various parts diagrammatically. Fig. 2 is a perspective detail of a preferable form of power transmission from a motor. Fig. 3 is an elevation of the lifting and poising vanes and their operating connections.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 and 2 are the forward parallel planes spaced by the up-
40 rights 3.

4 and 5 are the rearward parallel planes spaced by the uprights 6.

7 and 8 are bars at their front ends supporting the planes 1 and 2 and at their rear ends supporting the planes 4 and 5, arranged in pairs.

9 is a motor supported by the frame 10, said frame being supported by the bars 7
50 and 8.

11 is the main shaft of the motor 9 ex-

tending upwardly therefrom, said shaft carrying at its upper end the elevating vanes 12, the latter being fixedly mounted on the said shaft and rotating therewith. 55

13 is a revolving sleeve mounted on the shaft 11 and carrying the elevating vanes 14, the latter being fixedly mounted on said sleeve.

15 is a bevel gear wheel fixedly mounted on the main shaft 11 below the sleeve 13. 60

16 is a bevel gear mounted on the sleeve 11 fixedly secured thereto.

17 is a pinion operatively connecting the bevel gears 15 and 16. 65

It will be thus seen that on the rotation of the shaft 11, the vanes 12 will revolve with said shaft in one direction, while the vanes 14 carried by the sleeve 13 will revolve in the opposite direction as the bevel gear 15 rotates with the main shaft 11, and the bevel gear 16 rotates the sleeve 13. 70

The lifting vanes 12 and 14 are arranged centrally in the frame 10 between the parallel planes 1 and 2 and 4 and 5. 75

18 are vertical shafts suitably journaled at the corners of the frame 10 and carrying at their lower ends the bevel gears 19 and at their upper ends the lifting vanes 20.

21 are sleeves loosely encircling the shafts 18 and carrying at their lower ends the bevel gears 22 and at their upper ends the lifting vanes 23.

24 are bevel pinions operatively connecting the bevel gears 19 and 22. 85

It will be thus seen that on the operation of the pinions 24, the bevel gears 19 will be rotated and consequently the shafts 18 and the sleeves 21, thereby causing the shafts 18 to revolve in one direction and the sleeves 21 to revolve in the other, insuring the rotation of the vanes 20 and 23 in opposite directions respectively. 90

25 is a motor operating the bevel gear 26 and suitably supported in the frame 10, preferably below the motor 9.

27 are pinions coacting with the bevel gear 26.

28 are shafts carrying the pinions 24 at one end and the pinions 27 at the other end and suitably supported and journaled in the frame 10, the said pinions 24 and 27 and 100

the shafts 28 forming the means of transmission of the power from the motor 25 to the shafts 18 and sleeves 21.

29 is a motor suitably supported by the frame 10 preferably below the motor 25 and operating the gear wheel 30.

31 is a shaft suitably supported and journaled in the frame 10 and carrying, intermediate of its length, the pinion 32 coacting with the gear wheel 30 and at each end thereof the sprocket wheels 33 and 34.

35 are shafts journaled in the bearings 36 supported on the frame 10 adjacent to each corner of said frame and carrying at their inner ends the sprocket wheels 37 and at their outer ends the blades 38, the latter forming the propellers of the machine.

39 are chains connecting the sprockets 33 and 34 to the sprockets 37, consequently connecting up the motor 29 to the propellers 38.

40 are small wings forming elevators and stabilizers and journaled in the brackets 41 supported from the end ones of the uprights 3 and 6. The front and rear wings 40 on each side are pivotally connected by the rods 42, said rods being suitably operated, the operating mechanism not being shown herein. The said small wings 40 form minor planes and raise or depress the head and tail of the machine as desired.

43 is the rudder of the machine having suitable connections secured thereto for operating purposes.

In the operation of this machine, the frame 10 is carried, as customary in flying machines, upon a truck or wheels or some form of support and the motor 9 is set in motion, with the result that the tendency of the machine is to rise. The motor 25 is then set in motion, which operates the corner vanes. All the lifting vanes, viz.,—the vanes 12 and 14, the vanes 20 and 23 are now rapidly revolving thereby giving a great impetus to the machine in its rising. The machine may now be run along like other machines, or if only necessary, set the propellers going by operating the motor 29, in any case, the small wings or minor planes 40 are set in position for the raising of the head planes 1 and 2 in the forward movement of the machine, consequently in a very short time, a great elevation may be reached, for the operation of the said minor elevating planes and the lifting vanes is coincident.

The planes 1 and 2 and 4 and 5, of course, may be arranged in an adjustable manner so as to be set in different positions, but that is not shown here, as it is obvious. It is in the arrangement of the lifting and propeller mechanisms and the arrangement of the head and tail parallel planes and minor

planes, that the chief features of the invention consist.

What I claim as my invention is:

1. In a device of the class described, in combination, a frame, a motor centrally supported within said frame having its shaft extend vertically, a plurality of lifting vanes extending from said shaft, a bevel gear fixedly mounted on said shaft, a sleeve loosely mounted on said shaft, a plurality of lifting vanes extending from said sleeve, a bevel gear fixedly mounted on the lower end of said sleeve, a pinion suitably supported and operatively connecting said bevel gears, a second motor, a plurality of vertical shafts journaled at the corners of said frame, a plurality of lifting vanes extending from said corner vertical shafts, a plurality of sleeves loosely mounted on said corner shafts, a plurality of lifting vanes extending from said corner sleeves, bevel gears fixedly mounted at the lower end of said corner shafts, bevel gears fixedly mounted at the lower end of said corner sleeves, a pinion operatively connecting said corner bevel gears, means for transmitting power to said corner pinions from said second motor, propelling mechanism, and planes supported from said frame.

2. In a device of the class described, in combination, a frame, a motor centrally supported from said frame, having its shaft extending vertically, lifting vanes extending from said shaft at the upper end thereof, a sleeve loosely mounted on said shaft, lifting vanes extending from said sleeve, means operatively connecting said shaft and sleeve, a second motor, a plurality of vertical shafts arranged at the corners of the frame, a plurality of sleeves loosely mounted on said corner shafts, means operatively connecting said shafts and sleeves, lifting vanes at the top end of said corner shafts and said sleeves respectively, a centrally arranged motor, transmission shafts extending from said second motor to said corner shafts and sleeves, propelling mechanism, and planes supported from said frame.

3. In a flying machine, in combination, a plurality of front supporting planes, a plurality of rear supporting planes, a rectangular skeleton box-like frame rigidly and centrally supported between said front and rear planes, vertical shafts journaled at each corner of said frame and a vertical shaft journaled centrally of said frame, lifting vanes on the upper ends of all of said shafts, a motor centrally supported within the frame for driving said corner shafts simultaneously, a motor for driving said central shaft, a plurality of horizontally supported propellers at the front of said frame, a plurality of horizontally supported propellers

at the rear of said frame, a motor centrally supported within the frame for driving all of said horizontally supported propellers simultaneously, and suitable elevators and
5 stabilizers.

Signed in the city and district of Montreal, in the Province of Quebec, in the Do-

minion of Canada, this fourth day of October, 1910.

JOHN JACOB DAY.

Witnesses:

G. H. YUSIDDER,

P. SHEE.